

Research Paper Appendix

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# Methodology for Estimating Levels of Illegal Timber- and Paper-sector Imports Estimates for China, France, Japan, the Netherlands, the UK, the US and Vietnam

## Background

This paper accompanies a series of Chatham House assessments on China, France, Japan, the Netherlands, the UK, the US and Vietnam and provides details on how the estimates of the level of illegality of imports of wood-based products into those countries were derived. The assessments are part of a research project that monitored levels of illegal logging and related trade in selected consumer, producer and processing countries in order to evaluate the effectiveness of efforts to tackle this problem.<sup>1</sup>

The paper describes the methodology for estimating the levels of wood-based products at high risk of illegality that are being imported into consumer and processing countries. The methodology was developed in order to provide quantitative estimates of the scale of such imports and to assess how they have changed over time. The figures adopted for the assessments are based on the best available evidence; but, given the challenges of quantifying levels of illegal logging and the limited information available for some countries, they should not be regarded as definitive. Rather, they indicate the likely levels of illegality and, perhaps more important, how they may have changed over time.

## Overview of the methodology

The level of imports of wood-based products at high risk of illegality has been estimated through an evaluation of product flows (for which the term ‘import-source analysis’ was coined). This involves estimating the roundwood equivalent (RWE) volume and import value of imports based on official import data for each bilateral flow, year and category of wood-based product; those figures are then multiplied by estimates of the proportion that is likely to be illegal, which itself is based on the estimated level of illegality likely to apply to the export of each product category for a given country and year as well as on the extent to which importing countries demonstrate a preference for legal products. This calculation is informed by existing Chatham House research, knowledge of the consumer and producer countries’ policies, and analysis of other expert sources and available data.

The default position is that the proportion of illegal wood-based products imported into a consumer or processing country is the same as the proportion exported by the producer country. In cases where the consumer country has shown evidence of seeking to avoid illegal imports, it is assumed to be lower; when there is little or no evidence of such policies or actions, it is assumed to be higher.

Below are the levels of illegal activity, expressed in percentages, that have been assumed for the period 2000–13 for the seven countries listed above. They include the bilateral trade flows that are likely to have accounted for the vast majority of those countries’ imports of illegal wood-based products in 2013. These baseline percentages are similar to those used in assessments conducted in

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<sup>1</sup> Brack, D. (2014a), *Trade in Illegal Timber: The Response in the United Kingdom*; Brack, D. (2014b), *Trade in Illegal Timber: The Response in the Netherlands*; Momii, M. (2014a), *Trade in Illegal Timber: The Response in the United States*; Momii, M. (2014b), *Trade in Illegal Timber: The Response in Japan*; Saunders, J. (2014 – forthcoming), *Trade in Illegal Timber: The Response in Vietnam*; Wellesley, L. (2014a), *Trade in Illegal Timber: The Response in France*; Wellesley, L. (2014 – forthcoming), *Trade in Illegal Timber: The Response in China*, all available at <http://www.chathamhouse.org/about/structure/eeer-department/forest-governance-project>.

2010 and 2014 as part of the overall research project.<sup>2</sup> Those that differ reflect the results of more recent research undertaken by Chatham House and others.

## Definitions and assumptions

Illegal wood-based products are defined as those that have been harvested, processed, bought, sold or transported in breach of regulations in the country of origin or in a third-party processing country.

In the case of the illegal conversion of forest to plantations, all production from such plantations was assumed to be illegal if the conversion took place after 1994<sup>3</sup> and there has been no formal process of 'legalization' since.

Levels of illegal imports to the EU and to a lesser extent, to the US, were assumed to be below the baseline in order to reflect preference in those markets for certified products as well as efforts by the private sector to comply with the EU Timber Regulation and government procurement policies in the case of EU member states, and the Lacey Act in the case of the US. The level of illegality of many trade flows into China was assumed to be above the baseline owing to the lower sensitivity of this market. Where there are exceptions, these have been indicated below.

## Estimated level of illegality in the most salient trade flows in selected source countries

### Brazil

Brazil's forest sector can be divided into two distinct parts: plantations, which produce timber particularly for pulp and paper; and natural forests in the Amazon region, which supply timber-sector products. In the plantation sector, which is well regulated, there is a low level of illegality, but in the country's tropical forests, illegal logging remains widespread. Such activity is considered to have declined since the turn of the century as a result of targeted enforcement efforts, particularly during the period 2004–10. However, in recent years, progress in tackling illegal logging has slowed; the issue has slid down the political agenda and enforcement has become more challenging as the 'easier' cases have been tackled.<sup>4</sup>

In this assessment, the baseline for illegal pulpwood production was assumed to be 2 per cent, which takes into account allegations of illegal allocations of land for plantations.<sup>5</sup> This level of illegality is likely to be lower if imports have been certified as coming from sustainable sources.

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<sup>2</sup> Lawson, S. and MacFaul, L. (2010), *Illegal Logging and Related Trade: Indicators of the Global Response*. London: Chatham House; and Lawson, S. (2014a), *Methodology for Import-source Estimates of Illegally Sourced Wood Imports: Thailand, South Korea and India*. London: Chatham House. The latter report provides further explanation of some of the baselines used in the current assessment.

<sup>3</sup> The threshold date used by the FSC is 1994 because certification is not possible for any plantation established on land that was converted from natural forest after that date.

<sup>4</sup> Wellesley, L. (2014b), *Illegal Logging and Related Trade: The Response in Brazil*. London: Chatham House.

<sup>5</sup> Lawson, S. (2014b), *Consumer Goods and Deforestation*. Washington, DC: Forest Trends.

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For the timber sector, products derived from coniferous species and teak grown on plantations were assumed to be legal. As regards tropical timber products, the baseline for most such products was 40 per cent in 2000. For sawn wood the level of illegality was assumed to have gradually decreased over the following years, to 32 per cent by 2013, as a result of government enforcement efforts in the sector. In the case of tropical mouldings, the level of illegality was assumed to have gradually increased from the baseline (to reach 57 per cent) owing to the high level of demand for the main species being exported (which was considered likely to have exceeded available legal supply). The baseline for tropical plywood was 35 per cent in 2000, declining to 25 per cent in 2013. This lower baseline assumes that supply chains for plywood are simpler and that markets for tropical plywood have a greater preference for FSC-certified products.

These percentages are considerably lower than other estimates of illegal tropical log production in Brazil – some of which are as high as 80 per cent in some states. However, it was assumed that the share of illegal tropical timber entering the domestic market was larger than that which is exported. Although recently there have been allegations of illegality in shipments to the EU,<sup>6</sup> it was assumed that overall levels of illegal exports to the EU (and to the US as well) are below the above-mentioned baselines.

### Cameroon

While illegal logging remains widespread in Cameroon, it has declined since 2000. Illegalities among concessionaires have decreased: wood-balance analysis undertaken for Chatham House's 2010 assessment indicated that in 1999, about one-third of the timber harvested by concessionaires for export was unlicensed, but that figure had fallen to almost zero by 2007.<sup>7</sup> Similarly, in 2009 the independent observer at the time reported that illegal practices among concessionaires had declined in the preceding years.<sup>8</sup> Furthermore, the area of FSC-certified and legally verified forest increased over the period 2000–13. However, illegalities associated with so-called small permits, sales of standing volume, community and communal forests, and artisanal logging have remained at a high level throughout the same period. Furthermore, small permits and sales of standing volume have become an increasingly important source of timber for export markets.<sup>9</sup>

Taking all the above into account, the baseline for logs and sawnwood was assumed to be 50 per cent in 2000. For sawnwood, it was assumed to have declined to 25 per cent in 2013 owing to certified and legally verified sawnwood accounting for an ever larger share of the exports to the countries included in the current assessment – particularly during the early part of the last decade. The rate of decline was assumed to have slowed in the last three years, in part reflecting slow progress in the implementation of the Voluntary Partnership Agreement (VPA) with the EU. The baseline for logs was assumed to have declined until 2010 and then increased slightly – to 42 per

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<sup>6</sup> See <http://greenpeaceblogs.org/2014/10/30/european-authorities-time-act-illegal-timber/>.

<sup>7</sup> Lawson and MacFaul (2010).

<sup>8</sup> REM (2009), *Progress in Tackling Illegal Logging in Cameroon*. Independent Monitor of Forest Law Enforcement and Governance (IM-FLEG).

<sup>9</sup> Hoare, A. (2014 – forthcoming), *Illegal Logging and Related Trade: The Response in Cameroon*. London: Chatham House.

cent in 2013. This slower rate of decline can be attributed to the imposition of log export quotas and a probable increase in log exports deriving from small permits.<sup>10</sup>

## China

An evaluation of the level of illegality in the export of wood-based products from China requires a number of assumptions to be made about the flow of products through the country. The volume (or weight) of illegal wood-based raw material imported from various countries was estimated, as was the share that remains in China (including as by-products from milling), in order to derive estimates for the volume (or weight) that is incorporated into exported products. For those products that China exports in the largest quantities (such as plywood and furniture), the percentage of RWE volume that derives at least partly from imported wood-based raw material has been estimated. In order to check whether these assumptions are reasonable, a similar estimate has been made for supplies for end-use in China, taking into account the availability of wood-based raw material and making assumptions about the volume of logs produced in China. Thus the percentages derive from a process of iteration.

In order to establish a baseline for the proportion of the RWE volume of illegal products that China exports, it was assumed that manufacturers in China do not distinguish between legal and illegal imported raw material – whether for export or end-use in China. While significant efforts have been made to introduce a timber legality verification system in China and to promote legal trade with supplying countries, these remain at the pilot stage and so have yet to have a broad impact.<sup>11</sup> At the same time, it was assumed that any illegality in China is not in addition to illegality inherent in the imported raw materials from which the products are manufactured.

All baselines for China's wood-based product exports were estimated to have declined between 2000 and 2013: plywood from 40 per cent to 18 per cent; furniture from 35 per cent to 18 per cent; paper from 20 per cent to 10 per cent; mouldings from 60 per cent to 40 per cent; and joinery from 40 per cent to 31 per cent.

## Equatorial Guinea

There is relatively little quantitative information available on the level of illegal logging in Equatorial Guinea. A report by WWF estimated that annual production quotas were being exceeded by between 40 and 60 per cent.<sup>12</sup> Forest governance is known to be weak and cases of high-level corruption have been reported.<sup>13</sup>

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<sup>10</sup> The level of illegality (expressed as a percentage) in Cameroon is based on the assumption that all exports originate from timber produced in that country. A significant proportion of timber exported from Cameroon originates in neighbouring countries; however, taking this into account would have little impact on this estimate.

<sup>11</sup> Wellesley, L. (2014 – forthcoming), *Trade in Illegal Timber: The Response in China*.

<sup>12</sup> Toyne, P. et al. (2002), *The Timber Footprint of the G8 and China. Making the Case for Green Procurement by Government*. Switzerland: WWF International.

<sup>13</sup> See, for example, media reports at <http://www.illegal-logging.info/regions/equatorial-guinea> and an overview of some of the forest governance challenges at <http://www.forestsmonitor.org/en/reports/540539/549942>.

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With regard to log exports, the level of illegality was 60 per cent for the period 2000–07. Subsequently a baseline of 100 per cent was used, as a ban on log exports was introduced in 2007 and became effective from 2008 onwards.<sup>14</sup>

## Ghana

Chatham House’s evaluations have found that, despite progress in tackling illegal logging in Ghana, illegal activities remain widespread in the country’s forest sector. Wood-balance analysis based on data from 2005 indicated that nearly 40 per cent of timber consumed by the formal industry (which supplies mainly the export market) was illegal.<sup>15</sup> Moreover, there is the long-standing issue of a lack of clarity over the legality of many permits owing to the on-going dispute between companies and the government about the required payment of timber fees. And since 2011 there has also been a rapid increase in the issuance of salvage permits, the legality of many of which has been questioned by civil society.<sup>16</sup>

Taking all this into account, the baseline for all products (with the exception of logs) was assumed to have been 60 per cent in 2000 and to have gradually declined over the following decade to 40 per cent in 2010. It was also assumed not to have changed since then, given reports of the illegal allocation of permits and the slow progress with VPA implementation. Since the export of logs is prohibited, all log exports were assumed to have been illegal.

## Indonesia

Illegal logging in Indonesia has declined significantly since 2000. That was particularly the case in the early years of this century, when the government implemented major enforcement operations. Wood-balance analysis indicated that unlicensed harvesting fell from 80 per cent to 40 per cent during the period 2001–06.<sup>17</sup> Chatham House’s recent assessment suggested that illegal logging associated with natural forest management has continued to decline. However, a growing proportion of timber is estimated to come from forest clearance, the legality of much of which is contested.<sup>18</sup>

The baselines for pulp and paper exports were assumed to be 80 per cent and 70 per cent, respectively, in 2000, reflecting the high level of reported illegalities in the financing, allocation and management of concessions for pulp plantations.<sup>19</sup> Despite improvements in the situation since then, because there has been no formal process of forgiveness of previous illegalities it was assumed that there has been no change in these levels of illegality over the period of this assessment. As regards wood chips, a significant proportion of the raw material used in their production was assumed to derive from plantations on land that was cleared of forest before 1994. Thus the

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14 World Bank (2008), ‘Forest Carbon Partnership Facility Readiness Plan Idea Note, Equatorial Guinea’, at [https://www.forestcarbonpartnership.org/sites/forestcarbonpartnership.org/files/Equat\\_Guinea\\_R-PIN\\_GE\\_ENG\\_14\\_dec\\_2008\\_1.pdf](https://www.forestcarbonpartnership.org/sites/forestcarbonpartnership.org/files/Equat_Guinea_R-PIN_GE_ENG_14_dec_2008_1.pdf).

15 Lawson and MacFaul (2010).

16 Hoare, A. (2014), *Illegal Logging and Related Trade: The Response in Ghana*. London: Chatham House.

17 Lawson and MacFaul (2010).

18 Hoare and Wellesley (2014), *Illegal Logging and Related Trade: The Response in Indonesia*. London: Chatham House; and Lawson (2014a).

19 See for example: Wakker, E. (2014), *Indonesia: Illegalities in Forest Clearance for Large-scale Commercial Plantations*. Washington, DC: Forest Trends; Lawson (2014a); and Barr, C. et al. (2010), ‘Financial Governance and Indonesia’s Reforestation Fund during the Soeharto and post-Soeharto Periods, 1989–2009: A Political Economic Analysis of Lessons for REDD+’, CIFOR Occasional Paper No. 52.

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baseline for wood chips was assumed to be 40 per cent in 2000 and to have declined in recent years to 28 per cent in 2013.

The level of illegal exports of pulp to Japan was assumed to be 10 percentage points below the baseline, reflecting the fact that Japan sources much of its pulp from one mill whose pulpwood supplies have not been linked to allegations of illegal activities.

For most timber-sector products, a baseline of 70 per cent in 2000 was assumed, based on wood-balance analysis undertaken for that year. It was assumed that the level of illegality declined significantly during the period 2005–07 to reflect the strong enforcement efforts at that time and continued to decline thereafter, albeit at a slower rate, to reach 40 per cent in 2013. In the case of sawnwood, it was assumed that 90 per cent of exports have been illegal since 2003, when Indonesia prohibited the export of most forms of sawnwood. In the case of log exports, it was assumed that 100 per cent have been illegal since 2002, when a log export ban entered into force. For wooden furniture, the baseline adopted for 2000 was 20 per cent; this was assumed to have increased to 37 per cent by 2007, reflecting the evolution of production from long-established teak plantations (many of which lost their FSC certification either towards the end of the 1990s or during the early years of the last decade). The baseline was assumed to have subsequently declined, to 25 per cent by 2013, owing to the increasing availability of FSC-certified teak and the use of low-risk imported wood in some furniture.

### Lao PDR

Illegal practices in the forestry sector are widespread in Lao PDR, and the bulk of that country's timber production is thought to be illegal.<sup>20</sup> These findings are reinforced by NGO investigations that have been undertaken there.<sup>21</sup>

The baseline for both logs and sawnwood from Lao PDR was assumed to be 70 per cent for the period 2000–13. The export of logs, other than of those obtained through forest clearance linked with infrastructure development, is prohibited. Similarly, exports of sawnwood have been prohibited since 2007.

### Malaysia

Because of the large variations in likely levels of illegality in the various parts of the country and also because of the different export destinations, trade flows for Malaysia are split into three separate regions: Peninsular Malaysia, Sabah and Sarawak. In Peninsular Malaysia, nearly all tropical timber derives from forest certified under the Malaysian Timber Certification Scheme, while a large proportion of overall log production is sourced from rubber plantations, for which there are no indications of illegality. Almost all of Sarawak's exports come from tropical forests: none of those forests is certified legal and sustainable, and both illegality and corruption are major

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<sup>20</sup> Saunders, J. (2014), *Illegal Logging and Related Trade: The Response in Lao PDR*. London: Chatham House.

<sup>21</sup> See, for example, Barney, K. and Canby, K. (2011), *EU FLEGT Facility, Baseline Study 2, Lao PDR: Overview of Forest Governance, Markets and Trade*. Washington, DC: Forest Trends; EIA (2011), *Crossroads: The Illicit Timber Trade Between Laos and Vietnam*; and Global Witness (2013), *Rubber Barons: How Vietnamese Companies and International Financiers Are Driving a Land-Grabbing Crisis in Cambodia and Laos*.

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issues in this region. In Sabah, some forest is certified and sustainability is an explicit goal for concession management, but illegal practices and corruption are major issues here too.<sup>22</sup>

For each importing country included in the Chatham House assessment, the proportion of imports classified as originating in Malaysia that came from each region is derived from disaggregated data from the Malaysian authorities, while different estimates of illegality are applied to the resulting figures. To estimate the level of illegal exports from Malaysia as a whole, a weighted average of the estimated illegality in Peninsular Malaysia, Sabah and Sarawak was calculated.<sup>23</sup>

For Peninsular Malaysia, the baseline for exports of most tropical timber products was assumed to have been 10 per cent in 2000 and to have slowly declined to 6 per cent by 2013. For logs, a baseline of 100 per cent was adopted as log exports are prohibited. Exports of wood-based panels (other than plywood) and 80 per cent of wooden furniture exported from Peninsular Malaysia were assumed to be legal, reflecting their probable origin from plantations. For the remaining 20 per cent of wooden furniture, the baseline for tropical timber was assumed to apply.

The baseline for exports of tropical timber from Sabah was assumed to have been 25 per cent in 2000 and to have declined to 15 per cent by 2013. The corresponding figures for tropical timber from Sarawak were assumed to have been 50 per cent and 40 per cent.

A higher level of illegality was assumed for most exports to China from Malaysia, reflecting the likelihood that a proportion of those exports were smuggled from Indonesia, particularly during the period 2000–04.<sup>24</sup>

## Mozambique

There are reports of widespread illegalities in the allocation and management of concessions in Mozambique as well as of fraud and corruption in the country's forest sector. According to recent estimates of illegal logging, more than half of logging in 2012 was unlicensed<sup>25</sup> and more than 90 per cent may have been illegal in 2013.<sup>26</sup>

The baseline for sawnwood throughout the period 2000–13 was 45 per cent and for log exports 60 per cent – the higher figure for logs is due to legislation that restricts log exports. The level of illegality of exports of both these products to China (for where most are destined) was assumed to have risen during the period 2005–10, reflecting the strong growth in demand in China, which has reportedly been driving illegal logging and trade.<sup>27</sup>

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<sup>22</sup> A further explanation of how the percentages were adopted for Malaysia is provided in Lawson (2014a). See also Hoare, A. (2014 – forthcoming), *Illegal Logging and Related Trade: The Response in Malaysia*. London: Chatham House.

<sup>23</sup> For each product group, the weighted average is the sum of the illegal RWE volume assumed from each of these three parts of Malaysia divided by the RWE volume exported from Malaysia as a whole.

<sup>24</sup> For details, see the discrepancy analysis in Lawson and MacPaul (2010).

<sup>25</sup> Faculty of Agronomy and Forestry Engineering of the Eduardo Mondlane University (2013), 'Assessment of Harvested Volume and Illegal Logging in Mozambican Natural Forest', a paper published by the Forest Law Enforcement, Governance and Trade Support Programme for African, Caribbean and Pacific Countries (<http://www.illegal-logging.info/content/assessment-harvested-volume-and-illegal-logging-mozambican-natural-forest>).

<sup>26</sup> EIA (2014), 'First Class Crisis: China's Criminal and Unsustainable Intervention in Mozambique's Miombo Forests', at <http://eia-international.org/wp-content/uploads/First-Class-Crisis-English-FINAL.pdf>.

<sup>27</sup> See, for example, EIA (2014); and German, L. A. and Wertz-Kanounnikoff, S. (2012), 'Sino-Mozambican Relations and their Implications for Forests: A Preliminary Assessment for The Case of Mozambique', CIFOR Working Paper No. 93 (Bogor, Indonesia).

## Myanmar

There are high levels of corruption, poor governance and conflict in Myanmar's forest sector.<sup>28</sup> Consequently, the baseline for exports of logs and sawnwood was 80 per cent for the period of this assessment. The level of illegality of exports to China was assumed to be 10 percentage points higher, as a significant proportion of exports is sent overland to China without the authorization of the Myanmar government.<sup>29</sup>

## Papua New Guinea

It is estimated that the majority of timber production in Papua New Guinea is likely to be illegal.<sup>30</sup> The main types of illegal practice are licences being issued or extended in violation of the relevant regulations, breaches of harvesting regulations by concessionaires and the abuse of licences for clear felling forest for commercial agricultural plantations. The situation was considered not to have changed over the period of this assessment.

A review of concessions undertaken in 2003–04 documented a high level of illegal logging; and since then there has been little improvement in monitoring or enforcement. From 2007 onwards an increasing proportion of logs has originated from land cleared under the so-called Special Agricultural and Business Leases, 90 per cent of which were found to have been issued illegally.<sup>31</sup>

Taking all these findings into account, a baseline of 80 per cent was adopted for log exports from Papua New Guinea.

## Republic of Congo

It was estimated in 2014 that the level of illegal logging in the Republic of Congo could be as high as 70 per cent.<sup>32</sup> Of this, 'informal' artisanal logging – most of which supplies the domestic market – accounted for almost a third. The bulk of the remainder came from logging by licensed concessionaires in breach of various regulations – for example, operating without a management plan, logging outside concession boundaries, or failing to pay taxes.

Taking the above into account, the baselines for exports of logs and sawnwood were assumed to be 60 per cent and 40 per cent, respectively. The higher figure for logs was adopted to reflect the long-standing requirement to transform 85 per cent of export-oriented log production before export. Consequently, lower levels of illegality were assumed for sawnwood, also reflecting the more likely origin of these logs from concessions with FSC certification.

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28 Global Witness (2009), 'A Disharmonious Trade: China and the cContinued Destruction of Burma's Northern Frontier Forests', at <http://www.globalwitness.org/library/disharmonious-trade-china-and-continued-destruction-burmas-northern-frontier-forests>; and Woods, K. (2013), 'Timber Trade Flows and Actors in Myanmar: The Political Economy of Myanmar's Timber Trade', a paper published Forest Trends ([http://www.forest-trends.org/documents/files/doc\\_4133.pdf](http://www.forest-trends.org/documents/files/doc_4133.pdf)).

29 Further explanation of how the percentages were adopted for Myanmar is provided in Lawson (2014a).

30 Lawson, S. (2014b), *Illegal Logging in Papua New Guinea*. London: Chatham House.

31 Ibid.

32 Lawson, S. (2014c), *Illegal Logging in the Republic of Congo*. London: Chatham House.

About a quarter of the logging concession area in Congo has been independently verified as legal and/or sustainable, and production from those forests is mainly destined for Europe. Thus the level of illegality of exports to these markets was assumed to be 10 percentage points below the baseline.

The level of illegal exports of logs to China was assumed to be above the baseline, especially after 2008. This reflects reported illegalities among many companies supplying China, the surge in exports to that market in recent years and the withdrawal in 2008 of the option to pay a surtax on exports of logs in excess of quota.

### Russian Federation

Although there are major differences between the structure of the export-oriented timber sector in western Russia and that in the eastern part of the country, a single baseline for exports of wood-based products was adopted. For logs and sawnwood, the baseline is 20 per cent and for veneer, plywood and wood-based pulp and paper 15 per cent.

The level of illegality for imports of veneer into Japan was assumed to be below the baseline after 2009, which is the year in which a mill whose wood raw material had been FSC-certified was completed.

As regards exports to China, the level of illegal logs and sawnwood was assumed to have been above the baseline in 2000 and to have increasingly exceeded it during the years that followed. This reflects the rapid rise in exports to China at the start of the last decade owing to the implementation of the ban on logging in China. In the case of sawnwood, it was assumed that the level of illegality rose significantly in 2008, reflecting the increase in such imports owing to the substantial hike in export tariffs on logs introduced that year – an increase which is likely to have been met in part by products of illegal provenance. These percentages reflect that most log and sawnwood exports to China originate in eastern Siberia – not the Russian Far East – where reports suggest that illegal practices are particularly high.<sup>33</sup> The illegal percentage for pulp exports to China was assumed to be five percentage points below the baseline; this is because most such exports are of FSC-certified wood supplied by two mills.

### Solomon Islands

There is relatively little quantitative information available on the level of illegal logging in the Solomon Islands. However, fraud, corruption and mismanagement are reported to be rife in the country's forest sector, while monitoring and enforcement of the relevant legislation are deemed ineffective.<sup>34</sup> Taking this into account, the baseline for log exports was 70 per cent throughout the period 2000–13.<sup>35</sup>

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33 Smirnov, D.Y. et al. (2013), 'Illegal Logging in the Russian Far East: Global Demand and Taiga Destruction', a paper published by the WWF ([http://www.wwf.ru/data/mailler/media/ollegal-logging\\_fe\\_web-2.pdf](http://www.wwf.ru/data/mailler/media/ollegal-logging_fe_web-2.pdf)); EIA (2013), *Liquidating the Forests – Hardwood Flooring, Organised Crime and the World's Last Siberian Tigers* ([http://eia-global.org/images/uploads/EIA\\_2013\\_Russia\\_Liquidating\\_Report.pdf](http://eia-global.org/images/uploads/EIA_2013_Russia_Liquidating_Report.pdf)).

34 See for example, Allen, M. (2011), 'The Political Economy of Logging in Solomon Islands', in Duncan, R. (ed.) (2011) *The Political Economy of Economic Reform in the Pacific*. Mandaluyong City, Philippines: Asian Development Bank (<http://www.adb.org/publications/political-economy-economic-reform-pacific>).

35 A further explanation of how the percentages were adopted for the Solomon Islands is provided in Lawson (2014a).

## Vietnam

The vast majority of timber-sector products exported by Vietnam derive from wood raw material that has been imported into Vietnam: thus the level of legality of those exports is determined by the level of legality of imported raw material. The country does not yet have legislation in place to regulate illegal timber imports.<sup>36</sup>

The baseline for timber-sector products was assumed to have remained constant throughout the period 2000–13. The baseline for exports of logs and sawnwood was 70 per cent, reflecting that these products probably originate in Lao PDR or elsewhere in Indo-China where there are high levels of illegality. The baseline for mouldings and ornaments was 60 per cent and that for veneer, plywood and joinery 50 per cent. These lower figures reflect the likely broader range of countries of origin of the raw materials.

The baseline for exports of wooden furniture was assumed to be 30 per cent in 2000 and to have subsequently declined to 22 per cent by 2013. These figures reflect the fact that to a significant and increasing extent, such products are made wholly from raw material that was FSC-certified and/or derived from plantations, which carry a lower risk of illegality than do other imports. It was also assumed that a declining proportion of raw material being imported into Vietnam was likely to have been illegal because of improved forest governance in the supplying countries.

Vietnam's exports of paper were assumed to be legal. The baseline for wood chip exports from Vietnam was 5 per cent, which, in part, reflects concerns about the legality of some of the raw material originating in the north of the country.

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<sup>36</sup> Saunders, J. (2014 – forthcoming).

## About the author

Alison Hoare is a Senior Research Fellow at Chatham House, with expertise in forest governance, natural resource use and community forestry. She leads Chatham House's programme of work on illegal logging and forest governance and is also engaged in research on environmental crime and climate change. She has previously worked with a range of environmental and forestry organizations, undertaking research, policy analyses and project management.

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