Research Paper

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Illegal Logging and Related Trade
The Response in Brazil

A Chatham House Assessment

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Contents

Executive Summary

The Brazilian government has made slow progress in tackling illegal logging and associated trade since the previous Chatham House assessment, in 2010. Illegality, corruption and fraud remain widespread in the forest sector, despite a relatively strong legal framework. Considerable efforts have been made to improve law enforcement in the sector but these have been hampered by poor coordination between the relevant government agencies, limited resources and inadequate penalties. At the same time, attempts to involve a range of stakeholders in policy discussions and decision-making have stalled.

The private sector's response to illegal logging is perceived to be weak, despite the reasonably high uptake of sustainability certification schemes. Initiatives are under way aimed at promoting a legal and sustainable market for timber within Brazil, with the engagement of the private sector. However, such undertakings are modest given that the majority of the country's timber production is consumed domestically.

Considerable investment in systems to monitor timber and revenue flows is required to tackle fraud, while the regulation of sawmills needs to be tightened to reduce the scope for the laundering of illegal timber. The imposition of appropriate sanctions and ensuring the collection of financial penalties could help to fill the gap in resources that is impeding effective enforcement.

Clarification of the regulatory framework is needed – in particular, those regulations related to the fiscal regime for the forest sector – as is the simplification of the processes for approving forest management plans. The latter is a priority if smallholders are to be able to engage in legal and sustainable forest management. An extensive programme of outreach and training is a prerequisite for ensuring such engagement. Finally, efforts to promote legal timber on the domestic market should be intensified and expanded.

Introduction

Illegal logging is a global problem that is both a result of and a contributing factor to poor forest governance. It undermines efforts to manage forests sustainably and equitably, resulting in deforestation, social conflict and the loss of government revenues. This is not just an issue for forest-rich countries; countries that import and consume wood-based products[1] from countries with high levels of illegal logging contribute to the problem if they import products without ensuring that they are legally sourced.

Chatham House has been engaged in research since 2006 to assess the level of illegality in the forest sector and the response by governments and the private sector to the problem. The aim of its work has been to monitor levels of illegal logging and the related trade and so enable an assessment of the effectiveness of efforts to tackle the problem in producer, consumer and processing countries.[2]

A methodology has been developed for this assessment based on a number of indicators. For producer countries, those indicators are derived from an examination of the national policy and legal framework and its implementation; analysis of enforcement and forest revenue data; a survey of experts; reviews of international and domestic media coverage; wood-balance analyses (to estimate illegal harvest volumes); analysis of discrepancies between trade data for exporting and for importing countries; and analysis of data on voluntary verification and certification by timber companies. By drawing on a variety of data sources, this approach provides the most rigorous means of assessing illicit practices. Further details of the methodology can be found in Annex 2 of this assessment.

Twelve countries were assessed in 2008–09 (the findings published in 2010[3]) and another six in 2013–14 (published in 2014[4]). In addition, Chatham House undertook a reassessment of the original 12 countries in 2013–14.

This assessment presents the latest findings for Brazil, which are compared with the situation as reported in 2010. The analysis, undertaken in August 2014, is based on data collected during 2013. Trade statistics and media data were compiled up to the end of 2013 (and 2012 for the international media data), and the policy assessment was made on the basis of the situation as of December 2013, but some more recent developments have been noted as well.

[1] The following terminology has been used in this report: wood-based products – encompasses all timber-sector and paper-sector products; timber-sector products – includes logs, sawnwood, plywood, veneer, mouldings, joinery and furniture; paper-sector products – includes wood chips, pulp and paper.

[2] There is considerable overlap between these three categories; all the countries studied are engaged in production, processing and consumption to varying degrees. The indicators for consumer and processing countries are very similar, however, while those for producer countries are quite different, including a range of indicators relating to domestic illegal logging.

[3] Lawson, S. and MacFaul, L. (2010), *Illegal Logging and Related Trade: Indicators of the Global Response*. London: Chatham House. The countries assessed were: Brazil, Cameroon, Ghana, Indonesia and Malaysia (producers); China and Vietnam (processing countries); and France, Japan, the Netherlands, the UK and the US (consumers).

[4] Lawson, S. (2014a), *Illegal Logging in Papua New Guinea*; Lawson, S. (2014b), *Illegal Logging in the Republic of Congo*; Lawson, S. (2014c), *Illegal Logging in the Democratic Republic of Congo*; and Lawson, S. (2014d), *Illegal Wood Import and Re-export: The Scale of the Problem and the Response in Thailand, South Korea and India*. London: Chatham House.

Background

Brazil is one of the most extensively forested countries in the world and home to 60 per cent of the Amazon rainforest. Combined, the country's 27 states cover a total area of 850 million hectares, of which 463 million ha are estimated to be forested.[5] The vast majority of those forests are natural (or native) forest; plantations account for less than 2 per cent. Around 70 per cent of Brazil's forested area lies within the Amazon Basin, while 30 per cent is to be found in the cerrado savanna and other eco-regions, including mountain, alluvial and pine forests.[6]

The Brazilian Forest Service (SFB) has categorized the country's forest area according to function: 37 million ha are used for production; 103 million ha for soil and water protection; 54 million ha for biodiversity conservation, 135 million ha for 'social services', and 43 million ha for multiple use, while 93 million ha have not been designated any specific function.[7] Brazil's forest area comprises public forests (state and federal), privately owned forests and, within public forests, protected areas (including indigenous lands) and special areas (including agrarian reform settlements and Quilombola community lands). In total, there are 297 million ha of publicly owned forest land, three-quarters of which are owned by the federal government and the remainder by state or municipal governments. 95 per cent of public forests are in the Legal Amazon.[8]

Owing to Brazil's rapid deforestation of the 1980s and 1990s, the issue has dominated political discourse on the country's forests. The rate of deforestation fell rapidly between 2004 and 2012: according to Brazil's National Institute for Space Research (INPE), the total area deforested in the Brazilian Amazon in the 12 months to July 2012 was 460,000 ha, compared with 2.8 million ha in 2004. That trend was reversed in 2012: the annual deforestation rate between August 2012 and July 2013 was 590,000 ha, an increase of 28 per cent over the previous year. Most of the increase in deforestation was in the states of Mato Grosso, Roraima, Maranhão and Pará. Three states out of a total of nine in the Brazilian Amazon – Acre, Amapá and Tocantins – registered a drop in deforestation during the same period. And in the state of Acre, the area of illegal deforestation was reported to have dropped, from 30,500 ha to 19,900 ha – a decline of around 35 per cent.[9]

Deforestation has been driven primarily by demand for agricultural land; and recent analysis suggests that between 68 per cent and 90 per cent of forest conversion between 2000 and 2012 was illegal.[10] Strong enforcement efforts to tackle illegal forest conversion and logging are thought to have been important factors in the decline in deforestation since 2004. Other factors include the expansion of protected areas, initiatives to limit the expansion of beef and soy production in forest areas and, owing to the global economic downturn, lower prices for some of the agricultural commodities that

[5] See the website of the Brazilian Forest Service at http://www.florestal.gov.br/snif/recursos-florestais/conhecendo-sobre-florestas.
[6] Ibid.
[7] SFB (2013), *Florestas Do Brasil Em Resumo*. São Paulo: Ministry of the Environment.
[8] The Legal Amazon is an administrative region within Brazil. It encompasses the Amazon Basin and includes nine states.
[9] See http://www.inpe.br/noticias/noticia.php?Cod_Noticia=3701; and http://wwf.panda.org/?212402/Deforestation-rates-in-Brazil-surge-after-years-of-progress-to-slow-forest-loss.
[10] Lawson, S. (2014), *Consumer Goods and Deforestation. An Analysis of the Extent and Nature of Illegality in Forest Conversion for Agriculture and Timber Plantations*. Washington, DC: Forest Trends.

have driven forest conversion.[11] Brazil's Environment Minister, Izabella Teixeira, has pointed to the expansion of agricultural land as the cause of the reversal of the decline since August 2012,[12] while some argue that it is due in part to the implementation of Brazil's new Forest Code.[13]

Brazil is a leading producer, processor and consumer of wood-based products. It is the world's third-largest producer of medium-density fibreboard (MDF) and its fourth-largest producer of pulp;[14] and it is the second most important producer and consumer of tropical logs (after Indonesia).[15] The majority of Brazil's log production comes from plantations (rather than natural forests) and plantation products account for nearly all the country's exports. According to a recent TRAFFIC report,[16] at least three-quarters of Brazil's commercial log production volume in 2010 came from plantations. Statistics compiled for this assessment suggest that in 2013, plantations accounted for more than 95 per cent of Brazilian exports of wood-based products by export value and roundwood equivalent (RWE) volume. The majority of those exports comprised pulp and paper (approximately 70 per cent and 10 per cent, respectively, in terms of RWE volume). The main destinations for those products are the EU, China, the US and Japan.[17]

Plantations for wood-based products have been expanding in recent years and production volumes are widely forecast to continue increasing. That trend can be attributed to the surge in demand for biomass energy, notably charcoal for steel manufacturing, and the rapid expansion of eucalyptus plantations for pulp production. Conservative estimates suggest that Brazilian pulp production will increase by 42 per cent between 2010 and 2016 – from 13 million tonnes to just over 20 million tonnes – to supply Brazil's growing paper industry and for export.[18]

More than 90 per cent of natural-forest production is from privately owned land and nearly all of that output is from the Legal Amazon. In 2011 the volume of 'legally sold' wood-based products from natural forests was 12.9 million m^3, of which nearly 90 per cent came from the states of Pará, Mato Grosso and Rondônia.[19] In 2009 timber from smallholdings (less than 500 ha) accounted for 29 per cent of the total volume of the harvest in the Amazon region, compared with 41 per cent and 31 per cent from medium-sized and large-scale producers, respectively. The share of timber produced by smallholders is much larger in some states, however – most notably in Roraima (78 per cent) and Rondônia (49 per cent).[20]

Public forests make up 87 per cent of the Legal Amazon, and approximately half of that area has been designated for communities and indigenous people, mostly as rural agrarian reform settlements, sustainable use conservation areas and indigenous territories.[21] While most of this land is not

[11] Assunção, J., E Gandour, C. C. and Rocha, R. (2012), 'Deforestation Slowdown in the Legal Amazon: Prices or Policies?', Climate Policy Initiative Working Paper, Rio de Janeiro, at http://climatepolicyinitiative.org/publication/deforestation-slowdown-in-the-legal-amazon-prices-or-policie/; Arima, E. Y., Barreto, P., Araújo, E. and Soares-Filho, B. (2014), 'Public policies can reduce tropical deforestation: Lessons and challenges from Brazil', *Land Use Policy*, 41, 465–73; Nepstad, D., McGrath, D., Stickler, C., Alencar, A., Azevedo, A. et al. (2014), 'Slowing Amazon deforestation through public policy and interventions in beef and soy supply chains', *Science*, 344 (6188), 1118–23.
[12] 'Huge increase in Amazon deforestation rate', AFP article published in *The Telegraph* on 15 November 2013, at http://www.telegraph.co.uk/news/worldnews/southamerica/brazil/10451252/Huge-increase-in-Amazon-deforestation-rate.html.
[13] Clark, N. (2013), 'Novo Código Florestal: um ano, nada de novo', Greenpeace Brasil blog, at http://www.greenpeace.org/brasil/pt/Blog/novo-cdigo-florestal-um-ano-nada-de-novo/blog/45301/.
[14] Tomasilla, I. (2013), 'Trends in Brazil's production and international trade', presentation at the International Tropical Timber Organization (ITTO) Market Discussion in Libreville, Gabon, in November 2013.
[15] ITTO (2012), *Annual Review and Assessment of the World Timber Situation*. Yokohama (Japan): ITTO.
[16] Oliver, R. (2013), *Evaluation and Scoping of EU Timber Importers from South America*, published by TRAFFIC International.
[17] Based on AliceWeb data (http://aliceweb.mdic.gov.br/) with analysis by Chatham House.
[18] International Forest Industries, 'Brazil – the world's largest industrial eucalypt estate', at http://www.internationalforestindustries.com/2013/01/25/brazil-%E2%80%93-the-world%E2%80%99s-largestindustrial-eucalypt-estate/.
[19] SFB (2013), *Florestas do Brasil em resumo– 2013: dados de 2007–2012*. Brasilia: SFB.
[20] Pereira, D., Santos, D., Vedoveto, M., Guimarães, J. and Veríssimo, A. (2010), *Fatos Florestais da Amazônia DITTO*. Belém: Imazon.
[21] Commercial timber extraction is not permitted in indigenous territories.

available for commercial timber extraction, 22.9 million ha of federal public forests can be allocated to concessionaires,[22] as provided for under the 2006 Public Forest Management Law.[23] Currently, the number of concessions is small, and the total area covered by them is about 1 million ha. However, it looks set to increase, as this is a goal for the government.

Most wood-based products from natural forests are destined for the domestic market. In 2009 some 20 per cent of such products were exported, but that share has since declined. The main destinations for those products in terms of export value are the US, the EU and China.[24]

Some steps have been taken to promote legal timber on the domestic market. For example, the state of São Paolo has a public procurement policy for legal timber, and a series of roundtables has been launched by civil society and industry, aiming to promote the market for sustainable tropical timber in Brazil by providing a forum for dialogue.[25] However, these efforts are modest given the size of this market.

The 2010 Chatham House assessment painted a positive picture of the Brazilian government's response to illegal logging. While private-sector efforts to address the problem were limited, that assessment concluded that the extent of illegal logging had reduced significantly since 2000. Brazil's legislative framework was deemed strong, particularly compared with those of other producer countries included in the assessment, while enforcement efforts were considered to be increasing.

The current assessment suggests a less positive outlook, however. Weaknesses in revenue monitoring and capture that were identified in 2010 have yet to be addressed. While some of the world's most advanced remote monitoring technology is used, poor coordination between government agencies and monitoring programmes has limited its contribution to improved enforcement. Moreover, this problem has been exacerbated by a lack of resources for enforcement. Both federal- and state-level tracking systems for timber production and transport have been found to be at high risk of fraud, which is enabling the laundering of illegal timber.[26] All in all, the evidence suggests that illegal logging remains a major problem in Brazil's forest sector.

[22] Oliver (2013).
[23] Federal Law No. 11 284/2006.
[24] Pereira et al. (2010); SFB (2013); and Tomasillo (2013).
[25] See more information at http://raa.fgv.br/projetos.
[26] Greenpeace (2014), *The Amazon's Silent Crisis*, at http://www.greenpeace.org.uk/media/reports/amazons-silent-crisis.

Media Attention

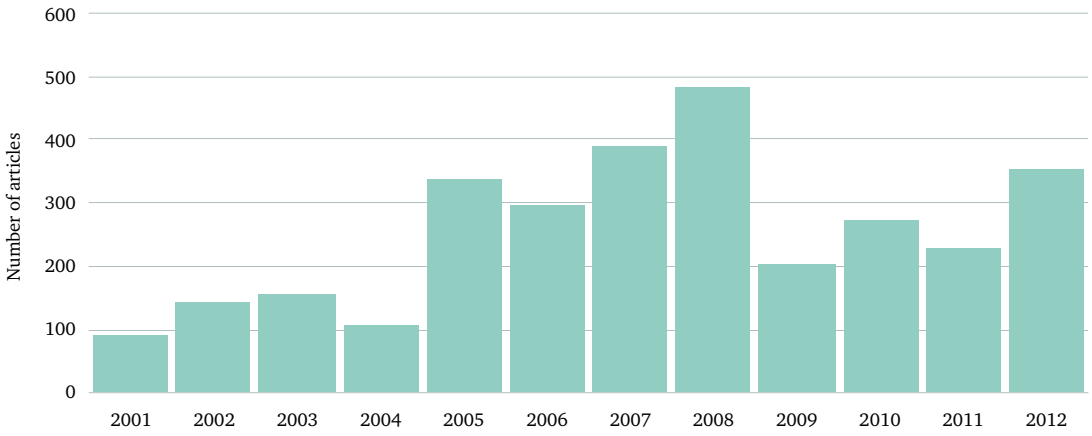
Media coverage provides an insight into levels of public awareness of illegal logging and related trade. While such awareness may not always lead to action, it is important for bringing about change and is therefore useful to monitor. An assessment of the media can also give an indication of the approaches being taken within a country to address the issue. As part of the research undertaken for this report, both domestic and international media sources were reviewed for the period 2009–12. Since the majority of tropical timber production in Brazil is sold on the domestic market, media coverage within the country could play an important role in raising national consumers' awareness of illegal logging.

International media coverage was assessed by searching the media database Factiva for articles containing the phrase 'illegal logging' and 'Brazil'. Domestic media coverage was reviewed by searching two media services – the digital clipping service provided by Interjornal[27] and the media portal G1[28] – using the search terms 'illegal' (*ilegal*) and 'wood' (*madeira*). For the 2010 study (which covered the period 2007–08), the InterJornal service was used to search six print outlets.[29]

International media coverage

The level of international media coverage of illegal logging in Brazil has fluctuated over the period 2001–12 (see Figure 1). It peaked in 2008, when there was a concerted enforcement effort that received extensive media attention. Interest subsequently waned, but coverage increased again in 2012. This was the year in which Brazil introduced its new Forest Code, which drew a large amount of interest from abroad (for details of the Forest Code see sub-section below on the legislative framework).

Figure 1: International media coverage of illegal logging in Brazil, 2001–12



Source: Factiva. Data for 2001–09 are taken from the 2010 assessment.

[27] See www.interjornal.com.br.
[28] See http://g1.globo.com/.
[29] The print media searched in 2010 were the national newspapers *Folha de S. Paulo*, *O Globo* and *O Estado de S. Paulo* and the weekly national magazines *Veja*, *Época* and *Istoé*.

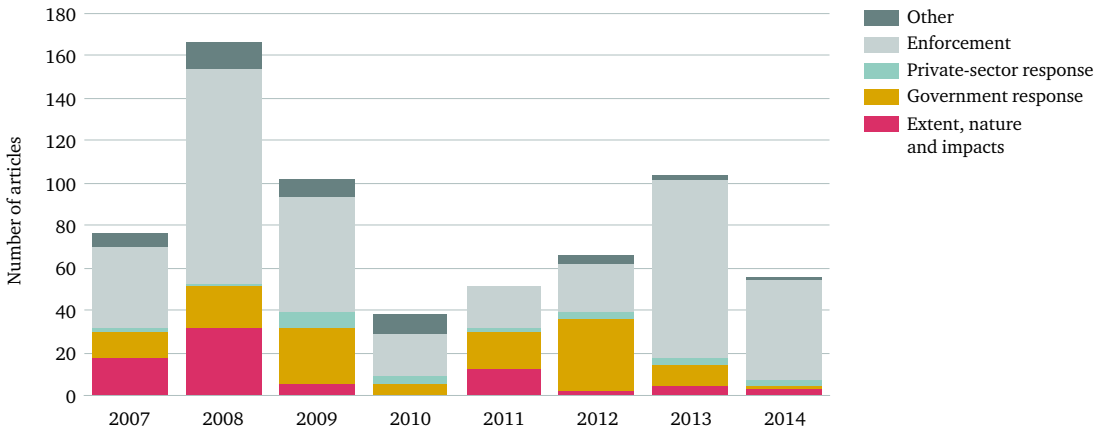
Domestic media coverage

Over the past seven years, domestic media attention has focused on enforcement operations, including the seizure of illegal timber, sentences passed and the role of government agencies – particularly that of the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA).[30] The increase in the coverage of illegal logging (see Figure 2) – especially the attention afforded to enforcement efforts in Brazil – reflects the government's recent focus on the reform of the legislative framework for forest management and the growing use of remote sensing technology to monitor illegality and guide enforcement operations (see sub-sections on the legislative framework and law enforcement below).

The environmental impact of illegal logging is discussed in some articles, while sustainable forest management initiatives have increasingly been highlighted. Among other issues covered are the efforts to promote public procurement policies for sustainable timber and voluntary private-sector initiatives such as the establishment of business-to-business platforms aimed at promoting the production of and trade in legal and sustainable wood-based products.

The allocation and management of forest concessions is another issue covered in the domestic media, as are the continued conflicts between illegal loggers and local communities in Amazonia. More recently, considerable attention has been paid to the 2012 Forest Code.

Figure 2: Domestic media coverage of illegal logging in Brazil, 2007–14



* Figures are for the year from 1 October to 30 September; data for 2007 and 2008 are taken from the 2010 assessment.

[30] IBAMA is subordinated to the Brazilian Environment Agency within the Ministry of the Environment and oversees forest licences.

Government Response

A coherent and transparent policy framework that is effectively and consistently enforced is a prerequisite for tackling illegal logging and the trade in illegal timber. This section assesses the design and effectiveness of the Brazilian government's policies and regulations. The data are derived from an assessment of the policy framework that is based on a standard set of questions and scoring for the existence of policies, their design and the level of implementation. In addition, data on enforcement and revenue collection were compiled and a perceptions survey conducted among experts to gauge their views on the government's response.

Policy assessment

Table 1 summarizes the results of the assessments of the situation at the end of 2008 and at the end of 2013:[31] the score given in each policy area is a percentage of the maximum score. These results are discussed in more detail in the following sub-sections, while the detailed policy scores on which this table is based are included in Annex 1.

Table 1: Summary policy scores for 2008 and 2013 (as % of maximum score)*

	High-level policy	Legislative framework	Checks and balances	International trade cooperation	Regulating demand for timber	Tenure and use rights
2008						
2013						

	Timber-tracking systems	Transparency	Allocation and management of rights to harvest	Law enforcement	Information management	Financial management
2008						
2013						

* To establish the percentage figures, existence, design and implementation have been weighted equally, as has each sub-question under each major heading. Those policy areas for which only a few questions were formulated (institutional and operational factors; international engagement) are more likely to show change than are the other areas. Shading has been allocated according to the total score under each major heading as a percentage of the possible maximum – scores below 25% are red, those between 25% and 50% orange, those between 51% and 75% yellow and those above 75% green.

High-level policy

In the 2010 Chatham House assessment, the Brazilian government scored well in terms of its high-level policies aimed at tackling illegal logging. In 2004, following a comprehensive review of the issue, it drew up an Action Plan for the Prevention and Control of Deforestation in the Amazon (PPCDAm).

[31] The policy scores included in the 2010 report were based on an assessment of the situation at the end of 2008; and those for the current assessment, on the situation at the end of 2013.

After a new government took office in 2010, however, political interest in the issue declined. Implementation of the PPCDAm has been hindered by poor coordination between government departments and agencies, while the number of opportunities for participatory decision-making in the forest sector has dwindled.

The PPCDAm was established as an inter-ministerial programme coordinated by the chief of staff of the presidency, but in practice its implementation was the sole responsibility of the Ministry of the Environment – there was virtually no engagement from other ministries. Under a presidential decree issued in 2013, responsibility for the PPCDAm was 'downgraded' and transferred from the presidential chief of staff to the Ministry of the Environment. In addition, the decree reduced the potential of the PPCDAm to enable coordinated action across the government by limiting its scope to the policies and actions of the Ministry of the Environment. Since the implementation of the National Forest Programme is the responsibility of the Ministry of the Environment too, there is very little political room for cooperation among those ministries involved in decisions related to land-use planning and forest management. Such cooperation is necessary to overcome the competing interests of those ministries – for example, mining, rural development, and agriculture and livestock – which have only been intensified by the government's large-scale Plan for Infrastructure Development (PAC).

In principle, there are a number of opportunities for multi-stakeholder consultation on forest policy and, more broadly, environmental policy. Three committees exist which aim to bring together government, civil society and the private sector to debate the direction of forest policy and legislation: the National Environment Council (CONAMA), the National Council on Forests (CONAFLOR) and the Commission on Public Forest Management (CGFLOP – see sub-section on checks and balances). Both CGFLOP and CONAMA meet on a regular basis; however, the former deals with forest concessions, and the latter has not focused on policy related to illegal logging in recent years.

In summary, progress in dealing with the issue has slowed. This reflects the fact that the issue of illegal logging has slipped down the political agenda and also the relative weakness of the Ministry of the Environment compared with the other ministries.

Legislative framework

Brazil's Forest Code, first introduced in 1965, was widely praised as providing an ambitious legislative framework: the decline in the rate of deforestation in the country between 2004 and 2012 has been attributed in part to the more effective enforcement of the code and other relevant laws.[32] However, enforcement remains weak. One reason for this is the inconsistent application of the law at the federal and state levels. Authority over forest management was transferred to state environmental agencies in 2006; as a result, IBAMA has little authority or ability to monitor or ensure compliance with the relevant legislation or to enforce a consistent approach.[33] For example, Resolution No. 406 issued by CONAMA in 2009 establishes the technical standards for drawing up, assessing and implementing sustainable forest management plans. However, the standards are variously interpreted, including the one on the adoption of digital tracking systems for timber production and transport (see further details in the sub-section on timber tracking).

[32] Evans, K. (2013), 'How much credit can Brazil take for slowing Amazon deforestation – and how low can it go?', published on the CIFOR website (see http://blog.cifor.org/13491/how-much-credit-can-brazil-take-for-slowing-amazon-deforestation-and-how-low-can-it-go#.U9fAO6wcuW8); and Nepstad et al. (2014).
[33] May, P.H. et al. (2011), 'The Context of REDD+ in Brazil: Drivers, Agents and Institutions', Occasional Paper 55, Bogor: CIFOR.

The new Forest Code, approved in May 2012, introduces a number of significant changes. These include increasing the area of land on which legal deforestation is permitted and offering an 'amnesty' to landowners who illegally deforested their land before July 2008. Whereas under the old Forest Code such landowners were required to restore the illegally cleared forest, the new code repeals that requirement – fully in some cases and partly in others.[34] This provides a pragmatic solution to widespread illegal activity in the sector and could help ensure more effective implementation of the law in future. However, many civil-society groups have strongly criticized the changes, which they fear will lead to new areas of forest being converted to agriculture.[35]

At the same time, the new Forest Code contains some progressive elements, including the requirement for all landowners to be included in the Rural Environment Registry (CAR) and provide details of all economic activities undertaken on their land (see also sub-section on tenure and use rights). That requirement could provide a valuable tool for the monitoring of land-use management by both government and civil society – depending on how much information is publicly available. However, concerns remain that the federal government will not have the capability to effectively implement and monitor the CAR.

As regards legislation on preventing the sale or import of illegal wood-based products, the only such law in place is that related to the control of species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), to which Brazil is party.

Checks and balances

Brazil has introduced a number of safeguards designed to ensure that the government acts in accordance with the country's legislation and that it can be held accountable if it does not. For example, the Public Prosecution Office has the authority to investigate and prosecute those found to have committed an environmental crime, including government agencies and individuals. Individuals or public groups may mount a legal challenge in the case of environmental crime through a so-called popular action, while a civil-society organization can do the same through a public civil action, provided it has been registered as such an organization for at least one year. While the provision of these safeguards is to be commended, it should be noted that public access to the legal system is difficult.

Brazil's General Accounting Office (TCU) regularly audits government departments and agencies to assess their use of public funds. It has the power to issue binding recommendations for corrective action. While its reports are made publicly available online, under-resourcing has tended to limit the reach and regularity of its work. Moreover, its recommendations are not always implemented: for example, following an audit of IBAMA's operations in 2009, the TCU made a total of 56 recommendations; two years later, IBAMA had implemented only eight.[36]

Each government agency must draw up an operational plan to establish its legal mandate and remit; and its performance is assessed annually against implementation of the plan. The Office of the Inspector General (CGU) and its counterparts at the state level oversee the fulfilment of these

[34] WWF (2013), 'The new Brazilian Forest Code as a harmful subsidy: Encouraging waste, punishing efficiency', at http://assets.wwf.org.uk/downloads/forest_code_factsheet.pdf.
[35] See, for example, WWF (2012), 'Brazil's government grants amnesty to environmental criminals while weakening forest protections', at http://www.wwf.org.uk/about_wwf/press_centre/?unewsid=6010; and Greenpeace (2012), 'The hidden reality in Dilma's Forest Code "veto"', at http://www.greenpeace.org.uk/blog/forests/hidden-reality-dilmas-forest-code-veto-20120601.
[36] See http://portal2.tcu.gov.br/portal/page/portal/TCU/Rio20/fichas/ptb_06_meio_ambiente.pdf.

obligations and responsibilities. If an abuse of discretionary powers is suspected or any cause for public concern is identified at a government agency, the CGU can open a legal case. Penalties for officials found guilty of wrongdoing are stipulated in both federal- and state-level legislation and range from warnings to expulsion from government. Moreover, the Brazilian Congress is authorized to establish a temporary committee to investigate any suspected wrongdoing at a government agency. However, the use of such powers is minimal; and there is little public trust in the effectiveness of these mechanisms.

As regards the forest sector, the SFB is overseen by an ombudsman who can investigate complaints brought against it and to which the service must submit information on its own internal procedures upon request. The ombudsman is mandated to assess the SFB's performance and report the findings to the CGFLOP, the Ministry of the Environment and the House of Representatives, among others.[37]

The CGFLOP serves as an advisory body to the SFB, providing guidance on public forest concession management (such concessions currently account for only a small proportion of timber production).[38] Established in 2006 under the auspices of the Ministry of the Environment, it is a multi-stakeholder commission that meets every six months and comprises representatives of the relevant government ministries, trade associations, community groups, environmental organizations and research institutes.

There is no independent monitor for Brazil's forest sector – that is, an organization with a formal government mandate to perform such a role. However, the country's civil society is active; and there are a number of NGOs with a particular focus on monitoring the forest sector. These include Imazon, which publishes technical analyses and data related to forest cover and management in Brazil; while its main focus is to monitor deforestation, it also conducts investigations into illegal activity in the sector.[39] The *Instituto Centro da Vida* (ICV) monitors forest transparency in the state of Mato Grosso.[40]

International trade cooperation

Since the 2010 Chatham House assessment, there has been no change in the level of cooperation with other countries in tackling the trade in illegal timber. The Brazilian government has not sought to develop bilateral agreements specifically on this issue either with consumer countries or with other timber-producing countries in the region. Nor has it developed a formal mechanism through which to send or receive alerts about suspected illegal shipments.

While customs officials in Brazil are mandated to check exports of wood-based products at the country's ports and airports to ensure that they are accompanied by the necessary legal documentation, their ability to monitor shipments is limited by a lack of capacity.

Regulating demand for timber

One driver of illegal logging may be the insufficient legal supply of timber to meet demand from a country's processing industry. Governments can address this problem by restricting the issuance or renewal of licences to mills that cannot demonstrate that they have a sufficient supply of timber from legal sources.

[37] Federal Law No. 11.284 of 2 March 2006, at http://www.mma.gov.br/port/conama/legiabre.cfm?codlegi=485.
[38] http://www.florestal.gov.br/menu-horizontal-de-internet/institucional/index.php?option=com_k2&view=item&layout=item&id=815.
[39] See www.imazon.org.br.
[40] See http://www.icv.org.br/.

There is a persistent imbalance in Brazil between the available supply of legally produced timber and demand for timber from processing plants. Little has been done to address this situation. A recent study commissioned by the Ministry of the Environment into the licensing of processing plants across the Brazilian Amazon revealed that only one of the states in that region – Amazonas – had tried to link the issuing of sawmill operation permits to the existence of authorized forest management plans or other evidence of the legal sourcing of wood.[41] The lack of such efforts has been a major factor in enabling sawmills to generate fraudulent timber volume credits and thus allow the laundering of timber that has been illegally produced (for more details, see the sub-section on timber tracking).

Tenure and use rights

The Brazilian government has taken a number of steps in recent years to formalize land tenure and to make available information on the status and use of public land. In June 2009 the Ministry of Agrarian Development introduced the Terra Legal Amazônia programme, intended as a means to regularize the use of private land, over half of which was thought to be illegal in 2008.[42] The programme was also aimed at resolving land tenure disputes: around a quarter of all private land in 2008 was considered not to have been officially allocated, while the rights to virtually all such land were contested by a range of actors, including companies, local communities and indigenous peoples. Under the programme, individuals and communities that had been occupying forest land without legal title since 1 December 2004 were granted legal tenure and the right to sell the land four years after the transfer of ownership.[43]

The programme aimed to legalize the land holdings on 20 million ha of federal public land by 2014. In mid-2012 it was reported that 7.3 million ha had been mapped and the owners of just 2,000 holdings granted legal title.[44] The programme came under scrutiny by the media and the NGO community in Brazil following a dramatic increase in the rate of deforestation that coincided with the programme's establishment.[45] Most of that deforestation was driven by the establishment of agricultural lands. However, in order to improve control over logging, the government introduced regulations that discouraged company involvement in logging activities,[46] as a result of which it became harder for smallholders to engage in legal logging (see also sub-section on overview of estimates of illegal logging).

The rights of Quilombola communities to their traditional lands, and to the timber and non-timber forest products on these lands, are recognized in the 1988 Constitution. Those communities have communal ownership over their land and the right to use or sell the resources on it, subject to national laws on the use of private land. Indigenous groups are entitled to occupy indigenous territories under the legal guardianship of the National Indian Foundation (FUNAI). While timber within those territories is to be used for their own purposes only, they are permitted to sell non-timber forest products on a commercial basis. The rights of other traditional communities, such as rubber tappers and *quebradeiras de coco babaçu,* are recognized in the 2006 Law on Forest Administration, which allows for the establishment of extractive reserves.

[41] Fanzeres, A. (2013), 'Levantamento do Marco Legal e dos Critérios Utilizados pelos Órgãos Estaduais de Meio Ambiente para o Licenciamento de uma Indústria Madeireira na Amazonia'. Sao Paulo: SFB/Ministry of the Environment/Banco Mundial.
[42] Brito, B. and Barreto, P. (2010), *Primeiro ano do Programa Terra Legal: Avalia*ção e Recomendações. Belém: Imazon (see http://www.scribd.com/doc/221618265/Primeiro-Ano-Do-Programa-Terra-Legal-Avaliacao-e-Recomendacoes-Imazon).
[43] Oliveira, G. (2011), 'Land Regularization in Brazil and the Global Land Grab: A State-making Framework for Analysis', paper presented at the International Conference on Global Land Grabbing at the University of Sussex, UK, 6–8 April 2011 (see http://cht.hm/1z4oA5K).
[44] See http://amazonia.org.br/2012/06/tr%C3%AAs-anos-depois-plano-para-legalizar-terras-na-amaz%C3%B4nia-engatinha/.
[45] De São Paolo, F. (2009), 'Ministério nega que programa Terra Legal aumente desmatamento', at http://www1.folha.uol.com.br/folha/brasil/ult96u638155.shtml.
[46] INCA Normative Instruction 65/2010 of National Institute for Colonization and Agrarian Reform.

As discussed above, the CAR could provide an additional tool for the monitoring and regulation of land use and tenure rights. Though established in 2007, the registry has not been widely used to date. However, under the new Forest Code, registration became mandatory for all rural properties – under implementing legislation approved in 2014; that requirement is expected to enter into force in 2016.[47] Landowners will have to provide details of the location and boundaries of their land, together with the economic activities for which the land will be used. The amount of information that will be made public is still under discussion, but since it is likely to be only aggregate data, its value for monitoring land use by NGOs will be minimal.

Timber-tracking systems

The 2010 Chatham House assessment found that of the five producer countries covered in that study, Brazil was particularly strong in terms of the use of timber-tracking technology. The online Document of Forest Origin (DOF) system, a database established by IBAMA to track products originating from natural forest along the supply chain, was considered a potentially robust tool that would enable monitoring of timber production and trade.[48]

Since then, there has been a loss of confidence in the integrity of the DOF and its ability to prevent illegal production and fraud. Despite IBAMA's efforts to integrate tamper-resistant mechanisms into the system, computer hacking and the entering of false information have been reported. Furthermore, the rate of conversion of logs to sawn timber employed by the system (45 per cent) is thought to be 10–20 per cent higher than the real conversion rates, which allows additional timber volume credits to be traded or transported. (Such credits are generated when a logging authorization (AUTEF) is issued by the state authority to a landowner or operator; they are transferred to a tracking system – either the DOF or a state system – which generates the transport documents that must accompany timber along the chain of custody).

Responsibility for tracking timber is shared by the state and federal authorities. A number of systems have been developed at the state level. The System for the Trading and Transport of Forest Products (SISFLORA)[49] was initially adopted by all Amazonian timber-producing states but is currently used only in Pará and Mato Grasso. Maranhão and Rondônia resumed use of the DOF in 2009 and 2011, respectively, after widespread fraud had been uncovered in connection with SISFLORA. The state of Ceará implemented its own version of the DOF, while Minas Gerais established its own registry system, which is linked to the Federal Technical Registry (CTF).

Under CONAMA Resolution No. 406/2009, all those systems should be linked to the DOF system. However, the resolution has been poorly implemented by the states, as a result of which the ability of the various systems to monitor trade has been hampered. Furthermore, while it is possible for anyone to check online whether a DOF document has been issued, it is possible to access only transportation documents and not official documentation related to production or processing. The potential for civil society and other stakeholders to use the system as a tool for independent monitoring of compliance with forest-sector regulations is therefore limited.

[47] Federal Decree No. 8.235/2014.
[48] See https://servicos.ibama.gov.br/index.php/autorizacoes-e-licencas/documento-de-origem-florestal-dof.
[49] See http://monitoramento.sema.pa.gov.br/sisflora/.

The lack of robustness of those systems was recently highlighted by Greenpeace. The organization has documented widespread fraud and abuse that have led to official documentation being issued for large volumes of illegal tropical timber.[50] Improved monitoring and auditing of the systems is urgently needed, including evaluations of the systems themselves and carrying out spot checks on the ground.

Transparency

There are legal requirements in Brazil for transparency of information related to public forest concessions; however, as noted above, such concessions currently account for a small proportion of the country's forests and timber production. Among other things, the dates, rules and results of the concession allocation process must be made public. The SFB is required to report annual statistics on forest concessions, including harvest volumes; but information on forest inventories and annual harvest plans are not made public. The SFB also has the mandate to publish statistics on the forest sector as a whole; that information appears on the National Portal for Forest Information (SNIF). In addition, SISFLORA produces summarized reports on production and processing for private holdings in Pará and Mato Grosso; and the Ministry of Industry and Commerce publishes monthly data on the export and import of wood-based products.

Transparency on enforcement is a requirement under CONAMA Resolution No. 379/2006, but implementation of that resolution is limited. IBAMA publishes on its website the names of private holdings that are subject to a ban on commercial activity as a result of illegal deforestation (which extends to a ban on any Brazilian bank providing such holdings with credit), and the Ministry of Labour publishes a list of concessionaries found to be using child or slave labour. However, there is no systematic publication of enforcement activities; a richer source of information on illegalities and prosecutions in the forest sector is the domestic media.

The roles and responsibilities of the various government agencies involved in the forest sector at the state and federal levels remain poorly delineated. There is significant overlap in the administrative mandates of those agencies, at both the federal and state level. Public understanding of the remits of the Ministry of the Environment, the SFB, IBAMA and the Chico Mendes Institute for Biodiversity (ICMBio) is limited, as is that of the division of responsibility between IBAMA and the state environmental agencies.

Allocation and management of rights to harvest

The licensing of forest management operations on both private and public land is regulated by CONAMA Resolution No. 406/2009. On private land, operators are required to provide evidence of property rights – either proof of ownership or the authorization of the owner. In the first stage of the process of awarding public forest concessions, bidding companies are assessed on the basis of their financial standing so that inappropriate bidders are excluded. The social and environmental management plans for those concessions are then assessed, with additional credit given for comprehensive and well-designed plans. Any areas that fall within the customary areas or territorial boundaries of forest-dependent communities are excluded from the public forest concessionaire's land-use rights.[51]

[50] Greenpeace (2014).
[51] See Law No. 11.284/2006.

Law enforcement

While there are dissuasive penalties and sanctions in place for illegal activity in the forest sector, these are undermined by a lack of systematic enforcement and the reluctance of courts to apply those penalties. In 2011 IBAMA reported that 205 enforcement operations had been undertaken and more than 6,000 fines issued, mainly in the states of Pará, Mato Grosso and Rondônia. However, it is estimated that only 5 per cent of fines imposed by IBAMA for forest-related crimes are paid.[52]

In 2008 the Inter-Ministerial Commission for the Prevention of Environmental Crimes (CICCIA) was established to improve cooperation among enforcement agencies working to combat such crimes. Coordinated by the ministries of justice and the environment, the commission brings together representatives of the National Public Security Force, the federal and highway police forces, IBAMA, ICMBio, the Brazilian Intelligence Agency and the Amazon Protection System. Its efforts have led to improved enforcement, and there have been a number of successful prosecutions.

However, both federal and state authorities lack the resources and capacity to undertake regular enforcement operations. IBAMA, for example, has only 1,500 enforcement agents for the country as a whole. As a result, clamping down on smaller-scale and more dispersed illegal activities is challenging. Furthermore, some states do not have a designated police force for environmental crimes and thus lack the capacity to investigate or prosecute such offences. And while federal judges and public prosecutors are considered to possess the necessary knowledge to preside over cases related to the forest sector, the same is not always true for state-level judges and municipal authorities.

Brazil has made significant investments in satellite monitoring, not only to monitor deforestation and forest degradation but also to detect illegal activity. The INPE has three such systems:[53] PRODES, used to estimate annual rates of deforestation; DEGRAD, which is employed to identify areas of forest degradation; and DETER, a near-real time monitoring system designed to facilitate the detection of illegal activity.

The Brazilian NGO Imazon, which is active in the forest sector, provides analysis of satellite data for the Amazon region as well as of information on the production and sale of timber collected by SISFLORA. The ICV performs a similar function for the state of Mato Grosso. Those analyses are used by public prosecution offices to assess the performance of enforcement agencies at the federal and state level and provide the basis for recommendations on how those agencies can improve their operations. However, there is little evidence of the agencies having acted on such recommendations.

Since 2008 the Ministry of the Environment has provided a black list of the Amazonian municipalities that had high rates of deforestation.[54] Being black-listed means that municipalities have limited access to bank credit for agricultural activities until the CAR is fully implemented and the rate of deforestation reduced. It has also prompted the development of 'state plans for the

[52] Barreto, P., Araújo, E. and Brito, B. (2009), 'A impunidade de crimes ambientais em áreas protegidas federais na Amazônia'. Belém: Imazon.
[53] UN-REDD (2012), 'UN-REDD and INPE Train African Experts on Satellite Forest Monitoring', *UN-REDD Programme Newsletter*, Issue 29, at http://www.un-redd.org/Newsletter29/INPE__African_Satellite_Forest_Monitoring/tabid/104317/Default.aspx.
[54] Decree No. 6.321/2007.

prevention and control of deforestation' (PPCDs), which are required for participation in the Amazon Fund.[55] Those plans include measures aimed at reducing illegal deforestation.[56]

Information management

In 2010 it was reported that Brazil was developing an information management system, Environmental Forestry Licensing (LAF), that would cover a range of forest-related information, including logging contracts, maps, inventories, DOF transport permits, remote sensing information and enforcement activity information. However, the system was never implemented. It is now intended that the CAR will perform some of its planned functions – namely, the management of information on tenure and land use (see sub-section on tenure and use rights).

Financial management

The tax regime for forestry is unclear and overlaps with that of other sectors, as shown by a study commissioned by the SFB.[57] This hinders both company compliance and government monitoring of revenues. The timber plantation sector is better regulated than is the natural forest sector – information on revenues is regularly provided by the former. Linking the DOF to the tax registration system could help to reduce tax evasion. Such a move is currently under consideration.

Audits of the forest administration are undertaken by the TCU but their impact is limited (as described in sub-section on checks and balances).

Expert perceptions survey

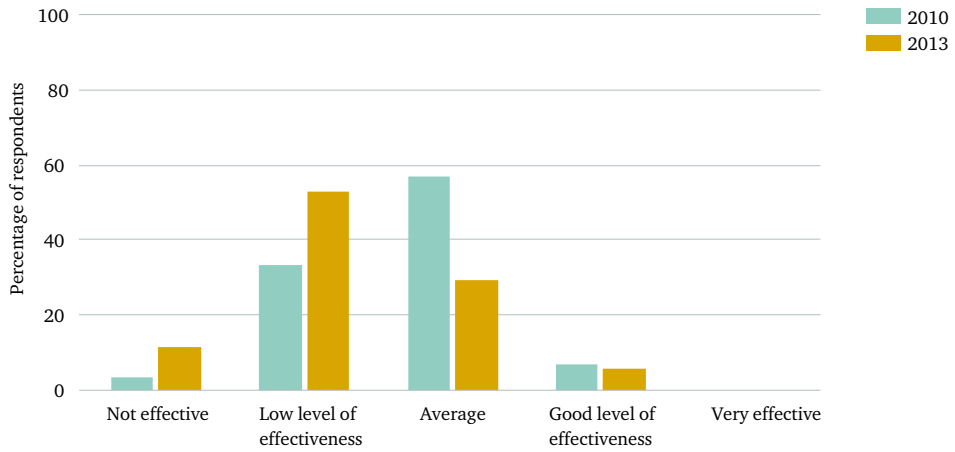
The assessment of the Brazilian government's response to illegal logging included an expert perceptions survey in which representatives of the government, the private sector, civil society, academia and the donor community were asked to evaluate that response, including how it had changed over the past year, as well as the extent and nature of illegal logging.

The number of responses to the survey was relatively low, which should be borne in mind when considering the findings. In the 2013 survey, there were just 21 respondents (the questionnaire was sent to a total of 79 people), compared with 30 in 2010.[58]

Perceptions of the overall effectiveness of the government's response have worsened since the 2010 assessment. In 2013 just over half of all respondents perceived the government's performance to be at a 'low level of effectiveness', compared with a quarter in 2010 (see Figure 3).

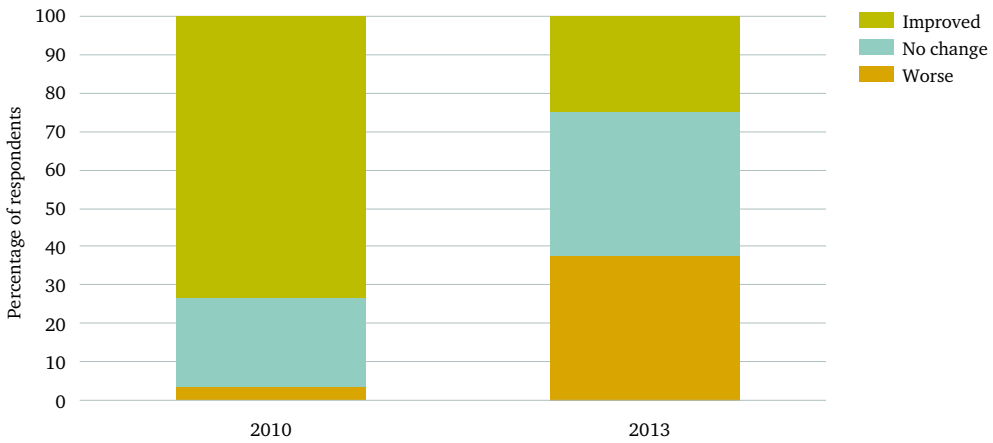
[55] The Amazon Fund facilitates investments in monitoring and preventing deforestation, as well as preservation of the Amazon Biome, under the terms of Decree N.º 6,527, dated 1 August 2008. See http://www.amazonfund.gov.br/FundoAmazonia/fam/site_en/Esquerdo/Fundo/.
[56] REDD in Brazil (2011), *A Focus on the Amazon. Principles, Criteria, and Institutional Structures for a National Program for Reducing Emissions from Deforestation and Forest Degradation*. Brasília: Centre for Strategic Studies and Management.
[57] De Cássia Carmélio, E. (2013), *Fortalecimento do Setor Florestal no Brasil: Mapeamento da carga tributária incidente sobre os produtos florestais madeireiros e proposição de medidas de desoneração*. SFB.
[58] The respondents can be broken down by category as follows: 2013: government – seven; private sector – two; and NGOs/other – 12; in 2010: government – 10; private sector – nine; and NGOs/other – 11.

Figure 3: Expert perceptions of the overall effectiveness of the government's response to illegal logging, 2010 and 2013



Asked how the government's response to illegal logging had changed over the past year, only 25 per cent of respondents in the 2013 survey believed there had been any improvement, compared with 75 per cent in 2010 (see Figure 4).

Figure 4: Expert perceptions of change in Brazil's government response to illegal logging during the past year



The respondents were also asked to assess the relative importance of a range of impediments to an effective government response to the problem of illegal logging, including limited enforcement capacity, poor availability of data, an inadequate legal framework, corruption and lack of political will. Responses to the 2013 survey did not differ significantly from those to the 2010 survey: limited enforcement capacity and a lack of transparency or oversight in the sector were once again seen as the biggest obstacles to an effective government response.

Progress by the Private Sector

In addition to examining government measures to tackle the problem of illegal logging, the current assessment evaluates the degree and effectiveness of the response by the private sector, based on the expert perceptions survey, an assessment of private-sector certification schemes and trade data analysis. Respondents from the private sector were asked several additional questions, but because only two responded to those questions, their answers are not included in the analysis.

Expert perceptions survey

Respondents to the expert perceptions survey were asked to assess the degree to which the response to illegal logging of various types of company (large-scale and small-scale companies, manufacturers and exporters supplying sensitive markets, and manufacturers and exporters supplying less sensitive markets[59]) had improved over the past year. The situation was seen as less positive in 2013 than in 2010: for all categories of company, most respondents considered there had been no change or that the private-sector response had worsened. Asked to estimate the level of awareness among industry of the problem of illegal logging, the response in 2013 was similar to that in 2010: much higher levels of awareness were reported for large-scale companies and for manufacturers and exporters supplying sensitive markets.

Finally, survey respondents were asked to assess the extent to which timber prices had risen or fallen in response to measures aimed at tackling illegal logging. In 2010 just under half of respondents thought that prices had risen owing to an increase in law enforcement activities. In 2013 responses were divided over whether prices had increased or decreased or whether there had, in fact, been no impact by measures to address illegal logging.

Levels of forest certification and legality verification

Certification data

Private-sector uptake of voluntary legality verification and sustainability certification standards is a useful indicator of attitudes towards illegal logging and the sustainable management of forests.

A large proportion of Brazil's plantations is now certified either by the Forest Stewardship Council (FSC) or under the Brazilian Programme for the Certification of Forests (CERFLOR), a national certification system that has been endorsed by the Programme for Endorsement of Forest Certification (PEFC). As of the end of 2012 around 3.5 million ha of eucalyptus plantation and 1.8 million ha of pine plantation were certified under one or other of these schemes.[60] Under the FSC forest management scheme, 1.2 million ha of natural forest available for commercial timber production have been certified.[61]

[59] Sensitive markets are considered in this context to be the EU, the US, Australia, Canada, New Zealand, Norway and Switzerland. Non-sensitive markets are considered to be all other markets.
[60] Estimated by Forest Industries Intelligence based on data from the PEFC and FSC websites.
[61] This area excludes certified areas that cannot be exploited for commercial timber – for example 1.54 million ha of the tribal lands of the 'Comunidade Kayapó na Terra Indígena do Baú', which are FSC-certified for the production of non-timber forest products.

The area of certified natural forest has increased gradually since 2006 (see Figure 5), partly owing to efforts by the Amazon Alternative, a programme funded by the IDH sustainable trade initiative to facilitate and promote FSC certification among producers in Brazil, Peru and Bolivia.[62] While the area of certified natural forest in Brazil increased slightly in 2013, when an additional two public forest concessions achieved certification, such forest accounts only for about 4 per cent of the country's production of timber from natural forests.[63]

Figure 5: Total natural forest area under voluntary verification or certification schemes, 2006–12

Sources: FSC FM, Rainforest Alliance (RA) VLO.

Sensitive market share

In order to gauge the response of the private sector to illegal logging and the growing demand for legal timber in many major consumer countries, shifts in trade between sensitive and non-sensitive markets were assessed. Both trade data and responses from the private sector to the perceptions survey were analysed. The quantitative data are based on estimates of RWE volume.

Figure 6: Timber- and paper-sector exports from Brazil to sensitive and non-sensitive markets, 2000–13

Source: Based on official trade statistics for Brazil (AliceWeb) and for partner countries of the corresponding imports; with analysis by Chatham House.

[62] Immerzeel, D. and Hamers, P. (2014), *Good Wood – Better Future. Lessons and experiences from a five-year program on sustainable forestry*, published on the Amazon Alternative website (see http://www.theamazonalternative.org/files/download/434/Good%20Wood%20-%20Better%20Future.pdf).
[63] Author's personal communication with TRAFFIC.

The analysis of trade data shows that in 2006 about 80 per cent of Brazil's exports of timber-sector products (RWE equivalent) were destined for sensitive markets. Between 2006 and 2013 that share fell to 60 per cent, largely owing to a decline in timber-product exports to the EU and the US. As noted above, the majority of such exports are from plantations, rather than natural forests.

In terms of RWE volume, Brazil's exports of paper-sector products increased during the period 2000 to 2011 and thereafter levelled off (see Figure 6). In 2013 around 60 per cent of paper-sector exports (by RWE volume) were destined for sensitive markets, of which the majority was pulp from plantations. That proportion has changed little since 2000: there has been considerable growth in such exports not only to the EU and to a lesser extent the US, but also to China.

In both the 2010 and 2013 expert perceptions survey, perceptions of the shifts in trade were mixed. In 2010 responses were fairly evenly divided over whether there had been a shift in trade towards sensitive markets or towards non-sensitive markets. In 2013 most respondents considered that trade had shifted towards the latter, and only the two private-sector respondents thought there had been a shift towards sensitive markets. One reason for this could have been differences in whether respondents were including both products from natural forest and those from plantations.

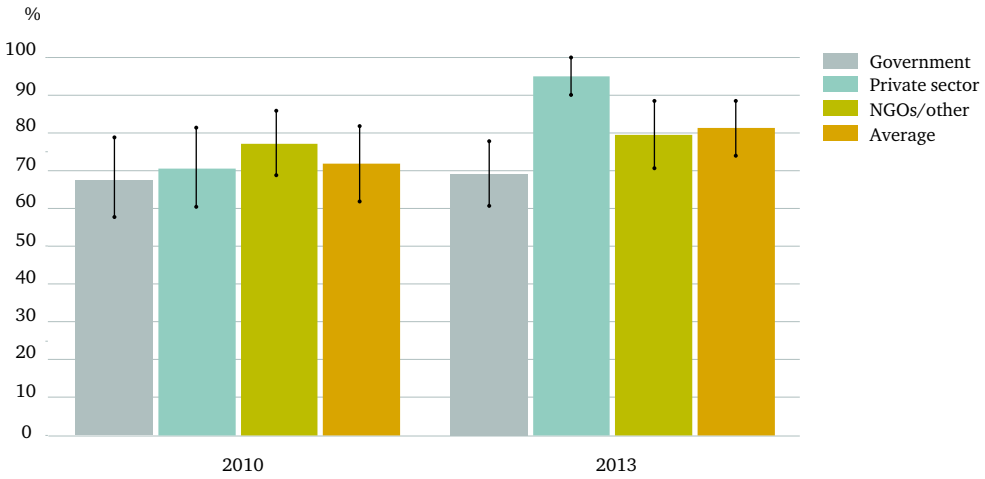
Estimated Levels of Illegal Logging and Associated Trade

To measure the extent of illegal production and trade in illegal timber, a number of methods were used. These included a wood-balance analysis and an assessment of discrepancies between exports from Brazil reported by that country and imports of Brazilian products reported by destination countries. The expert perceptions survey also included several questions about the nature and extent of the problem in the natural forest sector.

Expert perceptions survey

The average estimate of illegal logging as a share of the total harvest from natural forest was higher in 2013 than in 2010 – 75 per cent as opposed to 60 per cent.[64] There was slightly less consensus among respondents in the 2013 survey than in 2010, with the highest estimates coming from the private sector (see Figure 7).

Figure 7: Estimates of illegal logging based on the results of the 2010 and 2013 expert perceptions survey (as percentage of overall log production)



Respondents were asked to assess whether there had been a change in the level of illegal logging both over the previous five years and in the preceding year. In 2010 respondents reported that the situation had improved considerably over the previous five years and to a lesser extent in the previous year. By contrast, in 2013 respondents considered that there had been a decline in the previous year and only minimal improvement over the previous five years.

[64] No guidance was given in the survey as to how to define illegal logging, nor whether activities relating to both natural forest and timber plantations should be included. However, it seems likely that respondents would only be considering illegal logging in natural forest, as most debate about illegal logging relates to this.

Respondents were also asked about changes in specific aspects of illegal logging over the previous year – namely, illegal activities by private companies, unauthorized companies and artisanal producers; the illegal processing of timber; illegal exporting; and corruption among the police, the judiciary and forestry officials. In all cases except for that of illegal exports, the most common response in 2013 was that the situation had remained the same, while most respondents considered that the problem of illegal exports had worsened. In 2010 responses had been somewhat more positive: most respondents considered there had been improvements as regards illegal activities by private companies, artisanal logging and corruption among the police and the judiciary.

Asked to assess the prevalence of various types of illegal logging undertaken by companies – including the logging of unlicensed species, logging outside allocated areas and within protected areas, the removal of under- or over-sized trees, and extracting more timber than authorized – most respondents considered that such activities took place frequently. The exception was failure to meet obligations under public forest concessions with respect to community rights, which was considered to be infrequent (whereas in 2010 over half the respondents thought this occurred frequently).

Finally, respondents were asked about the importance of illegal logging as a driver of forest loss in Brazil relative to that of the clearance of forest land for agriculture and for legal logging. Whereas in 2010 legal industrial logging was perceived as the primary driver of forest loss, in 2013 experts considered its impact minimal. While the 2013 survey estimated the relative importance of illegal logging as greater than the 2010 survey had done, the most striking difference between perceptions in the two surveys was that the legal clearance of land for agriculture was considered the main driver of forest loss in 2013.

Wood-balance analysis

One means of assessing the extent of illegal logging is wood-balance analysis. Various methods are used for such analysis. The simplest method entails comparing the legal supply of timber (officially permitted logging and imports) with consumption (domestic consumption and exports). If consumption exceeds supply, this can indicate the existence and extent of unreported sources that are potentially illegal (although it should be stressed that such analysis does not capture illegalities in officially sanctioned production). However, there are many provisos – not least the lack of reliable official statistics, an issue that has been noted in the case of Brazil.[65]

This was also highlighted in the 2010 Chatham House assessment; it was estimated that in 2008 either 34 per cent or 95 per cent of the total harvest in the Legal Amazon was unlicensed – depending on which statistics were used.[66] Since then, statistics have not become any more reliable, making wood-balance analysis difficult. Analysis of FAO statistics was undertaken for the current assessment in order to determine whether the situation had changed in recent years.[67] The supply of industrial roundwood (volumes harvested, plus imports and minus exports) was compared with the estimated required input for the production of primary-processed products.[68] While the robustness of these data is questionable too, they highlight continuing discrepancies: required input exceeded official harvests in every year during the period 2003–12 – and by nearly one-quarter in 2012.

[65] See, for example, http://www.painelflorestal.com.br/noticias/artigos/madeira-da-amazonia-um-novo-foco-no-combate-a-ilegalidade.
[66] That is, the Brazilian Institute of Geography and Statistics (IBGE) or DOF.
[67] The data were from ForeStat FAO.
[68] Four products were chosen for the purpose of the analysis: sawnwood (lumber); panels (fibreboard, particleboard, plywood and oriented strand board [OSB]); veneer; and paper and paper-board (cardboard). To convert to RWE, the following factors were used: sawnwood – 1.89; panels – 1.64; veneer – 1.89; paper and paperboard – 3.6; and pulp – 4.5.

What is apparent from all the data is that there is a significant mismatch in official data on production and consumption. Given the size of that mismatch, illegal activity is likely to be a factor. Furthermore, the lack of reliable data on the sector will seriously hamper the ability of the government to make effective decisions about forest management.

Trade data discrepancies

Trade data discrepancies can be indicative of illegality. However, caution is needed in drawing such conclusions as those discrepancies may also result from poor-quality data or unintended differences in classification. But if the discrepancies are significant or persistent and if there is other evidence available, it is possible to draw conclusions with a certain degree of confidence.[69]

Brazil reports much higher volumes of sawnwood exports to the US than the latter reports as imports. The largest discrepancies are for wood chips. Since 2001 Brazil has consistently reported much higher exports (by weight) to Japan than Japan reports as imports. There are also discrepancies in the data for pulp: Brazil reports a much lower weight of exports to a number of countries than those countries – Australia, Canada, Mexico and Turkey, in particular – report as imports.

Overview of estimates of illegal logging

Estimating the level of illegal activity in the forest sector with any degree of accuracy is inevitably challenging, given the illicit nature of such practices. As described in the 'Background' section above, there are two distinct segments within Brazil's forest sector – plantations and natural forests. Most discussions about the level of illegality refer only to the latter, largely because of the high level of concern about the conservation of the country's forest biomes. While illegal activity is also an issue in the plantation sector – including illegal forest conversion and land-grabbing – it remains at a low level.[70]

The evidence compiled above relates mainly to natural forests, where illegal activity is thought to be widespread. All respondents to the 2013 expert perceptions survey – with one exception – estimated that illegal logging accounted for more than 50 per cent of natural forest production.

Some analyses of illegal logging have been undertaken by Brazilian agencies and NGOs, and these report high levels of illegality too. One study found that the volume of timber produced in the Legal Amazon in 2009 exceeded the volume authorized by 36 per cent.[71] More recently, based on a comparison of satellite data with official records of licences issued by the State Department of Environment for Pará (SEMA), Imazon estimated that 78 per cent of the area used for logging in the state was unlicensed in the period from August 2011 to July 2012.[72] One-quarter of the forest area subject to illegal logging was on land designated for rural agrarian reform, 8 per cent was in protected areas and the remainder was on land under private ownership or with unclear tenure. A similar analysis by Imazon undertaken for the state of Mato Grosso during the same period found

[69] ALICEWeb is the source for Brazilian export data. Data for importing countries are from national sources, including the General Administration of Customs of the People's Republic of China, Eurostat (EU–27), Badan Pusat Statistik (Indonesia), Trade Statistics of Japan, Korea Customs Service, Directorate-General of Customs of Taiwan, Customs Department of the Kingdom of Thailand, US International Trade Commission Trade DataWeb, UN Comtrade and World Trade Atlas.
[70] Lawson, S. (2014), *Consumer Goods and Deforestation*, pp. 34–35.
[71] Pereira et al. (2010).
[72] Monteiro, A., Cardoso, D., Conrado, D., Veríssimo, A. and Souza Jr., C. (2013), *Forest Management Transparency Report of the State of Pará (2012–2013)*. Belém: Imazon, p. 14.

that 54 per cent of the total logging area was unauthorized; of that land, 95 per cent was privately owned or with unclear tenure.[73] As explained above (see the sub-section on timber tracking), legal documentation can be obtained for this illegal timber because of the weaknesses in the country's timber-tracking systems.

The levels of illegality among the various types of producer are not known, but illegal logging is thought to be widespread on smallholdings. Smallholders face complex bureaucratic procedures and have limited capacity, and this is exacerbated by a lack of support and oversight from the government. Regulations introduced in 2006 and 2010 require environmental licences to be obtained for logging and discourage company involvement in forest management activities in settlements, which makes legal logging very difficult for smallholders.[74] Unscrupulous companies have exploited this situation, making unfair deals with landowners and engaging in illegal logging – at times with the use of intimidation and violence.

In 2013 CONAMA introduced a new regulation that simplifies environmental licensing in settlements and aims to facilitate legal logging.[75] Whether it has the desired effect will depend on the level of resources allocated to support the new policy, for extension services, monitoring and enforcement.

[73] Monteiro, A., Conrado, D., Cardoso, D., Veríssimo, A. and Souza Jr., C. (2014), *Forest Management Transparency Report of the State of Mato Grosso (2011–2012)*. Belém: Imazon, p. 14.
[74] CONAMA Resolution No. 387/2006 and Resolution No. 65/2010 of the National Institute for Colonization and Agrarian Reform.
[75] Resolution 458/2013 of CONAMA.

Conclusions and Recommendations

Following a positive evaluation of Brazil's response to illegal logging in 2010, this report indicates that progress in tackling illegal logging has since been slow and, in some areas, there has been a weakening of the government's efforts to tackle this issue. Illegal practices remain widespread in the management of the country's natural forests, reflecting the huge challenges to improve enforcement and monitoring that remain.

Brazil's considerable enforcement efforts have been hampered by poor coordination between the relevant agencies as well as by limited resources and training for enforcement officials. Furthermore, penalties are inadequate and fines are often not collected. Imposing appropriate fines and ensuring their collection could help to fill the gap in funding, thereby enabling more effective enforcement while at the same time serving as a deterrent to those operating illegally.

In addition, clarification of the regulatory framework is needed and, in some cases, simplification – for example, in relation to the processes for approving forest management plans (particularly those of smallholders) and to the fiscal regime for the forest sector. The new Forest Code should facilitate the formalization of the activities of the country's smallholders, of which there are many thousands. Requiring smallholders to register their land could provide a means of regulating their land-use practices, although extensive outreach will be needed to ensure that the regulation is implemented widely and equitably. Extension services and support are required, more broadly, for small-scale producers so that legal and sustainable forest management becomes a viable livelihood option for them.[76]

The systems to monitor timber and revenue flows are weak and helping to facilitate fraud. Considerable investment is needed to integrate those systems and ensure that they are robust. Not least, regulation on sawmills should be tightened to clamp down on their role in laundering illegal timber. In reducing fraud, this could help to increase revenues for the forest agencies, enabling reinvestment in the sector, and help to establish a level playing field for those producers that are operating legally.

The establishment of a viable, legal tropical forest industry would be facilitated by the promotion of verified legal timber within Brazil, given that the majority of timber from natural forests is consumed domestically. While some steps have been taken, these will need to be strengthened and expanded. For example, new measures could include requiring major infrastructure projects, like those being implemented under the country's Growth Acceleration Programme, to source legal timber.[77]

Another challenge for Brazil is the pressure on forests from agriculture, mining and infrastructure projects, which has led not only to deforestation but also to conflict over land use. More effective high-level coordination between all relevant government agencies is required to help ensure effective and equitable land-use planning.

[76] Earth Innovation Institution (2014), *Legal Compliance and Verification of Small-Scale Producers in Brazil's Forest Sector* (unpublished report for Chatham House).
[77] Ibid.

Annex 1: Policy Assessment Scores for 2008 and 2013*

		Existence (0–2)		Design (0–5)		Implementation (0–5)	
		2008	2013	2008	2013	2008	2013
High-level policy							
Official review of illegal logging		2	2	4	4	3	2
National action plan		2	2	4	3	3	2
Coordination between government departments		2	2	3	2	3	2
Multi-stakeholder consultations		2	2	4	4	4	2
Legislative framework							
Coherent and unambiguous forestry legislation				3	3		
Forestry legislation consistent with other laws affecting forests				3	2		
Enactment of additional legislation to prevent sale and import of illegal wood-based products		1	1	2	2	3	3
Checks and balances							
Right of public to make legal challenge		2	2			3	3
Penalties for official corruption		2	2	5	5	2	2
Limits to discretionary powers		2	2			5	3
Committee with oversight of forest agencies		2	2	4	4	4	2
Internal forestry agency audits whose results are made public		1	2	4	4	4	2
Independent forest-monitoring system		1	1	3	3	4	4
Customs mandated to check legality of exports		2	2			3	3
International trade cooperation							
Formalized trade or customs arrangements		0	0	n/a	n/a	n/a	n/a
Formalized system for sending and receiving enforcement alerts		0	0	n/a	n/a	n/a	n/a
Regulating demand for timber							
Sawmill permitting system that requires evidence of legal supply		0	1	n/a	1	n/a	1
Tenure and use rights							
Property, use rights and tenure arrangements designated on publicly available maps		0	2	n/a	4	2	2
Formalized mechanisms for resolving property rights issues		1	2	2	3	n/a	2
Formalized mechanisms for accommodating customary rights in law		1	2	4	4	n/a	3
Timber-tracking systems							
System to verify the origin of timber		2	2	4	2	4	2
System design	Independent monitoring procedures	1	1	3	3	4	2
	Reconciliation systems	2	2	4	3	3	2
	Tamper-resistant documentation procedures	2	2	4	3	3	2
	Computerized systems	2	2	4	2	3	2

		Existence (0–2)		Design (0–5)		Implementation (0–5)	
		2008	2013	2008	2013	2008	2013
Transparency							
Public document describing roles, responsibility and controls of relevant agencies		0	0	2	n/a	2	n/a
Resource allocation ◆	Rules for resource allocation processes	2	2			4	4
	Dates for resource allocation processes made publicly available	2	2	5	5	5	4
	Results of resource allocation processes made publicly available	2	2	5	5	5	4
	Summary data on harvest, processing and international trade published	2	2	5	5	5	4
Resource use ◆	Location of concessions, ownership and contracts made publicly available	2	2	5	5	5	4
	Concession licences, inventories and harvest plans made publicly available	2	2	5	5	5	4
	Environmental and social impact assessments made publicly available	2	2	5	5	5	4
Enforcement	Data on forest crimes published	0	2	1	1	1	1
	Data on disposal of confiscated wood made publicly available	0	2	1	1	1	1
Allocation and management of rights to harvest ◆							
	Pre-qualification process to exclude inappropriate bidders	2	2	4	4	4	4
	Competitive allocation process	2	2	4	4	4	4
	FPIC or stakeholder consultations for affected local communities	2	2	4	4	4	4
	Measures to protect and develop forest-based livelihoods	2	2	4	4	4	4
Law enforcement							
Proportionate and dissuasive penalties				4	4	2	1
Coordination systems in place for relevant agencies		2	2	4	4	4	2
Forestry/law enforcement officials sufficiently resourced				2	2	2	2
Training of	Judges and prosecutors					2	2
	Customs officials					2	2
Information-gathering	Remote-sensing systems					5	5
	Field-based investigatory tools					4	4
	Material flow analyses					2	2
	Log-tracking and checkpoint systems					2	2
Information management							
Up-to-date, accurate information management system		1	1	4	n/a	n/a	n/a
Financial management							
System for monitoring revenue discrepancies		1	1	n/a	n/a	n/a	n/a
Forest administration audit		0	2	n/a	3	n/a	2

* The policy scores included in the 2010 report were based on an assessment of the situation at the end of 2008; and those for the current assessment on the situation at the end of 2013. A grey cell indicates that the answer to the question posed was not scored; an asterisk indicates that the question was not asked in 2010. Policies were assessed according to the following factors: existence (scoring between 0 and 2, whereby 1 indicates partial coverage or a policy under development); design (scoring between 1 and 5, whereby 5 indicates very well designed); and implementation (scoring between 1 and 5, whereby 5 indicates consistent and comprehensive implementation).

◆ These scores refer only to the allocation of federal public concessions.

Annex 2: Methodology

The methodology employed to undertake the assessments of the 13 countries included in the 2014 Indicators of Illegal Logging and Associated Trade study is based on that developed by Chatham House for its 2010 assessment. Below is a brief overview of the data collection and analysis process. Further explanation of how the indicators were developed can be found in earlier reports.[78]

The countries included in the study were selected on the basis of the significance of their role in the production and consumption of illegal wood-based products. Four years after the first assessment, the 12 original focus countries combined continue to account for the majority of exports and imports of such products. Lao PDR is included in the 2014 assessment owing to its increasing importance in the global trade in wood-based products.

Indicators of progress

Chatham House has developed a set of standardized indicators to allow a comparative evaluation to be undertaken. The indicators cover four areas:

a) Media attention;

b) Government response (assessment of the policy framework, expert perceptions survey and analysis of enforcement and revenue data);

c) Progress by the private sector (assessment of levels of certification and legality verification, expert perceptions survey and analysis of trade data to assess shifts in trade with 'sensitive' and 'non-sensitive' markets);[79] and

d) Levels of illegal production and trade (expert perceptions survey, wood-balance analysis and analysis of trade data to assess discrepancies).

An outline of how these data were collected is provided below.

Media attention

The level of attention afforded to illegal logging and related trade in the domestic and international media was assessed, using both quantitative and qualitative methods. The volume of articles in the international media was measured through a search of online media archives (Factiva, Newsbank and LexisNexis) using the term 'illegal logging' and the country name. A similar approach was adopted with domestic media: the search term 'illegal logging' was used in English and/or the local language. Online archives were used where possible and physical archives where no such digital records were available. Country partners were asked to identify those newspapers, journals and media outlets that can be considered 'major circulation'.

[78] Lawson, S. (2007), *Illegal Logging and Related Trade*; and Lawson, S. and MacFaul, L. (2010), *Illegal Logging and Related Trade. Indicators of the Global Response*. London: Chatham House.
[79] In this assessment, 'sensitive' markets are considered to be the EU, Norway, Switzerland, the US, Australia, Canada and New Zealand. Non-sensitive markets are considered to be all other markets.

The articles were then categorized according to their main focus: enforcement, private-sector response, government response, impacts or 'other'. The search period for domestic media coverage was the year from October to September, while that for international media was the calendar year.

Policy assessment

For each of the countries included in the assessment, an in-country partner was selected by Chatham House to assess the national policy and legal framework for tackling the issue of illegal logging and related trade.

For producer countries, the questions were grouped into 12 broad categories: high-level policy, legislative framework; checks and balances, international trade cooperation, policies to regulate demand for timber, tenure and use rights, timber-tracking systems, transparency, allocation and management of rights to harvest, law enforcement, information and financial management. In addition, data on enforcement and revenue collection were collected and incorporated into the policy assessment.

In-country partners were provided with an advisory framework on scoring as well as the scores from the 2010 assessment in order to maintain at least a degree of consistency across countries and between the two assessments. The scores were then reviewed by Chatham House researchers and peer reviewers and amended where necessary.

Expert perceptions survey

A survey of national experts asked respondents to estimate levels of illegal logging and associated trade and to evaluate the response by government and the private sector to the issue. The main part of the survey, which comprised 16 questions, was sent to all respondent groups – government officials, timber-industry representatives, NGOs and other experts. An addendum to the survey was sent to private-sector respondents, while a separate short survey was sent to industry associations.

Weighted-average perception scores have been calculated to account for slight variations in sample size among respondent groups and between the two survey periods. First, averages were calculated for each respondent group (government, private sector and NGO/other) and then the average of the three averages.

Third-party certification

Data were gathered on the total area of production forest in the producer countries that has been either verified legal or certified sustainable (plantation forests were excluded). All major independent certification schemes were included. Data were based on those provided by each of the schemes as well as on research undertaken by Chatham House staff. Various reports, including those by NGOs and trade associations, were consulted in order to calculate the total area of active production forest under certification at the end of each calendar year up to 31 December 2012; no areas certified after this date are included in the current assessment.

Analysis of trade data

Trade data were compiled and used to analyse shifts in trade between 'sensitive' and 'non-sensitive' markets and discrepancies in data on reported imports and exports between a producer country and its export markets. Data were compiled from official national trade statistics and from the UN Comtrade database and converted to RWE volume. The following conversion factors were used:

- By volume (m^3/m^3): sawnwood: 1.8; veneer and mouldings: 1.9; plywood: 2.3.
- By weight (m^3/t): particleboard: 2.0; fibre board: 2.5; picture frames and wooden furniture: 2.8; joinery, ornaments and 'not elsewhere specified': 3.5; chips and residues: 1.6; paper: 3.5; and pulp: 4.5.

Wood-balance analysis

Where robust national data could be obtained, wood-balance analyses were undertaken. These compared the legal supply of timber (from official records of harvest and imports) with consumption (based on domestic consumption and exports). The gap between supply and consumption can indicate the existence and extent of unreported and hence potentially illegal logging.

There are a number of limitations to such analyses. Most important, they cannot account for smuggling or illegalities related to legally sanctioned harvesting (e.g., the failure to pay taxes). Furthermore, statistics – particularly on domestic consumption – are unreliable or absent in many countries. For this reason, the methodology used varied from country to country, depending on the data available, while in many cases no such analysis could be undertaken owing to the lack of relevant data.

Glossary

AUTEF	Autorização de Exploração Florestal/logging authorization
CAR	Cadastro Ambiental Rural/Rural Environmental Register
CERFLOR	Programa Brasileiro de Certificação Florestal/Brazilian Programme for the Certification of Forests
CGFLOP	Comissãode Gestão de Florestas Públicas/Commission on Public Forest Management
CGU	Controladoria Geral da União/Office of the Inspector General
CONAFLOR	Comissão Nacional de Florestas/National Council on Forests
CONAMA	Conselho Nacional do Meio Ambiente/National Environmental Council
CSO	civil society organization
CTF	Cadastro Técnico Federal/Federal Technical Registry
DOF	Document of Forest Origin
FAO	Food and Agriculture Organization
FSC	Forest Stewardship Council
FUNAI	Fundação Nacional do Índio/National Indian Foundation
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis/ Brazilian Institute of Environment and Renewable Natural Resources
ICMBio	Chico Mendes Institute for Biodiversity
ICV	Instituto Centro da Vida
INCRA	Instituto Nacional de Colonização e Reforma Agrária/National Institute for Colonization and Agrarian Reform
INPE	Brazil's National Institute for Space Research
LAF	Licenciamento Ambiental Florestal/Environmental Forestry Licencing
Lao PDR	Lao People's Democratic Republic
PEFC	Programme for Endorsement of Forest Certification
PPCDAm	Plano de Proteção e Combate ao Desmatamento na Amazônia/Action Plan for the Prevention and Control of Deforestation in the Amazon
PPCDs	State plans for the prevention and control of deforestation
RWE	Roundwood equivalent
SEMA	Secretaria de Estado de Meio Ambiente/State Department of Environment for Pará
SFB	Serviço Florestal Brasileiro/Brazilian Forest Service
SISFLORA	Sistema de Comercialização e Transporte de Produtos Florestais/System for the Trading and Transport of Forest Products
SNIF	National Portal for Forest Information
TCU	Tribunal de Contas da União/General Accounting Office

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