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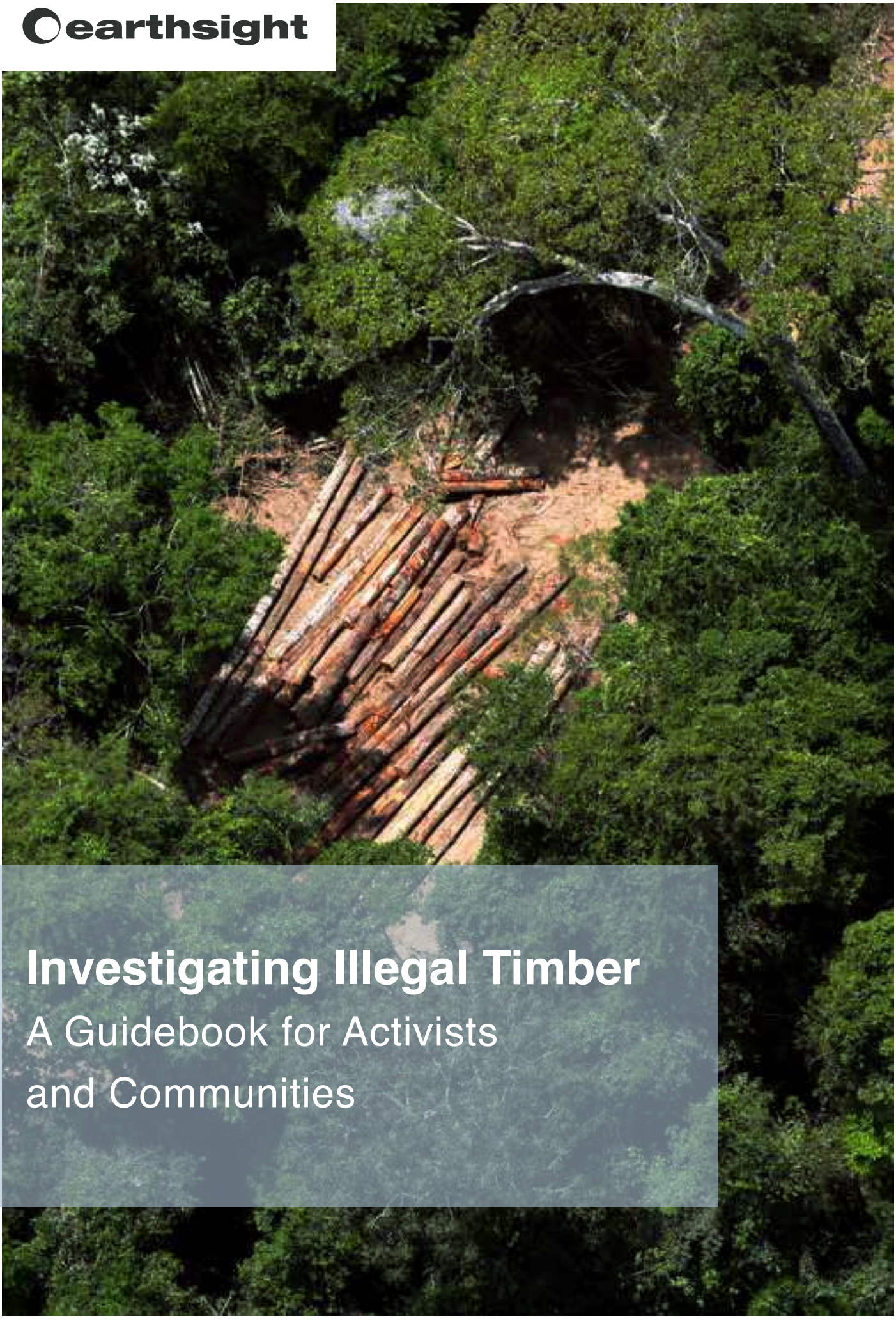

Investigating Illegal Timber

A Guidebook for Activists and Communities

Contents

Acknowledgements

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Introduction

Rampant illegal logging is having devastating effects on wildlife, people and the global climate. Governments of countries affected by illegal logging and related trade are losing billions of dollars of revenues, while indigenous and local communities dependent on forests are losing their land and their livelihoods. Illegal logging undermines the rule of law, promotes corruption and in some cases even contributes to armed conflict.

Much of the wood and wood products produced illegally, from the Amazon to Southeast Asia, are ultimately sold in lucrative markets in Europe and the USA. In response to this crisis, and to address their complicity in it, both the European Union (EU) and US governments have enacted legislation that prohibits illegal timber from being sold. While they have had some impact, so far these laws have failed to stem the majority of illegally sourced wood imports from reaching the market. It is estimated that the US continues to import illegally sourced wood worth nearly $3 billion each year[1], while a recent official review of the relevant law in the EU found that implementation to-date had been weak.[2]

One reason these laws have yet to be fully effective is that, in spite of a wealth of information about illegal logging in countries that are exporting timber, insufficient evidence is finding its way to the agencies tasked with enforcing these laws in Europe and the US. This guidebook is intended to help close that information gap.

The guidebook is intended to help civil society identify illegal wood, track illegal timber to EU and US markets, and submit evidence to relevant authorities. Drawing on case studies from around the world, the guidebook summarises the state-of-the-art tools, methods and technologies for carrying out independent investigations into the legality of logging, trading, export and for tracking illegally sourced wood through complex supply chains to end markets.

The guidebook seeks to help individuals and groups already involved in relevant research, but it also aims to inspire and empower others to join them. By helping more people to expose cases of illegal logging and associated trade, the aim of the guidebook is to improve implementation of relevant laws and, in turn, to reduce illegal logging and the devastating harm it does to people and the environment.

Forest clearance in Sarawak, Malaysia ©Earthsight

Who is the guidebook for?

This guidebook is principally intended to be used by civil society, including non-governmental organisations (NGOs), local community and youth groups, and individual activists. It should also be of interest to investigative journalists. You might be an indigenous community wanting to find out who is logging your land and whether what they are doing is legal. You may be a local NGO or individual activist wanting to examine the legality of the clearance of a forest for a palm oil plantation, and track where the resulting wood is going. You could be an investigative journalist in an EU country looking for a story about illegal wood being used in garden furniture.

"Much of the wood and wood products produced illegally, from the Amazon to Southeast Asia, are ultimately sold in lucrative markets in Europe and the USA"

The information in the guidebook is relevant to every country where illegalities occur in the cutting or clearance of forests and the related trade in timber, and to all countries that import wood from these countries. Though the guidebook has a particular focus on cases with supply chain connections to the EU and USA, most of the methods it describes are applicable in cases where timber is destined for other countries or being consumed domestically. There does not even need to be timber production involved: though much of the guidebook relates to timber production, many of the tools and methods are equally relevant when investigating illegalities in the clearance of forests (such as for commercial plantations), where no timber production is involved.

CITES listed Afrormosia logs in DRC ©Greenpeace

The information contained in this guidebook may also be useful for governments and companies. Enforcement agencies may use it for their own research, or to better understand information provided to them by NGOs. Wood product purchasers may find some of the methods useful when checking the legality of the timber they buy. Both may find the contextual information useful to better understand how illegality functions in this complex sector.

How should the guidebook be used?

It is not expected that all of the information in this guidebook will be relevant to any one case or any one reader. Readers should use the guidebook as a resource, absorbing only those sections of most relevance to them, and referring back to it intermittently as their research progresses.

The guidebook is divided into three chapters, that cover the following areas:

- **Chapter One** provides an overview of the laws that have been enacted in the EU and US in response to the global epidemic of illegal logging, and explores how information from civil society can support the implementation of these laws.
- **Chapter Two** outlines how illegality functions in the sector, from the forest to the market, and provides detailed guidance on how individuals or organisations can investigate illegality at various stages of the supply chain.
- **Chapter Three** explains how information obtained during investigations can be used to support implementation of the law, improve policies and close the market to illegal timber.

The guidebook is being published along with an associated website (**www.timberinvestigator.info**) which contains additional resources. The website will be regularly updated with new information including changes to laws, developments with relevant technologies and new case studies. The website also hosts up-to-date contact information for relevant authorities in the EU and USA.

Earthsight, the publisher of this guidebook, is also looking to develop partnerships with NGOs engaged in relevant research. Earthsight can provide pro-bono assistance to help organisations and individuals build, submit and publicise cases of illegal trade in timber. Assistance may range from support in obtaining or analysing an individual piece of information (such as interrogating a database of shipment records), to in-depth joint research, including fieldwork. Further information on partnerships, including how to an express an interest, can be found on our website **www.timberinvestigator.info**

Forest monitoring in DRC ©REM

Chapter 1: Illegal Logging, Related Trade and the Response of Consumer Countries

1.1 What is Illegal Logging?

In many major timber-producing countries, a majority of wood production is estimated to be illegal in some way. Illegality is widespread from the tropical forests of the Amazon, Congo and Southeast Asia, to the boreal forests of Russia. Altogether, it has been estimated that more than 100 million cubic metres of timber are illegally cut each year: enough logs to stretch ten times around Earth.[3]

While in the past most illegal timber production came from selective harvesting of individual high-value trees, a growing proportion now comes from illegal conversion of entire forests to other uses. In Indonesia, 80 per cent of deforestation for commercial agriculture and timber plantations is illegal. In the Brazilian Amazon, it is 90 per cent.[4] Globally, it has been estimated that at least half of all the tropical forest cleared during the first 12 years of this century was cleared illegally.[5]

'Illegal logging' is commonly misunderstood to refer only to illicit harvesting of trees by criminals in protected forests. In reality, such activity represents a small part of the true face of illegal logging today. Most illegal logging is carried out by licensed companies in licensed forests, but which nevertheless violates one or many of a range of laws. Most illegally sourced timber is laundered into 'legitimate' supply chains or unidentified as illegal and therefore traded openly, not smuggled. Often the most important laws being breached are those relating to the rights of local communities.

This guidebook uses the most common definition of illegal logging, including all felling of trees, processing and trade in wood which takes place in contravention of national legislation or regulations. This captures a wide range of different offences, including (but not limited to) practices such as the illegal issuance of permits to harvest trees, corruption in permit allocation, over-harvesting within licensed areas, tax evasion and the violation of statutory social safeguards. Most importantly, it also includes logging and forest conversion which takes place in contravention of the rights of local and indigenous communities, who are often dependent on the forests for their livelihoods and who stand to suffer most from deforestation.

Log raft on Seruyan river in Indonesia ©EIA

1.2 The Response to Illegal Logging in Major Markets

Illegal logging is driven by sales of illegally sourced wood, much of which enters international trade. The EU and the USA are among the world's largest importers and consumers of illegally sourced timber and wood products. In an attempt to address their complicity in this global crisis, both have in recent years passed legislation meant to prevent import and sale of illegally sourced wood. The effective implementation of these laws — the US Lacey Act and the European Union Timber Regulation (EUTR) respectively — is essential if broader efforts to halt illegal logging are to be successful.

Though the specific purpose of these laws is limited to halting imports of illegal wood into their own markets, their real value goes much further. They are focusing increasing pressure on other major consuming countries, such as China and Japan, to enact similar legislation and further strangle the market for illegal wood. In Europe, the EUTR is a critical component of a much broader package of actions aimed at improving forest governance. The most important of these are bilateral agreements the EU is developing with many of the largest timber producing countries in the tropics.

Products for export from China to Lumber Liquidators ©EIA

These agreements, known as Voluntary Partnership Agreements (VPAs), are having a host of positive impacts. They are driving the development of legality verification systems which will block access to all markets — including domestic markets — for illegal wood. Most importantly, they are getting to the root of the problem of illegal logging by improving transparency and accountability, governance reforms that can have positive impacts far beyond forests. Without a properly-enforced EUTR, there is much less incentive for countries to implement these agreements.

"The EU and the USA have passed legislation to address their complicity in this global crisis"

For these reasons, the success or failure of these laws has much broader implications in the fight to tackle illegal logging and better protect the rights of forest dependent people globally. Further detail on these laws and how they can be harnessed to tackle illegal logging using information supplied by civil society is provided below.

1.2.1 The US Lacey Act

In 2008, the US became the first country in the world to ban the import of timber which was illegally sourced in another country. It did this through amendments to pre-existing legislation (the Lacey Act of 1900) which previously only applied to animals and animal products. The amendments made it an offence to import, export, transport, sell, receive or acquire any plant which was illegally sourced. Though they apply to all plants generally and to domestic as well as foreign sources, the main purpose and effect of the amendments was to ban import and sale of illegal wood from overseas.

The Lacey Act counts wood as illegally sourced where it was harvested, transported or sold in violation of foreign laws that protect or regulate the harvesting of trees, without payment of relevant source-country taxes, or in contravention of timber-related export controls. Potential penalties under the Lacey Act range from fines through to custodial sentences, depending on the severity of the offence and whether the offending company knew (or should have known) of the illegality. Wood products imported in violation of the Act can be seized regardless of the severity or foreknowledge.

An important additional requirement included as part of the 2008 Lacey Act amendments was the import declaration. Phased in gradually, this now requires that all companies importing most solid wood products[6] must submit a formal declaration (the Plant Product Declaration) stating the species and the country of harvest. Shipments that arrive without an accurate declaration can be seized, and companies found to have deliberately provided false information in a declaration can be prosecuted and fined.

As of April 2016, there have been three major illegal timber import cases brought under the amended Lacey Act. The first involved Gibson Guitars, and related to import of ebony which originated in Madagascar. Though the illegal origin of the wood was a pertinent factor, the case also involved allegations of illegal export from a third country (India) and mis-declaration at import into the USA. The second involved a consignment of tropical sawn timber from Peru which arrived in 2009 and was confiscated under the Act's declaration requirement, on the basis that it had been deliberately misclassified as finished wood products. There was also evidence that the exporter did not have legal title to the wood.

The most recent case involved flooring manufactured in China from timber cut in the Russian Far East and Myanmar. In October 2015, the company involved (US wood flooring retailer Lumber Liquidators) pled guilty to smuggling illegal wood into the US, and was required to pay more than US$10 million in fines and other penalties. The company pled guilty to five separate offences, four of which involved false declaration of either country of harvest or species in Plant Product Declarations.[7]

Products for export from China to US ©EIA

The Peruvian case resulted from a tip-off from a trader. Both the Gibson and the Lumber Liquidators cases were triggered by information collected by NGOs.

"The success or failure of these laws has broad implications in the fight to tackle illegal logging and better protect the rights of forest dependent people globally"

1.2.2 EU Timber Regulation

In 2010, the European Union followed in the footsteps of the US in enacting legislation which made it an offence to import wood which had been illegally sourced in the country of origin. The legislation, known as the European Union Timber Regulation (EUTR) came into effect in March 2013. Though it was enacted for the same reason, the EUTR differs from the Lacey Act in a number of important ways:

- **Supply chain applicability**: The EUTR only applies to the companies which harvest or import ("place on the market") illegally sourced wood, and not companies further down the supply chain.
- **Product scope**: The EUTR only applies to a specific list of wood products. Important exemptions include charcoal, musical instruments, picture frames, printed books and some types of wood furniture.
- **Due Diligence**: In addition to making it an offence to import illegally sourced wood (the 'prohibition'), the EUTR also places a legal requirement on importers to practice 'due diligence' when buying wood. Failure to exercise due diligence is also an offence.
- **Monitoring organisations**: To assist with implementation of the due diligence requirement, the EUTR also includes rules for the formal recognition of (and checks on) third party 'Monitoring Organisations' which companies can hire to help them with due diligence.

The due diligence requirement is perhaps the most important difference. It means that companies are legally required to follow certain procedures in order to minimise the risk that the wood they are importing is illegally sourced. Failure to do this is a prosecutable offence on its own - it is not necessary for officials to prove that the wood is illegally sourced. The threshold of evidence required to make a case under EUTR is therefore much lower than under the Lacey Act. This means that a broader range of evidence can be useful in aiding implementation and enforcement.

Like the Lacey Act, the EUTR only applies to specific types of illegality in the source country. In this case, relevant illegalities include any that contravene legislation governing rights to harvest, harvesting processes (such as environmental controls), timber harvesting-related taxes, and forest-sector-specific trade and customs controls. Unlike Lacey, the EUTR also specifically includes breaches of laws governing use and tenure rights of local people affected by logging.

Though the EUTR applies to all member states of the European Union, it is the responsibility of each member state to pass national laws that define penalties, to establish authorities tasked with implementing the law, and to enforce it within their borders. As of March 2016, all of the member states except Hungary had taken the basic legal and regulatory steps. This does not necessarily mean that the other countries are all implementing the law effectively or that their penalties are 'dissuasive', as the EUTR requires.

Though the maximum penalties applicable under the EUTR are substantial in many member states, to date there have been no prosecutions under the prohibition element, and no major penalties levelled for breaches of the due diligence requirements. Ongoing cases of interest under the due diligence element of EUTR include one involving a Dutch company regarding the import of sawn tropical wood from Cameroon, and a Swedish company for import of teak sourced in Myanmar and traded via Thailand. The former stemmed from evidence provided by an NGO.

Box One: Summary and Comparison of the Lacey Act and EUTR (As Applied to Wood Sourced Overseas)

	Lacey	EUTR
Supply Chain Applicability	All stages	Importer only*
Product Scope	All products	Specific products only. Important exemptions include charcoal, musical instruments, picture frames, printed books, and some types of wood furniture
Declaration at Import	For certain products	None required
Due Diligence	Only relevant in determining penalties where timber is already shown to be illegally sourced	Separate legal requirement, regardless of whether wood itself is illegally sourced
Relevant Predicate Offences	• Laws that protect trees or regulate the harvesting thereof • Forestry-related taxes • Export-related laws relevant to timber	• Rights to harvest • Harvesting practices (including environmental controls) • Forestry-related taxes • Forestry specific trade/customs legislation • Use and tenure rights of third parties affected by harvesting

* The law actually applies to the first 'placer on the market', but for wood from overseas in most instances this is the importer; in addition, though the main provisions only apply to the 'first placer', the law does require companies further down the supply chain to maintain records of purchases and sales

1.3 How Civil Society Can Help Crack-Down on Illegal Timber

1.3.1 Introduction

Evidence supplied by NGOs was a critical factor in persuading lawmakers to amend the Lacey Act and pass the EUTR. It will also be critical in ensuring they are a success. Information supplied by third parties is important for assisting in enforcement; all of the most significant cases pursued to-date under both Lacey and the EUTR stemmed from information supplied by NGOs. It will be equally important in improving implementation of and compliance with these laws in other ways, in ensuring the laws themselves remain in place and are incrementally improved.

The EUTR formally recognises the importance of information provided by members of the public. An article of the law specifically notes that authorities may conduct checks of domestic harvesters, timber importers or monitoring organisations on the basis of "substantiated concerns" provided by third parties concerning compliance. The preamble states that they should "endeavour" to carry out checks in such circumstances.

The EUTR authorities in most EU countries claim to use information provided by third parties to help determine what checks to carry out. An official review of the EUTR in February 2016 found that substantiated concerns were widely used in the first two years of application of EUTR and had proven to be "an efficient tool for identifying products or operators to be prioritised in carrying out risk-based checks".[8]

Information provided by civil society can have broad impacts on industry behaviour, even where that information is not appropriate for individual prosecutions. If organisations and individuals are able to demonstrate the high-risk of illegality in any supply chain, it can have a chilling effect on the market. It can discourage buyers from running the risk of violating the law and can inform their due diligence. Though the Lacey Act does not impose legal sanctions on companies failing to carry out due diligence, as the EUTR does, companies are liable for heavier penalties if they should reasonably have known that a source of timber was illegal. Civil society investigators can ensure that they do.

In this way, bringing a consistent stream of robust evidence into the public domain on illegal logging and related trade will increase the probability that violators will get caught if they buy illegal timber, and will increase the punishment when they do.

"Bringing a consistent stream of robust evidence into the public domain on illegal logging and related trade will increase the probability that violators will get caught."

Monitoring of illegal logging by plane in Brazil ©Greenpeace

1.3.2 Types of Useful Information

A broad spectrum of evidence can be useful in helping to implement and enforce the EUTR and Lacey Act. Ideally, evidence supplied to enforcement officials will be sufficient on its own to warrant action being taken. The whole supply chain will be well-documented, and incontrovertible evidence of illegalities clearly falling within the scope of EUTR or Lacey obtained. In reality, this is rarely possible. In most cases, evidence collected by independent third parties will be incomplete; some of the evidence may even relate to products or to areas of producer-country law which fall outside the scope of EUTR or Lacey. However, this does not mean such information cannot be used with impact.

Enforcement authorities can build on partial or incomplete evidence, using their powers to carry out checks and access government information. For example, strong evidence about illegality in timber from a particular overseas supplier can prompt officials to check customs databases to establish whether any companies are importing from that supplier. Even where it can only be shown that a product is of likely but not certain illegal origin, this may be sufficient to change company behaviour, or demonstrate failure of due care if additional evidence later emerges. Evidence which relates to products or areas of source country law not captured by current legislation may help inform future amendments to that legislation. The European Commission, for example, is already considering possible expansion of the product categories covered by the EUTR.

Box Two summarises the range of ways in which information can support implementation of the law, expand the law, and influence behaviour and policies. The possible applications available to organisations, or individuals, will rely heavily on the form of information they are able to gather. For example, they may be able to gather detailed intelligence on one company, that can lead to an enforcement action. Alternatively, they may not have detailed information on one company, but a much broader body of evidence on rates of illegality from an entire country. This may not lead to enforcement against a specific company, but can be used to dissuade companies from sourcing from that country. They may develop a robust body of evidence on illegality in a particular product that currently falls outside the scope of the EUTR, that could support efforts to expand the EUTR to include it.

The following chapter details the ways relevant information and evidence can be sought by people across the world. The final chapter goes into more detail on the different ways in which information can help, and explores the best ways to package it up, in order to maximise its impact.

Logs with tags and GPS in Indonesia ©EIA

Box Two: Ways in Which Evidence From Third Parties Can Help Implement Lacey and EUTR

- **Lead directly to enforcement action.** Ideally, evidence supplied to enforcement officials will be sufficient on its own to warrant action being taken, though this is rare.
- **Provide a starting point.** Even if it is incomplete, good, well-documented evidence provided by NGOs to enforcement authorities can provide a starting point on which they are able to build a case.
- **Influence enforcement priorities.** In addition to providing a starting point on which to build, good but incomplete evidence provided by NGOs can help influence decisions by enforcement officials on where to focus resources, including choosing which shipments, companies or product supply chains to check.
- **Demonstrate foreknowledge.** Under both the EUTR and Lacey, whether a case is pursued by the authorities (and the level of penalties which are applied) depend in part on how much a company knew, or should reasonably have known, that the wood was illegal or at high risk of illegality. NGOs can help make later prosecutions more likely, and any relevant penalties higher, by contacting companies found to be importing or handling specific high-risk products and warning them of the risk involved.
- **Influence private sector behaviour.** Even where evidence obtained by NGOs does not result in enforcement action, it can nevertheless result in voluntary changes in purchasing practices by companies. NGOs can send information directly to identified buyers, and where necessary can also bring pressure to bear by publicising their findings.
- **Influence government policy.** Where evidence obtained by NGOs is not used in enforcement because it relates to out-of-scope products or predicate offences, or because the government or authority concerned has failed in its duty to properly implement and enforce, then exposure of the case can help encourage better implementation or even help lead to amendments to legislation which expand its scope.

Seized illegal wood on the Indonesia-Malaysia border ©EIA

Chapter 2: How to Detect and Document Illegal Logging and Associated Trade and Follow Supply Chains

2.1 Introduction

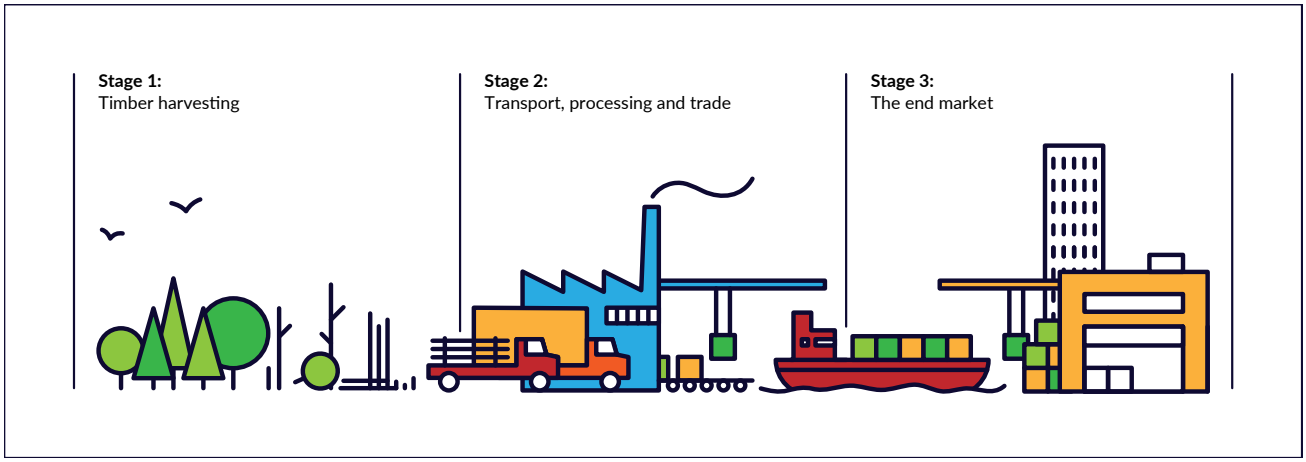
Identifying and tracking illegal timber to market requires the interrogation of a range of different datasets and sources of information at different points of the supply chain. There is no 'one size fits all' approach to timber trade investigations, but rather a suite of different tools and approaches that can be applied, with varying degrees of effectiveness in different cases.

For the purposes of understanding both types of illegality and the means of identifying them, the supply chain can be divided into three broad stages:

Stage 1: Timber harvesting
Stage 2: The transport, processing and trade of timber, covering the trade from the point of harvest to the point of export
Stage 3: The end market

Investigations can begin at any point along the supply chain. The starting point is dictated by a combination of the capacity of the organisation carrying out the investigation, its location, and the preliminary evidence available to it. For example, a UK-based NGO may try to follow a supply chain back from a high-risk product sold within the UK. An NGO based in a port-town in Indonesia may try to follow the supply chain both back to the point of origin and onwards to market. As **Chapter One** explained, an investigation does not need to capture all of a supply chain to be useful. It does not even need to identify where timber was harvested or show it was harvested illegally, if it can be shown that it was processed or traded illegally.

The following sections provide an overview of the types of illegality that can occur at different points in the supply chain, the methods that can be used to identify them, and the ways in which timber can be tracked from harvest to market.



2.2 Harvest

2.2.1 Types of Illegal Harvesting

Timber can be harvested under several different models, from selective logging in community-managed forests, for example, to clear-cutting large areas for plantation development. Under any model, the legality of harvest can be reduced to two simple questions:

1. Is there a full and proper right to extract timber from the given area?
2. Is timber being extracted in accordance with the legal provisions attached to that right?

For the purpose of this section these will be referred to as "the right to harvest" and "operational infractions" respectively.

Within these principles there are a diverse range of typologies of illegality, reflecting the wide range of requirements that underpin harvesting rights. In almost every country, fairly complex permitting processes have evolved to govern various aspects of harvesting. These extend beyond the simple question of whether there are rights to cut down trees. There are regulations intended to ensure that the state does not incur losses, environmental harm is mitigated, communities receive some benefit, and protected species are not harvested. Violation of any aspect of this regime may render the product of a given area illegal.

Though the forests supplying global trade in timber stretch across the globe, the permitting processes and the ways in which they are violated exhibit more similarities than differences. Environmental Impact Assessments, for example, are a common, mandatory requirement for selective logging and clear-cut concessions. Logging concessions practicing 'sustainable forest management' invariably require an annual cutting plan, which determines areas within which harvesting can take place in any given year and volumes permitted to be harvested. Companies harvesting timber are always liable to pay taxes.

This section will not provide a catalogue of all legal requirements, but will focus on describing frequently identified illegalities and the means by which they can be detected and documented. These typologies are not exhaustive, but provide an overview of illegal practices identified by civil society across Asia, Africa, Latin America and the Russian Far East.

Illegalities in the Right to Harvest

Logging in areas without permits

The most commonly-recognised form of illegal logging takes place where no rights exist to either the land or the timber. This may be in national parks, protected areas, or in indigenous peoples' reserves where perpetrated by outsiders. Logging may also take place after permits have expired, or before they have been obtained. A practice documented in Laos, the Democratic Republic of the Congo (DRC), Peru, Brazil and the Russian Far East is to obtain rights to harvest in one place and use the permits as a front to log elsewhere where no rights exist.

Logging in areas without all necessary permits

As described above, the process for acquiring legal rights over an area of forest for selective logging or conversion to other uses commonly requires a range of legal and administrative processes and permits. Where these processes have been expedited or ignored, and permits are consequently missing, the product of those concessions may be illegal.

Environmental Impact Assessments and annual cutting plans are examples of important yet commonly absent licenses. In Brazil, timber has been produced illegally from private estates clear-cut without 'deforestation authorisation'. In the DRC, contracts for logging concessions are required to include social agreements with local communities, that are commonly missing. In Indonesia it is often the permit that allows the harvesting and sale of commercial timber stands that has not been obtained. In each of these examples some right or permit may exist, but not all necessary rights.

Greenpeace direct action in Brazil ©Greenpeace

Illegal permit allocation

In cases where all permits have been obtained, it may still be possible to identify illegality in the ways in which the permits were issued. This can be a result of negligence by government agencies, or corruption. This practice is common in Indonesia, particularly in the acquisition of permits that should be predicated on an Environmental Impact Assessment before the assessment process has been completed. In the Republic of Congo, independent monitors have documented concessions being issued without a legally-required tender process, and cutting permits issued to oil palm concessions prior to the completion of an Environmental Impact Assessment. Permits may have been obtained by individuals connected to politicians, or even by companies owned directly by politicians. In some states this is illegal. In any case, whether it is illegal or not, this form of exploitation by politicians is important to document and expose.

Logging protected species

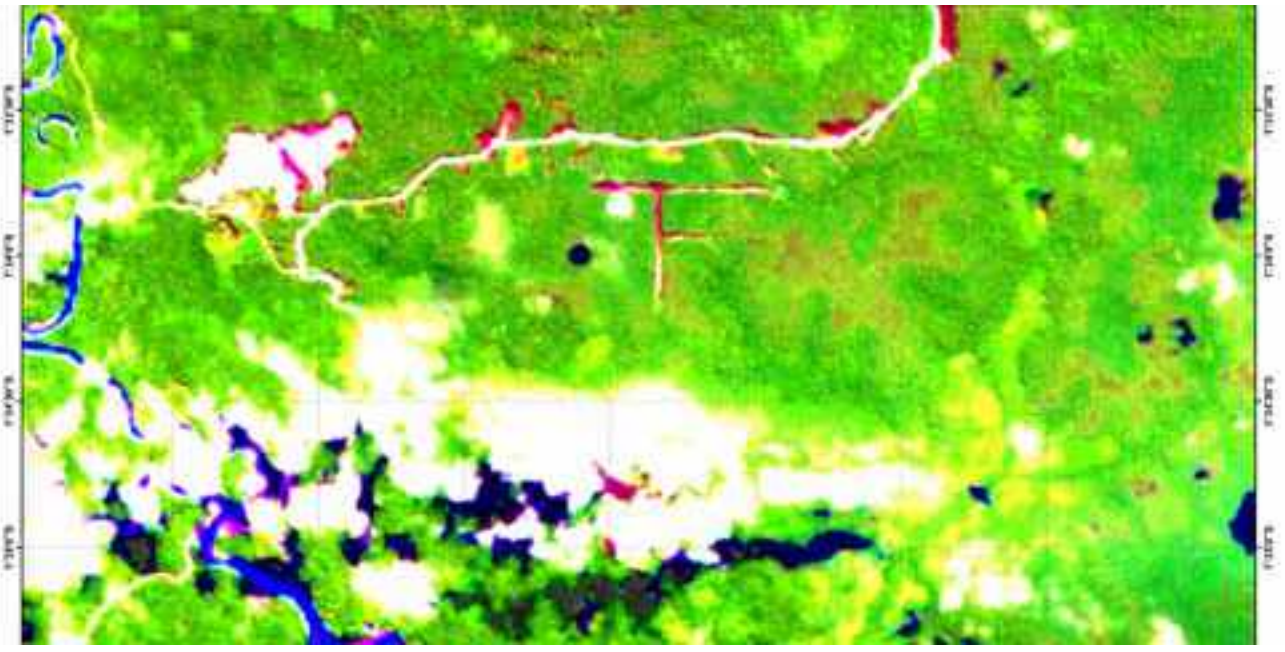
Many of the highest-value timber species targeted by European and US traders are increasingly rare, endangered and have been subject to protection by both domestic and international laws. Species such as Ramin in Indonesia, Wenge and Afrormosia in the Congo Basin, and Big-Leaf Mahogany in the Amazon have been given legal protection that imposes limits on harvest. Ramin, Big-Leaf Mahogany and Afrormosia have also been listed on the Annexes to the Convention on the International Trade in Endangered Species (CITES), which imposes additional regulatory controls on international trade.

Species like these are particularly vulnerable to illegal logging due to their value. Illegal harvesting can take place both outside and inside concessions. In the DRC, for example, Wenge has been harvested without legally-required permission. In Peru, Mahogany is illegally logged and laundered through ostensibly legitimate logging concessions using a web of fraudulent paperwork (see **Case Study 6**).

Operational Infractions

Violating terms of cutting plans

Operations within both selective logging and clear-cut concessions are commonly governed by forest management plans. These define areas within which harvesting can take place, and over what period. They also provide other important legal limits designed to achieve long-term sustainability, such as maximum quantities and minimum diameters of trees of different species allowed to be harvested. These may be violated in a number of ways. For example, by over-harvesting, extracting excessively small trees, or cutting in areas outside the terms of the plan. Another common illegal practice is harvesting timber from steep slopes or adjacent to rivers, activities often prohibited to mitigate soil erosion or water pollution.



Satellite imagery showing forest clearing before permits have been obtained in Indonesia ©EIA

Violating terms of other permits

The right to harvest is commonly underpinned by additional processes or permits, required by law, intended to mitigate the impact of logging on environment and local communities. Often, they may be intended to ensure that communities derive some direct benefit from logging companies, or that their rights (while often not legally recognised in full) are not infringed. An example of such a permit or process is the Environmental Impact Assessment (EIA), which require companies to identify and mitigate the impact of their activities. The EIA process will not be a one-off event, but rather an iterative process that continues throughout the lifetime of a company's operations. Because they are costly, and may limit the ability of a company to exploit resources, they are often fabricated or violated. In some countries, like Indonesia, violation of EIA laws is a criminal offence that can lead to a prison sentence for offenders. As such, an unsound EIA process will fundamentally undermine the legality of the right to harvest.

Social agreements between companies and communities, where legally required, are another form of right or process that underpins the right to harvest. These are required in DRC, for example, where companies have been routinely found to have breached the terms of social agreements built into contracts. In order to increase the returns to the country of origin, logging contracts often also include obligations on companies to build mills or process a minimum percentage of the logs which they harvest. Such obligations are also commonly ignored.

Logging outside boundaries

Clearing or harvesting beyond concession boundaries is a common practice. In many remote forest areas boundaries are poorly demarcated, if at all, and compliance with boundaries established by permits are poorly scrutinised by authorities.

Tax evasion

Logging companies are usually required to pay forestry-specific taxes. This will commonly take the form of both a tax based on the area leased to or otherwise managed by the company, and a tax based based on the volume of each species harvested. Often the process of determining the tax liability depends on a forest inventory, which may rely on either self-reporting or under-resourced forest officials. This creates loopholes and weaknesses in oversight that enable companies to minimize their liability or avoid paying tax altogether, rendering the harvested timber illegal.

Under-declaration of volumes is a pervasive problem across Latin America, Africa and Asia. Another common practice is false declaration of species, replacing rare, high-grade species in paperwork with lower-value species. Where companies are clearing land without the specific permit that allows commercial sale of timber, as is commonly the case in Indonesia, the product is effectively "off the books" and similarly evades all tax at the point of harvest. The practice can also be more complex; in DRC monitors have alleged that logging companies negotiated an illegal deal with the government that allowed them to avoid paying taxes.

Conversion of Native Customary Land in Sarawak ©Earthsight

2.2.2 Investigating Harvesting: Desk Based Analysis

The principle of investigating legality at the point of harvest is quite simple. It involves comparing official reference data that reveals what harvesting is allowed, and under what conditions, with observations of what is actually happening in the forest.

The greatest challenge is in accessing the necessary information. Official reference data, that determines what is allowed, will commonly be held by governments, which are often reluctant to disclose it. Determining what is actually happening, on the other hand, can present technical, logistical and security challenges. This section explains where these kinds of datasets can be found, and how they can be compared with one another at each step of the investigation to identify illegality.

Defining a target

Investigations begin with indicative evidence, or a hypothesis. Indicative evidence may take the form of testimony from a community that illegal logging is taking place in its territory. Or it might take the form of a news article quoting a government official, stating that most plantation companies in a given district are clearing forest without the necessary timber harvesting permits. This evidence defines a target or targets: whether it is a named company, a group of companies, or a type of company. Where there is no clear information on the perpetrators, the target might be a geographic area, or even a particular species that is subjected to over-extraction.

A target may be arrived at by working back from the market. Trade data may identify a specific company, that is engaged in harvesting, as among the leading exporters to sensitive markets. In such cases the preliminary evidence that the company is engaged in illegality may not be strong, but its significance within the sector and supply chain may merit investigation. This would particularly be the case where the rates of illegality are known to be high within the source country. Where the investigation has begun by identifying retailers or importers of high-risk products, the target may be identified by working back systematically through their supply chain. For such cases, it may be appropriate to begin the investigation with processes described in Section 2.4.

Obtaining permit data

As mentioned, official data can be difficult to obtain. To obtain it, it is critical to cast the net wide, both in terms of the data that is sought and the places in which it is sought.

Example of boundaries of logging and plantation licenses and identity of a license holder included on the Global Forest Watch web platform

Aside from permits that are specific to the target company or area, it is equally important to gather as much contextual data as possible because the comparison between different datasets can provide important answers. Key examples would be aggregated data on timber harvesting in a given region, and spatial plans or forest zoning that designate areas for logging or conversion to agriculture. It is also important to bear in mind that information on a license area of interest may often be included in documents relating to neighbouring areas.

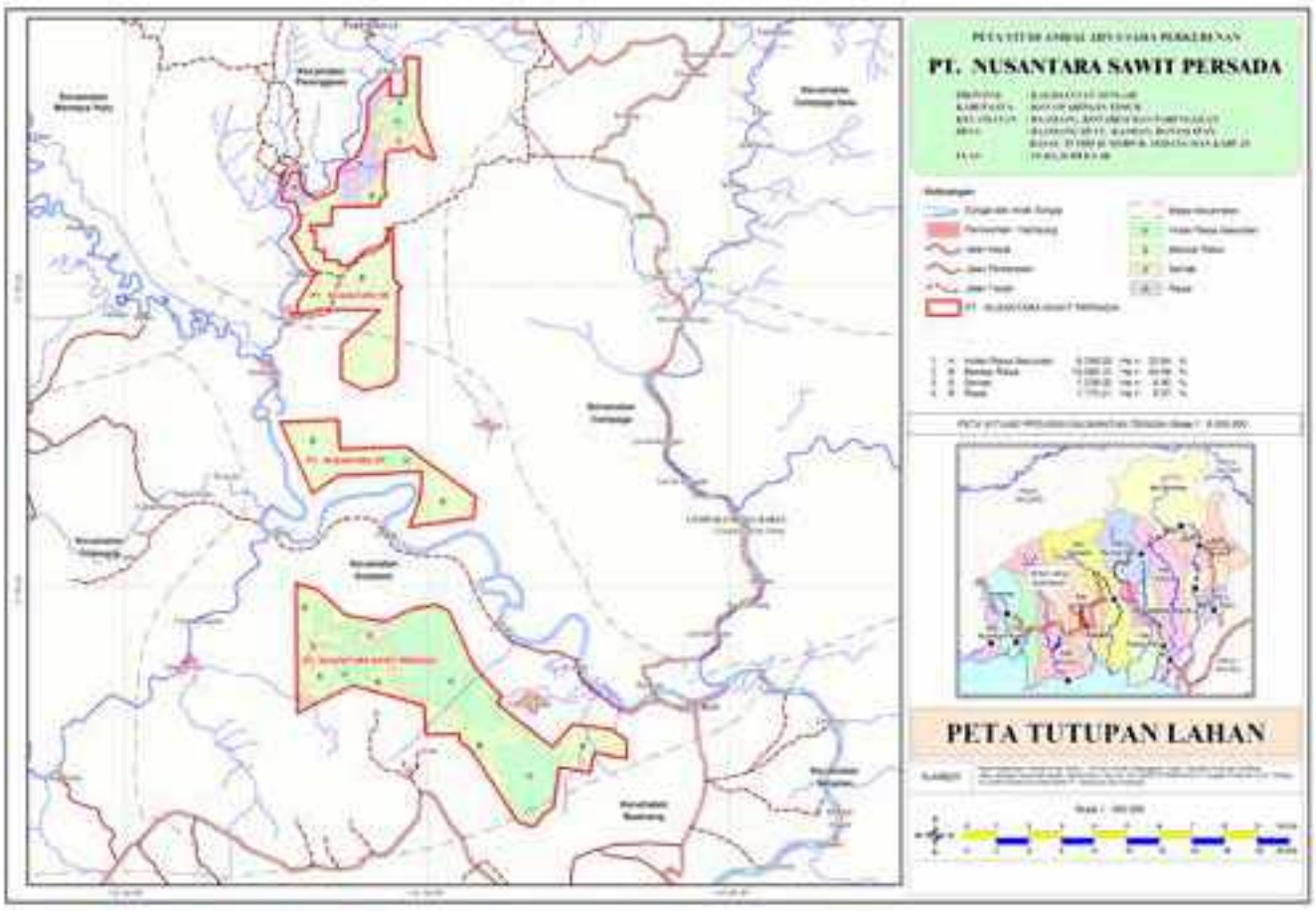
The internet is the most accessible source of relevant permit information. Data may be published by government agencies themselves, on their websites. It may also have been obtained and published by third-parties in the past, such as newspapers or NGOs. For example, permit information (including boundaries and licensee names) is now available for many forest countries via the World Resources Institute's Global Forest Watch website. Reports from conservation organisations, regarding protected areas or general land use planning, also often have detailed maps of adjoining logging, mining or plantation companies. Companies may also publish information about permits they have obtained, including in annual reports and official announcements.

An especially rich source of information are 'prospectuses' published by companies in advance of stock exchange listings. Where they are members of a certification scheme, such as the Roundtable on Sustainable Palm Oil or Forest Stewardship Council, websites of the scheme or individual certifiers often contain useful information. Intelligent use of search terms and an appreciation of the limitations of search engines is essential when carrying out online research (See **Tool Box**: *Online Sources of Information*).

Some information may be in the public domain, but not on the internet. NGOs, particularly those local to the area of interest, often hold unpublished data they have obtained from the government in the course of their work. Communities can present a particularly rich source of permit data, which they may have been given during consultation processes, by the government or companies. Even in areas where the rights of communities are weak, there sometimes exists a responsibility to provide information to them. In many cases community members will obtain employment from companies that are operating in or adjacent to their territories, which provides further access to information.

Some governments publish relevant information only in hardcopy, either as announcements in newspapers or in official journals. Where information is not in the public domain, it must be sought directly from relevant government agencies. However, in most regions lack of transparency and collusion between officials and companies present challenges. In many countries data management is also poor, and records may not be complete even if they are accessible. Data may be deliberately disorganised and even falsified to avoid thorough scrutiny. Nonetheless, obtaining data through formal channels can support a robust evidence base.

It is important to note that as companies are subject to a range of different regulations, permission invariably comes from a range of sources, within different government departments and at different levels of government, from the local to the national. Where some sources may be reluctant to release information, others may be more forthcoming. Some countries, such as Peru and Indonesia, have introduced Freedom of Information laws, which give citizens the legal right to access certain types of information (See **Tool Box**: *Freedom of Information*).



Environmental Impact Assessments can include invaluable baseline information. This example shows forest cover within a concession. ©EIA

Tool Box: Freedom of Information

Many countries have a local variation of what can colltectively be called Freedom of Information (FoI) laws. These laws are passed to give citizens legal rights to obtain information held by the government, to increase the ability of civil society to hold government to account.

These laws commonly set out the types of information that should be accessible to the public on request, information that should proactively be published, and information that remains subject to restrictions. Commercially sensitive information commonly falls into the last category, which presents challenges in accessing information pertaining to companies. The willingness of government agencies to release information in line with the law is varied, with governments frequently withholding information in violation of the law. In Indonesia, for example, NGOs had to resort to the courts to force the government to publish relevant data relating to timber harvesting and processing.

Nonetheless, such laws can and have been used as critical tools to increase the ability of civil society to monitor the forestry sector and identify illegality in timber harvesting and trade. The Environmental Investigation Agency, for example, was able to understand and show the complex system for timber laundering employed by companies in Peru (See **Case Study 6**) using the law to access government data on exports and inspection reports for logging concessions.

Ministry official hands over data to Forest Watch Indonesia ©FWI

FoI and Voluntary Partnership Agreements

FoI provisions specific to timber are built into the text of Voluntary Partnership Agreements (VPAs), legal agreements between the EU and several wood-exporting countries to encourage the supply of verified-legal timber (see **Chapter One**). These impose some legal obligation to disclose information, even in states where no generic FoI law has been enacted.

"FoI laws have been used as critical tools to increase the ability of civil society to monitor the forestry sector"

Most VPA texts include an Annex outlining what information should be made public, in various ways, to facilitate monitoring of legality. This generally includes a wide range of data, down to the location of individual logging titles and the location of valid processing facilities. It also includes aggregated data on annual log production. Implementation of VPAs has been slow and varied, so it may be the case that the data is not available, but that it should be accessible. Annexes on Public Information are included in VPAs in the following countries:

- Cameroon (Annex VII)
- Central African Republic (Annex XI)
- Indonesia (Annex IX)
- Liberia (Annex IX)
- Republic of Congo (Annex X)

VPAs are being negotiated with several other other Latin American, African and Asian states. The text of the finalised VPAs, including Annexes, can be found on the EU's FLEGT website.[9]

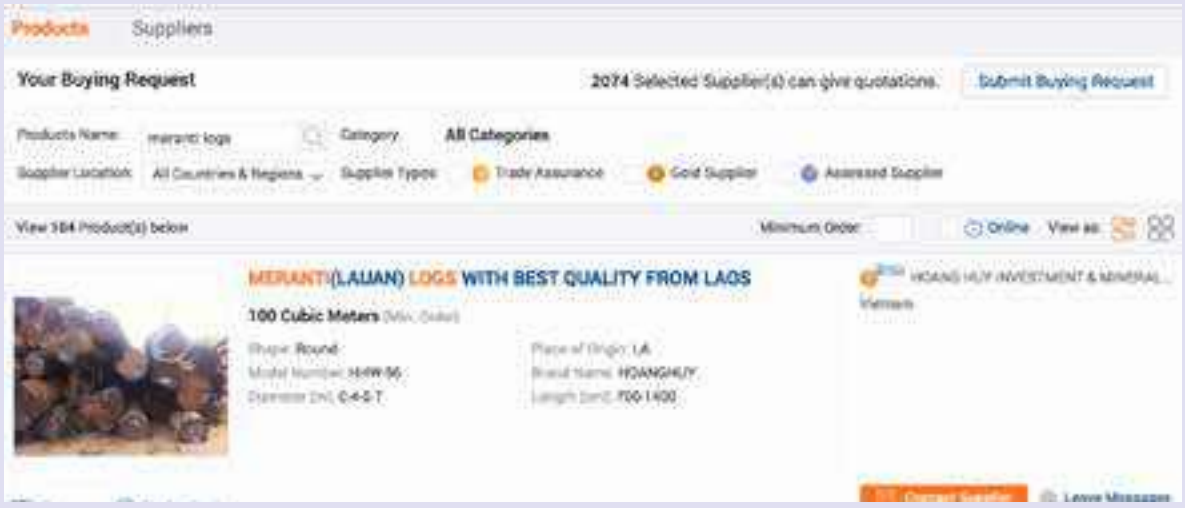
Tool Box: Online Sources of Information

Large volumes of relevant data are available online, even where it relates to opaque countries. Relatively simple use of search engines can provide access to permits, background on companies and identify routes to market. However, ensuring that all possible avenues are exhausted requires the application of good practice in where to look and how to search.

Where initial searches produce huge numbers of results of possible interest, intelligent use of search terms is essential for picking out key information. Searches can be restricted only to results from the website of the relevant government agency, for example, or restricted only to results contained in certain file types of interest, such as Excel or PDF files. Searches can also be worded so that only results containing both a given company name and a specific permit type are shown. Most search engines have 'advanced search' forms to help, but it is usually also possible to limit searches more easily using additional text within the normal search box (for example, adding 'site:(domain name)' to restrict results to those from that domain).

It is important to bear in mind that search engines are imperfect tools. Some information may be found by one, but not by another, so it may be worthwhile trying a few. Some online information may not be captured by any search engine. Such 'hidden web' content includes information accessible only via search forms on relevant websites (such as member information on websites of certification schemes like FSC, or databases of old articles on newspaper websites), information accessible only on registration (such as official government databases of company financial and ownership records), and archives of old web pages. It is also important to remember that information obtained online may be unreliable or out-of-date.

While the main sources of permit or company information will often be the websites of governments, companies, NGOs and certifiers, other online sources are equally or more valuable where other relevant types of information are concerned. For example, if they are used by a company of interest, trade boards such as Alibaba.com can be an indispensable source of information. Where the research is focusing on a particular area or species, it can also be used to identify targets. It can present leads that guide covert investigations into the trade (see Section 2.3). Intelligence can also be gained from social media platforms. While this can be related to companies, more commonly it will relate to individuals. Facebook and LinkedIn in particular can be invaluable tools for identifying connections between individuals. By working outwards, connections between companies, trade links and even corruption can also be identified.



The website Alibaba can be used to find companies selling specific high-risk products

Analysing reference documents: What do the permits tell you?

The next step is to compare the permits with (a) the regulations governing them, and (b) each other. This will identify illegalities in the permitting process itself, and whether permits are missing, incomplete, or issued out of turn.

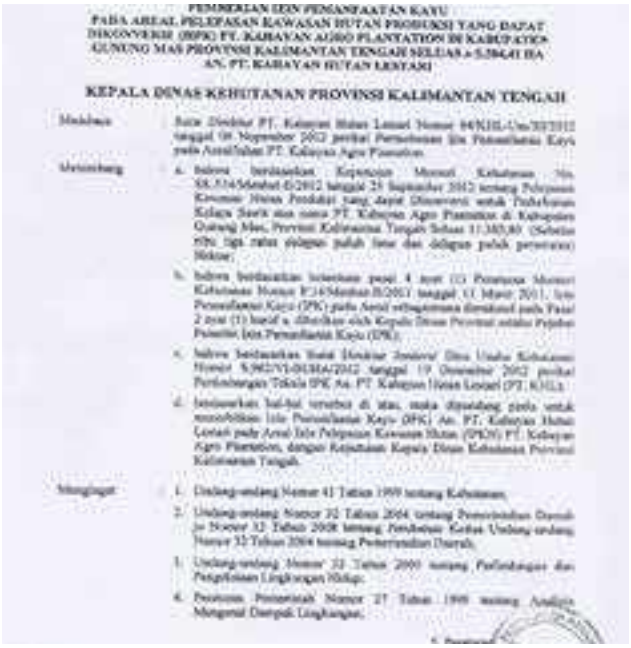
Research by NGOs, government and research institutes in almost every forested country provide summaries of how the permitting process should function in practice. The permit data that has been obtained should be ordered and cross-checked against this, highlighting any deviances from the process on paper. Though there might often be permits missing, such a finding should be treated with caution, as the permit may exist but not have been obtained. The significance of the finding varies according to the importance of the permit. For example, a missing Environmental Impact Assessment or forest management plan is a critical finding; other bureaucratic requirements may be less so.

Subsequent to this structural comparison, the content of the permits should be interrogated. Documents that are integral to the right to harvest – Environmental Impact Assessments, forest management plans, contracts and others – will contain narrative data that can be compared to the regulatory framework. This process will entail a more detailed understanding of the content of the regulations and regulatory framework, which can be complex. Reference to legal analysis and, where possible, expert legal advice at this stage can be useful in determining some subtle, but serious, forms of illegality. As with the structural permit analysis, the important findings may not be in what is included, but in what is not included. For example, where legally-required social obligations to communities are not included in contracts, or where there is evidence that communities were not consulted during Environmental Impact Assessments.

In some cases, the permit data may even provide concrete evidence that companies have violated the law by beginning operations before the permits were obtained. This is particularly the case with Environmental Impact Assessments which, where done properly, should provide some analysis of current conditions in the concession or targeted area. In Indonesia, landcover analyses within assessment documents have shown that deforestation for plantation development began before the assessment process. In Sarawak, Environmental Impact Assessments have shown that logging companies began re-entry logging before they were legally entitled to do so (see **Case Study 2**).

At this stage the research process should seek to identify data that may not immediately be useful, but will become so as the investigation progresses. Critically important datasets that will be found in the permit data include:

- **Projections for volumes of timber that will be harvested in a given area.** This can later be compared with estimates of volumes harvested based on fieldwork, or volumes exported. This is significant in identifying the under-declaration of volumes to avoid taxes, or the over-declaration of volumes to facilitate log laundering into concessions.
- **Concession boundaries.** These will later be compared to land cover change using satellite data, and GPS data from fieldwork. Where they are found in permits they are likely to require digitisation before such analysis can be carried out. It is notable that different permits may contain different boundaries for the same concession, so they should be treated with caution.
- **Cutting plans** that define which blocks can be cut, and when. This can also be compared to the reality on the ground using both satellite analysis and fieldwork.
- **Areas that are off-limits** for cutting, either in cutting plans, forest management plans, Environmental Impact Assessments or other documents. Again, these can be compared to satellite imagery and fieldwork evidence.



KEPALA DINAS KEHUTANAN PROVINSI KALIMANTAN TENGAH

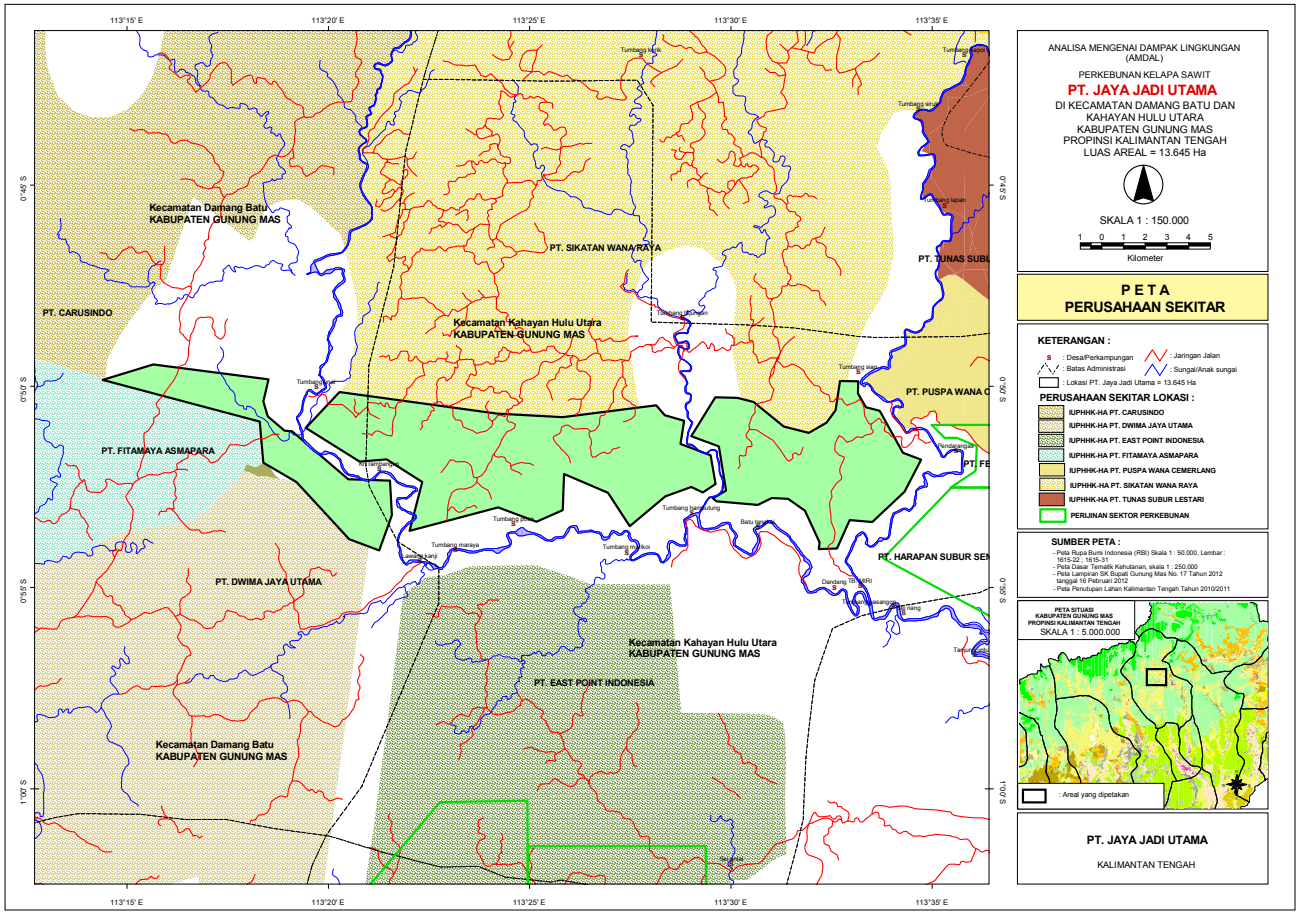
Indonesian Timber Utilisation Permit ©EIA

The methods employed by Greenpeace to identify illegal logging in the Brazilian Amazon are a good example of how painstaking data gathering and permit analysis can generate strong leads and direct field investigations to concessions with a high probability of illegality (see **Case Study 1**).

By this stage, it may alternatively be clear that no permits have been issued in the area of interest. In such cases moving on to the mapping and fieldwork stages may provide more answers. However, research should also be broadened to encompass other companies and operations, whether concessionaires or sawmills. Examining the routes out of the area – typically roads but often also rivers – can lead to operators with licenses nearby, who may be laundering timber from areas without any authorisation.

Often where there is no right to harvest, the picture at the point of harvest is complex and opaque. The process of harvesting itself may appear sporadic or disorganised. Yet in many instances the timber that is being harvested will be aggregated at sawmills or downstream facilities that are being run by companies in a more organised operation. This type of operation has been identified in both Peru (see **Case Study 6**) and Brazil (see **Case Study 8**). As such, looking at ostensibly legitimate logging or processing operations and working back may provide more answers than looking at the point of harvest.

"Reference to legal analysis can be useful in determining some subtle, but serious, forms of illegality"



This Environmental Impact Assessment from Indonesia shows the concession boundaries, but also the borders of surrounding logging concessions ©EIA

Case Study 1: The Amazon's Silent Crisis

Based on the scale of harvesting and export, Greenpeace chose to examine the legality of harvesting of the high-value species Ipê in the state of Pará in Brazil. Existing evidence, including previous government enforcement cases, suggested that laundering of timber origin was occurring, abetted by fraudulent documentation. To investigate this, Greenpeace began by obtaining every Logging Authorisation on record for Pará State. Excluding those that had been suspended or not yet approved helped refine the list of more than 1,300 licenses to just over 1,000. Next, researchers identified those in which the forest inventory included the high-value Ipê species. They then shortlisted any licenses in which a suspiciously large volume of Ipê was recorded, and those in which the volume per hectare appeared excessive when compared to average population densities of the species.

This presented Greenpeace with a longlist of 104 concessions in which there was a reasonable suspicion that the volume of timber was overstated – potentially to enable laundering from other areas. The 104 concessions were further filtered using a range of criteria, including the size covered by the authorisation, the year in which it was validated, those that allegedly contained the most Ipê, and visual information from aerial inspections of selected concessions. Though aerial inspections will be beyond the means of most NGOs, they can be replicated to some degree using satellite analysis (see 'Eye in the Sky' – satellite analysis). Greenpeace arrived at a list of 18 Authorisations that they targeted for fieldwork. In 14 out of the 18 cases, they identified sufficient infractions to justify the cancellation of the license.

Log trucks in Brazil ©Greenpeace

Tool Box: Building a Company Profile

When a target company of interest has been identified, it is useful to find out as much as possible about it, including information that may appear unrelated or irrelevant to its specific activities in the timber sector. This applies to companies at every stage of the supply chain.

This information should be collated as a company profile in a single document, that can grow as more data is found. A company profile may include the following information:

- Where the company is based;
- How big the company is, in terms of volume of timber it handles, the area of concessions/logging permits owned, or revenues;
- Who owns the company, whether individuals or shareholders;
- Key executives or managers within the company;
- Affiliated companies, particularly holding companies;
- Companies or areas it buys from, and sells to;
- Connections to other companies or individuals, with a focus on politicians;
- How the company finances its operations. For example, if it is reliant on bank loans or other financial instruments.

Much of the information needed to build company profiles can be found using online searches (see **Tool Box**: *Online Sources of Information*). If a company is publicly listed, it will publish useful information on the national stock exchange or in its annual reports. Other online sources include company websites, media reports (including financial and trade journals), government documents and permits or online marketplaces for wood products. In some cases, there may not be much information online. But information can also be obtained during fieldwork, particularly by interviewing communities or workers (see Fieldwork). Interviewing other companies operating in the sector, either openly or covertly (see Undercover investigations in Section 2.3.2) can be revealing. Companies can also occasionally prove willing to provide information on their competitors.

Understanding, as fully as possible, the nature of a company can provide new investigative leads, particularly in terms of supply chains. It can also give rise to other forms of illegality. In some states, for example, it is illegal for people closely connected to politicians (individuals known as Politically Exposed Persons) to benefit from natural resource allocation. It may give rise to new avenues for pressure. For example, some banks or investment funds will divest or suspend their relationships with companies exposed to illegality, which can in turn place pressure on them to reform (see **Case Study 2**).

Online background checks can help reveal the political affiliations, other business interests, past corrupt or criminal activity, human rights or environmental abuses connected to a concession or mill. This provides valuable context to an investigation. For example, if there are powerful political interests involved, it may help explain why illegal loggers have been operating with impunity. It also helps identify risks that may be encountered during fieldwork.

Case Study 2: Investigating Selective Harvesting in Sarawak

In 2009, Norway's state pension fund commissioned Earthsight to investigate the activities of a large Malaysian logging company in which it owned shares. Earthsight used reference documents, satellite images and fieldwork to expose a range of different types of illegalities by the company in its licensed harvest areas (concessions) in Sarawak:

Analysis of reference documents: Environmental Impact Assessments for the logging in a number of the concessions stated that the company had begun re-entry logging before the Assessments had been issued, which is a breach of regulations.

Comparing reference documents with satellite images: Detailed concession maps were obtained from the annexes of Environmental Impact Assessments. These were compared with recent satellite imagery, which was post-processed so that vegetation damage from recent selective logging could be clearly seen. Comparison of these two datasets exposed evidence of illegal logging outside concession boundaries and in prohibited areas within concessions.

Field observations and interviews: Evidence of illegal cutting in river buffers, logging of protected species, pollution of rivers with logging debris and illegal clearance in excess of limits along logging roads was obtained via field observations. Additional evidence of illegal harvesting of protected species, cutting of undersize logs and fraudulent log markings were obtained from interviews with loggers and logging camp employees.

The information[10] obtained led the Norwegian pension fund to blacklist the company, and was repeatedly cited by NGOs campaigning for change in Sarawak.

Illegal undersize logs in Samling logging concession Sarawak Malaysia ©Earthsight

Eye in the Sky: Comparing permits with data from satellites

The next stage in the investigation is to compare data found in the permits with other, non-permit data. This can identify where the provisions that have been identified through permit analysis have been complied with. Boundary maps, cutting plans, and prohibited areas that were found during that process become of critical importance here. They can be overlaid with other spatial data and satellite imagery and used to directly detect some types of illegal logging (see **Tool Box:** *Types of Illegal Logging Potentially Detectable Using Satellite Imagery*) or help direct the field work required to document other types. In Sarawak, for example, maps included in Environmental Impact Assessments have been compared with satellite imagery to demonstrate logging outside concession boundaries and other offences (see **Case Study 2**).

Tool Box: Types of Illegal Logging Potentially Detectable Using Satellite Imagery

- Logging without a permit or before all required permits are obtained
- Logging outside permit boundaries
- Logging in parts of a concession not yet officially 'opened' for logging
- Logging in prohibited areas within concessions (such as river buffers or steep slopes)
- Clearing forest in excess of limits along logging roads

Until recently, analysing land cover change to detect logging or forest conversion required ownership and knowledge of Geographic Information System (GIS) software and the purchase and processing of expensive satellite imagery. However, rapid advances in processing of imagery and the development of online GIS platforms, have made the technology more accessible and easier to use. They are increasingly making even high-resolution satellite imagery freely available in user-friendly formats.

Google Earth, which is free to download, hosts satellite imagery in varying resolutions. Most areas are covered with a resolution of approximately 15 meters per pixel (from Landsat satellites), which is sufficient to determine clearance and the spread of logging roads associated with selective logging into virgin forests. However, some areas display imagery at a resolution of 60cm, which enables the identification of very small areas of clearance and can be used to document cutting in river buffers or clearance along logging roads in excess of legal limits. Google Earth also hosts historical imagery, that allows changes in cover to be identified over time. This satellite imagery is sourced periodically by Google from third-parties. It is now relatively easy for NGOs to search for, identify and obtain additional high-resolution imagery from the same providers directly (see **Tool Box:** *High-res Imagery*).

Users can upload both concession boundaries and other contextual spatial data to Google Earth. This enables the analysis of forest cover changes within concession boundaries, but can also show whether concessions fall within protected areas, community territories, or other zones where harvesting is prohibited.

Landsat image with vegetation damage highlighted using false colouration of infra-red bands. Logging roads show up pink; recent intensive logging activity in red, areas logged earlier in light green. This technique can identify recent selective logging activity. This image shows logging inside the protected Batu Lawi mountain area in Sarawak by Malaysian company Samling. ©Earthsight

In 2013 the World Resources Institute relaunched Global Forest Watch (GFW), an interactive online forest monitoring and alert system. GFW hosts a range of geographical datasets that can be used to analyse and identify illegal logging, including forest change, forest cover and forest use data. The latter includes concession maps (including names of licensees) for logging and plantation concessions in many forested countries, though the data is known to be incomplete. The data should be treated with caution, since some boundaries are not drawn precisely and some information is likely out of date.

As with Google Earth, GFW allows users to upload their own spatial data and carry out analysis. Unlike Google Earth, however, much of the analysis on GFW is automated. It allows users to view and quantify forest cover loss (identified automatically from Landsat imagery) within a user-defined area over time and create alerts for future loss. In 2016, GFW made a new dataset available that also provides raw satellite imagery. This imagery is more recent and much more regularly updated than that available in Google Earth, and in some cases also of a higher resolution. Comparing land change in satellite imagery over time with permit dates can present a prima facie case that logging took place before the correct permits were obtained.

In many cases, concession maps will not be available in the course of an investigation. In these instances, Google Earth and GFW can be equally valuable in refining the location in which illegal logging is taking place, and quantifying the scale of it. While this may not move closer to identifying the perpetrators, it can provide clues as to whether the activity is on an industrial – or small-scale, and identify if it is taking place in areas where concessions are not legally allowed to be issued. It can also assist in guiding next steps, particularly locations for fieldwork.

Palm oil concessions and deforestation alerts on Global Forest Watch
©Global Forest Watch

Case Study 3: Clearing Before Permits Have Been Obtained

In the course of an investigation in Indonesia, NGOs the Environmental Investigation Agency (EIA) and Jaringan Pementau Independen Kehutana (JPIK) identified large-scale clearing in an area of forest, where government maps that had already been obtained indicated there was no relevant permit. EIA and JPIK were able to discover the name of the company operating in the area, and identified timber being harvested in the concession and moved to nearby sawmills. However, provincial government databases did not include permits for the named concession. After several months, an Environmental Impact Assessment for the concession was obtained, not through government sources but in a village close to the concession. This included maps showing the boundaries of the concession, that were then digitised by a GIS analyst. Overlaying these boundaries with several Landsat images showed the month in which clearing began, and how much forest was cleared over the course of several months. EIA/JPIK obtained confirmation from the Ministry of Environment and Forestry that the company did not yet have legal rights to clear the forest.

Tool Box: High-Res Imagery

The highest-resolution imagery displayed by Google Earth is around 60cm, which means that each pixel on a computer screen will represent 60cm on the ground. Often mistaken for aerial photography, this is high enough resolution to view logging roads, trucks, even individual trees and logs. It exceeds the 5m resolution that is the highest available for free on Global Forest Watch. However, it is only provided for some areas, with most displaying Landsat imagery at around 15m per pixel, and is only intermittently updated.

It is possible to search for, preview and buy additional highest-resolution imagery (including the Worldview imagery used by Google Earth) directly from commercial providers. A useful tool for identifying available imagery is the 'Image Hunter' provided by Apollo Mapping at https://imagehunter.apollomapping.com.

This imagery is expensive to buy, at US$16 per square kilometer (km2), with a minimum order covering 25km2. In some cases, it is nonetheless possible to preview imagery for free (including for Worldview imagery). These previews are less than full resolution, but nevertheless provide higher resolution than that available from Landsat imagery.

Satellite imaging is a fast-moving field, with several organisations working to increase the accessibility of high-resolution, processed imagery. It is likely to become increasingly accessible and useful for forest monitoring.

Left: 15m-resolution Landsat 8 image showing fresh roadbuilding and intensive selective logging. Right: 50cm-resolution Worldview 2 image of part of the same area, with buildings, vehicles and individual logs visible.

Satellite imagery, and especially 'forest loss' maps extracted from it automatically (as GFW does), should be treated with caution. At lower resolutions it is not possible to determine if clearing is occurring in forests, or other types of vegetation such as farmland, scrub or even plantations. Automated analysis may not necessarily show clearing, and selective logging may not be visible in lower-resolution imagery, particularly if it is low-intensity or in forest which is already disturbed. It is also not possible to determine if commercial timber is being produced from disturbances seen, and if so at what volumes, let alone to determine who is doing the cutting. Mapping and satellite imagery analysis is useful for building the data, filling in parts of the picture and, particularly, guiding fieldwork where the questions it raises an be answered.

2.2.3 Investigating Harvesting: Fieldwork

Fieldwork presents a further opportunity to compare what is legally allowed to occur – according to permits and regulations – with what is actually occurring, and who is doing it. While it is an invaluable process, as will be explained, fieldwork presents significant security risks that are not present in previous stages of research.

It is vital to gather and analyse as much permit information as possible before the fieldwork stage, to provide a baseline against which field information can be measured. The systematic steps that should have been taken before fieldwork begins – comparison of permits to regulations, interrogating the contents of permits, and satellite analysis – ensure that it is properly informed and can be planned effectively. For example, if the permit analysis suggests that social obligations have been violated, a priority during fieldwork will be gathering data and narrative testimony from communities to that effect. If satellite analysis indicates clearing beyond concession boundaries, a priority will be visiting the areas identified to gather geo-referenced images of harvesting. In most cases, as in both of these examples, the prior analysis will both help direct fieldwork and help field investigators understand and interpret evidence they come across.

Fieldwork also presents an opportunity to fill in significant gaps in the data where efforts to obtain permits or carry out satellite imagery analysis have proved unsuccessful. While it can be difficult or even impossible to obtain permits from official channels, communities local to logging activities sometimes have them and other relevant documents.

Some types of illegality cannot be identified without fieldwork. It is essential to provide evidence of operational infractions in selective logging concessions, for example, such as harvesting of under-size trees or protected species. In other cases, indicative evidence of illegality found during previous stages of the investigation may be reinforced by field evidence. For example, if satellite analysis shows clearing outside concession boundaries, fieldwork can prove that it is being carried out by the concessionaire, and that timber from the clearance is being laundered into the 'legitimate' harvest.

The fieldwork phase is perhaps the first point at which there is a significant risk of 'information overload'. Whereas assessing permits and regulations is likely to be complicated by a lack of access to the relevant data, fieldwork can create a deluge of images, video, GPS points, testimony, more documents and general observations. As a result, proper planning, preparation and targeting is essential prior to the trip, as is data management during and after it.

"Proper planning and preparation is essential prior to fieldwork"

Documenting sawmill from a car in Indonesia ©EIA

Planning

A key difference between fieldwork and previous stages of the investigation is that while acquiring permits or analysing maps can be done over weeks or months, fieldwork takes place within a small window of time, often with only one opportunity. This is in part due to the logistics and costs of visiting remote areas, and in part due to the risks it presents. Spending excessively long amounts of time in the vicinity of logging areas presents risks not only to field investigators, but also to communities who may be providing them with evidence or have long-standing disputes with companies. Cultivating and using local informants will be key.

As such, the approach to planning fieldwork must be systematic. As many decisions as possible – on objective, itinerary, logistics and security – should be taken prior to the trip. It is inevitable that decisions will have to be made as new information emerges and sometimes these may lead to a substantial deviation from the plan. But at no point should the process become uncontrolled or ad hoc. Some key steps are to:

- Identify the types of illegality that require further probing through fieldwork based on previous stages of analysis.
- Determine what evidence is required to support hypotheses and how it can be obtained.
- Determine what other information can be sought, that might provide indications of other (as yet unidentified) illegalities.
- Draft a document outlining all potential leads that can be pursued.
- Put together an investigation team, ideally including individuals with local knowledge and individuals who can speak languages local to the area of interest.
- Use maps, satellite images and, where possible, local knowledge to determine the most appropriate itinerary through the area of interest that will exhaust all potential leads.

"Involving communities in fieldwork can present considerable risks to them"

Ideally, contact should be made with local communities or other contacts prior to the trip. This is best done through a fixer with local affiliations, who can also act as an intermediary in the course of the fieldwork. Fixers can provide knowledge of the landscape, local stakeholders, risks and other logistical issues that can improve planning. If such a fixer cannot be identified, fieldwork should proceed using a stepwise approach, by speaking to communities and other sources in increasing proximity to the area of interest, thereby building up knowledge of local conditions in areas of lower risk.

Tool Box:
Pre-Fieldwork Checklist

- Identify local fixer
- Make contact with communities
- Plan out itinerary using map
- Develop security plan
  (see **Risk**: *Mitigating risks in fieldwork*)

Fieldwork challenges in DRC ©REM

In the ideal scenario, communities can be relied on extensively for both information and to facilitate access throughout the area. They provide an incomparable source of information on the local context and operation of companies, and are keenly attuned to risk. They are often able to facilitate access into concessions or act as guides in forests. However, **involving communities in fieldwork in any way can present considerable risks to them**. While field investigators will leave the area of interest, communities will stay and can be subject to reprisals. Indigenous activists have been murdered by individuals protecting logging interests, so the seriousness of this risk must not be underestimated. **Any approach to communities must take this into consideration.**

It should also be considered that some community members will be in the employ of logging or other companies, and may have a close affiliation to police or local government.

The fieldwork itinerary should identify times at which villages can be accessed, and by what route. Potential entry points into the concession of interest can also be identified. Developing a sense of the time fieldwork will take, leaving sufficient room for contingencies, helps to establish a risk mitigation plan.

Logging companies usually construct and effectively own logging roads. They may have checkpoints and can control access to and from the area of interest. They will, however, often allow local people to use the roads and pass checkpoints, reinforcing the importance of using local fixers. Companies also have connections with – and may even exercise corrupt control over – local police and military. In many cases they have used these state agencies as de facto private forces to intimidate, assault, and arrest local community members and others seeking to investigate or protest against their activities. These factors must be considered when planning both the investigation, and the risk mitigation plan (see **Risk**: *Mitigating risks in fieldwork*).

Data Gathering

The data gathered during fieldwork will fall broadly into one of three categories:

- Written evidence
- Interview evidence (testimony)
- Geo-referenced visual evidence

Written evidence:

Documents may be available from local communities. As explored above, they may have obtained permits or other data from companies that investigators have been unable to obtain from other sources. This is most likely to include Environmental Impact Assessments and contracts that include some form of social obligation. It may be necessary to take photographs of documents, as communities will want to retain them. Signs erected by companies may also provide useful information.

Interviews:

Carrying out semi-formal or informal interviews with communities can provide a rich seam of information. This information may provide some evidence of illegality in itself and can definitely help guide further stages of fieldwork. These interviews can, in particular, help tease out a nuanced understanding of some more complex legal violations. For example, violations of the rights of communities to consultation during EIA processes, or companies' failure to observe legal obligations they have made to communities.

The need to focus on these types of illegality should be defined prior to fieldwork, and the interviews should be guided by a clear understanding of what testimony will support the indicative evidence. In some cases, particularly where the testimony is critical to proving a case, it will be desirable to film or record audio of interviews. Whether this is done or not, a clear agreement should be made between the investigators and specific community members regarding the ways in which the testimony can be used. In many cases it will present significant risk if evidence from communities, that can be attributed to them, is made public. Sound recordings should be checked in the field to ensure the testimony is clearly audible.

Even where there is no clear evidence of illegality in the testimony, it can provide a compelling vision of the harmful impacts of logging on communities, that can be used in denunciations that do not have a legal component.

Company employees are another source of narrative information. They should of course be approached with caution. But in some cases, during fieldwork, investigators may find themselves in low-risk conversation with workers. They can provide a great deal of information on company's activities within the area of harvest, and the destination of the harvested timber (see **Case Study 2**). In such cases, it may be necessary to record testimony covertly (see **Tool Box**: *Recording Evidence Covertly*).

"Carrying out interviews with communities can provide a rich seam of information"

Geo-referenced visual evidence:

The critical component of fieldwork is the ability to pinpoint what is happening where. The 'what' is provided by photographic and video evidence. The 'where' is provided by Global Positioning System (GPS) devices. GPS devices function by pinpointing the location of the device, using signals from three or more satellites. They display the location in latitude and longitude, and the degree of accuracy. The accuracy depends on a number of factors, but the devices are on average accurate to within 15m.

GPS devices are easy to use with a minimum of training, and combined with a camera can provide irrefutable evidence of what is taking place in a very specific location (see **Tool Box**: *GPS, Photography and Open Data Kit*). The key to good data gathering is ensuring that pictures are taken with a GPS device in view. Otherwise the data is essentially separated and can be refuted. Some cameras now have built-in GPS, and smartphones also combine both in one device. This process, of combining images with location, is key to demonstrating operational infractions, such as logging outside concession boundaries, harvesting of protected species, or logging in the wrong zones. This has been used to demonstrable effect in Cameroon, leading to a case under the EU Timber Regulation in the Netherlands (See **Case study 4**).

During fieldwork, investigators should ensure that photographs are taken of confirmed and potential infractions, but also other information of possible usefulness, such as signposts identifying companies or sub-contractors. Aside from GPS devices, it can also be useful to include a vehicle, person or other object in the shot in order to provide scale, such as in a photograph of a landslide next to a road, or of a stump of below the minimum diameter.

Investigators should bear in mind that use of still and video cameras brings additional attention and therefore risk (see **Risk**: *Mitigating risks in fieldwork*).

"The critical component of fieldwork is the ability to pinpoint what is happening where"

GPS with undersized log stump ©Earthsight

GPS and plantation in focus in Indonesia ©EIA

Tool Box: Drones

Until quite recently, aerial photography required the use of manned planes and helicopters and was prohibitively expensive. Rapid advances in unmanned 'drone' technology, however, are dramatically increasing the possibilities for use of aerial photography in field investigations. Due to the low altitude at which they can be flown, they offer aerial imagery at levels of resolution unthinkable for satellite imagery (for now). As such they present huge potential for monitoring remote areas of forest, whether for monitoring biodiversity or illegal logging.

Drones (also known as unmanned aerial vehicles or UAVs) can be divided into two distinct types: fixed wing drones and quadcopters. The former are more expensive, require more skill, are relatively complex to deploy, but can cover large areas. The latter are cheap, easy to use and quick to deploy, but have limited range. Generally speaking, fixed-wing drones have to-date been used in forest monitoring for mapping, while quadcopters have predominantly been used as more simple documentation tools. The use of drones is increasingly, and quickly, being regulated in many countries. Investigators should check the current local legal situation before using them in any given country.

Fixed-wing drones:
Since at least 2012, conservationists have been trialing the application of fixed-wing UAVs for remote monitoring. These lightweight, flying vehicles can host cameras and a GPS device, taking geo-referenced images, making them a very effective tool for monitoring remote and inaccessible areas. They can be flown along pre-determined routes or with a remote control, and cover 100 km per trip.

Unlike quadcopters (see below), fixed-wing drones suitable for use in forest monitoring cannot be purchased 'off-the-shelf' but usually require some adaptation of products on general sale. Their use also requires extensive knowledge and practice. However, a lot of advice is available on the internet, and specialist organisations such as Conservation Drones exist which can help. As a result, fixed-wing drones are becoming increasingly affordable and accessible to grassroots NGOs or even communities, for monitoring

Evidence of illegal logging in Gunung Leuser National Park detected by drones ©Keyeen Pang/Conservation Drones and SOCP

of their territory. In 2014, the Sumatran Orangutan Conservation Programme and Conservation Drones flew two flights separated by a few months over the Gunung Leuser National Park. The imagery they obtained, which is georeferenced, shows evidence of illegal logging that may not have been visible during fieldwork or foot patrols, even close to the area. The evidence was presented to park officials who took action to stop the logging.[11]

Quadcopters:

The past three years have seen a dramatic increase in sales of small remote-controlled quadcopters, with mounted cameras.

Quadcopters are affordable and extremely easy to use. A wide range of models of differing levels of capability are readily available to purchase 'off-the-shelf' and can be used in forest monitoring without special adaptations. With a morning of reading and an afternoon of practice, most users can become fairly accomplished. They lack the range of fixed-wing drones, but make up for this with ease of deployment and the ability to hover over areas of interest. Most often they will be guided by eye, using a remote control, in contrast to the pre-planned routes flown by drones. This will lead to a less comprehensive coverage of an area, and the imagery they produce may not be geo-referenced.

However, as an auxiliary tool to fieldwork they can be invaluable. They can be deployed within minutes and offer a birds-eye view of conditions on the ground. They can be used to view sawmills or logging operations from a reasonably safe distance. Like drones, their routes can also be plotted out by adding some basic software to the kit.

Image of forest canopy in Indonesia taken with quadcopter ©EIA

Tool Box: GPS, Photography and Open Data Kit

Photos taken during field investigations are most effective when combined with GPS data. This can be achieved through the simple process of including GPS devices in pictures, so the screen displaying latitude and longitude is visible. This is useful post-fieldwork, to cross-reference field evidence with contextual spatial data, such as logging stumps with concession maps. But it is perhaps more important to provide proof to enforcement agencies or other stakeholders. Though simple, there is an art to taking pictures including GPS devices, due to screen reflections and the need to ensure that both the evidence and the numbers shown on the device are in focus. It is something that comes with practice, and practice should be done before the fieldwork. Reasonable knowledge of how cameras function, to adjust depth of field, is useful. Photos must be checked to ensure that both GPS coordinates and subject are clear, and retaken if necessary.

Smartphones all now include cameras and GPS devices. Google has developed a set of tools, Open Data Kit (ODK), that enable this hardware to be deployed for data gathering in remote areas. ODK allows users to:

- Build data collection forms or surveys;
- Download the form to a smartphone and collect data;
- Send the data to a server and extract it in useful formats.

This has been used in complex settings, for example, carrying out extensive health surveys in remote parts of Africa. But it can also be used for relatively simple purposes, such as basic field investigations. In this context the form can be designed to ask users to record location (which uses the smartphone's internal GPS), one or more images, some text, and multiple choice questions. This can then be sent to a server either directly from the field, if there is an internet connection to the phone, or later when back in an office.

"There is an art to taking pictures including GPS devices"

The data can then be exported in a format that is compatible with GIS software, or visualised on Google Earth. The advantage is that it automatically orders and rationalises potentially large amounts of field data, and automatically connects images to location.

ODK and similar systems, of which there are many, are being applied for forest monitoring in Guyana, the Congo Basin, Indonesia, Myanmar, Colombia and Suriname, to name a few. The advantage of ODK over some other systems is that it can be deployed simply and quickly, and is free. Other systems may be more suitable depending on a range of criteria. More information can be seen at opendatakit.org.

If these technologies are employed, or investigators are using a camera or smartphone with GPS embedded, they should also bring and use a simple standalone GPS device as a backup; these are more rugged, have longer battery life and better reception.

Activists using smartphones for forest monitoring in Indonesia ©EIA

Next Steps

Timber is transported from logging sites by truck, and commonly consolidated at log collection points within the harvest area before onward transport. From there, timber may be taken by road direct to mill or port, but more commonly is transported to the nearest navigable river and transported onwards by barge or floated down-river in rafts. In some regions, logs are consolidated at railheads and transported by train. While it may occasionally be possible to physically follow trucks in order to determine their destination, usually other methods must be employed to connect logs from point of harvest to point of processing or export. GPS trackers, attached to trucks, barges or individual logs, have been used effectively to trace timber further down the supply chain from the point of harvest (see **Case Study 8**). It is often also possible to make connections by searching for logs with relevant identifying markings (see **Tool Box**: *Log Markings*) in mills nearby, downstream or otherwise considered likely to be using the wood. In many cases however, tracking timber will have to be done using the paper trail (see Section 2.3.2).

Post fieldwork

Given the time pressure that investigators are commonly under in the field, and the volume of information that can be available, good data management is essential. When returning from field trips an investigator will typically have hundreds of pictures, dozens of GPS points fixed in the GPS device, pages of notes, and potentially audiovisual records of interviews with communities. Establishing a system for managing this data while in the field, and processing it quickly afterwards, is essential to turn raw data into evidence.

The importance of this process cannot be overstated. **In the event that an illegal logging case gets to court, data that is poorly organised and managed may be inadmissible.**

Once key evidence (such as digital images) is logged, copied and backed up, analysis can begin. Subsequent to fieldwork any geo-referenced data can be added to existing maps to present a clearer picture of the location of harvesting. This is where Google Earth or specialist GIS software is more useful than Global Forest Watch, in that GPS data can be downloaded and compared with contextual data, particularly concession maps. This enables the identification of operational infractions such as logging outside boundaries. Where pictures evidence this, they should be cross-referenced with GPS data and stored in a format that enables the evidence to be easily accessed.

Greenpeace investigations in Cameroon demonstrate how effective such simple overlays can be (see **Case study 4**). The same method, integrated with other, more complex techniques, was also employed by Greenpeace to follow up its investigation into illegal logging in Para State, Brazil. In this case, the evidence was supported by GPS trackers planted on logging trucks, a tool that provided an unprecedented insight into the laundering of high-value species (see **Case Study 8**).

Connecting the dots and next steps

The cycle of gathering permit data, analysing maps and carrying out fieldwork can be carried out more than once, and it may be necessary to do so to complete a set of information that reaches evidentiary thresholds. Where clear or prima facie evidence of illegality has been established, the next step will be to determine where the timber is going from the point of harvest. In some cases, the evidence will remain unclear irrespective of the extent of investigations at the point of harvest. This is particularly the case where the perpetrators are a large number of seemingly unorganised individuals, acting independently, or where timber is being laundered. It may also be the case where levels of transparency make it impossible to get permits and maps, or where security risks or logistical challenges prohibit thorough field investigations.

In all of these instances, moving downstream and identifying the destination of timber – whether through physical observation or tracking, or following the paper trail – presents a new and different opportunity to investigate the illegal timber trade. Timber can be harvested legally but subsequently become illegal, downstream, due to violations of other regulations governing its transport, processing and trade.

Logs on a barge in Sarawak, Malaysia ©Earthsight

Risk: Mitigating Risks in Fieldwork

Investigating illegal logging carries with it significant risks, especially during fieldwork. In many countries, those investigating this subject have been arbitrarily detained, seriously injured or even killed, and anyone planning such work must take the risks seriously and take appropriate steps to assess and mitigate them.

The nature and degree of risk in undertaking fieldwork will vary significantly between countries and within them. In all cases, where the objective is to document illegal activities, it is wise to assume some level of risk. Field investigators may be subject to threats from loggers, company security or arrest by police, whether warranted or not. Travelling into remote forest areas, with limited or no communication with the outside world, they may suffer an accidental injury, or a vehicle breakdown that leaves them stranded.

In any of these scenarios, the risk mitigation strategy centres around a careful assessment of possible risks, and the development of contingency plans including an established system of communication with someone not directly involved in the fieldwork. The following steps provide some guidance and should be adapted according to local circumstances. Ultimately, if the risk is too great then the only suitable mitigation may be not to undertake fieldwork at all.

- Prior to every investigation, a written assessment of the possible risks should be prepared.
- Where a field investigation is expected to include areas outside of mobile/cellular telephone coverage, a satellite phone should be taken as an emergency backup; these can usually be rented for a reasonable cost.
- Field investigators should develop a clear plan and itinerary, determining the days on which they expect to be in certain locations. They should seek to determine if and when they will definitely be out of contact by phone or other means.
- The plan should be shared with a trusted contact, ideally a member of the team, who will not be involved in the fieldwork, and who agrees to ensure they are contactable by mobile phone 24 hours a day during the period of the fieldwork
- The field team must establish a communication plan for checking in with the nominated contact, making note of limitations to phone access. The plan should determine what action will be taken in the event that contact is not made within a pre-determined margin of the specified time. This may include reaching out to other contacts known within the given area, or notifying officials where safe and appropriate. The plan should include contact details of relevant individuals to be contacted in different emergency circumstances, including mobile phone numbers.
- In some regions, it may be appropriate for field investigators to identify a lawyer who can be contacted in the event they are arrested or detained. Ideally the lawyer should be contacted prior to the fieldwork.
- Field investigators should use tried and trusted drivers where possible and ensure they are aware of the sensitive nature of the task; they should also carry out basic checks of vehicles (such as checking the spare tyre) before setting off.
- Field investigators should have some form of cover story that justifies their presence in a particular area. This should not be elaborate, and should be as simple as possible. An example might be carrying out research on behalf of a university, or tourism.
- Field investigators should ensure that they bring attention to themselves (such as by pointing a camera out of a car window) only to the minimum extent necessary to obtain key evidence; lower priority tasks (such as capturing video and photos to help 'illustrate' a report) should only be carried out after priority tasks have been completed.
- Investigators should determine how they will communicate with local communities, and the extent to which their full purpose that should be shared. It is important to be honest whenever possible.
- Investigators should ensure that where communities share information, they have agreed to the terms in which that information can be used. This is particularly important where the information is directly attributable to them. This agreement should be clear, unambiguous and respected.

- Investigators should ensure that data is managed in such a way that any sensitive information does not fall into the wrong hands, in the event they are arrested or detained by company staff. At a minimum, phones, laptops and other hardware should be password protected. Hardware should be kept 'clean' of any incriminating or sensitive data, which can be stored on an external hard drive. Ideally, data should be encrypted and hidden from obvious access. Encryption software is easy to use and free to download. More guidance on encryption will be available at **www.timberinvestigator.info.**

Case Study 4: Combining Field and Map Data[12]

Greenpeace carried out its analysis of illegal logging in Cameroon using boundaries of cutting permits made available through a collaboration between the World Resources Institute and the Cameroon Ministry of Forestry and Wildlife. The data was published as part of an effort to strengthen forest management in the state. During field investigations in 2014, Greenpeace documented logging roads, logs and stumps using GPS and photos. They subsequently overlaid the location of the logging activities with the permit boundaries, identifying timber harvesting almost two kilometers beyond the permitted area . The evidence was presented to the Dutch authorities tasked with implementation of the EUTR. As a result, the authority filed a report with the public prosecutor against a company that had imported timber from Cameroon, for its failure to properly exercise due diligence.

Protest at Caen port in France on alleged illegal logs from Cameroon ©Greenpeace

2.3 Transport, Processing and Trade

The space between the point of harvest and the point of export can be simple or complex. In some countries, for example Laos, timber is loaded on to trucks close to the point of harvest and moved directly to border crossings. In others the supply chain can involve many more steps, individuals and entities. In Indonesia, for example, timber felled in Papua may be subject to some basic processing, moved by ship to the island of Java, sold to furniture manufacturers by a broker and exported by an agent.

Investigating this stage in the supply chain offers two benefits. Firstly, it can identify the movement of timber from an illegal source to the point of export, from where it can be traced to sensitive markets. Secondly, it can identify illegalities not related to harvesting. The transport, processing, trade and export of timber is subject to a range of regulations to ensure products are appropriately taxed and to support forest management through down-stream mechanisms. The violation of these regulations is captured by the definition of legality in both the EUTR and Lacey Act. Indeed, successful prosecutions under the Lacey Act have been predicated on illegalities committed at this stage of the supply chain. Even if the timber was harvested legally, it becomes illegal if rules further down the supply chain are broken.

"Successful prosecutions under the Lacey Act have been predicated on illegalities committed at this stage of the supply chain"

Log truck in Sarawak, Malaysia ©Earthsight

2.3.1 Illegalities during Transport, Processing & Trade

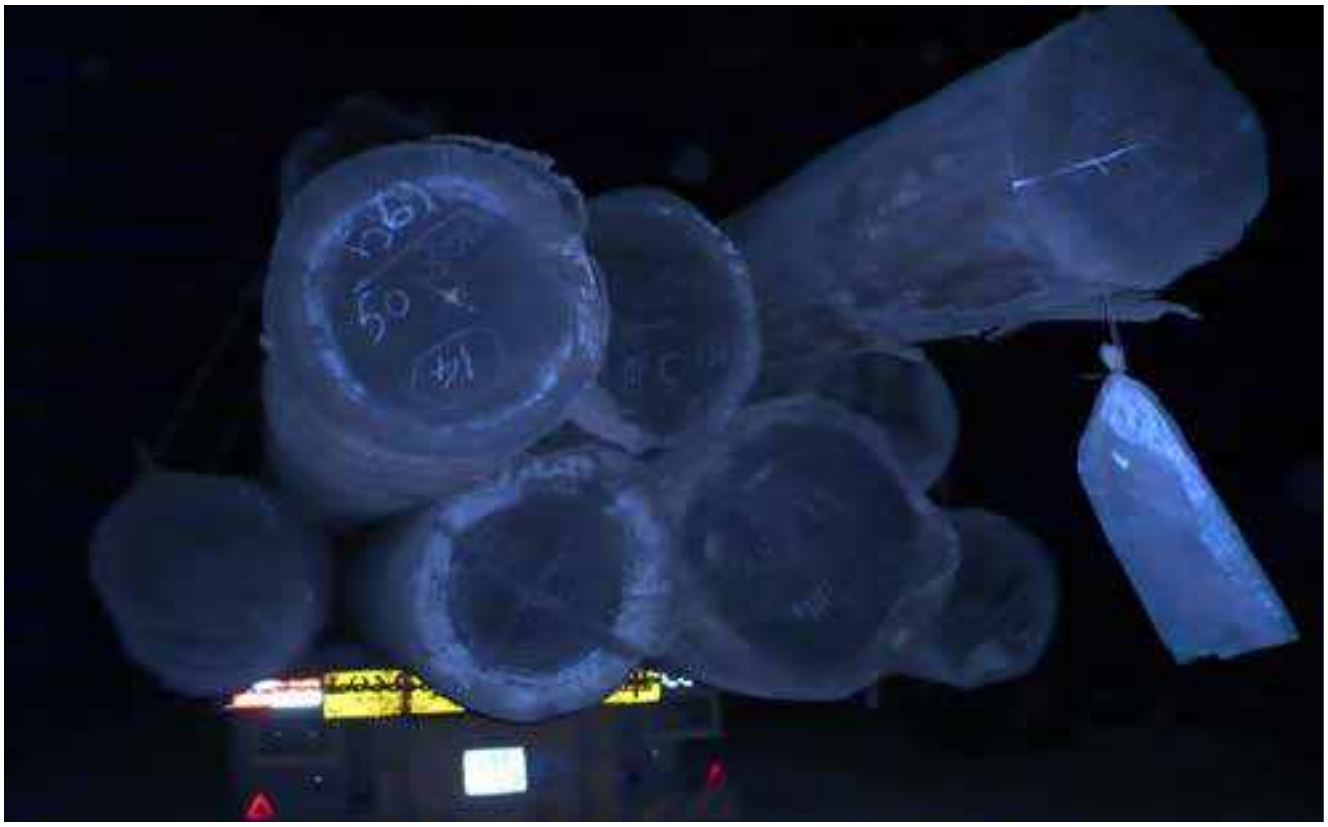
Transport violations

After timber is harvested, in most cases there is a legal requirement to mark logs, often using purpose-made hammers (see **Tool Box**: *Log Markings*). This is commonly to enable some degree of traceability back to source further along the supply chain. Some harvesting regimes include checking by government officials subsequent to harvest, producing documents that attest to the legality of harvest. It also enables checks against forest inventories or cutting plans, to ensure companies are not over-harvesting.

Another common feature is the use of timber transportation permits, issued by authorities, that should accompany timber from the point of harvest. In Indonesia, for example, timber from natural forests should be accompanied by a certificate of legality, attached to a log list. These kinds of documents are designed to prevent illegal wood being moved, while also allowing officials to reconcile raw materials used in processing against a specific legal harvest. Official wood transport documents and markings may only be required for logs, but in some countries are also required for secondary processed wood such as sawn timber.

Log markings and transportation documents are often associated with illegality. In many instances logs are not marked at all. In Cameroon, Greenpeace has documented logs that were harvested illegally but nonetheless marked (see **Case Study 4**). In Indonesia, JPIK has identified companies illegally sourcing timber from community forests and moving it to sawmills without transport documents (see **Case Study 5**).

Illegal use of transport documents is also used to facilitate over-harvesting or other legal violations. In Peru, transport documents have been duplicated and falsified, to enable the laundering of illegally-harvested timber through concessions where there is a 'legitimate' right to harvest (see **Case Study 6**). In the Republic of the Congo laundering is facilitated in a similar way, through the duplication of logs and log stump numbers. In Cameroon, fraudulent transport documents linked to community forestry are used to launder illegal timber. In some states, prohibitions are placed on the movement of products or product types within the country, such as a ban on the shipment of logs out of a particular province.



Log trucks moving under cover of darkness in Laos ©EIA

Processing violations

Processing facilities, including upstream sawmills and downstream factories, are subject to a regulatory regime distinct from that which regulates the source of timber they use. Mills often need valid permits from the forestry authorities to operate, and may be subject to periodic audits. Timber that has been legally-harvested or traded, may be deligitimised if processed in a facility that violates the prevailing regulations.

"It is common for companies to breach export controls, often with the collusion of officials"

Export prohibition violations

In an effort to suppress over-exploitation and support domestic processing industries, many states have imposed bans or restrictions on the export of unprocessed logs and some cases also rough sawn timber. Some, including Brazil and Indonesia, have an outright ban on raw log exports. In others the picture is more complicated, in ways that facilitate circumvention of the restrictions.

In Laos, for example, there is a ban on log exports, but the government reserves the right to exempt specific shipments. In reality log exports are the norm, with a lack of clarity over the decisions behind, or legal basis for, the exemptions. Rules in the Republic of Congo limit the proportion of its harvest each timber company may export as unprocessed logs, but special approval can be obtained to expand this limit. In practice, the proportion of logs exported exceeds the standard limits on a routine basis. In some states, such as Mozambique, log export bans are restricted to specific (commonly high-value) species.

It is common for companies to breach such export controls, often with the collusion of officials. Timber may be exported inside shipping containers and misdeclared. Logs may be smuggled out in small vessels and then transferred to larger vessels at sea or in neighbouring countries. On arrival in destination countries, the illegal logs may be falsely declared as originating elsewhere, complete with entire sets of forged documents.

Case Study 5: Timber Smuggling in Indonesia[13]

Labora Sitorus, a low-ranking police officer in Indonesia's West Papua Province, was the owner of a timber processing company named PT Rotua. During fieldwork civil society investigators determined that PT Rotua was receiving logs crudely processed in the forest from communities in two districts. Investigators subsequently determined that PT Rotua was using incorrect or incomplete documents to transport the timber from the point of harvest to its sawmill, and from the sawmill to the processing hub in the city of Surabaya. Sitorus was arrested in May 2013 and 115 containers of precious Merbau timber, estimated to be worth more than US$20 million, were seized. Subsequent investigations by the anti-corruption agencies suggested that nearly US$128 million had been laundered through his personal bank account, the proceeds of both illegal timber and smuggled fuel. In 2014, Sitorus was convicted of illegal logging and money laundering. He was sentenced to a 15 year prison term and instructed to pay a US$400,000 fine.

Labora Sitorus

Tool Box: Log Markings

In all timber producing countries, rules and regulations exist which require that specific markings are placed on the ends of all legal logs. Companies involved in cutting or trading logs may place additional markings on log ends not required by regulations. Understanding these markings and being able to decipher them can be very useful when investigating illegality and tracing supply chains.

Log markings may take the form of tags, paint or 'hammer-marks' (where letters and numbers are pressed into the surface of the wood using a special hammer). Markings will commonly indicate the name and/or license number of the licensed harvesting area from which the log originated. They may also identify (by means of a code) the specific location within the concession where the tree was cut. In some cases they may even relate to an individual tree, whose stump is required to be labelled with the same code. The name of the company is rarely given in full, but is usually either the company initials or a code. Different markings are placed on log ends at different stages of the process of harvest, transport and export. Exported logs may carry additional markings or logos identifying the exporting company.

Some mandated markings may only be added by officials, though companies are often given the responsibility, with occasional checks by officials. In the simplest case, a lack of required markings may demonstrate that logs were illegally harvested. More often, the log markings can be used to trace logs back to a location where illegal logging has been otherwise documented. False log markings may also be used to launder illegal logs; they may be added to logs to begin with, or original markings may be removed and replaced. At a port in the DRC in 2013, for example, Greenpeace witnessed logs from an alleged illegal source having their ends cut off and new markings painted on.[14] It may be possible for independent investigators to expose such practices, though to prove systematic fraud typically requires a level of access to logs and related documentation only possible for monitors with official mandates.

Additional detailed guidance on how to interpret markings found on logs from different countries is available on **www.timberinvestigator.info**.

Paint marks on a log from Cameroon. The marks identify the logger, the license area, the specific block within that license area, and the date the tree was cut.

Tag and hammer-stamp on a log from Sarawak, Malaysia. The logo on the tag relates to the logging company, and the three letter code allows it to be traced to a specific license area.

Barcode on log from PNG. The code relates to a specific logger and license area.

Tax evasion

The same practices that enable companies to obscure the illegal origin of timber can be employed to minimise tax liability. Harvesting taxes may be evaded by under-declaring total volumes extracted from a forest or falsifying species. Export duties and tariffs (both general and timber-specific) can be evaded by the same methods. In just one month in 2012, for example, authorities in the Republic of the Congo estimated that 12 companies had failed to declare almost 4,500m^3 of logs, with a commercial value of 2.5 million euros.[15] Even more pervasive than under-declaration of volumes at point of export, and harder to detect, is under-declaration of prices paid. Harder still is transfer mispricing, where actual prices charged and paid by related companies are lower than true values. In 2008, for example, Greenpeace published leaked internal documents from a Swiss-based logging multinational indicating systematic mispricing during the early 2000s regarding log exports from the DRC and Republic of Congo. Greenpeace estimated that the activities exposed may have denied the governments of the two countries nearly $10 million in revenues.[16]

CITES violations

The UN Convention on the International Trade in Endangered Species (CITES) imposes controls on international trade in certain species. Species that are threatened with extinction if international trade continues unregulated can be added to one of three Appendices to the Convention, affording varying restrictions on trans-border shipments. The advantage of CITES to states struggling to enforce domestic laws is that, as an international agreement, it is enforceable in destination or market countries, not only the country of source.

By definition, CITES regulates species that are increasingly rare and, by extension, usually high value. This includes various Dalbergia species targeted as precious rosewoods, and Bigleaf Mahogany. To enable export of certain specified products of CITES-listed species, companies must first obtain a permit from the CITES Management Authority of the source country. For Appendix III species exported from countries other than the listing country, a CITES Certificate of Origin is required.

In all other instances, a CITES Export Permit is needed. Export permits can only be issued providing the timber has been sourced legally and (for Appendix II) if the export will not be "detrimental to the survival of the species".[17] This adds another layer of protection and oversight to these species, but one that is frequently violated.

Timber subject to CITES controls but without the required paperwork may be smuggled by false declaration as other species, by false declaration as product categories not captured by a listing, or by shipping more than a given permit allows. Even where shipments are covered by a CITES permit, illegalities are frequent. Permits can be obtained through fraud, issued through corruption, or simply forged. Examples of these practices for CITES-listed timber have been documented in recent years in both Peru and the DRC (see **Case Study 6**). Shipments with valid CITES permits are exempt from the EUTR.

"CITES permits can be obtained through fraud, issued through corruption, or simply forged."

Cargo ship seized off the coast of Papua in 2003 ©EIA

2.3.2 Investigating Transport, Processing and Trade

The paper trail

As it moves from the point of harvest to the point of export, timber must be accompanied by documents that attest to its source. The scope and complexity of this official 'chain-of-custody' system varies between countries. In Brazil, for example, there is an electronic database of 'credits' that are exchanged from producers onwards through the supply chain. In other countries the system exists predominantly in hard documents, and may not extend to secondary processing. Analysing this data can provide evidence of violations through the supply chain, and also enable the connection of illegally-harvested timber to export.

In Brazil, for example, Greenpeace was able to identify sawmills that had purchased timber covered by credits from areas within which infractions had been found. From the sawmills they were able to identify companies selling the timber to export markets (see **Case Study 8**).


CONVENCIÓN SOBRE EL COMERCIO INTERNACIONAL DE ESPECIES AMENAZADAS DE FAUNA Y FLORA SILVESTRES

PERMISO/CERTIFICADO Nº 11474

EXPORTACIÓN
REEXPORTACIÓN
IMPORTACIÓN
OTRO

CITES permit from Peru ©EIA

In Indonesia the connection between harvest and sawmills is provided by raw material plans formulated by sawmills. These record, on an annual basis, the source of the logs processing companies plan to use in the year ahead, and retrospectively account for the supply base in the previous year. The plans reference companies by name, which may include concessions where operational infractions or other forms of illegal logging have been identified. From the sawmill, the timber can potentially be tracked to market by a number of methods, including covert meetings, or working back from the market (see sections that follow). Access to this data should be significantly improved by the case won by the NGO Forest Watch Indonesia against the Ministry of Environment and Forestry, under Indonesia's Public Information Disclosure Act (see **Tool Box**: *Freedom of Information*).

CITES Export Permits, where they can be accessed, provide another stream of useful information, as they are issued to exporters. In one example, CITES Export Permits from Peru were cross-referenced against official government enforcement reports, allowing more than 100 exports linked to forest in which serious illegal activity had occurred to be identified (see **Case Study 6**).

The potential to replicate these forms of investigations will depend on the availability of different datasets, their accessibility and their reliability. Investigations in Brazil and Peru demonstrate that complex illegalities at source, laundering and opaque supply chains can be linked through to export if the data is available.

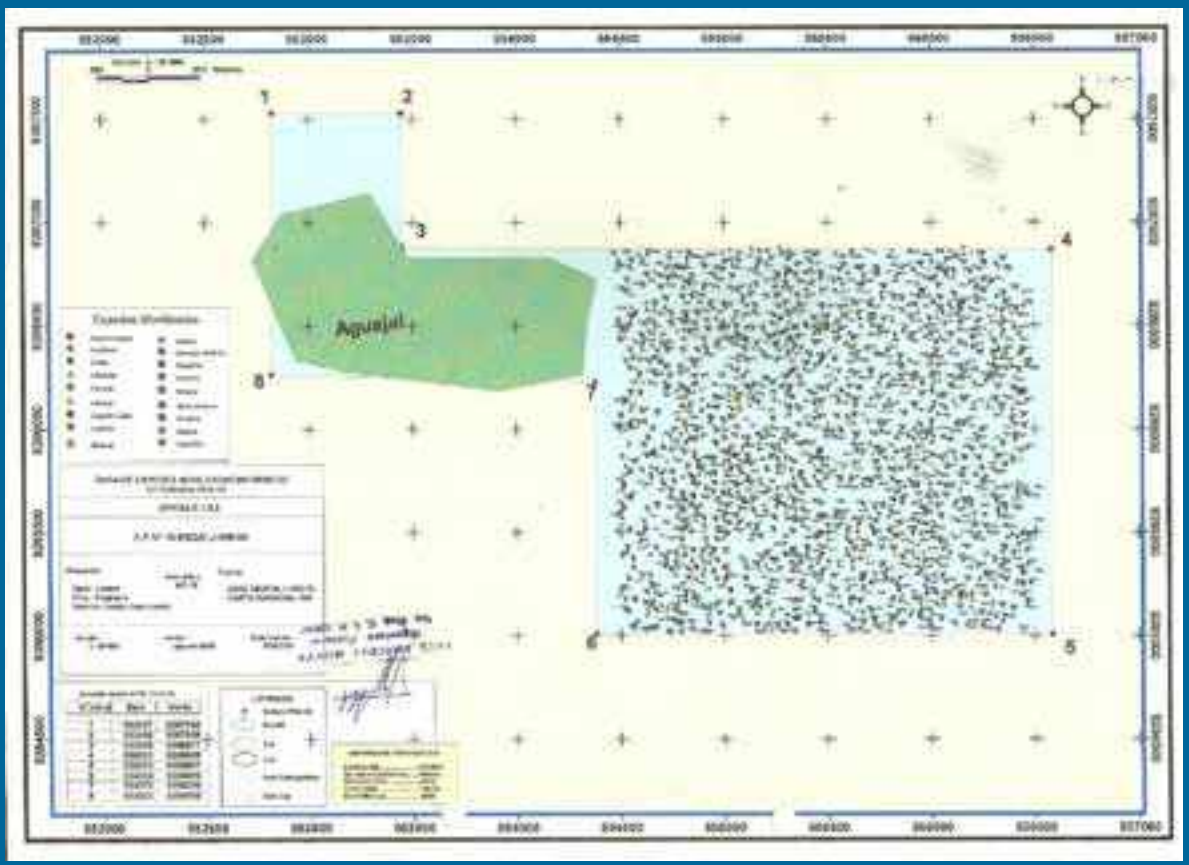

Illegal timber processed in Brazilian forest ©Greenpeace

Case Study 6: The Peru Paper Trail

In Peru a state agency, the Supervisory Body for Forest Resources and Wildlife (OSINFOR), carries out regular, random field inspections to forest concessions that have recently been logged. During these inspections, OSINFOR officials assess the extent to which harvesting has taken place in compliance with regulations. They also assess a sample area of forest to check it against volumes declared by the concessionaire. These inspections produce Supervisory Reports that identify illegalities such as false inventories, illegal logging and misuse of permits to launder timber.

The Environmental Investigation Agency (EIA) obtained Supervisory Reports for inspections carried out between 2008 and 2011 using Peru's Transparency and Access to Public Information Law. More than 200 concessions covered by the reports exhibited some form of serious illegality. EIA cross-referenced these reports with a database of CITES Export Permits for Spanish cedar and big-leaf mahogany from Peru, which were also obtained under the transparency law. This identified more than 100 permits used to export endangered species to the US, all of which could be directly connected, through the permits themselves, to concessions where OSINFOR had identified evidence of serious illegal activities.

The CITES permits name the concessions of origin, in theory, but in some cases they were linked to concessions where OSINFOR had found no legal logging. In most cases, the concessionaires had falsified inventories to inflate the volume of endangered species legally available to them. The CITES permits also named the importers of timber in the US, so using this process EIA was able to make a clear link between illegal harvest and market.



A map submitted to authorities by a Peruvian logging company, showing the entirely fabricated location of over a thousand trees never actually harvested

Observational fieldwork

In states where data is unavailable, of insufficient quality or hidden behind bureaucratic walls, parts of the supply chain can be illuminated through direct observation. Physically tracing logs from source throughout the entire chain is logistically prohibitive, if not impossible. But log markings (see **Tool Box**: *Log Markings*) can help identify the source of timber downstream, even as far as markets in different continents.

EIA has identified timber sourced by the Vietnamese military throughout the supply chain, from forests in Laos to border checkpoints and beyond, using tags unique to it. The same method can be used in other countries, provided companies and officials make use of the individualised markings they are legally required to, and investigators are able to decipher them.

This methodology can be employed where investigations begin at this stage and are aimed at identifying violations of transport and export violations, rather than illegalities at the point of harvest. For example, EIA has documented and highlighted violations of restrictions on exports of logs via Myanmar's northern land border with China, without also tracing the wood back to the point of harvest (see **Case Study 7**).

It may also be possible for investigators to obtain information from log truck drivers or people who live or work along timber transport routes. Such conversations should be undertaken with caution, but can be productive in determining where timber is coming from, or where it is going. Individual junior workers might also be approached at logging sites, log ponds or restaurants. If this is done, it is essential to have a reasonable cover story to justify both the investigators' presence in an area, and their interest in logging activities. If investigators are posing as tourists, it is reasonable for them to ask questions out of general curiosity, though questions cannot be too detailed or probing. If the investigators are or could be perceived to be locals, they could pretend they want a job with the logging or transport company, which can justify quite probing questions.

It should be possible to determine if such conversations or interactions are likely prior to the trip, depending on the itinerary and nature of the investigation. Decisions over how this is approached should be built into pre-trip planning (see **Risk**: *Mitigating Risks in Ftieldwork*). It may be desirable to record such conversations covertly, if the equipment available makes it safe to do so (see **Tool Box:** *Recording Covert Evidence*).

Even where investigating the paper trail has produced clear evidence of illegality and made connections through the supply chain, this form of observational fieldwork can provide further information. It should be viewed as a second phase of the form of fieldwork identified in Section 2.2.3 Investigating Harvesting: Fieldwork, employing similar forms of preparation, approach and risk mitigation (see **Risk**: *Mitigating risks in fieldwork*).

It can be particularly effective where timber supply chains are consolidated, with the same companies engaged in logging also selling timber directly to export markets. This can be seen in the DRC, for example, where Greenpeace has identified companies engaged in illegal logging selling logs and sawn timber directly to European states and the US. There the market connection was made through undercover methods and interrogating trade data (see Section 2.4: Tracking onwards to end markets), but observational fieldwork in ports can provide leads to guide these next stages in the investigation.

"Observational fieldwork can be particularly effective where supply chains are consolidated, with the same companies engaged in logging also selling directly to export markets"

Log trucks on the Laos-Vietnam border in 2008 ©EIA

Undercover investigations

Covert, or undercover, investigations can prove to be the most effective methodology at this stage of the supply chain. Posing as timber traders has been used to significant effect by Global Witness, EIA, Earthsight and others over the past 20 years. It has provided the information that has exposed the inner workings of corruption and an unprecedented insight into the nature of illegal trade.

However, conducting formal face-to-face meetings and company visits undercover requires significant knowledge, skills and experience, and carries significant risk. As a result, these advanced forms of covert investigation should not be attempted without training from experts. However, where carried out remotely by phone or email, undercover methods can be used safely without specialist training. In 2010, for example, undercover telephone research helped make a supplier connection between Indonesia and the UK (see **Case Study 11**).

Case Study 7: Investigating Timber Exports[18]

In April 2014 Myanmar enacted a log export ban in an effort to stem rampant over-extraction of timber in its dwindling forests. The annual allowable quota in the country has been regularly exceeded due to uncontrolled harvest and exports, with much being transported directly over its northern border with China, in spite of a requirement that all exports are routed via Yangon, in the south. In June 2015 EIA investigators travelled to border crossings between Myanmar and China to assess the volume of logs exported in violation of the ban. In the town of Nongdao they documented thousands of tonnes of high-value teak, tamalan and padauk logs that had been brought into China from Myanmar. In the key transit town of Ruili, also inside China, investigators observed trucks unloading rosewood flitches on a daily basis. In early 2015 investigators documented long lines of timber trucks waiting to cross the border into China laden with logs.

EIA also employed covert methodologies, posing as timber buyers to obtain information from traders and logistics agents. This enabled them to establish a picture of the methods employed by the trade to gain access to resources, circumvent restrictions, and the complex web of individuals controlling the supply chain.

Log trucks on the Myanmar-China border ©EIA

Case Study 8: Tracking Logs from Harvest to Export[19]

In 2014, following up on its detailed investigation into illegal logging in the Brazilian Amazon (see **Case Study 1**), Greenpeace placed GPS locator beacons on logging trucks operating in Pará state. Pará produces and exports more timber than any other state in Brazil, with three quarters of logging estimated to be illegal. The beacons, or trackers, emit signals that can be detected remotely and tracked over time. They revealed that the trucks were travelling to remote public forests during the day and bringing timber to sawmills overnight. Cross-checking the locations with government maps revealed that no logging rights had been issued for the areas from which the trucks were taking logs. Reconnaissance flights by Greenpeace over the same areas enabled them to document a network of logging roads and illegal camps.

Greenpeace then checked the electronic records for the sawmills that were receiving the logs, and checked satellite imagery for evidence of logging in the stated source. They found that in many estates there was no sign of logging at all, and some only little. They concluded that the logging estates were being used as a front to provide the sawmills with paperwork, enabling them to launder illegal timber sourced in the public forests.

Used in this way GPS trackers can clearly be extremely effective, but the investment of time, expertise and level of risk undertaken by Greenpeace should not be underestimated. Placing the trackers on the trucks required building up a degree of trust and familiarity with truck drivers over a period of months. It should also be noted that the evidence was particularly effective because it was combined with other data, including permits, chain-of-custody data, satellite imagery and aerial photography.

Log truck in Pará State, Brazil ©Greenpeace

By this stage of an investigation, a company profile should have been developed for any company of interest, including contact details (See **Tool Box**: *Building company profiles*). Where these have been obtained, investigators can safely make an undercover approach remotely (by phone or email). Investigators might choose to pose as a prospective buyer or seller of wood, as a journalist or as an academic researcher. Thorough research is essential when choosing and informing a cover story (see **Tool Box**: *Developing a Cover Story for Use in Undercover Work*).

The following are some of the types of information that can often be obtained by approaching companies in this way:

- Species they use.
- What products they sell.
- What volume of products they sell.
- The source of the timber used in their products.
- To whom or to which countries/regions they sell their products.
- The extent to which their supply chain is integrated. For example, whether they are involved in harvesting upstream, and/or exporting downstream.

Measures should be taken to ensure that the real identity of the investigator cannot be traced. They should not use their real name, personal email address or phone number. Careful records should be kept of all communication with companies, and the data obtained through these means should be properly catalogued for future reference. For methods that can be used to record covert interactions (see **Tool Box**: *Recording Evidence Covertly)*.

Tool Box: Developing a Cover Story for Use in Undercover Work

When trying to obtain information from companies using undercover methods, the nature of the cover story must be decided on a case-by-case basis, depending (among other things) upon the nature of the company and what key pieces of information are being sought. The most obvious would be to pose as a prospective buyer, but another option might be to pose as an academic researcher. The clear advantage of the former is that companies are more likely to give up their time if they sense a potential sale. The disadvantage is that it is easy to be caught out – more likely as a timewaster, than as an investigator – if the details and language of the trade are not right. By contrast, companies (particularly the least legitimate) may be unlikely to give up their time to a researcher. But if they do so, there is no need to pretend to be knowledgeable about the trade. Obvious, even direct, questions can be asked, even about legality and corruption. It is also less likely that the interviewee will exaggerate or lie, in the way they might in an attempt to impress a prospective buyer.

Once the appropriate cover story is decided, the investigators should carry out research to ensure they can back it up. If they are posing as buyers, for example, they will need to have a close understanding of the type of products customers might buy, and the questions they may reasonably ask without arousing suspicion. Often an investigator posing as a buyer will be seeking information not normally requested – such as details of the origin of wood used in a product (including copies of paperwork), or identities of other customers – for which particular false justifications need to be developed as part of the cover story.

They may also need to flesh-out their front identity so they can explain who they are to the companies they are approaching. This may include obtaining an email address specific to the purpose and potentially even establishing a fake company website. Depending on how the target was actually identified, investigators may also need to have a cover story ready for how they came to know of the company and obtained the contact details used.

Case Study 9: Mapping Out Trans-Continental Supply Chains[20]

The Environmental Investigation Agency carried out interviews with Russian authorities, non-profits and communities, and determined that systemic illegal logging in the Russian Far East (RFE), and the laundering of the timber using falsified permits, was something of an open secret. EIA analysed Russian, Chinese and US customs records to identify dozens of Chinese companies exporting hardwood flooring to the US, constructed using oak from these forests.

Subsequently, EIA investigators posed as importers to meet the Chinese exporters. Investigators were able to question more than 20 different sawmill operators and flooring manufacturers about the sourcing practices of their US buyers. One such company was Chinese-owned flooring company named Suifenhe Xingjia Economic and Trade Company (Xingjia). In covert meetings with EIA, Xingjia's president and senior managers described an extensive system of illegal harvesting in Russia's forests and bribery of Russian officials. Xingjia claimed to overharvest in its own concessions, and launder illegal timber cut outside its concessions using harvesting permits. Ninety percent of its raw materials were apparently sourced from other high-risk suppliers throughout the RFE. Further research by EIA revealed that these suppliers had been the subject of police investigations and even successful prosecutions, for their involvement in illegal logging.

Through trade data, supported by observations during covert meetings in the guise of potential buyers, EIA determined that Xingjia's largest customer was a US-based company, Lumber Liquidators. Lumber Liquidators is, in turn, the largest specialist retailer of hardwood flooring in the US. The investigation led to a prosecution of Lumber Liquidators under the Lacey Act. In October 2015 the company agreed to plead guilty to several violations under the act. Lumber Liquidators agreed to pay a fine of $13.2 million and submit to a rigorous Environmental Compliance Plan for a period of five years.[21]

Chinese border town of Suifenhe ©EIA

Case Study 10: Covert Meetings Expose Corruption

In 2004, NGOs EIA and Telapak Indonesia uncovered a billion-dollar illegal trade in Merbau logs from Indonesian Papua, including tracing supply chains to China and the USA.[22]

The logs were being harvested illegally and exported in contravention of the country's log export ban, and processed into high-value wood flooring in China. Complex multinational syndicates involving corrupt Indonesian officials and brokers in Singapore and Hong Kong were being used to smuggle the logs out of the country and disguise their origin on arrival in China.

EIA used fieldwork to document illegalities at source, through field observations and interviews with affected communities. The scale, modus operandi and identity of key individuals involved in the smuggling of the logs from Indonesia to China was mainly exposed through undercover meetings with log traders in Jakarta, Singapore and Hong Kong, identified by trawling internet trading boards. This was supported by comparing Indonesian, Malaysian and Chinese trade data, and in-depth research into seizures of log smuggling vessels by the Indonesian authorities. Supply chain connections to the USA were made through undercover visits to Chinese manufacturers and analysis of US shipment records.

The report led the Indonesian government to launch an unprecedented crackdown on illegal logging in Papua, dispatching a 1,500-person task force and seizing over 400,000 cubic metres of timber. Prices of Merbau in China doubled in a matter of months as illegal supplies dried up.[23]

Tool Box: Recording Evidence Covertly

Though covert methods of recording information (such as hidden cameras) are most commonly associated with undercover meetings or company visits (which should not be attempted without specialist training), an understanding of covert recording methods and equipment is also useful in other contexts. They are of use when undercover contacts are being made with companies by telephone, and when documenting testimony obtained through informal conversations with loggers and truck drivers during field work. Covert or semi-covert recording may also be a useful means of reducing risk when documenting visual evidence during fieldwork, where open filming and photography is likely to bring undue attention or arouse suspicion.

Voice recorders can be used to record telephone conversations when held to the ear, and informal interviews if secreted in a pocket or bag. Covert video can be recorded using adapted mobile phones, specially equipped bags, or even using body-worn lenses, and used to document conversations, documents, timber markings and other field findings without attracting as much attention as open filming. Still images can be extracted from undercover video. With practice, standard video and stills cameras can be used semi-covertly, by holding them at waist level and shooting without looking. Smartphones can also be used to take surreptitious photographs, though care is required to ensure shutter sound and flash functions are turned off. Whatever equipment is used, it is essential that operators practice thoroughly in advance, and ensure that memory cards are empty and batteries full before each meeting.

2.4 Tracking Onwards to End Market

2.4.1 Introduction

Though a broad range of information is of potential use in helping improve the effectiveness of EUTR or Lacey (see **Chapter One**), an independent investigation will ideally make a direct connection involving the EU or US.

The starting point: Point of export or the market

There are two possible methods for making connections between illegal timber in source and destination countries: tracking forwards from the source, and tracking backwards from the destination:

- **STARTING FROM SOURCE:** Following specific products known or suspected to be illegally sourced from a producer country to and through a consumer country
- **STARTING FROM DESTINATION:** Tracking high-risk products backwards from a consumer country to their source, to find out whether they are or might be illegally sourced

Employing both approaches in the same case may be necessary or fruitful. For example, if efforts to trace a supply chain for a specific product onwards from the source country are ineffective, it might be necessary to fall back on attempting to connect to the same supply chain by tracking relevant products backwards from the destination country.

How far should the supply chain be tracked?

How far the supply chain is mapped out within the consumer country, beyond the importer, will depend on the law that is being used and the ultimate goal of the research. In the EU, the key element of the EUTR only applies to the companies which first sell the wood product within the EU (the "first placer").[24] No enforcement action is possible against companies further down the supply chain. However, it may be worthwhile investigating further in order to "name and shame" other companies buying the timber from the first placer. If the research is starting from the market end, it might also only be possible to identify importers of specific products by working back from retailers.

2.4.2 Starting From Source

Obtaining information from shipment records

In some cases, information on overseas buyers might be obtained from producer country governments. Official export-related documents submitted to government agencies (including customs declarations and specific permits such as CITES Export Permits), or information contained within them, can be sought through formal requests under Freedom of Information laws where applicable (see **Tool Box**: *Freedom of Information*). However, it is likely that even where Freedom of Information laws do exist, identities of buyers will be considered commercially confidential and exempt.

For some countries it is possible to access detailed information on individual shipments of timber and wood products from online shipment databases. This normally includes a description of the goods in each shipment, the quantity, and the identity of the supplier ('shipper') and often also the buyer ('consignee'). Such databases are often based on vessel manifests maintained by major shipping lines, and are available via paid subscription services for exports from and/or imports to a number of major timber supplier and consumer countries. For example, the Environmental Investigation Agency used US import shipment records[25] to help connect illegal Russian oak flooring supplied by a company in China to US company Lumber Liquidators (see **Case Study 9**).

Greenpeace pursue illegal timber imports into Europe ©Greenpeace

Though no equivalent databases exist for other major consumer countries such as the EU member states, Canada, Australia or Japan, shipment databases which include consignees in those countries are available for exports from many high-risk source countries, including Russia, Ukraine, Indonesia, Brazil, Colombia, Bolivia, Ecuador and Mexico. Though less useful for making supply chain connections, shipment databases providing only the identities of exporting companies are available for a number of other countries in Latin America.

Where individual shipment records are not available for a country, it may still be possible to obtain collated data regarding imports or exports by specific companies during a particular time period. In China, for example, it is possible to determine which companies imported what quantity of a given wood product category (as defined in detailed customs codes) from a specific supplier country over a given period. In the UK, the government publishes lists of all companies which have imported products under a particular customs code in a given month, though it does not provide quantities or a breakdown by source country.

One common drawback of shipment databases is that the identity of the seller and buyer is often omitted or concealed behind freight forwarding or logistics firms. In such instances, it is important to examine other information about a shipment included in the database, such as the detailed commodity description or information on markings, which may contain the name of the buyer or supplier, or codes or abbreviations which give their identity (see **Tool Box**: *Identifying Suppliers Using Certification Scheme Codes*). In the Lumber Liquidators case, for example, shipment records had the identities of both shipper and consignee missing from the relevant fields, but the information was nevertheless contained within the product description (see **Case Study 9**).

Caution is also required when searching such databases. Because the information usually comes from different documents to those officially submitted to customs agencies, it is common for incorrect information to be included regarding customs codes or countries of origin.

Tool Box: Identifying Suppliers Using Certification Scheme Codes

Many major wood products are independently certified as meeting certain national, regional or international standards of quality, sustainability, or health and safety. Examples include 'CE' marking for suppliers to Europe, 'CARB' certification for suppliers to the USA, 'JAS' certification for suppliers to Japan, and FSC sustainability certification. Each supplier is allocated a unique code when it is certified under one of these systems. Where a supplier's identity is not provided in wood markings, packaging, relevant paperwork or shipment databases, it is common for one of these codes to nevertheless be shown. This code can then be cross-referenced against lists of certified suppliers publicly available or obtained from certifying companies, and used to identify the supplier company indirectly. In 2007, for example, Greenpeace used this method to help connect tropical plywood on sale in the Netherlands to specific Chinese manufacturers alleged to be using illegal timber from Papua New Guinea.[26]

Obtaining information using undercover approaches or fieldwork

The remote undercover methods described in Section 2.3 above can be used to try to find out information directly from exporting companies about their overseas customers. Where suppliers are reluctant to name existing customers to investigators posing as prospective buyers, an approach as a journalist or academic researcher may prove more fruitful. Additional information can be obtained through direct observations. Though the best opportunities for such observations come from undercover company visits (which are not advised without specialist training), if investigators know the location of a supplier company (see **Tool Box**: *Building company profiles*) it can be possible to view wood or wood products in company yards, visible from the outside. These products will often have markings that provide some clue as to the identity of the overseas buyers.

Case Study 11: Covert Calls Identify Suppliers

In 2010, a study[27] by Earthsight for WWF of high-risk wood product imports into the UK used trade data and other information to determine that external solid wood doors made from Meranti and imported from Indonesia were a product of interest. Web searches and undercover phone calls to retailers established a shortlist of five main companies selling or distributing these doors in the UK. Information on the supply chain of one of these companies – LPD Doors – was sought using both open requests by WWF and undercover phone calls in the guise of a concerned buyer by Earthsight. These inquiries led to the identification of the Indonesian manufacturer and exporter of the doors. Earthsight visited the Indonesian supplier undercover, and was provided with documents showing that the company had recently sourced Meranti from as many as 20 different suppliers. All but one of these suppliers was a secondary trader, and no further information had been sought on the ultimate origin of the wood. The sole supplier with its own licensed logging concessions, PT Kayu Lapis Indonesia, had been the target of a number of NGO allegations of illegal logging and community exploitation. The research was therefore able to demonstrate that the Meranti used in the doors was of untraceable and risky source.

Meranti logs in Indonesia

2.4.3 Starting From Destination

The probability of connecting a product to a specific illegal source are slim when working backwards from the end of a supply chain. Nonetheless, useful results can still be obtained even where the source is not conclusively identified. For example, it may be possible to prompt a company to stop buying from a particular source if it can be demonstrated that a product comes from a high-risk, unknown source, especially if it can be shown that the buyer's claims regarding the origin of the product are false (see **Case Study 12**).

In the EU, such evidence is particularly powerful, as it could be used to trigger an enforcement action under the due diligence requirements of the EUTR. If a company does not know – or has even been duped regarding – the source of the timber, then the risk of illegality cannot have been properly mitigated.

Case Study 12: Exposing Doubts Over Source of Timber

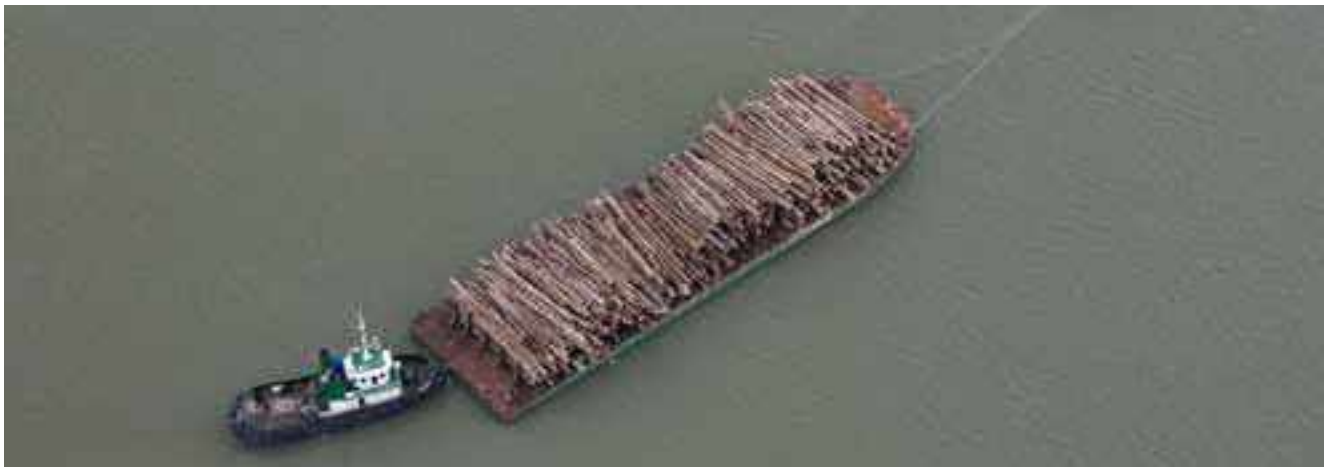
In a study by Earthsight for WWF in 2011, the supply chain of bangkirai garden decking sold by a major UK timber dealer was explored. The UK retailer claimed that the source of the wood was a specific logging concession in the Philippines, but checks there by Earthsight confirmed that this was false. The concession concerned had been cancelled some years earlier as a result of widespread illegal logging.[28]

Identifying retailers of high-risk products and obtaining information on sourcing

The first step in an investigation that begins at the end point of the supply chain is to narrow the search down to a specific high-risk wood product. The choice of wood product will depend on an analysis of risk, which considers factors including the level of illegality in the source country and the species used. Tropical wood species are commonly high-risk, for example, and are typically used in a relatively small range of wood products. Analysis of publicly accessible bilateral trade data (from UN COMTRADE[29] or Eurostat[30]) can be used to help determine products of interest, particularly where the trade data break down products to a level which allows higher-risk products to be distinguished from lower-risk ones (see **Tool Box**: *Using Trade Data*).

Once a specific high-risk wood product is identified, the next step is to identify the main companies trading that product in the consumer country of interest. Where they exist for exports to or imports by the country concerned, shipment records are one starting point (see *Obtaining information from shipment records*). Another is an examination of membership records for relevant trade associations. General web searches can also be productive (see **Tool Box**: *Internet Searches*).

After a shortlist of companies is established, further information on relevant products sold or traded can be obtained from company websites and brochures. Once publicly available information is exhausted, direct contact can be made with the company to find out more, either undercover, in the guise of a prospective purchaser, seeking reassurance regarding the product's origin, or openly. If only information on the next step backwards along the supply chain can be obtained (such as the local importer), then the same questions can be directed to that company.



Logs on a barge in Papua New Guinea ©Greenpeace

Tool Box: Using Trade Data

Most importing and exporting countries publish general trade data. This provides aggregated information on the quantities and values of trade of specific categories of products, between specific countries, in a given month or year. In some cases the data can be further broken down by port or region of origin or destination.

Though it cannot be used to identify supply chain connections at a company level, this data can be used to narrow down the overseas country targets of an investigation into a specific supply chain (when working from source), or help identify supply chains worthy of interest (when working from destination). Comparison of export data from one country with import data from another can also expose discrepancies which are indicative of illegal trade. If there are differences between the volume that is recorded as leaving one country and the volume recorded as entering the reported destingation, it may be indicative of timber smuggling, laundering, misclassification and under-declaration of volumes and values. For example, in the early 2000s, discrepancies in customs data for log exports from Indonesia and Malaysia and log imports by China showed how huge volumes of illegal Indonesian logs were being smuggled out of the country and misdeclared as of Malaysian origin on arrival in China (see **Case Study 10**).

Trade data are broken down by customs codes, which apply to specific categories of wood products. Understanding these codes is important for both analysing trade data and interrogating databases of shipment records (see Obtaining information from shipment records). The codes are standardised internationally through the Harmonised System (HS). The number of digits in the code indicates the level of specificity. The first six digits are internationally standardised, while individual countries can break each code down further using eight – or ten-digit sub-categories. For example, timber is classified under HS Chapter 44; sawn timber under HS Code 4407; sawn timber of the main tropical wood species are included under HS Code 440729; and Indonesia classifies Ramin sawn timber under HS Code 4407295900.

The likelihood that a specific species or product has its own eight – or ten-digit code in a given country depends on the volume of trade. Generally, timber producing countries provide a more detailed breakdown than importing countries. In helping detect illegalities or narrow down research, wood product breakdowns in customs codes are more useful for logs, sawn timber and plywood (where specific species often have specific codes) than for more heavily processed items such as furniture.

Trade data for US imports and for EU member state imports, broken down by month and extremely up-to-date, are available in free online databases provided by USITC and Eurostat, respectively. Annual and some monthly import and export data to a six-digit HS code level for most other countries is available for free via the UNCOMTRADE online database. Some other countries have their own free online databases. Paid subscription services such as World Trade Atlas provide additional data not available elsewhere. More information on trade data can be found at **www.timberinvestigator.info.**

In addition to searches of publicly available information and contacts with the companies concerned, examination of markings on products or packaging during visits to retail outlets, timber yards or distribution depots can also reveal information about the supplier (see **Case Study 13**). Such investigations require some knowledge of markings used in the source countries (see **Tool Box**: *Log Markings* and **Tool Box**: *Identifying Suppliers Using Certification Codes*), and evidence of illegality within those countries.

Information about other companies involved at different stages of a supply chain, other than in harvesting, can also be ascertained by markings on products or packaging. In some cases, the name of suppliers, manufacturers, importers or retailers may be given. Even where it is not, other markings may provide a clue. Many major timber suppliers, buyers and traders also use a specific logo, which may be spray-painted on to logs, sawn timber or plywood even if the full name is not given. Abbreviations or initials of suppliers or buyers may also be shown, perhaps as part of a code for a particular shipment. Codes from certificates issued to a supplier guaranteeing the quality, health and safety or sustainability of a product may also be included, and can be used to identify the supplier (see **Tool Box**: *Identifying Suppliers Using Certification Scheme Codes*).

2.4.4 Evidence Within the Wood

Information can be obtained by studying the wood products themselves, using various technologies of a range of complexities (see **Tool Box**: *Technologies for Identifying Species and Geographic Origin*). This is an emerging area, currently limited to quite specific uses but with considerable potential.

Commonly, it is limited to determining whether a wood product is comprised of a specific wood species. Such determinations, made using wood anatomy, DNA or fibre analysis, can be employed to demonstrate that a product is not what a buyer claims it to be. On its own this could lead to an enforcement action (for false declaration under Lacey, or breaches of the due diligence provisions of the EUTR), or otherwise prompt a buyer to switch supplier and drop a high-risk and potentially illegal source. In the UK, for example, the EUTR Competent Authority used wood anatomy to demonstrate failures of due diligence by importers of Chinese hardwood plywood; 70 percent of the samples assessed had a face veneer of a different species to that claimed.[31]

Case Study 13: Identifying Supply Chains Through Markings

In 2012, investigators working for Global Witness found plywood on sale in a major Japanese retail chain with markings identifying its manufacturer as Malaysian company Shin Yang. Shin Yang, in turn, had been shown to be illegally harvesting in Sarawak. The same investigation also found logs at a Japanese port with log tag codes relating to a specific Shin Yang concession where illegalities had been documented.

Shin Yang plywood from Sarawak on sale in Japan ©Global Witness

Occasionally, information on the wood species may go further and help demonstrate illegality. It might demonstrate, for example, that a product is made from a protected or specifically regulated wood species. In 2010, US NGO the World Resources Institute conducted fibre analysis of paper products from Indonesia on sale in the USA, and found fibres of Ramin, a species banned from harvesting in Indonesia and subject to international trade regulation under CITES.[32] In another example, the largest seizure of illegal wood to-date in the UK occurred in 2002, when customs agents used wood anatomy to show that a large shipment of Ramin picture frame mouldings from Indonesia had been imported under a false species name without the necessary CITES paperwork.[33] Falsification of the wood species in the plant import declaration required under the Lacey Act is an offence in the USA, even if there is no other evidence to suggest the wood was illegally sourced.

To a limited extent, examination of species may also provide useful information regarding geographic origin. For example, it may be possible to demonstrate that the species cannot have originated in the country of harvest which a company claims, because it is not part of its natural range. DNA and another technology, Stable Isotope Analysis, can go further and provide information regarding the geographic origin of a sample of a given species. For example, isotope analysis has been used by both EIA[34] and WWF[35] to demonstrate that oak products on sale in the US and UK were manufactured from oak originating in the Russian Far East, a particularly high-risk region with regard to illegality.

The usefulness of these techniques for determining geographic origin remains severely restricted, however, by the absence of sufficiently detailed reference databases of samples from known locations. At present, available information can at best determine country of origin for Oak and a number of major commercial tropical wood species from Africa, Southeast Asia and Latin America. Only in quite unique circumstances could a determination of country of origin alone indicate illegal harvesting, though it can falsify claims and demonstrate lack of due diligence, and might also be used to prove illegal trade, such as falsification of Lacey Act declarations.

Ramin seized by UK authorities ©Sam Lawson/EIA

Tool Box: Technologies for Identifying Species and Geographic Origin

Technologies for Species Identification

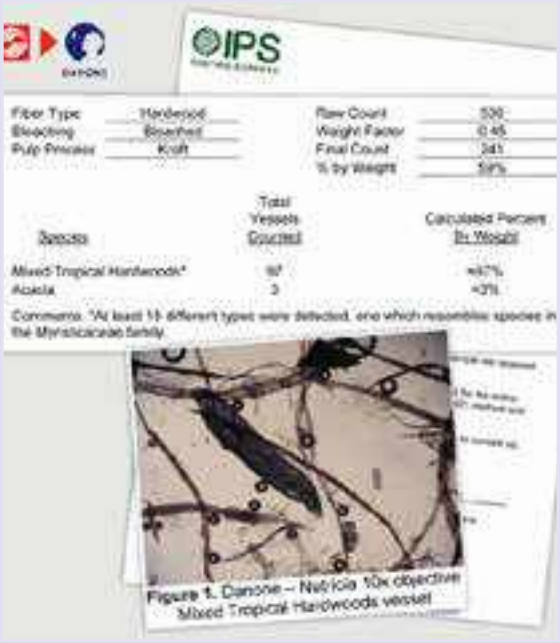
Wood anatomy: This relatively simple method entails examining a cross section of the surface of a solid wood product using a handheld lens or microscope. The pattern of cells and pores can be compared with reference information to identify the genus or species. This method has significant limitations. How precise a judgement can be made depends on the level of variation between species and the availability of reference imagery. It can also be expensive, since it traditionally requires extensive time commitments from highly trained wood anatomists. Automated portable systems useable by non-experts have been designed, but are at an early stage of development and at present only applicable to a small range of wood species. Wood anatomy is also only possible for solid wood products.

Fibre analysis: Can be used for paper and pulp products, where individual wood fibres are examined under a microscope. Though it is rarely possible to distinguish down to the level of species using fibre analysis, it can be used to determine whether natural tropical forest wood is contained within a sample claiming to be made solely from plantation-grown wood.[36]

DNA analysis: Theoretically the most reliable method of species identification, but more expensive than wood anatomy. It is also dependent upon incomplete reference information, and on it being possible to extract useable DNA from a product.

Spectrometry: Potentially cheaper and easier than wood anatomy or DNA, this technology identifies the species based on how it reflects and absorbs different wavelengths of light. Reference databases for this methodology are even less well developed than for the others, however.

Wood anatomist identifying lumber at a sawmill in Brazil ©NIRS Mahogany ID Project



Greenpeace has commissioned fibre analysis to identify tropical hardwoods in paper samples. Photo reproduced with permission of Greenpeace and IPS Inc.

Establishing Geographic Origin

DNA analysis: Can in theory also be used to narrow down the geographic origin of a sample of a given wood species, based on natural variation in the DNA of individuals of a given species over its geographic range.

Stable Isotope Analysis: Uses the natural variation in the proportion of different versions of atomic elements such as carbon in individual wood samples, which varies along with the soil in which the trees grow.

Both methods hold great potential, but their applicability is restrained at present mainly by the absence of reliable reference databases of samples of known geographic origin. Even where such reference databases exist, they may not be of sufficient resolution to be able to determine geographic origin information of sufficient detail to be of use in establishing legality or illegality.

The only example to-date of such databases being used in relation to legality is the use of isotopes to determine whether oak originates from the Russian Far East or neighbouring areas of China.[37]

DNA and isotope databases have also been developed for the most heavily-traded tropical wood species from Central and West Africa, though it appears that their resolution is only sufficient to at best determine country of origin.[38] Databases sufficient to demonstrate country of origin for a number of other major tropical wood species from Asia and Latin America, including Merbau[39], teak and mahogany[40] have also been developed. Whether DNA or isotopes can be used to reliably determine geographical origin more precisely, such as to an individual district or logging concession, remains an open question. Attempts to test the ability to use such databases to determine concession of origin of Merbau in Indonesia[41] and Iroko and Sapele in Cameroon[42] did provide some cause for hope, though the confidence levels obtained (around 70%) would be insufficient for prosecutions, and it is unclear whether the level of sampling needed to reach a more meaningful level of confidence is practicable.At the time of writing, costs in the EU of species identification of a solid wood sample using wood anatomy were approximately US$100 – $200 per sample, DNA analysis around $300 – $700 per sample.[43] Isotopic tests to verify origin also cost around $200-$500 per sample. It can take anywhere from a few days to a few weeks to obtain results, depending on various factors.[44] Contact details for agencies able to carry out such tests are available on the **www.timberinvestigator.info** website, where news on further developments with these technologies will also be posted.

Preparing timber samples for testing ©EIA

Chapter 3: Using the Evidence

3.1 Assessing the Evidence

The principal objective of this guidebook, and the type of investigation explored in **Chapter Two**, is to support better enforcement of timber laws. Not every investigation, however, will lead to an actionable case. While investigators may set out to build a body of evidence that is sufficiently strong and detailed for a prosecution under the Lacey Act or EUTR, it may prove to be impossible to do so.

In these instances, there are a number of other ways in which well-documented and well-presented evidence can support implementation of the law, improvements to it and influence private sector behaviour. The options that are available for enforcement or advocacy will depend on the strength and type of evidence that is gathered during the investigation.

In the course of their research, investigators should be consistently asking whether they have reached a threshold where the findings should be packaged-up and made public, presented to enforcement agencies, or both. Releasing evidence too early can be counterproductive – it may be incomplete, insufficient to effect change, and reduce the ability to investigate further. In the US, it is also not legally possible to provide additional information on a case which has already been submitted to the authorities, so it is essential that all possible evidence is collected before a submission is made. But holding on to evidence for too long may be equally counterproductive – the validity of evidence often reduces over time, and methods and supply chains change.

It is critical to consistently assess the status of the investigation, considering the options available if the case is exposed now, and whether further investigation will improve those options. The main options that can be considered when assessing investigation findings are as follows.

Protest at Brazilian mill taking illegal wood and shipping to USA ©Greenpeace

Enforcement

If there is proof of a supply chain connection from source to the US or EU, with some evidence of illegality, the information can be supplied to enforcement agencies in the relevant jurisdiction. The information does not have to be complete, as enforcement agencies can carry out their own further inquiries where there is a credible case that they should do so. In the EU, the due diligence component of the EUTR introduces the potential for making a case to enforcement even where the source of the product is not clear. At the same time, the more complete the evidence, the greater the probability that action can and will be taken.

Indigenous people in Indonesia lay claim to territorial boundaries unrecognised by the state ©Masyarakat Muara Tae

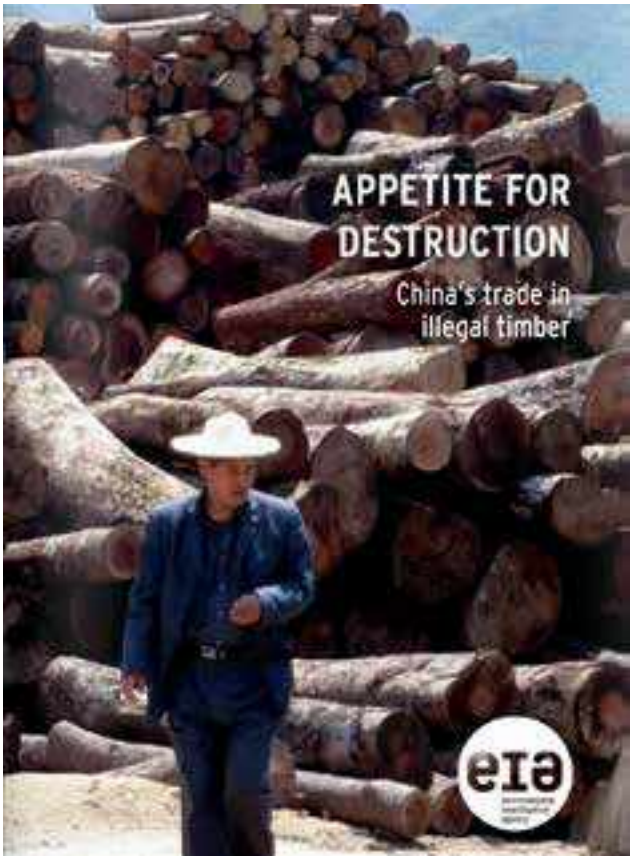
Exposing high-risk supply chains

Where there is evidence that a significant proportion of timber from a given source is illegal, this information can be presented to enforcement agencies and publicly exposed, whether or not there is a clear connection to a specific company in the end market. Doing so can assist enforcement agencies in their monitoring of companies within their jurisdiction, encouraging them to pay attention to products from the given source. If the information is publicly exposed, whether through the media or by circulating the information to a targeted audience, it can have a 'chilling effect' on imports from the source. Companies in the EU must conduct due diligence on imports, while companies in the US are subject to greater sanctions if they fail to exercise 'due care'. Ensuring they are properly informed should encourage them to undertake greater scrutiny of high-risk sources.

Exposing issues beyond the scope of timber laws

Many investigations may give rise to evidence of wrongdoing that falls outside the scope of timber import laws. The EUTR and Lacey Act are based on laws in the source country; if source countries have not prohibited certain acts, these laws in market countries cannot be brought to bear. This is of particular significance with regard to human rights and land rights. If states have not legally recognised the customary rights of indigenous communities to forests, the EUTR and Lacey Act cannot be used to prosecute the taking of resources from those forests. This does not mean there is no benefit in publicly exposing this. If a broad or specific supply chain connection can be made to the EU or US, exposing it can change the behaviour of the private sector. Companies in the EU and US are conscious of reputational damage, and the risks to their business if they are associated with human rights abuses or loss of biodiversity.

"Companies in the EU and US are conscious of the risks to their business if they are associated with human rights abuses or loss of biodiversity"



EIA has exposed the vast trade in illegal timber to China's unregulated market ©EIA

Exposing supply chains to unregulated markets

Though the EU and US account for a significant proportion of global trade in timber, several other countries import significant volumes. These states, particularly Japan, China and India, account for a growing proportion of the trade in illegal timber, and do not have laws like the EUTR and Lacey Act. If investigations lead to these countries – as many will – the Lacey Act and EUTR may be brought to bear if the timber is later re-exported to the EU or US, but making these connections is notoriously difficult. Nonetheless, the Lacey Act and EUTR were enacted as a consequence of public pressure – and, critically, evidence – of the scale of the illegal timber trade. Pressure is growing on China and Japan to introduce similar legislation. Exposing illegal supply chains to these countries can support these efforts. In such instances it is worthwhile exposing the case publicly, but also seeking to provide the evidence formally to government agencies in both source and market country.

Deeper or broader investigation

There may come a point in an investigation where it is determined to be impossible to prove a case against a particular target, or there is insufficient evidence to support a hypothesis. It is important to be meticulous and not abandon a line of inquiry altogether prematurely. Either drilling down into more detail on a tighter, more refined target (whether an area or company), or broadening the inquiry to a larger area or supply chain, can lead to new breakthroughs. The process may lead to new insights that allow the investigator to return to the original target with fresh ideas.

"Drilling down into more detail on a tighter target or broadening the inquiry can lead to new breakthroughs in an investigation"

The dead end

Not every investigation will result in actionable evidence or information that can have a 'chilling effect' on a supply chain. But all investigations will guide further investigations, improve the investigators' understanding of the actors involved, and improve their campaigning. If the decision is taken to end an investigation without taking further action, some simple principles should be implemented to ensure the work is not wasted. All evidence gathered during the investigation, whether hard or digital data, should be filed or stored in such a way that it can easily be recovered. A single document should be drafted summarising the investigation aims, progress and conclusions. The document should reference the evidence and note how it can be found. It should be considered that what may seem like a dead end can become a live lead within weeks, if new information becomes available. At that point – whether weeks or years later – the ability to re-access and understand an investigation will prove invaluable.

Logging road in Kalimantan, Indonesia ©EIA

3.2 Sharing the Evidence

There are two broad ways in which evidence can be presented. The first is to present the evidence formally. This is appropriate for submitting information to enforcement agencies, other government bodies and individual companies. The second is to present the information to a wider audience in ways that will generate exposure and attention. In some circumstances, it may be best to take both routes, with a private, formal submission followed later by wider publicity, depending on the results obtained from the initial submission. Either way, it is important to consider how information is likely to be used when planning and implementing an investigation. The principles underpinning both methods of presentation are explored below.

Submitting evidence formally

For evidence to be of maximum use to authorities, it needs to be collected using the right methods, documented carefully and presented clearly.

Those investigating illegal logging and associated supply chains should choose and adapt their methods and targets to maximise the chance that any evidence collected will be able to be used by enforcement officials for Lacey and EUTR cases. Evidence collected by some methods may be more likely to be admissible in courts than that collected by other methods, for example. These criteria should be built into investigation planning, with legal guidance if possible.

Timber seized by enforcement officials in Honduras

Another important consideration when planning and conducting research is that some types of offence may be more easy to prove in court than others, even if they are not the most egregious in terms of their impact. For example, evidence of illegal harvesting by a supplier in a national park might not be usable on its own if it cannot be connected to a specific shipment, unlike mis-declaration at export or import, which is also easier to prove. Sometimes irrefutable evidence of a relatively minor 'technicality' is essential to allow a case to be pursued, and enable evidence of more serious offences to be brought to bear.

During an investigation, it is important to consider how evidence is recorded and communicated internally. If a formal case is launched which relies in part on the information provided by an NGO, that NGO's internal documents and communications may need to be handed over to a court. It is therefore important that NGOs and other third parties collecting relevant evidence ensure that professional practice is followed in any relevant written communications. Inappropriate language, which may be seen as prejudicial, should be avoided.

The likelihood of information supplied by NGOs and other third parties being used by enforcement authorities depends not only on the quality of the information itself, but how clearly it is presented. As well as making the information more cogent, good presentation makes it more likely that authorities will consider it credible.

Timber seized by enforcement officials in Brazil ©Greenpeace

The clarity of the submission will depend on how well raw data was collated, recorded and filed in the course of the investigation. All data should be stored carefully (ideally in duplicate) during the investigation. A single master document should be used to keep a running-record of progress, including the source of each piece of evidence and a reference for where the evidence has been stored. This document will form the basis of the formal submission.

The submission itself should be a single document, with supporting data included as appendices. All relevant supporting evidence should be included, provided it is safe to expose the information. It may be necessary to leave out the names of individuals, informants, and villages. Though enforcement agencies should treat evidence with sensitivity, once information has been passed on to a third party it is out of the control of the investigator.

The submission should be as detailed as possible, presented clearly and precisely. Where possible it should include:

- Companies involved
- Products involved
- Species involved
- The source country
- The laws that are alleged to have been breached, with as much specificity as possible
- Dates on which key events (for example legal violations, imports) are believed to have occurred
- Contact details for the individual or organisation making the submission

For more information on contacts within enforcement agencies to whom submissions can be made, visit our website **www.timberinvestigator.info**.

Publishing evidence

When information is being used publicly, the principles of accuracy and the avoidance of speculation and unsupported opinion should still be followed. However, the purpose and the audience will usually require that the information is presented in a more accessible and attention-grabbing style.

In some cases, general publication may be the only route for releasing information. In most cases where general publication is considered, however, it will make sense to also provide information directly to enforcement agencies or companies. If information is sufficiently specific that it could be acted on directly by enforcement, then it should be provided to officials in advance of publication, to ensure that any later publication does not undermine their efforts. Wider publicity should only follow once authorities have been given a sufficient opportunity to act.

If information is less specific – such as evidence of illegality in a source country without a specific supply chain connection to the EU or US – it might be appropriate to publish and submit to authorities simultaneously. In such instances, it may be sufficient to send a copy of a published report to the authorities with a brief covering letter, rather than re-formatting the evidence completely.

Where evidence is very detailed but enforcement agencies are unable or unwilling to take action in response, or where evidence is out of the scope of existing laws, then publication can be a way of generating impacts in other ways. For example, publication may lead companies to take action voluntarily, help generate increases in political will or funding for enforcement, or promote amendments to laws.

"Publishing evidence may lead to companies taking action voluntarily, increase political will, or promote amendments to laws"

There are no hard-and-fast rules for exposés, and no guaranteed way to ensure a given case will capture attention above the wealth of other information released every day. But there are a few key principles that should be considered.

- **Keeping focused: objectives and target audience**
  To keep a publication short and readable, it is important to only include information relevant to the specific objective (such as getting companies to drop a particular supplier), excluding other information collected even if it might be interesting. What information to include, and what tone and language to adopt when presenting it, should also depend on whether the main target audience is the general public, policy makers or a specific sector of the wood industry.
- **Standing out: consider what content is most likely to get attention**
  To stand out, it also helps if published information focuses on the aspects of a case which are new, interesting or particularly egregious. While it may not be appropriate to go into detail on the harm caused by a case of illegal logging when submitting it for action by authorities, the opposite is true when trying to get the attention of a broader audience. Dramatic impacts on people and wildlife are often the best way to garner attention. If it is likely that evidence will be published at some point, it is important to consider this when planning and conducting an investigation. For example, fieldwork might seek to specifically document the harm caused by illegalities, and not just the illegalities themselves. When deciding what to film and photograph, on the other hand, it may be necessary to think about what looks most dramatic, not just the evidentiary value.
- **Naming and shaming: legal risks**
  Where companies or individuals are named in evidence which is published, this carries legal risks which must be carefully considered. Specific details will depend on the libel laws in the country of publication, and ideally professional advice should be sought. Some broad principles apply, however. Risks are reduced if allegations are well evidenced, speculation or opinion is avoided, and a strong case can be made that release is in the public interest. It is important to bear in mind that what a publication implies (such as through how pictures and words are juxtaposed) is important, as well as what the text actually says.

An exposé may be written up into a report or briefing document, whether it is one-page long or much longer. However it is packaged-up, NGOs or individuals need to be proactive in pushing the information into the public domain. There are a number of ways to do so. Information can be provided to traditional media (such as newspapers and TV), either via a press release or a pre-planned 'exclusive' with a specific outlet. It can also be released independently and spread through social media or direct emails to key individuals.

Protest against illegal timber imported and found in European port ©Greenpeace

3.3 Conclusion: Staying Motivated & Staying Safe

Independently investigating illegal logging and tracing wood through supply chains can be hard and frustrating. In many cases, investigators can also expect to be frustrated by the impact their information has. The immediate response of enforcement authorities may not meet expectations, and even prosecuted cases may have limited influence on overall trade patterns. It is unlikely that any single EUTR or Lacey case will lead to a complete halt to the specific illegalities in the source country to which it relates, and no single case will ever halt all illegal logging in a country.

To stay motivated, it is important that investigators have realistic expectations on what is achievable. However, it is also important to keep in mind how powerful independent evidence can be, and how each individual case helps build towards a broader whole.

Cases investigated by NGOs have had dramatic impacts in the past, including on actual levels of illegal logging. A 2005 exposé of illegal logging and related international trade in merbau from Indonesia[45], for example, led to an unprecedented enforcement operation which was in turn credited with helping measurably reduce overall illegal logging in the country. Prices of merbau trebled almost overnight, leading a billion-dollar flooring industry in China to shift to other species.

While such dramatic impacts are rare, every case and every piece of evidence helps build the momentum for change. Collectively, investigations and campaigning by NGOs have already had a major impact on levels of illegal logging. In the decade to 2009, one study found that global illegal logging fell by nearly a quarter. Independent monitoring and case building by NGOs was highlighted as a major contributory factor in all countries where measurable reductions were seen.[46]

Investigative work by activists and communities of the kind explored in this Guidebook has great power. As well as defending the livelihoods of affected communities and protecting wildlife, it can reduce corruption and conflict, increase tax revenues and mitigate climate change.

However, this power brings with it very serious risks. Illegal logging and related trade is big business, and some of those involved are ruthless in attempting to protect their interests. In many countries, people investigating and exposing illegal logging have been seriously injured or killed in reprisal attacks. The risk to investigators and those they meet must always be taken seriously and never underestimated. It is essential to assess and seek to mitigate risks. Where risks cannot be sufficiently mitigated, then investigations should not be undertaken.

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