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China as a Timber Consumer and Processing Country: An Analysis of China's Import and Export Statistics with in-depth Focus on Trade with the EU

Final Report

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ABBREVIATIONS

BC	British Columbia
BCM	Bilateral Coordination Mechanism
CA	Competent Authority
CBRC	China Banking Regulatory Commission
CIF	Cost, Insurance and Freight
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DDS	Due diligence system
EC	European Commission
EU 28	28 Member States of the EU
EU	European Union
EUTR	European Union Timber Regulation
FAO	Food and Agriculture Organization of the United Nations
FLEGT	Forest Law Enforcement, Governance and Trade
FSC	Forest Stewardship Council
GBP	Great Britain Pound
GDP	Gross domestic product
GNI	Gross National Income
GTA	Global Trade Atlas
HS	Harmonized System
IFC	International Finance Corporation
ITTO	International Tropical Timber Organization
LAA	Lacey Act Amendments
LAS	Legality Assurance System
m^3	cubic meter
MEP	Ministry of Environmental Protection
mha	million hectare
MofCom	Ministry of Commerce
MS	Member State
NFFP	National Forest Protection Program of China
PEFC	Program for Endorsement of Forest Certification
PNG	Papua New Guinea
RWE	Roundwood equivalent
RWE	Roundwood Equivalent
SAF	State Forestry Administration of China
SME	Small and medium enterprises
TIMO	Timberland Investment Management Organization
TLVS	Timber Legality Verification System
ToR	Terms of Reference
UK	United Kingdom
US	United States
USD	United States Dollar
VPA	Voluntary Partnership Agreement
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

A. Key Findings

Timber imports into China, and timber products imports into EU from China, and trade routes

The chronic shortage of timber in China has continued over the past 16 years. Between 2000 and 2015, China's timber consumption increased nearly threefold. This was due to population growth, rapid economic growth and the increase in demand for Chinese timber products in global export markets. During the same period, the overall growth in domestic timber production remained minimal due to the implementation of the national forest protection program (NFPP) started in 1998. This program removed an increasingly larger area of natural forests from the harvesting pool. As a result, the gap between timber consumption and domestic supply widened steadily.

China's reliance on timber imports increased steadily against the backdrop of a widening gap between timber consumption and domestic supply. Imports surpassed the domestic timber supply in 2011. The country imported an estimated 100 million RWE m^3 of timber in 2015 which constituted 55% of total timber consumption. Imports were estimated to be about 21 million RWE m^3 in 2000. Favourable Chinese government policy such as reduction of tariff on log and sawnwood imports to zero in 2001 also contributed to the expansion of imports. The rate of growth in timber imports was faster than that in the domestic timber supply over the past 16 years resulting in a shift in the balance of China's timber sourcing in 2011, i.e. more timber started to come from imports than the domestic sources.

The top 20 timber supplier countries to China contributed to over 90% of the country's timber imports. Non-tropical timber (i.e. softwood and non-tropical hardwood) producer countries were dominant. The biggest timber supplier to China was Russia, followed by Canada, New Zealand and the US. There were nine tropical timber supplier countries in the top 20. Over the last five years (2011 – 2015), Thailand was the biggest tropical timber supplier to China.

The level of the EU's imports of timber and timber products from China followed the overall demand for these products in the region. The estimated level of imports increased steadily from slightly below 2 million RWE m^3 in 2000 to nearly 14 million RWE m^3 in 2007 before starting to fluctuate and finally reaching just over 15 million RWE m^3 in 2015. This clearly corresponded to the timber product demand in the EU, which was shaped by the steady economic growth until 2007 and the subsequent downturn followed by a slow recovery thereafter.

Of the EU's overall timber and timber product imports from China, the EU Timber Regulation (EUTR) regulated products, on average, constituted 82% by volume and 64% by value during the past 16 years. This means the import value of the non-EUTR products was proportionally higher than the EUTR products. This can be explained by the fact the non-EUTR products mostly include highly processed products such as printed media, which naturally received a higher price per unit volume than EUTR products.

Sea routes are mainly used by China for trading timber and timber products, as the country does not have direct land borders with most of its trade partners. The ports located in the vicinity of timber processing industries are usually used for trading. As a result, the average distance between ports and processing facilities remains short. This helps minimize the transportation and production costs, and boost the competitiveness of Chinese timber product industry in the export markets.

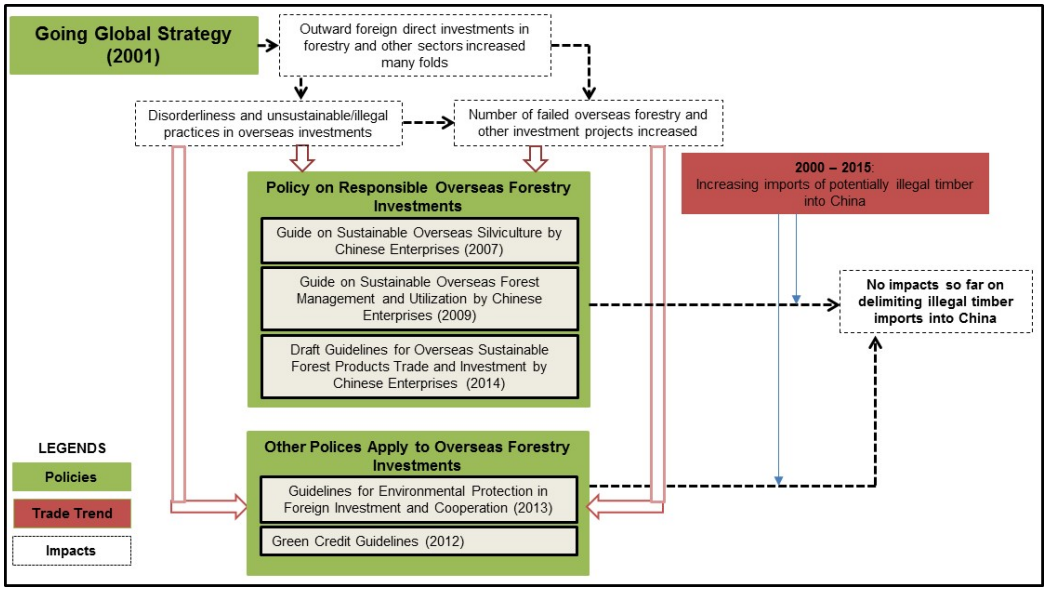
Illegal timber trade flow, trade shifts, and the effectiveness of EU and Chinese policies

It is estimated that the amount of potentially illegal timber imports into China from the top 20 supplier countries increased about three fold - from 7.6 million RWE m^3 to about 22.5 million RWE m^3 – between 2000 and 2015. However, the share of such timber in China's overall timber imports from these countries decreased considerably from 42% to 25% during the same period. Clearly the decline in share was not translated into the volume. Rather the volume of imports of potentially illegal timber followed the same increasing trend as that of China's overall timber imports from the same

countries. This implies that the growth in China's imports of potentially illegal timber was faster than the rate of decline in share of imports of such timber overall.

Chinese policy guidelines on responsible overseas forestry investments were found to be ineffective in cutting the import flow of illegal timber into China. These guidelines, the first of which was issued in 2007, did not help to reduce the inflow of potentially illegal timber into China (Figure E1). The ineffectiveness of the guidelines was attributed to their voluntary nature. The guidelines do not have any mandatory compliance requirements for Chinese enterprises investing in timber extraction overseas. The presence of an increasing number of Chinese small and medium enterprises (SMEs) in forestry operations overseas, and buying of timber by enterprises based in China from foreign and local enterprises operating in exporter countries also contributed to this ineffectiveness. Enterprises that did not have financial ties with the Chinese state were harder to regulate under these guidelines. Moreover, these policies focused on activities overseas only, which was another contributing factor for their ineffectiveness. The absence of any mandatory check for the legality of imported timber meant that illegally sourced timber could be imported into China unchallenged.

Figure E1 Effectiveness of Chinese policies on cutting illegal timber imports



China's imports of non-tropical timber were partially shifted from high-risk countries to the low-risk or safe countries due to the policies of consumer countries to eliminate the illegal timber trade. The country paid a higher price per unit for importing legally verified timber than for timber from high risk countries. Much of this legally verified timber was exported as processed products to markets such as the EU and the US where proving timber legality is mandatory. This suggests that relevant policies, particularly the EUTR and the US Lacey Act Amendments (LAA) caused China to source more timber from legally verified sources as the country did not want to lose its share in the EU and the US timber product markets. Notably the log imports from Russia declined, being replaced by increasing imports of certified logs from the US, Canada, New Zealand and Australia since in 2008. China paid USD 20 more per RWE m^3 on average for logs imported from these four countries compared with prices for the equivalent Russian logs. This clearly indicates that it was the US LAA that made China to substitute Russian logs. Moreover, after the EUTR came into effect in 2013, China's imports of certified timber from some EU countries, notably, Finland, Germany and France increased considerably.

In the last few years, China's tropical hardwood timber imports from high-risk sources decreased, while that from low-risk sources such as plantations increased. Scarcity of timber from tropical natural forests and related market drivers contributed the most to this shift. The EUTR and the US LAA also helped. The imports of high-risk tropical timber sourced from natural

forests in Papua New Guinea (PNG), the Solomon Islands, Myanmar and Mozambique decreased, while the imports of low-risk plantation timber mainly from Thailand increased. The scarcity of tropical natural forest timber caused by continuous deforestation at high rates and resultant market factors, such as increasing prices, were the main driving force for this shift. The EUTR and the US LAA also provided incentives for this, by making it mandatory to prove the legality of timber as a pre-requisite to enter into the EU and the US markets.

Since 2005, at least 2 million RWE m^3 of potentially illegal timber was estimated to have entered into the EU annually from China through the imports of both EUTR and non-EUTR products. During the same period, the share of such timber decreased from 29% to 16%. This implies that amount of potentially illegal timber entering into EU from China was basically determined by the total imports of timber and timber products into the former from the latter.

EU Policies were only partially effective in cutting the flow of potentially illegal timber and timber products imports into the EU from China. The share of imports of potentially illegal timber and timber products into the EU from China has declined steadily; particularly since 2004. Consequently, the growth in the volume of imports of potentially illegal products was slower compared with that in overall imports. These suggest that China exported an increasingly larger volume of legally verified timber to the EU as processed products. This was clearly the effect of EU policies, particularly the EUTR, that were augmented by the US LAA. Nevertheless, the inflow of a large volume of potentially illegal timber and timber products into the EU from China continued even after the EUTR came into effect in 2013. This suggests that the FLEGT Action Plan particularly the EUTR, despite being augmented by the US LAA, was only partially effective – it was able to reduce the share of potentially illegal timber imports into the EU from China, but could not reduce the flow of imports of such products.

B. Recommendations

For the Chinese Government

The Chinese policy guidelines on responsible overseas forestry investments should be made mandatory. Also the guidelines should be implemented jointly with the timber supplier countries. The guidelines should have mandatory compliance requirements for those Chinese enterprises that are investing overseas in timber extraction. They remained ineffective in delimiting the illegal timber trade flow into China largely due to their voluntary nature. Moreover, adequate initiatives should be taken to implement the guidelines together with the respective supplier countries. This would enhance the chance of effective implementation.

There should be a national system in China to store the records of all enterprises – large, medium and small – who are investing overseas in forestry operations. It should be made mandatory for all enterprises to register into the system before investing overseas. This would help establish a formal tie between the enterprises and the Chinese state, and thus enable the monitoring of compliance with the guidelines on responsible overseas investments. Currently, most Chinese enterprises investing in forestry overseas, particularly SMEs, remain outside of Chinese state monitoring and thus cannot be penalized for illegal activities committed overseas.

China should be more open on sharing the investment data. This would enhance transparency in China's overseas forestry investment sector, and help portray a good image of China as a responsible timber importer in the global market.

Financial institutions as well as public enterprises in China should be encouraged through incentives such as tax benefits to provide loans to SMEs wishing to invest in forestry operations overseas. This would facilitate the effective implementation of the Chinese policy on responsible forestry investments overseas through the establishment of financial ties between SMEs and the State.

China should adopt and effectively implement a demand-side measure like the EUTR to stop the inflow of illegal timber into the country. This would make it mandatory to prove the legality of all timber entering into China, and thus would call for more vigilance in customs and trade documents, which in turn would enhance the effectiveness of Chinese policies on responsible overseas investments. More importantly, such a measure would create a powerful incentive for companies of non-Chinese

origin to supply only the legal timber to China from producer countries. Currently, a significant quantity of potentially illegal timber is supplied to China by such companies particularly from tropical countries such as PNG and the Solomon Islands. The jurisdiction of Chinese policies or legislation does not reach to these foreign jurisdictions.

There should be a national recording mechanism for domestic timber in China. This could be a part of the Chinese timber legality verification system (TLVS) that is being developed. Such a recording mechanism would control the entry of smuggled timber from neighbouring countries such as Myanmar, Laos and Cambodia into the Chinese timber supply chain.

For the private sector in China

Downstream buyers should be encouraged to commit to responsible timber sourcing through financial incentives. There is a need to develop more innovative incentive mechanisms for encouraging the private sector to engage in responsible timber sourcing. This would ensure that the manufacturers source only legal timber. This in turn would allow them to have continued access to the lucrative markets such as the EU, the US and Australia. Proving timber legality is a pre-requisite for entering these markets.

For the EU

The product-scope of the EUTR should be widened. A large number of timber products and significant trade volume and value are currently outside the scope of the EUTR. The level of EU's imports of non-EUTR products from China increased over the last 16 years. Consequently, a significant amount of potentially illegal timber entered the EU through imports of these products from China. As analysis demonstrated, the EUTR was not effective in eliminating trade in illegal timber entirely.

EU – China Bilateral Coordination Mechanism (BCM) should have more concrete measures on cutting the flow of potentially illegal timber into China. Currently BCM does not have any definitive measures to stop such flow.

For EU-China joint action

Russia should be involved by both China and EU in the effort to cut the flow of illegal timber. Russia is by far the biggest supplier of both legal and potentially illegal timber to China, much of which is then supplied to the EU as processed products. Thus, without Russia on board, the trade in illegal timber cannot be eliminated. BCM could be one platform for engaging with Russia for more concrete actions.

1. INTRODUCTION

1.1 Background

China has a chronic shortage of wood and renewable fibre. Almost half of the wood and wood fibre processed in the country is sourced through imports. Wood demand continues to increase faster than supply due to demographic and economic drivers. Natural forests are scarce and their timber production capacity has been lowered by prior over-logging. China exports timber products mainly to the United States (US), the European Union (EU) and Japan, as well as the countries in the Middle East and Africa.

Chinese overseas investments in the forestry sector, particularly in natural forests concessions in Africa and other emerging regions, have increased significantly over the past two decades with the aim of securing an increased quantity of logs and sawnwood for imports to China.

Against this backdrop, WWF-UK, the Client, contracted Indufor Oy, Finland to conduct a study, the Assignment, of title, 'China as a consumer and processing country: an analysis of China's import and export statistics, with in-depth focus on trade to the EU'.

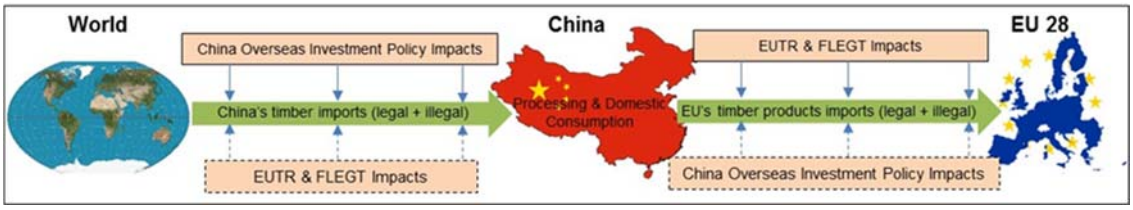
1.2 Objectives

The overall objective of this Assignment was to collect and analyze China's timber export and import data with an in-depth focus on the country's trade with the EU, and then to improve the understanding of the flow of potentially illegal and unsustainable timber from China into EU Member States. The specific objectives can be identified as follows:

- To quantify the level of China's total import of timber[1] (i.e. logs and sawnwood), to indicate what amount is being processed in the country, and the volumes being exported to the EU by examining China's domestic timber demand,
- To assess the amount of timber going to China from the top 20 timber supplier countries and establish the best estimate of what proportion can be expected to be certified or legally verified, in the context of illegal logging for each country examined,
- To examine whether Chinese overseas investment policy and EU policies (i.e. EUTR and FLEGT) have reduced the import of illegal and unsustainable timber into China,
- To recommend policy and trade actions to further delimit the illegal trade in timber.

In short, the Assignment estimated the amount of timber coming to China, and the amount then sent to the EU, and the level of potentially illegal timber in those inward and outward flows. It also analyzed whether EU and Chinese policies have had any positive impacts on tackling such illegal flow, i.e. increasing the level of legal timber trade flow (Figure 1.1).

Figure 1.1 The core concept of the Assignment



[1] With the term 'timber' we will refer to logs and sawnwood in this proposal and the assignment.

1.3 Scope

1.3.1 Geographical scope

The main geographical focus of the Assignment was on China, the top 20 timber supplier countries to China and the EU.

1.3.2 Product scope

The product scope includes timber (i.e. logs and sawnwood) imports to China. For the EU's imports from China, all timber products included under the EUTR[2] as well as a number of timber products[3] that are currently not considered under the EUTR (Annex 1) were covered. This gave a comprehensive overview of timber and timber product imports into the EU from China. In the rest of this report, the products regulated by the EUTR will be referred to as 'EUTR products', and the others as 'non-EUTR products'.

[2] The products (with HS code) included in EUTR are: fuelwood (4401), logs (4403), sleepers (4406), sawnwood (4407), veneer (4408), mouldings (4409), particleboard (4410), fibreboard (4411), plywood (4412), densified wood (4413 00 00), wooden frames (4414 00), packaging boxes and cases (4415), casks, barrels, etc. (4416 00 00), builders' joinery and carpentry of wood (4418), pulp and paper (47 and 48), wooden furniture (9403 30, 9403 40, 9403 50 00, 9403 60 and 9403 90 30), and prefabricated buildings (9406 00 20).

[3] As agreed with the client.

2. METHODOLOGY

2.1 Data Collection

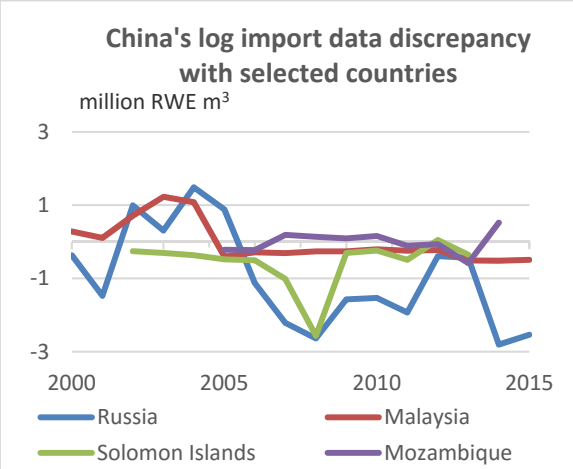
2.1.1 Type of data required

The core task of this Assignment was to collect data on China's timber (i.e. logs and sawnwood) imports from different countries around the world and the EU's imports of EUTR and non-EUTR products from China. All trade data was collected by both quantity and value for the period from 2000 to 2015. We also collected data on quantity of China's timber exports and domestic timber supply for the same period.

2.1.2 Sources of data

China's timber import data was primarily collected from the Global Trade Atlas (GTA). GTA itself sources the data from Chinese Customs. We also collected timber export data reported by the key exporter countries, whenever available, and compared it with corresponding Chinese import data to identify any data discrepancies, i.e. differences between data reported by importers and exporters. The export data was collected from GTA, FAOSTAT and UNCOMTRADE (see Box 2.1). The data on the EU's imports from China was collected from the EUROSTAT. The data on China's timber exports was collected from FAOSTAT. For China's domestic timber supply we used the State Forestry Administration (SAF) data as reported in different publications.

Box 2.1 Data discrepancy in case of China's timber imports



Source: Global Trade Atlas, UNCOMTRADE and FAOSTAT

The main problem encountered while checking data discrepancies was that a number of major timber supplier countries do not consistently report the level of their exports to China. This was particularly valid for countries that are major tropical timber suppliers to China. For example, PNG, the Solomon Islands, and Myanmar, the major tropical hardwood suppliers to China during the past 16 years, have officially reported their exports to UNCOMTRADE and FAOSTAT only sporadically. The unit volume and product classifications reported in these databases differ considerably from the corresponding imports reported by the Chinese Customs (available through GTA). This made checking data discrepancies difficult, if not impossible. Also comparing the import and corresponding export data from two different sources led to discrepancies due to differences in product classifications.

Overall, significant data discrepancies were found in the case of China's imports from Russia, Malaysia, Mozambique, and the Solomon Islands. However, there was no clear trend over the past 16 years. This indicates that these discrepancies might be due to poor-quality data or unintended differences in product classification, as also identified by Wellesley (2014). They might also be indicative of potential under reporting, and thus the illegal timber trade.

2.2 Data Collation and Analysis

2.2.1 Conversion of trade volume to roundwood equivalent (RWE) m³ and trade value to USD

All data on the quantity of trade in timber products was converted to roundwood equivalent (RWE) cubic meters (m^3), if already not in that unit. Appropriate conversion factors (Annexes 2 and 3) were used for this purpose. These conversion factors were determined by reviewing relevant publications and in consultation with WWF-UK, the Client. The corresponding trade values were also converted to nominal USD equivalent, if they were in another currency, using the appropriate exchange rates.

2.2.2 Estimation of timber consumption in China

The timber consumption in China in a given year was estimated using standard formula as follows:
Timber consumption = domestic timber (logs) supply + timber import (logs + sawnwood) – timber export (logs + sawnwood).

2.3 Identification of top 20 and top 10 timber supplier countries to China

We identified the top 10 and 20 timber supplier countries to China based on the combined volume (RWE m^3) of logs and sawnwood China imported from each country during the last five years (i.e. 2011– 2015).

2.4 Estimating the level of trade on potentially illegal timber

2.4.1 Level of potentially illegal and legally verified timber imports into China from top 20 exporter countries

We estimated the level of China's imports of potentially illegal timber[4] (i.e. logs and sawnwood) from the top 20 timber supplier countries by closely following the 'import-source analysis technique'. Chatham House[5] has developed this technique for estimating the level of imports of products made of potentially illegal timber (see Hoare 2014 and Lawson 2014). To measure the level of imports of potentially illegal timber, we multiplied the total volume (RWE m^3) and value (USD) of imports of logs and sawnwood in each year during 2000 - 2015 from each of the top 20 supplier countries to China with the proportion of timber that could potentially be illegal for the corresponding year and country. The Chatham House has published such proportions for 2000 – 2014 for 52 timber exporter countries[6] in which illegal logging is known to be a problem. Naturally these 52 countries included most of the top 20 timber exporter countries to China. For those countries on the top 20 list, the proportions of potentially illegal timber for 2000 – 2014 was first taken from the Chatham House assessment. Then the proportions were reviewed considering the extent of illegal logging and relevant policy measures, e.g. presence/absence of log export ban or restrictions in these countries. The review helped assess any need for modification in the proportions. No proportions had to be modified. The proportions of potentially illegal timber for the top 20 timber supplier countries that were not included in the 52 countries provided by the Chatham House for 2000 -2014, and for all top 20 countries for 2015, were

[4] In this assignment we adopted the same definition of illegal timber as the Chatham House Assessment of Illegal Timber Trade did. This is logical since we applied the methodology developed by the Chatham House for estimating illegal timber trade flow. Illegal logging is defined as all illegal practices related to the harvesting, processing and trading of timber. This means illegal logging is not confined to activities in forests themselves, rather, it extends to breaking the law at any point along the supply chain, e.g., logging under an illegally acquired licence or in protected areas, exceeding permitted harvest quotas, processing logs without the necessary licences, tax evasion and exporting products without paying export duties (see Hoare 2015).

[5] The Chatham House methodology is considered to be most the robust developed to date. It is highly regarded and widely used. For example, this methodology was used in the EU FLEGT Action Plan evaluation (2004 – 2014) completed in March 2016.

[6] Available at http://indicators.chathamhouse.org/. Accessed 28 April 2016.

estimated by analysing the extent of illegal logging in these countries and relevant policy measures. The analysis was also supported by the review of relevant literature.

We then estimated the level of imports of legally verified timber from each of the top 20 timber supplier countries to China by deducting the level of imports of potentially illegal timber from the corresponding total level of timber imports.

2.4.2 Level of potentially illegal and legally verified timber product imports into EU from China

For estimating the level of China's exports of products made of potentially illegal timber, we followed a similar methodology as that which was explained in Section 2.4.1.

To measure the level, we multiplied the total volume (RWE m^3) and value (USD) of each EU Member State's imports from China for each year during 2000 - 2015 for all timber products included in the Assignment, with the proportion of the timber products that could potentially be illegal for the corresponding year and country. Chatham House has estimated such proportions for the UK, France and the Netherlands for 2000 – 2014. For those three countries, we first took Chatham House's estimates, and then reviewed for any possible modifications. However, no modification in any proportion was necessary. The proportions for the other 25 Member States of the EU for 2000 – 2014, and for all Member States for year 2015, were estimated by considering the progress in EUTR implementation in the EU Member States. The impacts of other policies to eliminate illegal timber trade such as the US LAA were also taken into consideration. Summing up the level of imports of potential illegal timber products by the EU Member States gave an estimate of the total annual flow of potentially illegal timber products from China to EU.

We then estimated the level of the EU's imports of legally verified timber and timber products from China by deducting the level of imports of potentially illegal timber and products from the corresponding total level of imports.

3. LEVEL OF PROCESSING AND IMPORT OF TIMBER IN CHINA

3.1 Main issues

Chronic shortage of timber continued

Between 2000 and 2015, the gap between timber consumption and domestic timber supply widened steadily. During this period, China's consumption of timber (i.e. logs and sawnwood) grew by nearly three times due to population growth, GDP growth and increased demand for Chinese timber products in global export markets. Over the same period, even though timber production from tree plantations grew rapidly, logging bans and restrictions to an increasingly larger area of natural forests imposed by the forest protection policy, i.e. NFPP ensured that the overall growth in timber production remained minimal. This means the growth of domestic timber supply could not keep pace with that of timber consumption. Thus, the gap between the former and the latter widened steadily.

Increasing reliance on timber imports. China was estimated to have imported over 100 million RWE m^3 timber in 2015 which surpassed the domestic timber supply

China imported an increasingly larger volume of timber as the gap between timber consumption and domestic supply widened. The country's timber imports were estimated to be over 100 million RWE m^3 in 2015 up from about 21 million RWE m^3 in 2000. Favourable government policy such as reduction in tariff on log and sawnwood imports to zero in 2001 also contributed to the expansion of imports. During the last 16 years, growth in the timber imports outpaced that in the domestic timber supply. Ultimately the balance in China's timber sourcing shifted in 2011. Since then, imported timber constituted half or more of the total timber consumption in the country.

Most of China's timber imports came from top 20 timber supplier countries

The top 20 timber supplier countries to China contributed to over 90% of the country's timber imports in the past 16 years. Non-tropical timber (i.e. softwood and non-tropical hardwood) producer countries dominated the list. Russia was by far the biggest timber supplier to China, followed by Canada, New Zealand and the US. There were nine countries in the top 20 list that produce mainly tropical timber. Thailand was the biggest tropical timber supplier to China during the last five years.

Faster growth in imports of sawnwood than logs partly due to a sudden increase in the import prices of Russian logs in 2008

Between 2000 and 2015, China's sawnwood imports experienced faster growth both in terms of value and volume (expressed in RWE m^3) than log imports. The volume of sawnwood imports exceeded that of log imports in 2011, after trailing them in previous years. There were a number of reasons for slower growth in log imports. First, the log export tariff hike from 4% to 25% in 2008 by Russia, China's biggest source of imported timber, resulted in a sudden increase in the log import price. This triggered a dramatic fall of log imports from Russia. The increase in log imports from other countries could not fully compensate for the fall in imports from Russia. However, Russia's primary timber processing capacity expanded during the post tariff-hike period leading to an increase in sawnwood production. Thus, China's import of that product from the country increased. Second, the log export ban imposed by a number of other timber supplier countries of China. Indonesia, Cameroon and Myanmar, all among the top 20 timber supplier countries to China, banned log exports during the last 16 years. Consequently, China's log imports from these countries was practically halted. Finally, steady decline of tropical forest resources and an increased global awareness to conserve them meant that the growth in the trade of tropical logs was slow globally and so was the growth in China's tropical log imports.

A dramatic shift took place in China's sawnwood imports

During 2000 – 2005, tropical hardwood constituted 61% of China's sawnwood imports, while softwood just 24%. The balance shifted completely during 2011 – 2015: softwood constituted

73%, while tropical hardwood just 22% of China's total sawnwood imports. Overall reduction of tropical forest resources followed by increase in awareness for conserving them, and log export tariff hike by Russia were main drivers for this shift. The quantity of tropical hardwood softwood imports increased, but the growth rate was much less than that in softwood sawnwood imports.

Russian timber was substituted with that from developed countries. Oversupply of timber in the US market due to a slow recovery of the housing market and in Canada due to mountain pine beetle outbreak might have acted as catalyst for this substitution

Between 2000 and 2015, China imported an increasingly larger share (and volume) of timber from developed countries, most notably, New Zealand, the US and Canada against a declining share of log imports from Russia. This trend was more noticeable after 2008, and suggests that China was substituting Russian timber with that from developed countries. The substitution was further evidenced by the fact that most timber China imported from those three countries was of softwood species that had similar characteristics to those in Russia. The weaker timber demand in the US due to the slow recovery of the housing sector following the bust in 2008, and mountain pine beetle outbreak in the Canadian provinces of British Columbia (BC) and Alberta had made more timber available for exports from Russia. These most probably played a role of catalyst for the substitution of Russian timber.

3.2 Level of timber processing

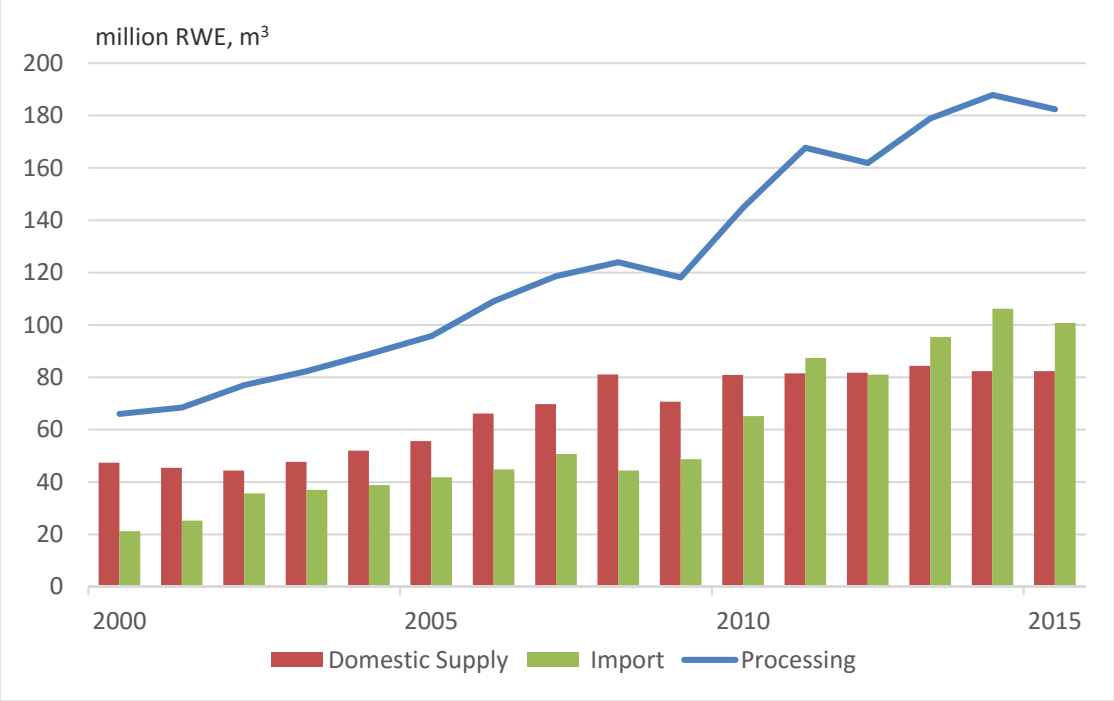
During 2000 to 2015, the level of processing of timber, i.e. consumption of logs and sawnwood, in China increased by nearly three times. It is estimated that China processed just over 66 million RWE m^3 of timber in 2000, which increased to nearly 182.5 million m^3 in 2015[7] (Figure 3.1). Expansion in the size of the Chinese population and phenomenal GDP growth as well as increase in demand for Chinese timber products in the export markets were the main drivers for this rapid increase in timber processing.

Even though China's annual population growth rate slowed from 0.8% in 2000 to stabilize at 0.5% since 2007 (World Bank 2016), the country's huge population base means that millions were added to the total population every year. According the estimate of the United Nations (2015), between 2000 and 2015 the total population in the country grew by more than 106 million people to reach nearly 1.38 billion in 2015. The double digit economic growth during the same time period meant people generally got richer even though income distribution remained quite uneven. Indeed, the GNI per capita in China increased from USD 912 in 2000 to USD 7 400 in 2015 (World Bank 2016). The increase in people's wealth led to an increase in per capita consumption of timber and timber products. The expansion of population size just amplified the growth in total timber consumption. Moreover, large-scale urbanization and a constant migration of people from rural to urban areas (Guangqian 2014) had resulted in more housing construction increasing demand for timber in the past decades.

The overall demand for the Chinese timber products in export markets all over the world had been growing over recent decades. This was due to the country's immense and very well developed timber and timber product industry (Laurance 2011), which was able to produce products for all market categories. While China was able to supply cheap timber products to the markets, for example, in Africa (see Sun 2014), it also exported more expensive products to high-end markets such as the US, Europe and Japan. This meant that when the demand fell in one market, it increased in other and thus the overall export demand continued to grow and so did the timber consumption and processing capacity in the country.

[7] China's total wood consumption amounts to about 379 million RWE m^3 per year accounting for the consumption of fuelwood and the import of wood chips, pulp and all other wood-based products (Yanjie et al. 2012).

Figure 3.1 Timber processing in China



Source: SFA, FAO STAT, Global Trade Atlas

In comparison to the timber consumption, the domestic supply grew much more slowly, and thus the gap between them widened steadily between 1999 and 2015 (Figure 3.1). This was due to the government policy of taking out increasingly large areas of natural forests from the harvesting pool in order to protect them. Indeed, under the National Forest Protection Program (NFPP), logging bans and harvesting restrictions were imposed on 68.2 million ha of forest land in 2000 alone. This included 56.4 million ha, i.e. 53% of natural forests in the country. The natural forests in Northeast provinces, traditional powerhouse of China's domestic timber production, that were initially excluded from the NFPP, were brought under the program by the beginning of 2015 (Forest Trends 2016). The area of and timber production from tree plantations grew rapidly (Indufor 2012, Forest Trends 2016). However, a huge reduction in production from natural forests meant that the overall growth in timber production remained minimal during the last 16 years.

To cope with the widening gap between timber consumption and domestic supply, the import of logs and sawnwood increased steadily. Estimates show that the timber import surpassed the domestic supply in RWE m^3 term for the first time in 2011 (Figure 3.1). The share of contribution of domestic timber to the overall timber supply gradually decreased as the share of imported timber increased. Since 2011, the share contributed by imported timber was at least 50%. In 2015, the domestic supply contributed only 45%, while the imported timber constituted the remaining 55% (Figure 3.2).

Figure 3.2 Contribution of domestic timber and import in total supply in China

Source: SFA, FAO STAT, Global Trade Atlas

3.3 Import of timber

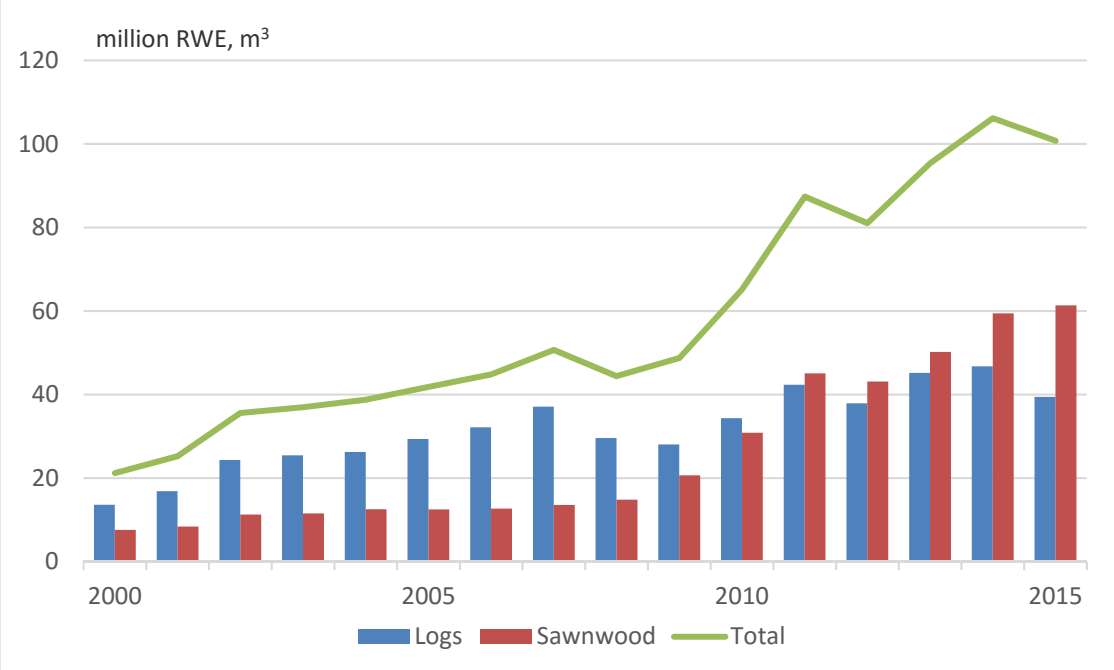
3.3.1 Total level of imported logs and sawnwood

During the time period of 2000 and 2015, the imports of timber, generally followed an increasing trend both in terms of volume, expressed in RWE m^3 (Figure 3.3) and value (Figure 3.4). Imports were estimated to have expanded by nearly five times in volume terms to increasing from just over 21 million RWE m^3 to over 100 million RWE m^3 (Figure 3.3). The cost, insurance and freight (CIF) value of timber imports expressed in nominal USD expanded by nearly six times (Figure 3.4) during the same period. The increasingly larger volume of tropical timber imports, particularly high value logs, in China was probably the reason for this expansion in value rather than volume.

An ever widening gap between timber consumption and domestic supply in the country (as discussed in Section 3.2) was the key driver for such an increase in timber imports. Moreover, China's tariff reduction for the import of logs and sawnwood to zero in 2001 made imported timber less expensive than earlier. This also contributed to increasing timber imports into the country.

It should be noted here that there were drops in timber imports in 2008, 2012 and 2015 (Figure 3.3 and Figure 3.4) in comparison to the respective previous years. This reflected the decelerating economic growth in China. Indeed, GDP growth slumped to 9.6% in 2008 after double digit growth during previous years. Growth of 7.6% in 2012 was the lowest since 2000 and of 6.9% in 2015 was the lowest in last 25 years (World Bank 2016).

Figure 3.3 Level of China's timber imports (volume)



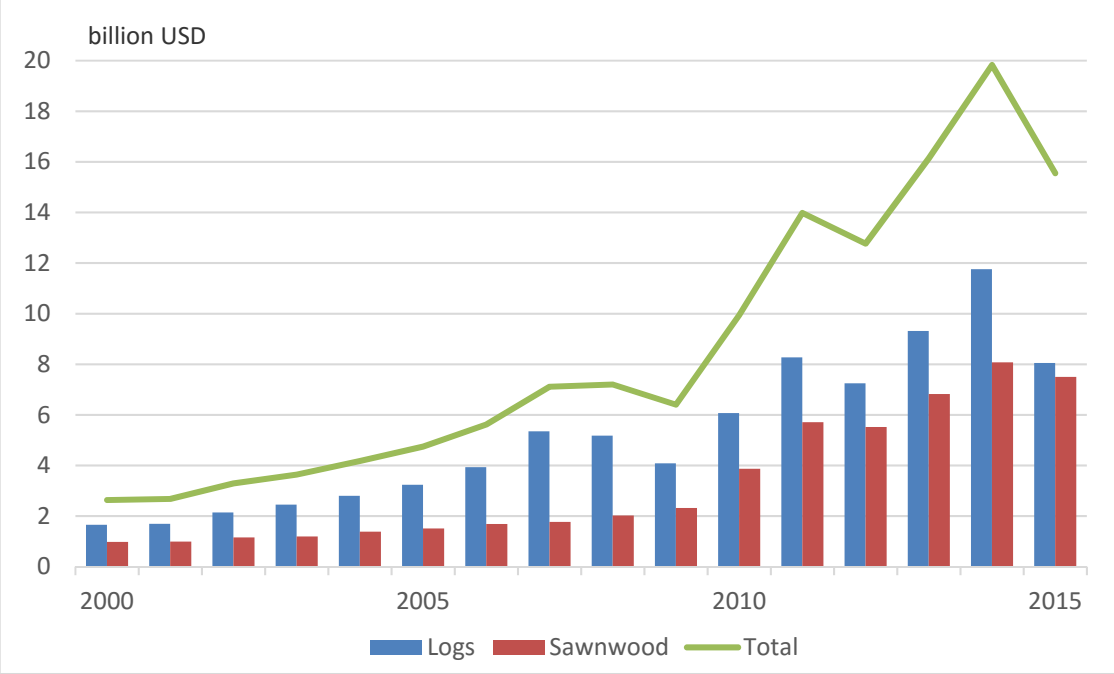
Source: Global Trade Atlas

Between 2000 and 2015, the imports of both logs and sawnwood followed the overall increasing trend both in terms of volume (Figure 3.3) and value (Figure 3.4). However, growth in imported sawnwood was more than that of logs by both measures. It was estimated that log imports increased by about three times from 13.6 million RWE m^3 in 2000 to 39.4 million RWE m^3 in 2015. During the same period, sawnwood imports increased by eight times from 7.6 million RWE m^3 to 61.3 million RWE m^3 (Figure 3.3). This can be further evidenced by the fact that between 2000 and 2010, logs dominated China's timber imports in terms of volume, while since 2011 China had been importing an increasingly larger volume of sawnwood than logs. One reason for this was the actions on banning or restricting log export taken by more and more timber supplier countries of China. For example, Indonesia, Cameroon and Myanmar, all are among the top 20 timber supplier countries to China (see Section 3.4), have banned log exports previously. Russia, the most important source of China's imported timber increased its log export tariff from 4% to 25%[8] in 2008 (Sun 2014). These actions forced China to import an increasingly larger amount of sawnwood, from at least some of the main export countries. While the log imports from those countries mentioned above as having increased trade barriers either decreased or halted.

During the past 16 years, the overall trend in timber import value was upward, tracking the same trend as that in volume. However, the value of logs was more than that of sawnwood (Figure 3.4). This suggests that on average the unit price of logs was more than that of sawnwood. This was because of an increasingly larger volume of high value tropical log imports such as teak and rosewood (see Figure 3.5). China's imports of tropical sawnwood also increased during the past 16 years (Figure 3.7). However, as most of the sawnwood, as trade data suggests, was of lower value plantation species such as rubber and eucalyptus from Thailand, the increase in the volume of tropical sawnwood imports did not translate into any significant increase in the average unit price of imported sawnwood in China. Indeed, according to the trade data the average unit CIF price in the last five years was just USD 130 per RWE m^3 for sawnwood compared with USD 211 per RWE m^3 for logs.

[8] The tariff hikes are still in place.

Figure 3.4 Level of China's timber imports (value)



Source: Global Trade Atlas

3.3.2 Import by timber types

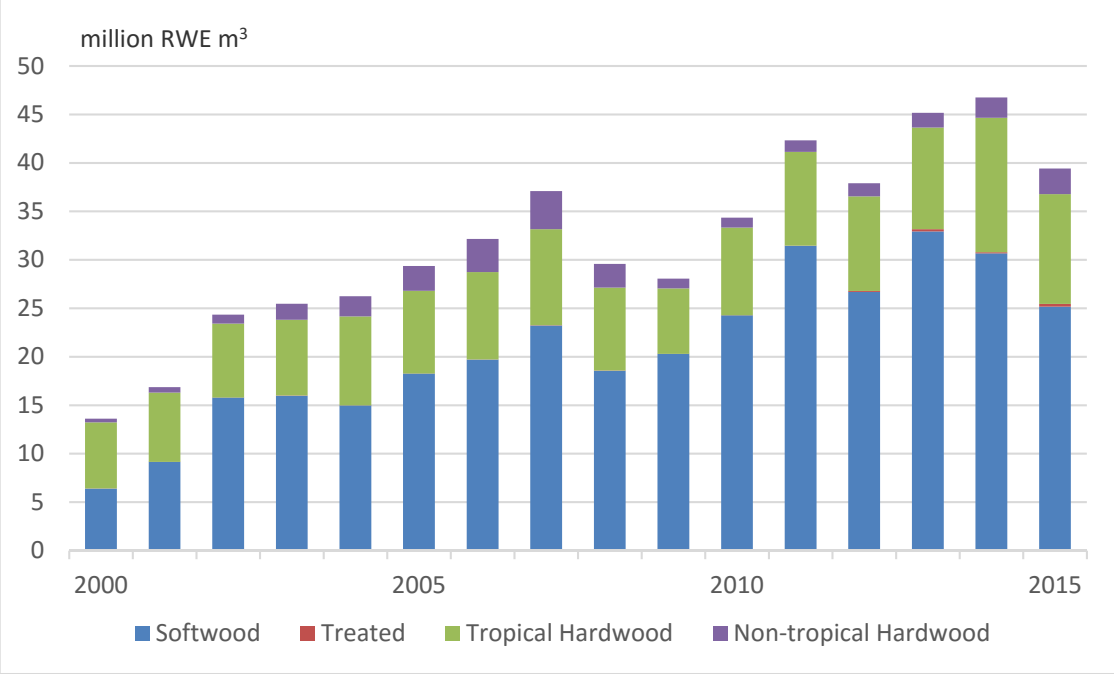
Logs

Continuing a trend that began before 2000 (Sun et al. 2004), China's log imports were increasingly dominated by the softwood species during the period under consideration (Figure 3.5 and Figure 3.6). For example, since 2010, China was estimated to have imported nearly 147 million RWE m^3 of softwood logs in comparison to 55 million RWE m^3 of tropical hardwood logs and just 9 million RWE m^3 of non-tropical hardwood logs (Figure 3.5). During 2000 – 2015, the imports of both softwood and hardwood logs increased, with faster growth in the former than in the latter. In terms of volume, the softwood log imports expanded by nearly four times compared with just 1.6 times for tropical hardwood log imports. Logs treated with e.g. paint or preservatives (reported under HS code 440310) are classified separately as "Treated" due to lack of information of the share of softwood and hardwood.

The rapid growth in softwood log imports was attributed to the reduction in the harvesting of large-diameter softwood logs from natural forests in China due to the implementation of NFPP since 1998 (Yanjie et al. 2012). This stimulated the import demand for softwood timber including logs. On the other hand, the modest growth in tropical hardwood log imports was due mainly to two reasons as explained below:

- An overall reduction in tropical forest resources. About 7.3 million ha of forests is cleared every year, much of which takes place in tropical countries (FAO 2015). For example, Malaysia reduced timber exports because of decreasing resources (Yanjie et al. 2012).
- A log export ban or restriction imposed by a number of tropical countries such as Indonesia, Myanmar, Cameroon and Gabon which were important suppliers of logs to China. This was partly to save forests and partly to expand domestic timber processing capacity and enhance contribution of the timber industry to the economy in those countries.

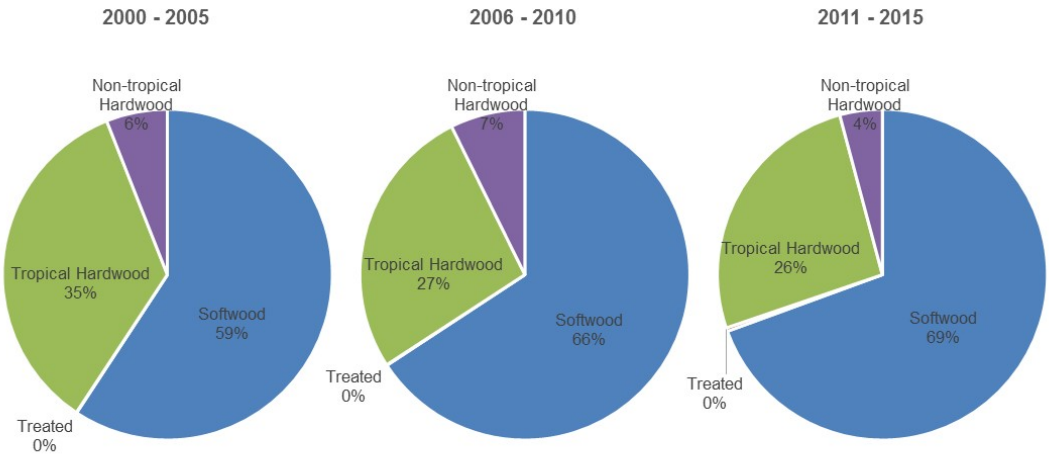
Figure 3.5 Level of China's logs import by timber types (volume)



Source: Global Trade Atlas

The slower growth in the imports of tropical hardwood logs than of softwood logs meant the proportion of the former decreased, while the latter increased over time. Indeed, during 2000 – 2005, softwood constituted 59% of China's total log imports, which increased to 69% during 2011 – 2015. This gain of softwood came mainly at the cost of tropical hardwood logs, the share of which reduced from 35% to 26% during the same periods mentioned above (Figure 3.6).

Figure 3.6 Changes in different types of timber in China's log import over time (volume)

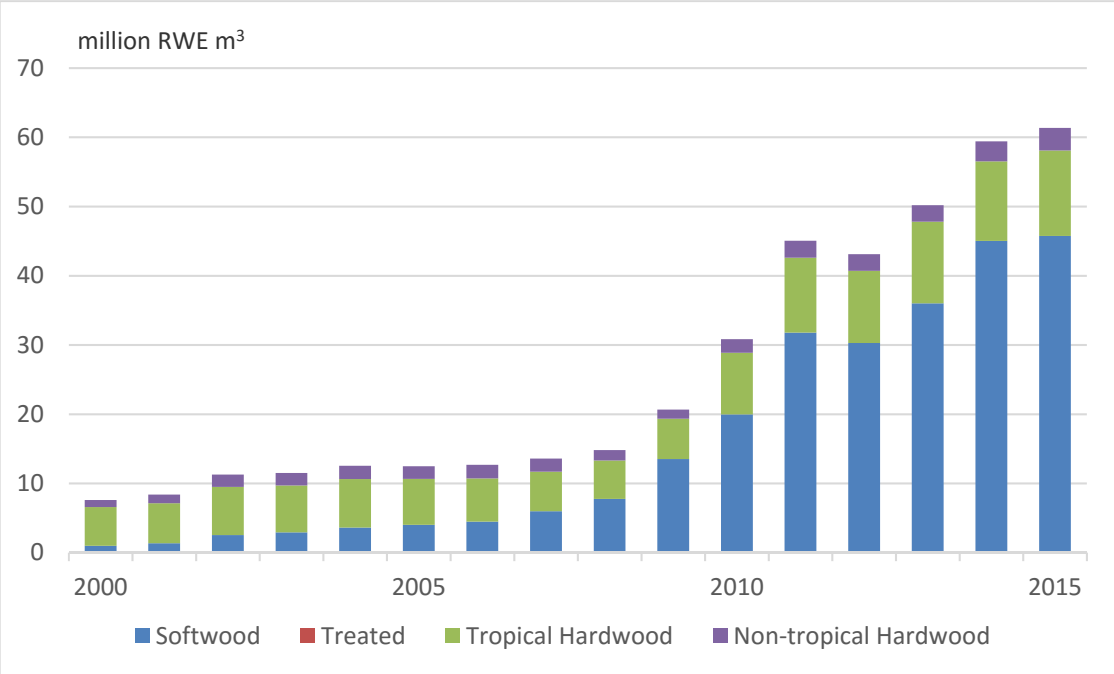


Source: Global Trade Atlas

Sawnwood

China's sawnwood imports experienced growth in all three major timber types during the time period of 2000 and 2015 (Figure 3.7). Between 2000 and 2006, the country's sawnwood imports were dominated by the tropical hardwood species. However, since 2008, a clear shift took place as softwood sawnwood became increasingly dominant as a proportion of total sawnwood imports (Figure 3.7 and Figure 3.8). Indeed, China imported an estimated total of nearly 189 million RWE m^3 of softwood sawnwood during 2011 – 2015 up from just over 15 million m^3 during 2000 – 2005. Between these two periods the growth in tropical hardwood sawnwood imports were rather modest from nearly 39 RWE m^3 to about 57 million RWE m^3. The growth in non-tropical hardwood sawnwood import was even more modest increasing from just under 10 million RWE m^3 to just over 13 million RWE m^3 (Figure 3.7).

Figure 3.7 Level of China's sawnwood import by timber types (volume)



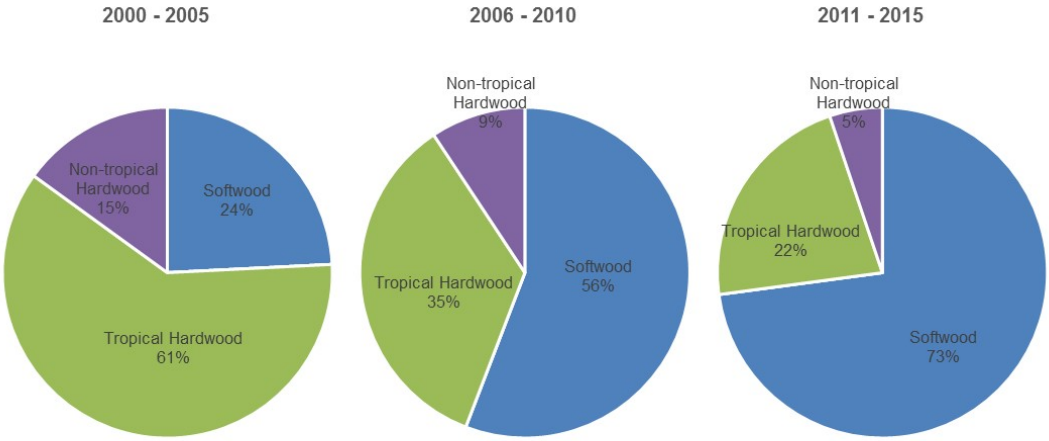
Source: Global Trade Atlas

The shift of dominance from hardwood to softwood sawnwood imports to China in 2008 was attributed to a number of factors. First, the overall reduction of tropical forest resources and an increase in awareness of conserving such resources worldwide prevented any significant increase in tropical timber trade globally in general, and China's import of tropical hardwood sawnwood in particular. This was apparent from the trade data that the log export ban or restrictions in a number of tropical countries, which were major suppliers of logs, did not boost the sawnwood imports from them. Second, sawnwood demand and thus imports increased due to increased demand particularly for wooden furniture and flooring both in domestic and export markets as well as increased construction activities propelled by the economic growth in China. Third, increased log export tariff by Russia in 2008. As a result of this, the average unit CIF price of Russian logs imported by China jumped from USD 107 per RWE m^3 in 2007 to USD 137 per RWE m^3 in 2008, while there was no notable change in the sawnwood price. This caused China to import an increasingly larger volume of sawnwood from Russia by gradually reducing the log imports. Most of the sawnwood China imported from Russia was of softwood species.

The shift of dominance naturally meant that the share of softwood sawnwood increased dramatically at the costs of hardwood sawnwood between 2000 and 2015 (Figure 3.8). The

softwood constituted just 24% of China's total sawnwood imports during 2000 - 2005, which increased to 73% during 2011 – 2015. During these time periods, the shares of tropical hardwood sawnwood decreased from 61% to 22%. The share of non-tropical hardwood also reduced from 15% to 5% during the same periods mentioned above (Figure 3.7).

Figure 3.8 Changes in different types of timber in China's sawnwood import over time (volume)



Source: Global Trade Atlas

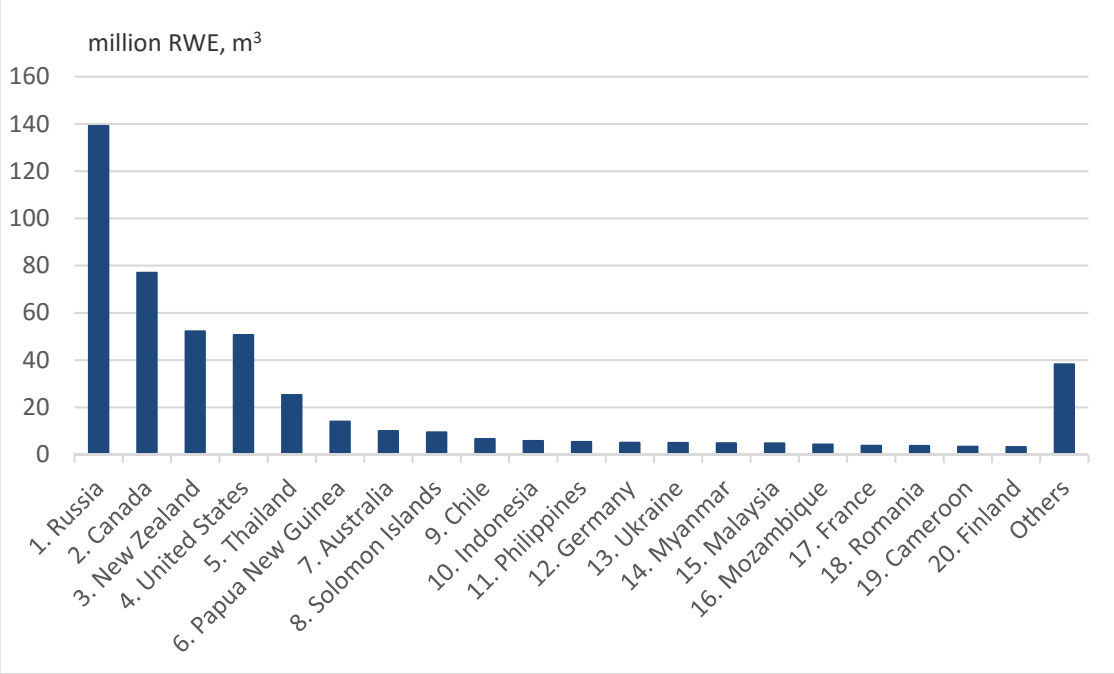
3.3.3 Level of imported logs and sawnwood from top 20 supplier countries

Identification of top 10 and top 20 timber supplier countries to China

We identified the top 10 and top 20 supplier countries, as agreed with the Client, based on the volume (in RWE m^3) of timber (logs and sawnwood combined) China imported over the last five years (2011 – 2015). These countries are listed with the volume imported from each of them in Figure 3.9. Russia came out as the top country contributing 30% of China's timber imports, Canada the second with 16% share followed by New Zealand, the US and Thailand (Figure 3.10). Overall, the non-tropical timber (i.e. softwood and non-tropical hardwood) producers dominated the list of top 10 and 20 countries. This is unsurprising as softwood and non-tropical hardwood constituted the majority share of China's timber imports over the past 16 years (see Section 3.3.2). There are nine countries in the list which mainly produce tropical timber. China's timber imports from these countries were rather small.

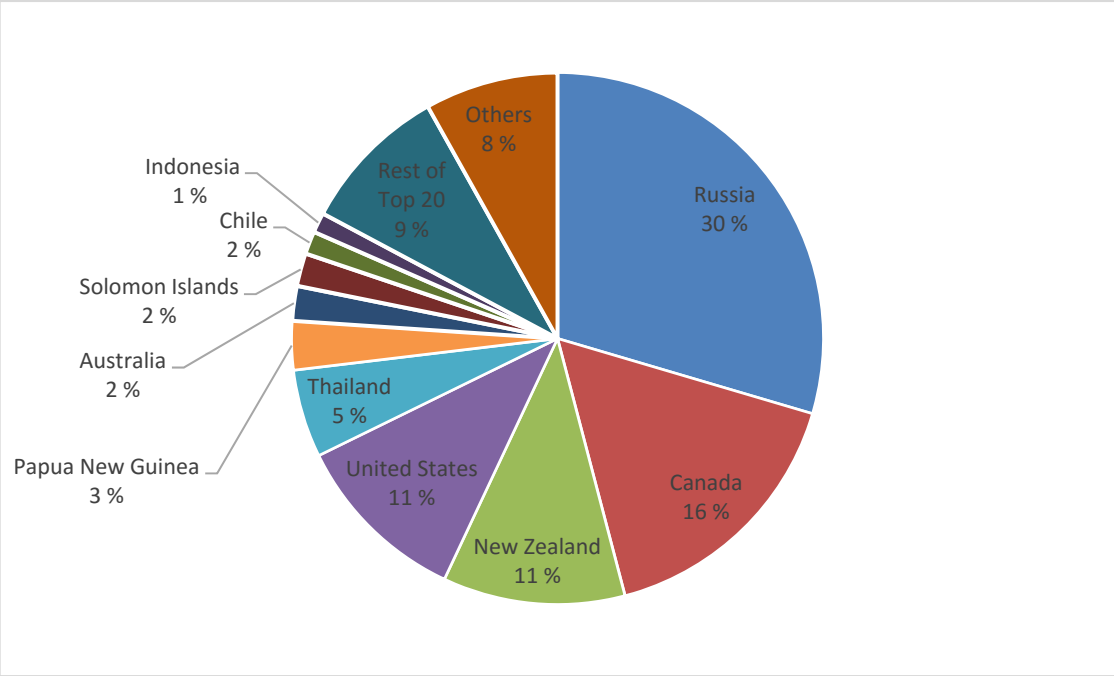
It can be noted here that there are just a couple of African countries (Mozambique and Cameroon) in the top 20 timber supplier countries to China. This is unsurprising given that a tiny share of China's total timber imports came from the African countries during the period from 2000 to 2015 (see Box 3.1).

Figure 3.9 Top 20 timber supplier countries to China (based on import volume)



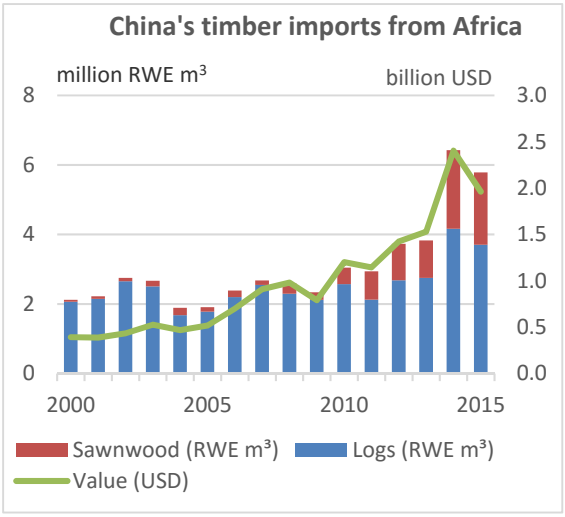
Source: Global Trade Atlas

Figure 3.10 Shares of China's timber import from different countries over 2011 – 2015 (by volume)



Source: Global Trade Atlas

Box 3.1 China's timber imports from Africa



China's imports of timber from African countries increased rather steadily by both volume and value in the last 16 years. The imports were estimated to have increased from 2.1 million RWE m^3 in 2000 to peak at 6.4 million RWE m^3 in 2014, and then dropped slightly to 5.8 million RWE m^3 in 2015. The value followed the same trend during this period. The imports consisted of tropical hardwood almost exclusively.

For the entire period, the imports were dominated by the logs, although the share of it decreased steadily as sawnwood imports increased. The share of sawnwood from African countries as a proportion of total timber imports to China became significant; particularly since 2011 (i.e. over one-quarter). Log export bans in a number of African countries such as Cameroon and Gabon were most probably the reason for this.

Source: Global Trade Atlas

Despite the volume and value increasing steadily, Africa's share in China's total timber imports remained insignificant and declined in the past 16 years. The share in terms of volume decreased from 10% in 2000 to below 6% in 2015. During the same time period, the share of value decreased less, from 15% to 13%. The higher share of value than volume, and smaller decrease in value share compared with that of volume suggest that China imported more high value timber particularly logs from the African countries in comparison to other suppliers.

The significance of China's timber imports from Africa lies in the fact that China became by far the largest destination of African timber exports. The Chinese market accounted for 35% of Africa's total timber exports in 2000, which increased to 78% in 2009 (IIED 2015). In the most recent years, almost the entire timber export volume of some African countries such as Madagascar and Mozambique were bound for the Chinese market.

Level of timber import

Between 2000 and 2015, the imports of both logs (Table 3.1) and sawnwood (Table 3.2) from the top 20 supplier countries (see Figure 3.9) increased steadily by both volume and value following the increasing trend of China's total timber imports (recall Section 3.2.1). The share of imports from these countries in China's total timber imports was overwhelmingly high and remained rather stable over time. During this period, the log imports from the top 20 countries constituted 91% by volume and 80% by value of China's total log imports (Table 3.1). The sawnwood imports from these countries made up 92% by volume and 87% by value of the country's total imports of this product (Table 3.2).

Table 3.1 Level of log import from top 20 timber supplier countries to China

Period	Volume				Value			
	Million RWE m3		Proportion (%) in total		Billion USD		Proportion (%) in total	
	Top 20	Others	Top 20	Others	Top 20	Others	Top 20	Others
2000 - 2005	122.7	13.1	90	10	11.4	2.6	82	18
2006 - 2010	148.8	12.4	92	8	20.4	4.3	83	17
2011 - 2015	191.2	20.4	90	10	34.9	9.8	78	22
Overall	462.7	45.9	91	9	66.7	16.7	80	20

Source: Global Trade Atlas

Table 3.2 Level of sawnwood import from top 20 timber supplier countries to China

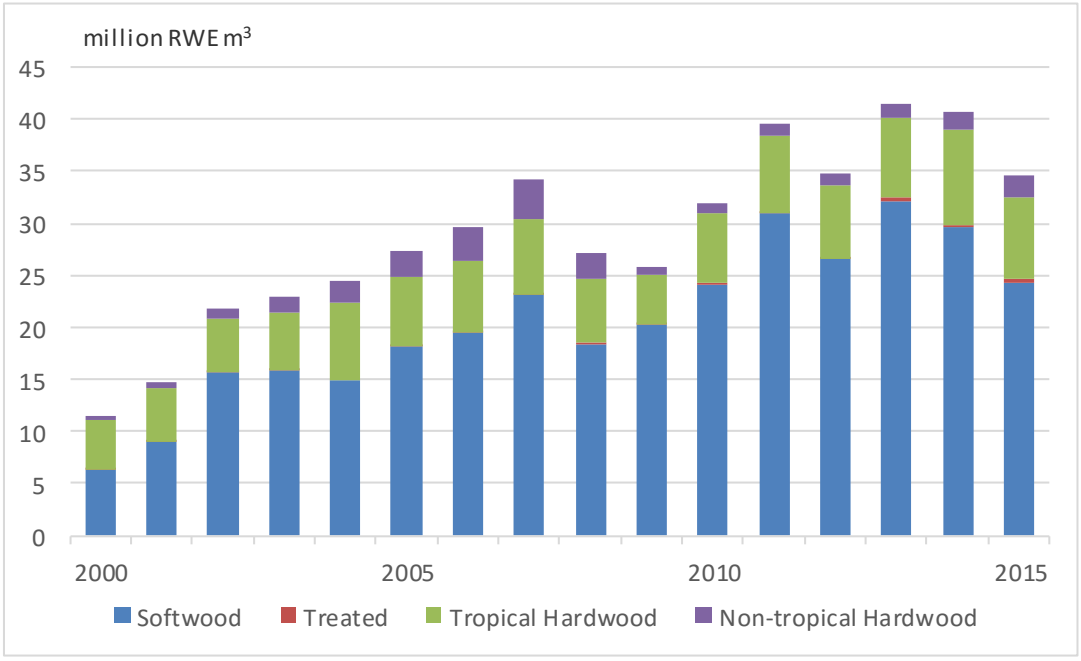
Period	Volume				Value			
	Million RWE m3		Proportion (%) in total		Billion USD		Proportion (%) in total	
	Top 20	Others	Top 20	Others	Top 20	Others	Top 20	Others
2000 - 2005	56.6	7.2	89	11	6.0	1.2	83	17
2006 - 2010	84.8	7.8	92	8	9.9	1.8	85	15
2011 - 2015	241.3	17.8	93	7	29.9	3.8	89	11
Overall	382.7	32.8	92	8	45.8	6.8	87	13

Source: Global Trade Atlas

The difference between the shares of volume and value was attributed to the following reason: softwood and non-tropical hardwood timber amounted to the majority of timber imports from the top 20 countries between 2000 to 2015, while tropical hardwood constituted just a small fraction[9] (Figure 3.11 and Figure 3.12; see also Annex 4 for country-wise breakdown of imports of different types of timber). This coupled with the fact that the value of softwood and non-tropical hardwood was generally lower than that of tropical hardwood meant that the share of value of timber imports from top 20 countries became smaller than the corresponding volume share.

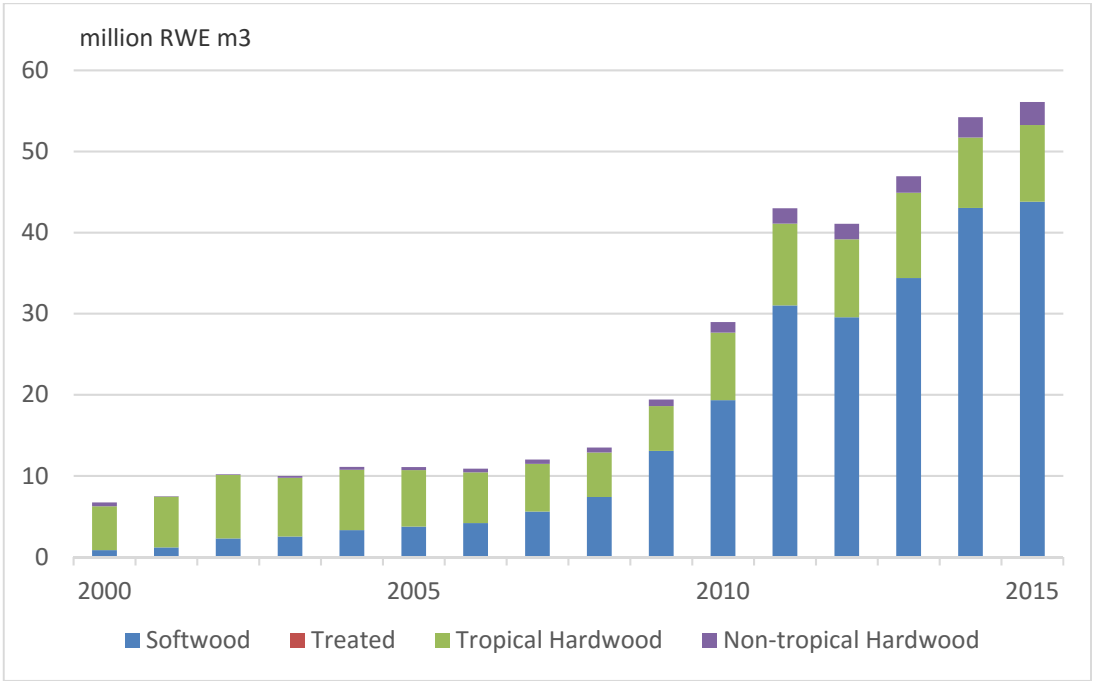
[9] It can be noted from Figure 3.12 that the quantity of China's tropical hardwood sawnwood imports clearly increased between 2000 and 2015. The growth rate, however, was lower than that in softwood sawnwood imports.

Figure 3.11 China's import of different types of logs from top 20 supplier countries (volume)



Source: Global Trade Atlas

Figure 3.12 China's import of different types of sawnwood from top 20 supplier countries (volume)



Source: Global Trade Atlas

Leading log and sawnwood exporter countries to China

Table 3.3 and Table 3.4 demonstrate the leading log and sawnwood supplier countries to China over the past 16 years. The tables confirm, as pointed out in the earlier sections of this chapter, that Russia's market share declined in log imports, while it increased in sawnwood imports. They also confirm that the share of imports of both logs and sawnwood from New Zealand, the US and Canada increased considerably.

Strong timber supply often exceeding domestic demand in New Zealand, the US and Canada in the past years (FAOSTAT) generally helped to increase timber imports from them. Particularly, the weaker timber demand in the US due to the slow recovery of the housing sector following the bust in the sector in 2008 made more timber available for exports from that country. An oversupply in the Canadian domestic market led to an increase in timber exports to countries like China, as the trees killed by the mountain pine beetle outbreak, particularly in British Columbia and Alberta, had to be harvested (see, e.g. BC Ministry of Forests and Range 2007). Another reason might be that the requirements set out by the EUTR and LAA for demonstrating legality compliance of timber products sold in the EU and US markets (Sun 2014). This probably caused many Chinese manufacturers to source more timber from countries such as the three mentioned above where timber illegality was not a problem and thus were considered safe (see Chapter 6 for detailed analysis on this).

The increasing dominance of non-tropical timber producers in China's timber imports meant that the combined share of tropical timber producing countries decreased over the past 16 years. Nevertheless, the share from PNG and the Solomon Islands, the largest suppliers of tropical logs to China, increased. In fact, the log imports from PNG and Solomon Islands constituted a significant portion of the total log production in these countries. For example, during 2011 – 2015, PNG and Solomon Islands constituted 6.6% and 4.4% of China's total log imports (Table 3.3). These shares represented 65% and 91%, respectively, of the total production in these two countries[10]. They exported 53% and 36%, respectively, of their total production to China during 2000 – 2005 (FAOSTAT and Global Trade Atlas). This suggests that the Chinese market was an important driving force for increasing timber production in PNG and Solomon Islands.

[10] China's log imports from Myanmar during 2011 – 2015 constituted about 15% of country's total log production.

Table 3.3 Leading log supplier countries to China over time

2000 - 2005			2006 - 2010			2011 - 2015		
Country	Million RWE m3	Share	Country	Million RWE m3	Share	Country	Million RWE m3	Share
Russia	80.9	59.5%	Russia	94.7	58.8%	Russia	54. 5	25.7%
Malaysia	13.2	9.7%	New Zealand	14.4	9.0%	New Zealand	47.9	22.6%
Papua New Guinea	7.3	5.4%	Papua New Guinea	10.8	6.7%	United States	23.1	10.9%
New Zealand	6.3	4.6%	Solomon Islands	5.6	3.5%	Papua New Guinea	13.9	6.6%
Gabon	5.7	4.2%	Malaysia	5.2	3.2%	Canada	12.2	5.8%
Myanmar	4.8	3.5%	Gabon	5.0	3.1%	Solomon Islands	9.4	4.4%
Germany	2.4	1.8%	United States	4.5	2.8%	Australia	9.3	4.4%
Equatorial Guinea	2.3	1.7%	Australia	3.1	1.9%	Ukraine	4.6	2.2%
Indonesia	2.2	1.7%	Myanmar	3.0	1.9%	Myanmar	3.7	1.7%
Solomon Islands	1.7	1.2%	Congo	2.0	1.2%	France	3.0	1.4%
Others	9 .1	6.7%	Others	12. 8	7.9%	Others	30.1	14.2%
Total	135.9	100%	Total	161.1	100%	Total	211.7	100%

Source: Global Trade Atlas

Table 3.4 Leading sawnwood supplier countries to China

2000 - 2005			2006 - 2010			2011 - 2015		
Country	Million RWE m3	Share	Country	Million RWE m3	Share	Country	Million RWE m3	Share
Indonesia	13.3	20.9%	Russia	25.5	27.6%	Russia	84.7	32.7%
United States	7.6	11.9%	Canada	18.1	19.6%	Canada	64.8	25.0%
Thailand	7.3	11.4%	United States	11.5	12.4%	United States	27.5	10.6%
Russia	7.2	11.2%	Thailand	9.7	10.4%	Thailand	25.2	9.7%
Malaysia	5.8	9.2%	New Zealand	3.4	3.6%	Chile	6.4	2.5%
Canada	3.8	6.0%	Indonesia	3.2	3.5%	Indonesia	5.7	2.2%
Myanmar	2.8	4.4%	Malaysia	2.9	3.1%	Philippines	5.3	2.1%
New Zealand	2.7	4.2%	Philippines	2.6	2.9%	New Zealand	4.3	1.7%
Brazil	2.6	4.1%	Brazil	2.1	2.3%	Germany	3.4	1.3%
Germany	1.8	2.8%	Chile	1.9	2.0%	Finland	3.1	1.2%
Others	8.9	13.9%	Others	11.6	12.5%	Others	28.7	11.1%
Total	63.9	100.0%	Total	92.6	100.0%	Total	259.1	100.0%

Source: Global Trade Atlas

4. IMPORT OF TIMBER PRODUCTS INTO EU FROM CHINA

4.1 Main issues

EU imports of timber and timber products from China was propelled by the demand for these products in the region. The UK was the biggest importer

The imports of timber and timber products by the EU from China increased steadily from an estimated just under 2 million RWE m^3 in 2000 to nearly 14 million RWE m^3 in 2007, before starting to fluctuate and finally reaching just over 15 million RWE m^3 in 2015. This corresponded to the timber products demand in the EU. The demand itself was shaped by steady economic growth up to 2007, then the downturn and slow recovery. The UK was the biggest import market within the EU for Chinese timber and timber products. The imports to the country constituted nearly 30% of total imports to the EU from China in the last five years.

EUTR products dominated over non-EUTR Products in EU's overall imports from China

The average share of EUTR products in EU timber and timber product imports from China, was 82% and 64% by volume and value, respectively during the past 16 years. This meant the value share of the imports of the non-EUTR products was exactly twice the volume share, i.e. 18% by volume, but 36% by value. The non-EUTR mostly that included highly processed products such as printed media naturally received a higher price per unit volume than the EUTR products.

EU imports increased since the EUTR came into effect

After the entry into force of EU Timber Regulation in March 2013, the overall imports of EUTR products from China increased slightly. The increase can be credited largely to the improvement of the economies in the EU. The increase of imports was more in terms of volume than value. Indufor suspects that this might be due to erroneous recording of volume data regarding the Netherlands' plywood imports.

China as a transit country in EU timber imports

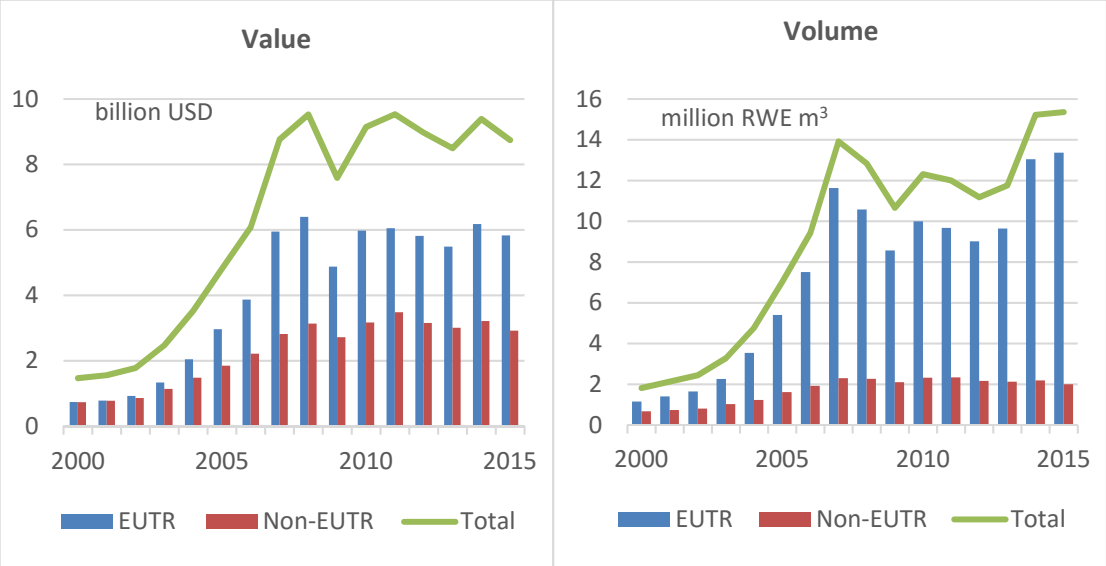
The share of highly processed products such as paper, printed media and wooden furniture was by far the largest in EU timber and timber products imports from China over the past 16 years. This dominance was strengthened steadily, while the imports of comparatively less processed or unprocessed products such as logs, sawnwood and sleepers became marginal particularly since the EUTR came into force in 2013. The share of the latter category was just 0.2% in 2015 as a proportion of overall EU timber and timber products imports from China. The increasing imports of highly processed products into the EU from China, while the country started to meet more than half of its timber demand through imports, meant that it was being used as a transit country more and more in the recent years. An increasingly larger volume of timber from different countries entered into the EU after being processed in China.

4.2 Level of imports of timber and timber products into EU from China

The total imports of timber and timber product into the EU from China increased sharply through the 2000's until the financial crisis started in 2008. Since then, the level of imports fluctuated before there was a recovery in 2014. This means since the EUTR came into effect (in 2013), EU imports of timber and timber products from China actually increased. The total imports increased sharply from an estimated 2 million RWE m^3 in 2000 to about 14 million RWE m^3 in 2007, then fluctuated reaching around 12 million RWE m^3 in 2013 to finally recovering to over 15 million RWE m^3 in 2015 (Figure 4.1). The imports clearly followed the development regarding the economic growth in EU Member Countries, which largely shaped the timber and timber products demand in the region in the past 16 years. EU GDP grew at a rate of over 2% between 2000 and 2007 before plunging to just 0.5% in 2008 and further to -4.4% in 2009, and then fluctuating before making a steady recovery of 1.4% in 2014 (Eurostat).

Value of imports followed a similar trend to that of volume; except in 2015 when the value decreased while the volume continued to increase (Figure 4.1). The oversupply of timber in Chinese markets leading to a decrease in timber prices in the recent years (Guangqian 2014) might be the reason for this. The decrease in timber prices might have reduced the production costs and thus the price of timber and timber product imports. The import price decline might also be linked to the erroneous volume data recoding in or reporting to Eurostat[11] regarding the Netherlands' imports of plywood from China (See Box 4.1).

Figure 4.1 Level of wood product imports in EU from China (value and volume[12])



Source: Eurostat

In total EU imports from China in the past 16 years, EUTR products dominated over non-EUTR products. The imports of EUTR products, on average, constituted 82% by volume and 64% by value during period. This meant the non-EUTR products constituted 18% by volume, but 36% by value in total EU imports from China. This can be explained by the fact that the non-EUTR mostly include highly processed products such as printed media. Naturally, these products fetched a higher price per unit volume than the EUTR products.

[11] EU's import data for this assignment was collected from Eurostat.

[12] The volume did not include wood turpentines, rosin and resin acids, gums, wood tar and wood tar oils. As these are the side-products of pulping and other wood processing operations, converting them to RWE m^3 incurs the risks of double counting of timber traded. See Annex 5 for the quantity in tonnes of these products EU imported from China in the past 16 years.

Box 4.1 Erroneous recording of Netherlands's import data to Eurostat

According to Eurostat, the Netherlands' imports of timber and timber products from China were estimated to have increased from 3.9 RWE m^3 in 2014 to 4.5 million RWE m^3 in 2015. However, the average import price decreased from USD 119 per RWE m^3 to USD 99 per RWE m^3. This price decrease contributed to the decrease in total value despite increased volume. This was because the Netherlands' imports constituted a substantial share - 33% and 30%, of total EU imports from China in 2014 and 2015, respectively.

In any case, on average the import prices for Netherlands mentioned above were much lower than the respective EU averages of USD 473 per RWE m^3 and USD 436 per RWE m^3 in 2014 and 2015, respectively. The low import prices for the Netherlands stems from the way the country's plywood import data was recorded by Eurostat. According to Eurostat data, the Netherlands paid less than USD 10 per RWE m^3 for plywood imported from China in 2014 and 2015. This was far less than the EU average price for that product (USD 109 per RWE m^3). This suggests that there were, most probably, errors in recording data in the Eurostat on the Netherlands' plywood imports from China.

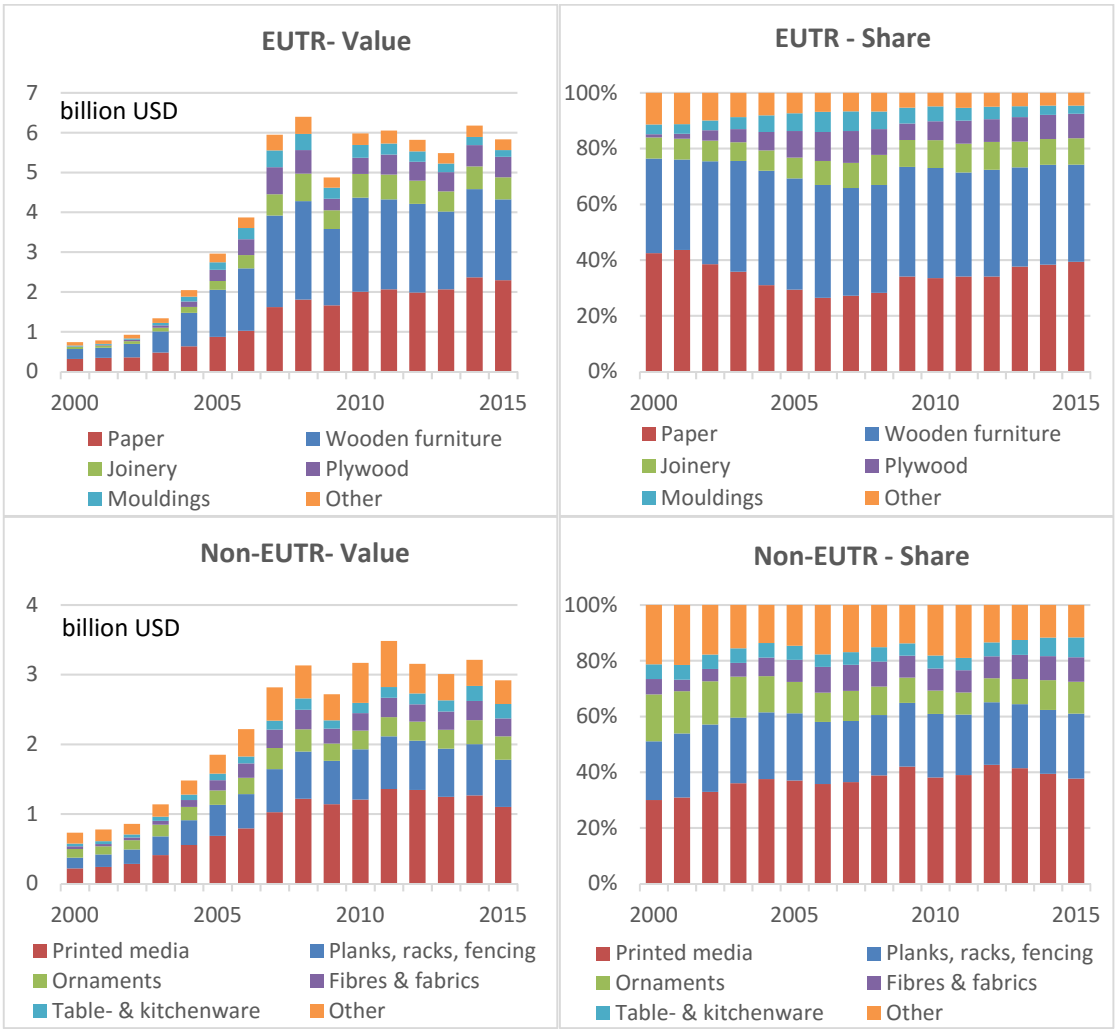
Overall, the EU's imports from China over the past 16 years mainly consisted of the highly-processed timber products. Paper, wooden furniture, joinery and plywood were the main EUTR products imported both in terms of value (Figure 4.2) and volume (Figure 4.3 and Figure 4.4). Among the non-EUTR products, printed media was clearly the largest in terms of value, followed by assemblies of planks, wooden racks and fencing (Figure 4.2 and Figure 4.3).

Between 2000 and 2015, the level of logs and sawnwood imports to the EU from China were minuscule (compared with other products), on average 2 000 m^3 and 53 000 m^3 per annum, respectively. The share of imports of these two products together with sleepers, was just 0.2% of total EU timber and timber products imports from China in 2015.

The UK, the Netherlands, Germany, France and Belgium were the leading importers within the EU of Chinese timber and timber products particularly in the last five years (Figure 4.4). Processed products constituted most of their imports. However, the Netherlands imported noticeable volumes of roundwood and sawnwood from China in 2015, over 200 000 m^3 of both products. Also, the country's imports of plywood, particle and fibre board spiked in 2014 and 2015. The volume of plywood imports was highly inconsistent with the value in the years mentioned above which was most probably due to erroneous data recording by Eurostat (see Box 4.1).

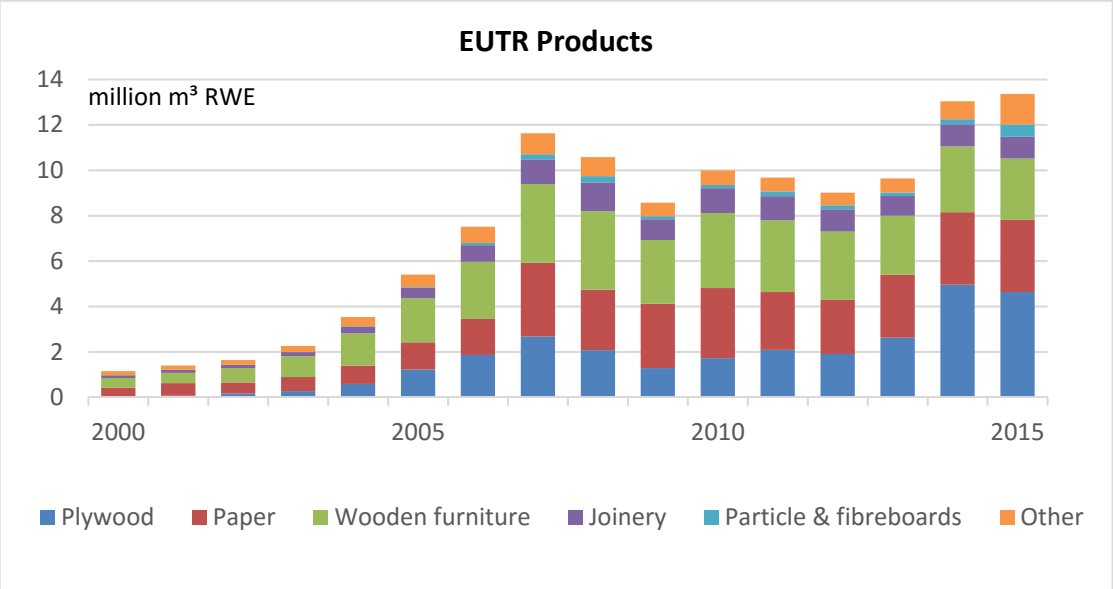
Overall, the presence of very large volume and share of highly processed products in EU timber and timber products imports from China means that the country was being used as a transit hub for sending an increasingly larger quantity of timber from tropical and non-tropical countries to the EU. The fact that the China started to meet more than half of its timber demand through imports in the recent years also helped with the transit. This increased the risk of illegal timber entering EU markets through the imports of processed products, as they may contain timber from a mixture of sources and countries.

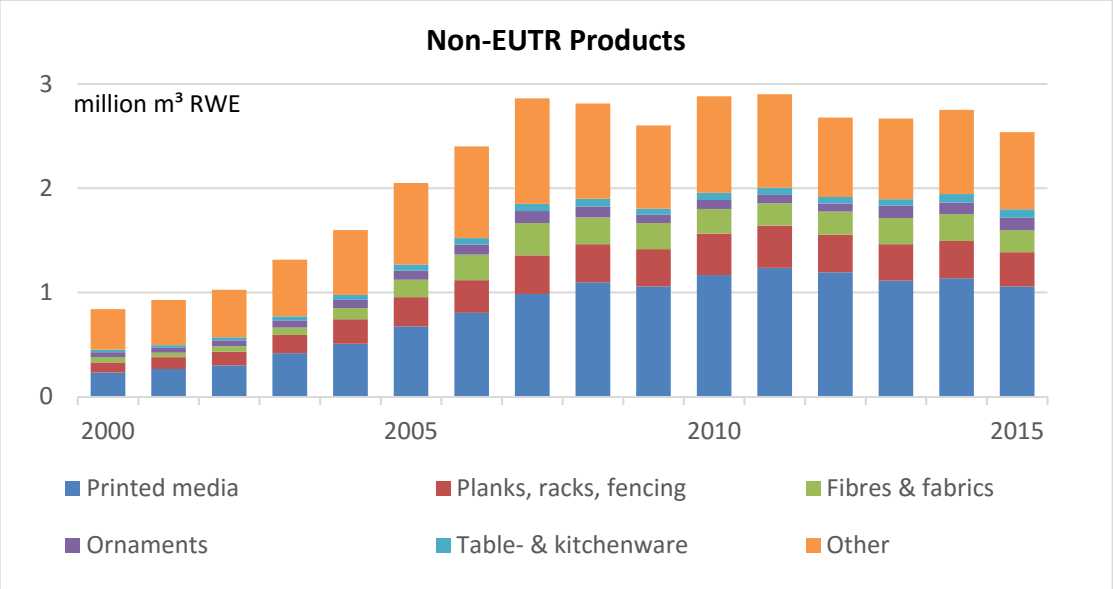
Figure 4.2 Breakdown of timber and timber products imports into EU from China by product type



Source: Eurostat

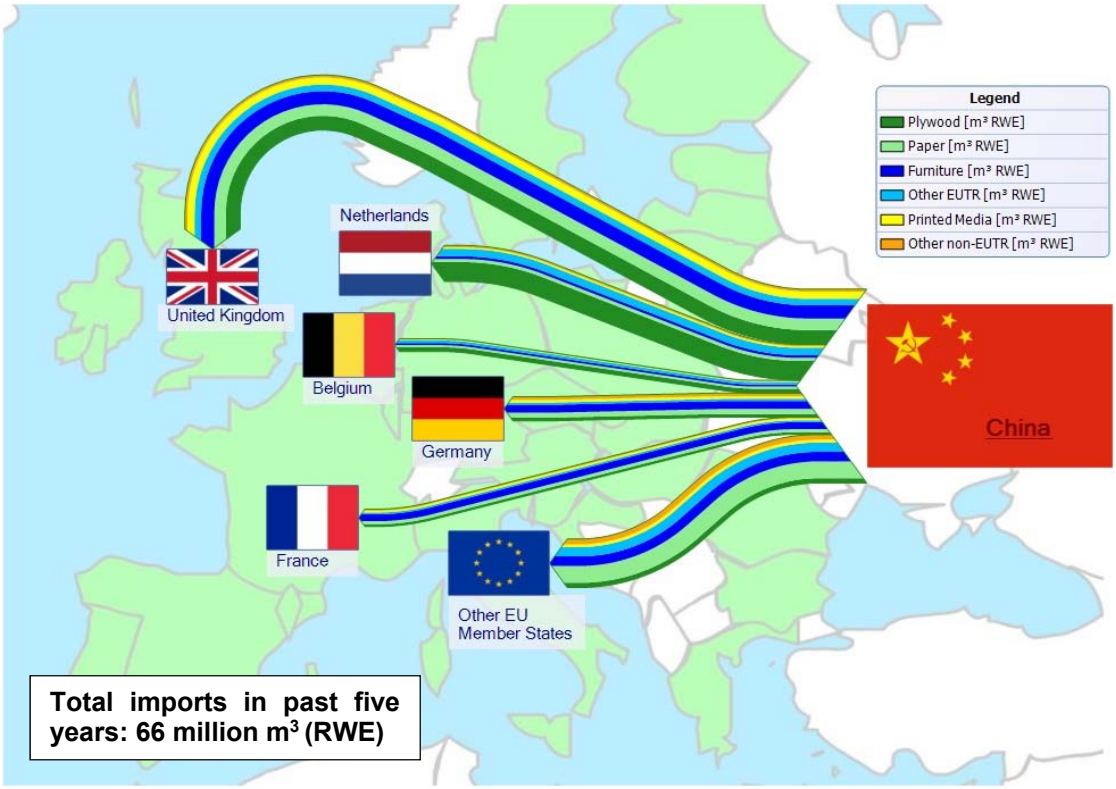
Figure 4.3 Breakdown of timber and timber products imports into EU from China by volume





Source: Eurostat

Figure 4.4 Overall imports of timber and timber products into EU from China in past five years

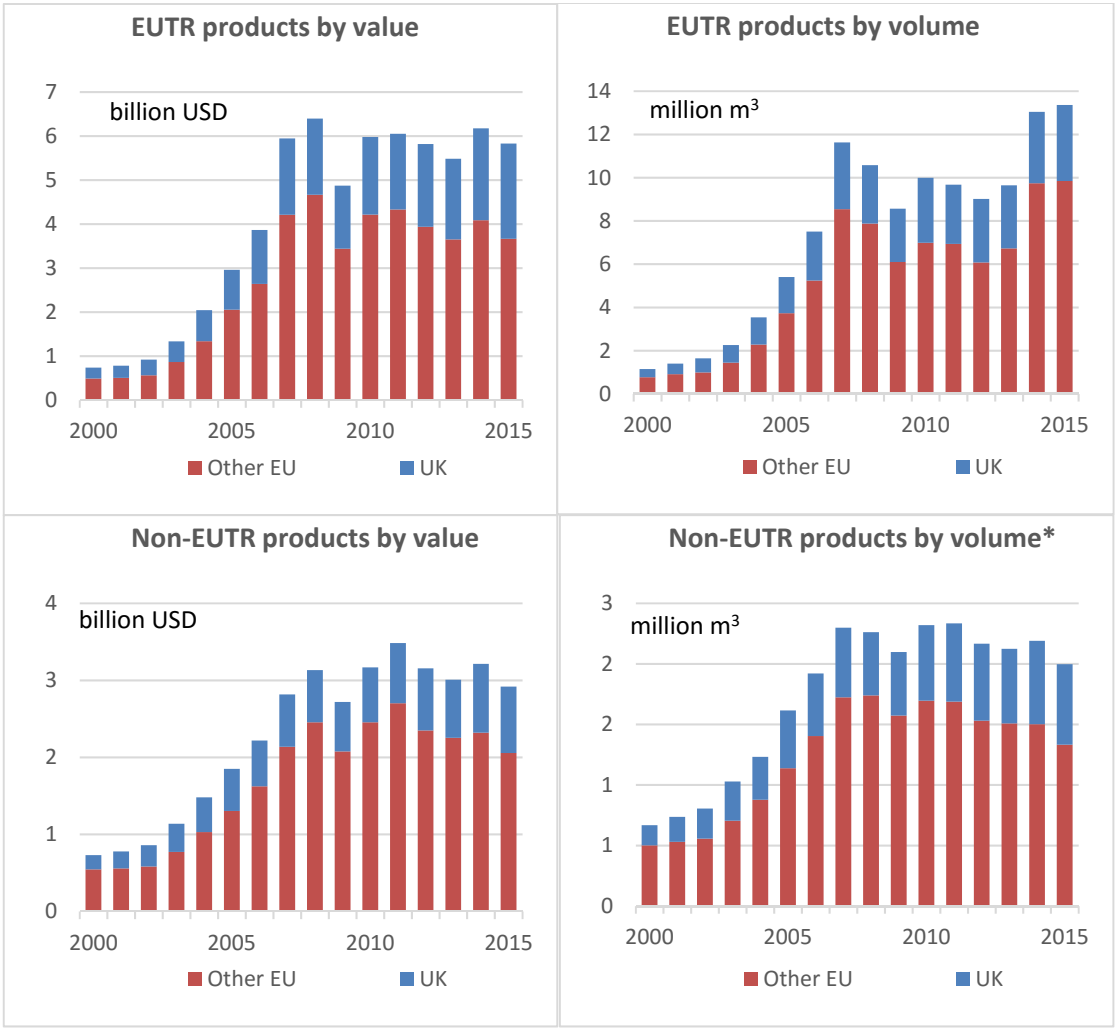


Source: Eurostat

4.3 Significance of UK market

The UK was the largest importer of timber and timber products from China within the EU (Figure 4.4). The country's share in total EU imports of these products was 35% in terms of value in 2015. The shares of the UK in EU EUTR and non-EUTR product imports from China were 33% and 26%, respectively, in terms of value in the last five years. In terms of volume, the corresponding shares were 29% and 30%, respectively (Figure 4.5).

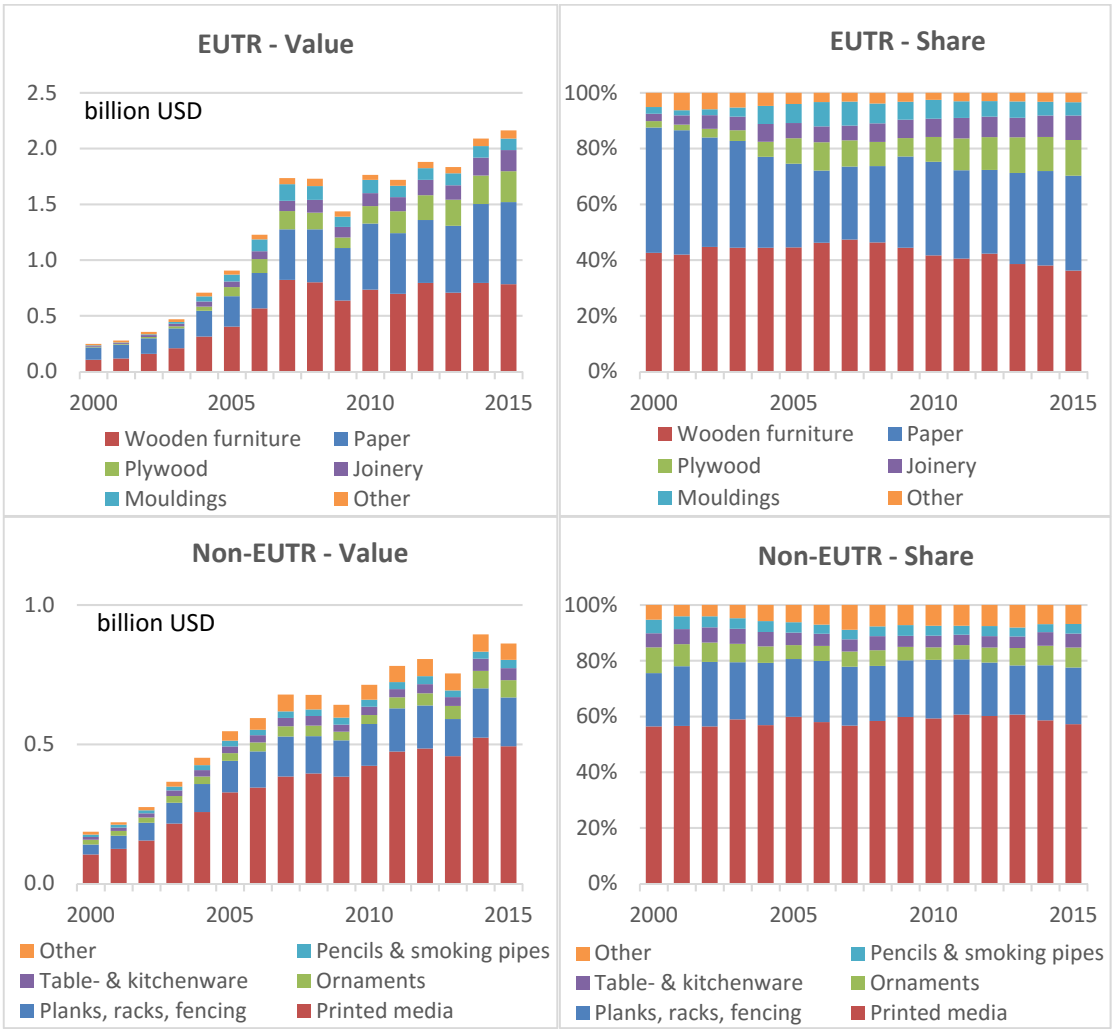
Figure 4.5 Share of UK in total EU timber and timber product imports from China



Source: Eurostat; *Does not include wood turpentines, rosin and resin acids, gums, wood tar and wood tar oils.

The level of timber and timber products imports into the UK from China followed a similar trend as the GDP development of the country. The effects of the global financial crisis in 2008 and 2009 were temporary to the timber products sector in the country (Figure 4.6). The level of imports of timber products recovered already in 2010 and increased significantly in 2014 and 2015. Indeed, UK GDP growth was negative in 2008 and 2009, but recovered strongly thereafter to reach 1.9% in 2010. GDP growth was over 2.2% in 2014 and 2015 (World Bank 2016).

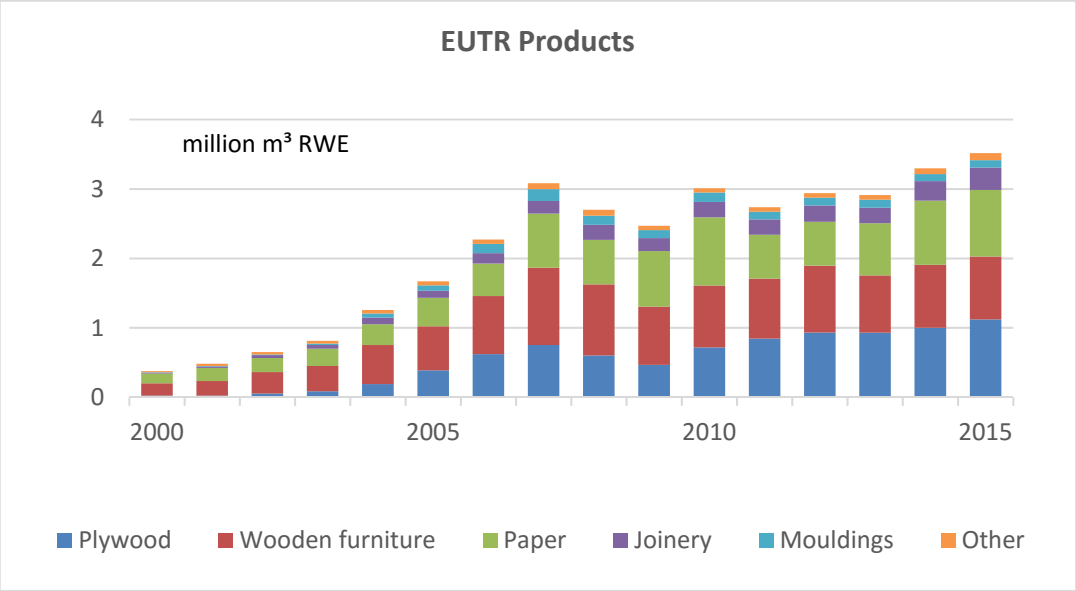
Figure 4.6 Breakdown of timber and timber product imports into UK from China by product type (value)

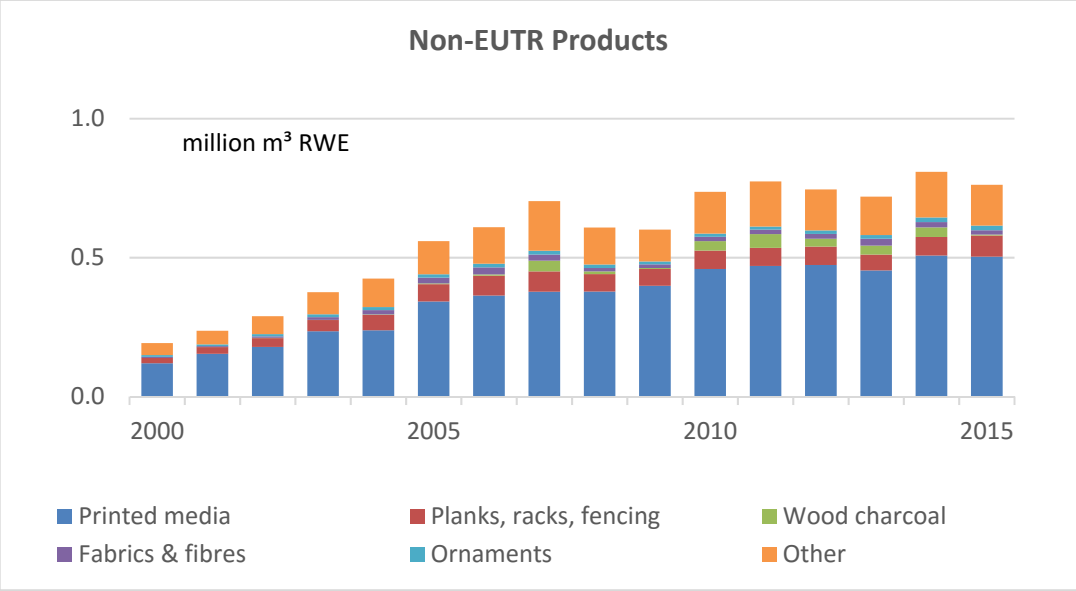


Source: Eurostat

In terms of volume, the imports of plywood, paper and joinery into the UK from China increased steadily in the last two years (Figure 4.7). This was attributed to the growth in the UK construction sector which itself was propelled by the strong economic growth in the country.

Figure 4.7 Breakdown of timber and timber product imports into UK by product type (volume)

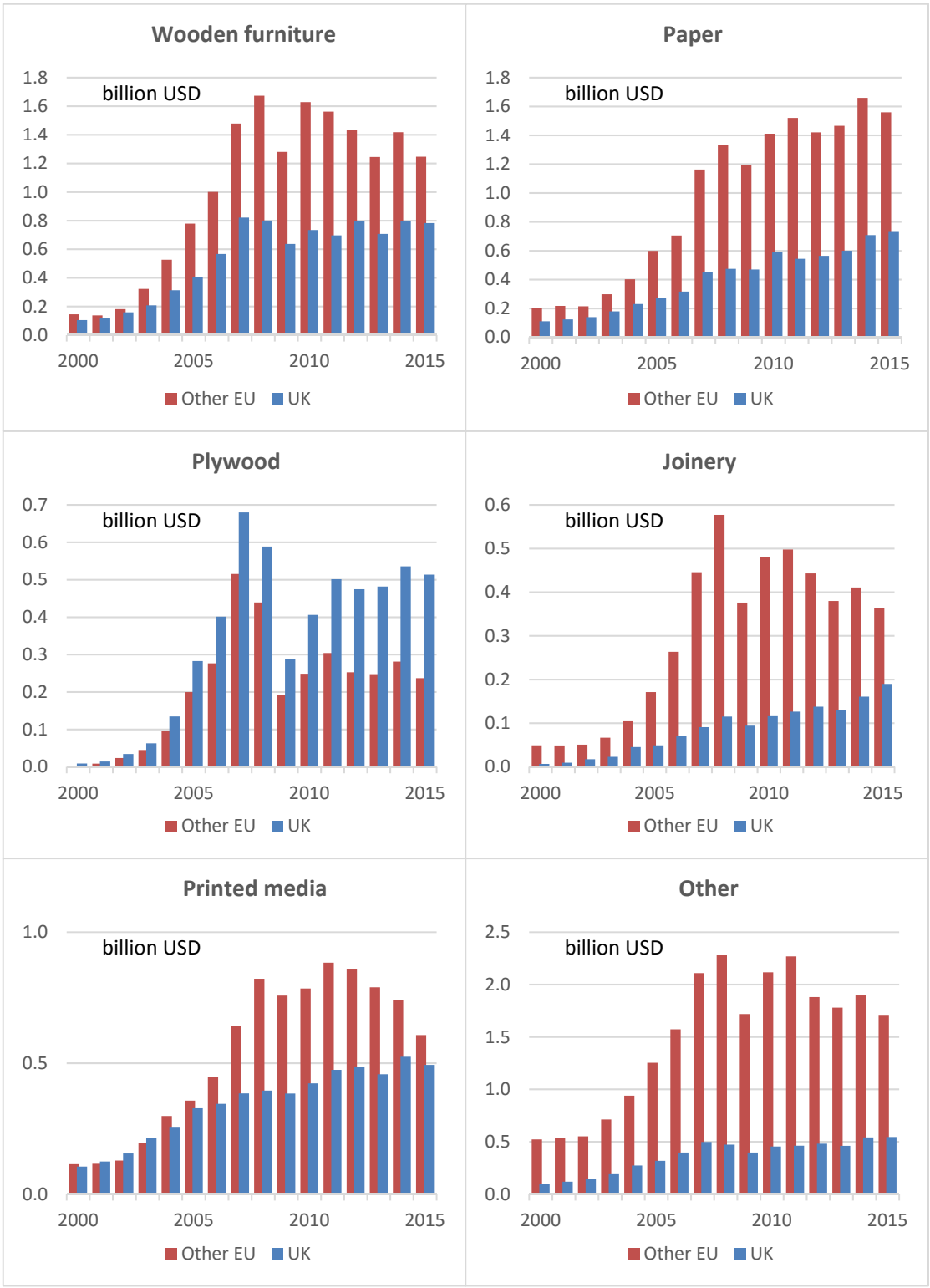




Source: Eurostat

In terms of value, the UK imported more plywood from China than the rest of the EU in each year during the past 16 years. It was also the most dominant market within the EU for Chinese wood furniture and printed media. Of total EU imports of these two products, nearly 40% and almost half, respectively, by value went to the UK from China in the past 16 years (Figure 4.8).

Figure 4.8 Level of imports of key timber products from China by UK and the rest of EU



Source: Eurostat

5. TOP EXPORTERS, METHOD OF TRANSPORTATION AND TRADING PORTS

5.1 Main issues

China's timber imports originate from both natural forests and plantations

Traditionally, China's timber imports mostly originate from natural forests in various countries. A large majority of imported timber is of softwood species sourced from natural forests in Siberia and the Far East of Russia, and intensively managed natural forests in the US and Canada. Tropical log imports are mostly sourced from natural forests in, for example, Papua New Guinea and the Solomon Islands. The amount of timber imports originating from private plantations is also considerable. Plantation timber came predominantly from New Zealand, Australia, Thailand, Chile and south-eastern US. Much of the timber imported into China from Canada, New Zealand, Australia, Chile and the US is sourced from certified sources, including both plantations and natural forests.

The companies selling timber to China from the exporter countries are of both Chinese and non-Chinese origin

Mostly private companies based in the exporter countries sell timber to China. Among the top 10 timber supplier countries, only Russia has a large number of companies with Chinese roots that are involved in supplying timber and timber products to China. In other countries, the companies selling timber to China are predominantly either local or of a third country origin.

Sea routes are mainly used by China for trading timber and timber products. The ports located in the vicinity of timber processing industries are predominantly for exporting and importing

China's timber imports are mainly made using sea routes, as there are no land borders with most of its leading export countries. Among the top 10 timber supplier countries, land routes are used for importing timber only from Russia. A substantial portion of timber imports from this country also come via sea routes. China's timber import ports are located along the coast and by major rivers close to the processing facilities. For exporting timber and timber products to the EU and other countries, a larger number of ports used are located in various parts of the country. These ports are also located in the vicinity of different timber processing industries. The shorter distance between ports and processing facilities helps to minimize transportation and production costs. This gives the Chinese timber products suppliers' a competitive advantage in export markets.

5.2 Profile and characteristics of forest industry in top 10 timber supplier countries to China

The profile and characteristics of forest industry in the top 10 timber supplier countries China are presented below in the order they appear in the top 10 list (see Section 3.3.3).

Russia exports both logs and sawnwood to China. Exported timber mostly originates from the vast coniferous forests in Siberia and Russian Far East. Both public and private companies harvest timber in Russia through lease agreements with the state forest authority. Forests are typically leased for 49 years. Lease holders are required to follow the annual cuts (AAC) approved by the state. Some of the largest forestry operators, particularly in Siberia and Russian Far East, are Chinese state-owned companies. There are also a substantial number of Chinese small and medium enterprises (SMEs) operating in the forestry sector in Russia. Chinese enterprises operate across the timber supply chain in the country, starting from lease holding, logging, sawmilling to further downstream processing such as pulp production, and exports their production almost entirely to China. The Chinese enterprises, particularly SMEs, are also involved in timber trading. A few Russian enterprises also export timber and timber products to China. Many enterprises supplying timber to China have been accused of taking part in illegal forestry activities in Russia (see, e.g. WWF 2013). There is also huge data discrepancy regarding China's timber imports from Russia (see Box 2.1). These coupled with the fact that

only a tiny portion of country's vast forest area is certified, implies that Russia is a high risk in terms of exporting illegal timber to China.

Canada exports both logs and sawnwood to China. Most of the timber is of softwood species originating from coniferous forests in British Columbia. Spruce, pine and fir are the most common species of timber for export from Canada. The majority of forests are owned by the provincial authorities who typically issue logging permits to private forestry companies. Some of the companies also own and manage their own forest areas. Illegal forestry activities are very uncommon in Canada. Furthermore, almost all of Canada's production forests are certified by PEFC[13] (PEFC 2015). Thus timber imported from the country is usually considered to be safe.

New Zealand exports both logs and sawnwood to China. Most timber is of softwood species originating from private plantations – the main source of timber in New Zealand[14]. The country has about 1.7 million ha of tree plantations (New Zealand Forest Owners Association 2016). A large majority of these plantations are planted with radiata pine, which dominates the country's forest landscape. There is also a considerable area of plantations of other exotic softwood species, such as Douglas fir. There are several large private plantation companies who export timber to China and other countries. There are also a number of trading companies that buy timber from various tree plantations. In general, illegal operations in timber production are very uncommon. Also 99% of country's productive plantations is FSC certified (FSC 2016). Thus, New Zealand can be considered a safe country concerning timber legality.

The United States exports both logs and sawnwood to China. During the last five years (2011-2015) most of the exported logs were softwood, while the majority of exported sawnwood was of non-tropical hardwood. Softwood timber originates mainly from the intensively managed natural forests and plantations in the western US. Timber is also sourced from softwood plantations in south-eastern US. The non-tropical hardwood timber, mainly of yellow poplar, red and white oak, red alder, maple and ash (Bowe 2012), usually comes from intensively managed natural forests in the eastern part of the country. The forests are under both public and private ownership, while plantations are under private ownership almost exclusively. Timberland investment management organizations (TIMOs) constitute the biggest private owners' group of industrial forests and plantations. Forest and plantations owners sell timber to export markets themselves, or through traders. Most production forests and plantations in the country are certified under PEFC and FSC systems (PEFC 2015, FSC 2016). Generally, illegal practices in forestry operations are very uncommon in the US. Thus, the timber imported from the US can be considered safe from legality perspective.

Thailand's timber exports to China almost exclusively consist of tropical hardwood sawnwood. This is unsurprising as log exports are banned in the country. Logging in natural forests, which are owned by the State, is also banned, and thus all legal timber is sourced from plantations. The sawnwood for export is usually sourced from rubber and eucalyptus plantations scattered around the country. Many of these plantations are owned and managed by smallholder farmers. There are also large private plantations particularly of rubber. The smallholders usually sell timber to sawmills and traders who export it to China. Large plantation owners are also usually involved in trading. Commercial rubber and eucalyptus plantations usually comply with relevant Thai national regulations. Also the private ownership means that the plantations have better surveillance than, for example, government-owned natural forests. Thus, these plantations are usually not subjected to illegal logging or other such activities. Therefore, Thailand's sawnwood exports to China and other countries are considered to very low risk or safe from the legality perspective.

Papua New Guinea (PNG) is the main supplier of tropical hardwood logs for China. Formally all of the forest area in PNG is communally owned, as guaranteed by the constitution. Logging companies operate under lease agreements. The main forestry companies operating in the

[13] Under the Canadian Standards Association (CSA) and Sustainable Forestry Initiative (SFI).

[14] Most of the country's natural forests are located in the mountainous areas and reserved for conservation and recreational purposes (New Zealand Statistics 2016).

country are owned by foreign entities. A large majority of harvested timber is exported as logs; as domestic timber processing industry has remained rather under-developed. Logging companies claim that their operations are required for the development of PNG's economy. However, various conservation groups have condemned the logging operations in PNG as generally unsustainable. According to these groups, most of the logging operations do not respect the communal land tenure rights, and exploit forest resources at the expense of local communities. Indiscriminate logging is thought to be the main cause of deforestation and forest degradation in the country. The level of certification in the production forests is very low in the country. The country's certification initiative, launched under FSC in 1996 (FSC 2016), has had limited progress. Thus, the timber imported from this country is considered to be at high risk of being illegal.

Australia's timber exports to China compose mainly of logs. Though the country has vast native forest consisting of tropical hardwoods, it mainly exports softwood logs originating from private plantations. These plantations are mostly consisting of radiata pine. Only a tiny share of timber imported from Australia is sourced from the plantations of native tree species (predominantly eucalyptus), which constitute nearly half of the country's total industrial tree plantation area (Australian Government 2016). The plantation owners are typically involved in timber exports. Most of the industrial plantations are certified under PEFC and FSC systems (PEFC 2015, FSC 2016). In addition, the risk of illegal operations in timber production is uncommon in Australia. Thus, the timber from Australia can be considered safe from legality perspective.

Solomon Islands is one of the exporters of tropical hardwood logs to China. Majority of logging operations are done by a handful of foreign and local companies. These companies have been accused of illegal and unsustainable operations, and exploitation of the forest resources at the expense of local communities by various conservation groups. According to FAO's most recent Forest Resource Assessment (2015), since 1990 the Solomon Islands' forest cover has been decreasing by around 0.2 to 0.3 percent annually. The decrease in commercially viable forest resources has most likely been much higher. Indeed, unsustainable and illegal logging is the key driver of deforestation resulting in an overall decline of forest resources in the country. The production forests in the country are usually not certified. This suggests that the timber imported from this country is considered to be of high risk of being illegal. Data discrepancy regarding China's timber imports from Solomon Islands (see Box 2.1) might also be indicative of illegal logging in the country.

Chile's timber exports to China compose mainly of softwood sawnwood. Most of this timber comes from private plantations planted with radiata pine. These plantations are largely owned and managed by the forest industry corporations. They operate in multiple processing sectors, i.e. logging, sawmilling pulp and paper, and wood boards. Chile has strict environmental standards and forest legislation which are effectively enforced (Indufor 2012). Furthermore, a large share of productive plantations in the country are certified mainly under PEFC (PEFC 2015). This, together with good enforcement of forest law and environmental standards, ensures that illegal operations in timber production destined for exports is very marginal.

Indonesia's timber exports to China comprise mainly of tropical hardwood sawnwood. This timber originates from both natural forests and hardwood plantations. Acacias (i.e. *Acacia auriculiformis* and *A. mangium*) species from plantations are the most common. The majority of Indonesia's forests are officially owned by the government. Various state enterprises manage most of the forests. The management and usage rights of some forests are also allocated to the private sector. The forestry sector in Indonesia, and especially plantation forestry, is dominated by few large pulp and paper companies. There is also a large number of SMEs involved in sawmilling. These enterprises supply a significant share of sawnwood exported to China. Only a tiny part of Indonesia's forests and plantations is certified. Illegal logging remains a major problem particularly in the natural forests mainly due to shortcomings in law enforcement. This is also partly caused by conflicting legislation and jurisdiction between central and local administrations (WRI 2016). Thus Indonesia is considered a high risk country concerning the timber legality.

The main export products from the top 10 timber exporter countries to China, and the status of illegality risk in such exports are summarized in Table 5.1.

Table 5.1 Overview of timber export industry in top 10 timber supplier countries

Country	Product(s) exported to China	Timber type	Main source of timber	Type of operators15	Status of illegality risk*
Russia	Sawnwood, logs	Softwood	Natural forest	Concessioners	Risky
Canada	Sawnwood, logs	Softwood	Natural forest	Concessioners /private	Safe
New Zealand	Logs, sawnwood	Softwood	Plantations	Private	Safe
The United States	Sawnwood and logs	Softwood and temperate hardwood	Natural forest, plantations	Concessioners /private	Safe
Thailand	Sawnwood	Tropical hardwood	Plantations	Private	Safe/very low risk
Papua New Guinea	Logs	Tropical hardwood	Natural forest	Concessioners	Risky
Australia	Logs	Softwood	Plantations	Private	Safe
Solomon Islands	Logs	Tropical hardwood	Natural forest	Concessioners	Risky
Chile	Sawnwood	Softwood	Plantations	Private	Safe
Indonesia	Sawnwood	Tropical hardwood	Natural forests, plantations	Concessioners /private	Risky

**Risky = There is a risk that at least some amount of timber imported from the country in question is sourced illegally in that country; Safe = Likelihood that timber imported from the country in question is legal.*

As the country profiles above suggest, almost all or most of timber China imports from Canada, New Zealand, the US and Chile comes from certified sources. On the other hand, only a tiny or no portion of timber imported from other six countries in the top 10 comes from such sources. However, the trade data analysed in this report does not give any indication on the amount of certified timber China imports from any of the top 10 timber supplier or any other countries. To the best of author's knowledge, there is no database that provide information on certified timber trade to China or globally either.

5.3 Ports used for exporting timber products from China

China exports a rich variety of timber products to the EU, the US, and other markets. These exports usually take place by sea routes. Generally, the port(s) located nearby the production facility of a particular timber product is used for exporting that product. Thus, large quantities of timber products exported from any given port indicate that there exists substantial industrial production of that product in the region where the port is located. For the same reason, the main exporting ports vary between the products, as different regions have generally developed industrial focus on certain products. Table 5.2 and Table 5.3 present the main ports used for exporting wooden furniture and plywood. These two, along with paper, are the main Chinese timber products exported to the EU.

[15] In all countries natural forests are primarily owned by the state and harvested by private companies under different types of concessions, except Canada and the US, where natural forest is also partly owned by private sector. Additionally, all plantations in listed countries are mainly privately owned.

Table 5.2 Main wooden furniture export ports in China in 2014

Port	Share of total (by value)
Shenzhen	29%
Shanghai	21%
Fuzhou	10%
Ningbo-Zhoushan	9%
Qingdao	8%
Xiamen	7%
Dalian	4%
Guangzhou	3%
Jinan	3%
Tianjin	3%
Others	3%

Source: Globalwood 2015

Table 5.3 Main plywood export ports in China in 2014

Province	Main port(s)	Share of total (by value)
Shandong	Weihai, Yantai, Qingdao	42%
Jiangsu	Suzhou	25%
Guangdong	Guangzhou, Shenzhen, Shantou, Zhanjiang	5%
Guangxi	Beihai	5%
Zhejiang	Beilun, Ningbo	3%
Jilin	Da'an, jilin city, Fuyu	2%
Anhui	Wuhu	1%
Liaoning	Dalian, Jinzhou, Yingkou	1%
Shanghai	Shanghai, Yangshan	1%
Hebei	Qinhuangdao	1%
Others	-	14%

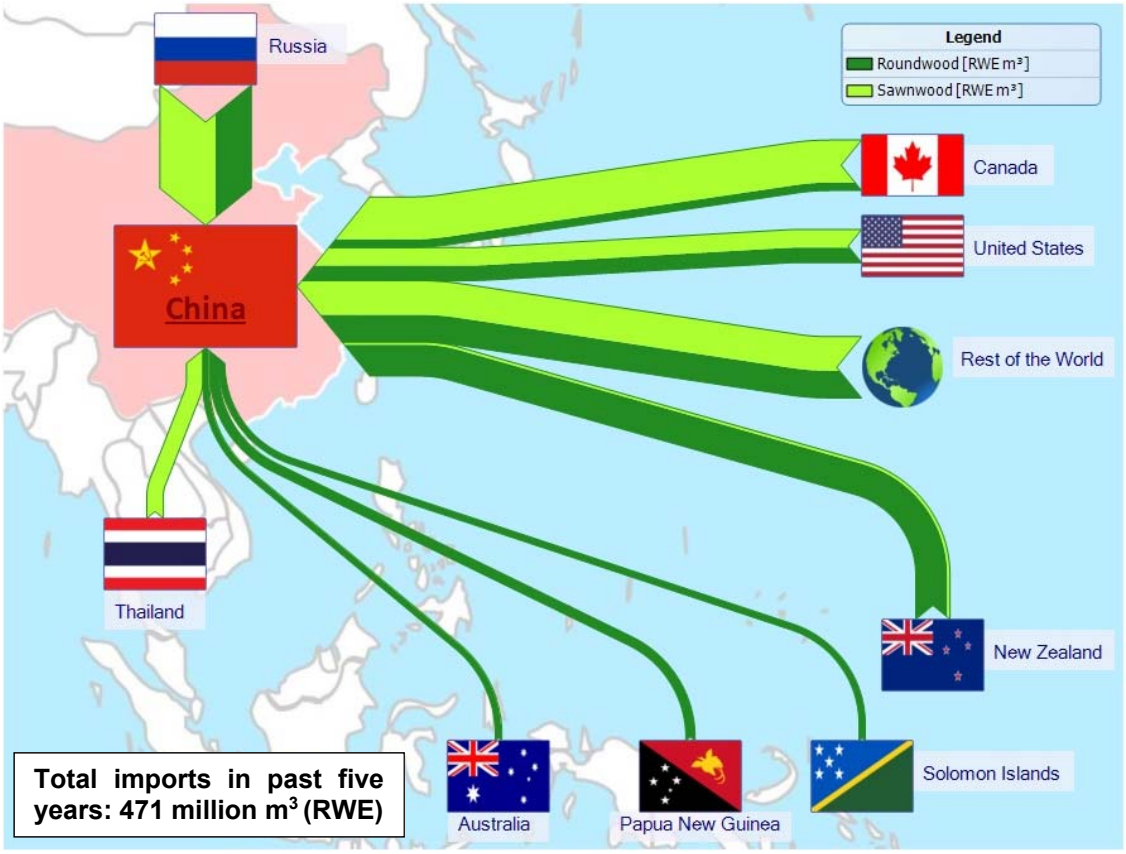
Source: Globalwood 2015

China's largest furniture exporting ports are Shenzhen, Shanghai, and Fuzhou. Together they accounted for 60% of the country's total furniture exports by value in 2014. Most plywood is exported through the ports in two provinces, Shandong (42%) and Jiangsu (25%) (Table 5.3).

For paper exports from China, Beilun, Ningbo and Shanghai are considered as the major ports. Nevertheless, it should be noted that China is one of the world's largest paper producers and the paper mills are located all around the country. This indicates that various ports are used for exporting paper from China, and it is highly likely that some of the key ports are also used for exporting wooden furniture and plywood are also used for paper exports. The same holds true regarding the exports of other timber products to the EU and other markets.

The timber trade routes between top 10 supplier countries and China is discussed in Annex 6, and the timber trade flow map given in Figure 5.1.

Figure 5.1 Timber trade flow between major supplier countries and China



Source: Global Trade Atlas

6. CHINESE AND EU POLICY MEASURES AND ILLEGAL TIMBER TRADE FLOW

6.1 Main issues

The quantity of imports of potentially illegal timber into China from the top 20 timber supplier countries increased, although the share of such timber in the country's overall timber imports decreased during the past 16 years

Between 2000 and 2015, the share of potentially illegal timber (i.e. logs and sawnwood combined) in China's total timber imports from the top 20 supplier countries was estimated to have decreased considerably: from 42% to 25%. Despite this, the actual volume of imports of such timber increased about three fold from an estimated about 7.6 million RWE m^3 in 2000 to about 22.5 million RWE m^3 in 2015. The potentially illegal timber imports followed exactly the same trend in China's overall timber imports from the top 20 supplier countries. This implies that the growth rate in the quantity of China's imports of potentially illegal timber was a lot faster than the rate of decline in the share of imports of such timber. This in turn suggests that the imports of potentially illegal timber into China from the top 20 supplier countries was dictated by the overall timber imports during the past 16 years. The overall import growth itself was propelled by the economic growth in China.

Chinese policy focus shifted towards responsible forestry practices overseas. However, the policies in question remained voluntary in nature

Since 2007, China issued a number of policies (guidelines) for responsible forestry investment overseas. These policies essentially aim to direct the Chinese enterprises operating overseas in the forestry sector to comply with relevant laws and regulations of the host country, and thus to increase legally verified timber imports by cutting the flow of illegal timber into China. However, all these policies remained voluntary in nature.

Chinese policies on responsible overseas forestry investments were found to be ineffective in cutting the imports of potentially illegal timber into China

The data and analysis do not provide any concrete evidence that these policies were effective in cutting the import flow of illegal timber imports into China. One key reason for such ineffectiveness was the voluntary nature of these policies. Indeed, these policies do not have any mandatory compliance requirements for Chinese enterprises investing overseas to extract timber. The increase in the number of Chinese SMEs in timber extraction overseas, and buying of timber by enterprises based in China from foreign and local enterprises operating in supplier countries were another important reason. These enterprises did not have financial ties with the Chinese state and were harder to regulate under those policies.

Shifting of China's sourcing of softwood and non-tropical hardwood timber from high-risk to low risk countries due to EU Policies and the US LAA. China paid a higher price per unit for importing legally verified logs than the potentially illegal one

A significant number of Chinese timber product manufacturers procured increasingly larger volumes of non-tropical timber from safer or low risk countries (concerning timber legality) in the past years. This was not only to meet the growing timber demand in China, but also to replace the imports from high risk countries. On average, China paid USD 20 more per RWE m^3 for log imported from New Zealand, the US, Canada and Australia compared to what it paid for the Russian logs since 2008. This clearly indicates that it was the US LAA (came into effect in 2008) that caused China to substitute Russian logs, not the tariff hike in Russia, and made log imports from that country suddenly more expensive. Particularly after the EUTR came into effect, China's timber imports from some EU countries, notably, Finland, Germany and France increased considerably. Much of the timber imported from these countries came from certified sources.

China's imports partially shifted away from tropical timber sourced from natural forests in high-risk countries. The shift was mainly due to increasing scarcity of tropical natural forest timber. The EU policies and the US LAA also provided incentives for this

Timber from tropical natural forests in China's leading supplier countries, particularly, PNG, the Solomon Islands, Myanmar and Mozambique, became more scarce. This was because of high rates of deforestation that continued in these countries over the past decades. The scarcity, coupled with steady demand growth for tropical timber, had been pushing the price of tropical natural forest timber high globally. Consequently, in China's imports of comparatively cheaper and safer or lower-risk (concerning legality) timber from tropical hardwood plantations particularly in Thailand increasingly substituted logs sourced from natural forests in the four countries mentioned above. This implies that the scarcity of tropical natural forest timber and resultant market factors such as increasing price were the most important drivers for China's imports of increasingly larger quantity of lower-risk or safer tropical plantation timber. The EU policies and the US LAA also provided incentives for such a shift by making it mandatory to prove the legality of timber as a pre-requisite to enter into the EU and the US markets.

Potentially illegal timber continued to enter into the EU from China through the imports of both EUTR and non-EUTR products

A significantly large quantity of potentially illegal timber entered into the EU from China, despite the decrease in share of such timber in total imports, in the past 16 years. The entry took place by importing timber products including those regulated by the EUTR. Since 2005, at least 2 million RWE m^3 of potentially illegal timber (see Section 2.4.2 for methodology) was estimated to have entered annually into EU markets from China. During the same time share of such timber decreased from 29% to 16%. Clearly, this decrease in share did not contribute to decreasing the quantity of illegal timber flow. This implies that amount of potentially illegal timber entering into the EU from China was basically determined by the total imports of timber and timber products into the former from the latter.

Partial effectiveness of EU Policies particularly the EUTR in cutting the flow of potentially illegal timber and timber products imports into the EU from China

The decline in the share of imports of potentially illegal timber and timber products into the EU from China ensured that the growth rate in the quantity of such imports was slower compared with that of overall imports earlier; particularly since 2004. This suggests that China exported an increasingly larger volume of legally verified timber to the EU as processed products. Nevertheless, the inflow of a large volume of potentially illegal timber and timber products into the EU from China continued even after the EUTR came into effect in 2013. Over 2.5 million RWE m^3 of potentially illegal timber was estimated to have entered into EU markets in 2015 through timber and timber products imports from China. This suggests that the FLEGT Action Plan, and particularly the EUTR, augmented by the US LAA, was effective only in reducing the share of potentially illegal timber imports into the EU from China, not in eliminating the total import of such products. In other words, EU policies were only partially effective in cutting illegal timber flows into the EU from China.

6.2 Chinese policies on overseas investment

6.2.1 Evolution and status of implementation of policy

Evolution

The Going Global Strategy has been an integral part of successive five-year plans of China since it was first adopted in the 11th five-year plan in 2001. The strategy primarily aims at encouraging overseas investments to enhance China's competitiveness. It also aims at supporting companies to explore resources overseas that are in short supply domestically such as timber. Consequently, the approval process for investments overseas has been simplified and decentralized by transferring the authority of approval from central government agencies to their provincial branches. For example, since 2011 it is mandatory for the designated approving

authority to examine only those overseas investments that were worth USD 100 million or more. Earlier the threshold was USD 30 million (Brack 2014).

As a result of the adoption of the strategy, China's outward foreign direct investment (OFDI) flows have increased precipitously. Between 2002 and 2014, the OFDI flows have increased about 46 times from just USD 2.5 billion to USD 114 billion (UNCTAD 2013, 2015). The overseas forestry investments, particularly in the timber sector, have increased steadily against the backdrop of China's chronic shortage of domestic timber and expansion of wood processing capacity. The number of overseas forestry investment projects increased from just eight in 2007 to 84 in July 2015 (Li and Yan 2016).

The increase in the number of overseas investment projects means that the number of failed projects has also increased. This is partly due to the fact that some investments were made in risky environments such as in countries that saw uprisings during the Arab spring. Some failure was also due to the existence of a certain degree of disorderliness in the overseas investment process of China in the past (Brack 2014). In response, the Chinese government policy has been to encourage the companies operating abroad to conduct businesses in a socially and environmentally responsible manner. The government issued a number of guidelines in succession targeting forestry investments overseas by the Chinese enterprises. These guidelines are analysed next.

Policy on responsible overseas forestry investments

The Ministry of Commerce (MofCom) and the State Forestry Administration (SFA) of China have jointly developed three guidelines for ensuring responsible overseas forestry investments by the Chinese enterprises. These are:

- The Guide on Sustainable Overseas Silviculture by Chinese Enterprises (issued in 2007)
- The Guide on Sustainable Overseas Forest Management and Utilization by Chinese Enterprises (issued in 2009)
- The Guidelines for Overseas Sustainable Forest Products Trade and Investment by Chinese Enterprises (draft published in 2014, currently under review).

Other policies that also apply to overseas forestry investments are:

- Guidelines for Environmental Protection in Foreign Investment and Cooperation (issued in 2013) jointly developed by MofCom and the Ministry of Environmental Protection (MEP)
- Green Credit Guidelines (issued in 2012) developed by the China Banking Regulatory Commission (CBRC) together with the International Finance Corporation (IFC).

The main objective of all these guidelines, except the Green Credit Guidelines, is essentially to direct the Chinese enterprises operating overseas in the forestry sector to comply with relevant laws and regulations of the country of operations. However, these guidelines are voluntary in nature without any mandatory reporting or compliance requirements on the part of enterprises (Brack 2014). Moreover, these guidelines primarily focus on the operations of the Chinese enterprises overseas, and do not regulate the operators who place timber to the Chinese market. These, coupled with the fact that China does not have any demand-side measures for excluding illegal timber from its market like the EUTR[16], means that the enterprises cannot be penalized by the Chinese government for non-compliance with the guidelines. Thus, the effective implementation of these guidelines depends on whether the enterprises are willing to self-regulate. There are no real incentives for complying with these guidelines particularly for the enterprises involved in procuring timber overseas for export to the Chinese market. This

[16] According to the regulations of the Origin of Imported-Exported Goods of China, no documents proving the legality of origin are required for importing timber into China. The Chinese Timber Legality Verification System (CTLV) which has been under development for quite some time now, may make showing such documentation mandatory. The first draft of CTLV was already published followed by a pilot study initiated by the industry. There is no date fixed for publishing the second draft or enforcing the system (de Jong et al. 2016).

means that the compliant enterprises face unfair competition from the non-compliant enterprises.

The Green Credit Guidelines (2012) aims to encourage the banks and financial institutions in China to ensure that their clients operating both in China and abroad comply with environmental and social standards including the host-country's laws and regulations. The implementation of the guidelines has so far been slow. Also, it is not clear how they can be effectively applied to the enterprises operating overseas. This is because the number of Chinese SMEs[17] is increasing with regard to overseas forestry investments. These SMEs typically do not receive any government funding or loan support from private banks (Li and Yan 2016). This means that they are harder to regulate under the Green Credit Guidelines.

6.2.2 Chinese overseas forestry investment approaches and associated timber supply chain

Chinese overseas forestry investments can be found all over the world. Much of the investments aiming to extract timber are highly concentrated in Africa, Asia, Latin America and Caribbean, and Russia. Africa has received by far the highest volume of Chinese overseas forestry investments followed by Southeast Asia and Latin America. The Russian Far East and Siberia have also been receiving a significant volume of Chinese investments in the forestry sectors; particularly since late 1990s (Brack 2014, EIA 2012). The approach of investment varies depending on the investment environment in the host countries. Nevertheless, joint ventures have been the most common approach to investments in Africa, Southeast Asia and Russia. This approach allows to circumvention of legal restrictions on foreign ownership and minimize operational risks in the host country (Brack 2014). Indufor's experience suggests that investing in Russia through establishing subsidiary companies in the country has also been common. Moreover, investing particularly in logging operations in Latin America through subsidiaries established in tax havens such as the British Virgin Islands has been reported (Brack 2014). Overview of Chinese overseas forestry investments for procuring timber is presented in Table 6.1.

[17] Usually with less than USD 10 million in registered capital.

Table 6.1 Overview of Chinese overseas forestry investments for procuring timber

Region	Key countries/region	Type of operations invested in	Type of enterprises
Africa	Gabon, Zambia, Equatorial Guinea, Liberia, Republic of Congo, Cameroon, Mozambique, Madagascar	Forest concessions, logging, sawmilling and timber trading	Large enterprises – main investors SMEs – not main investors, but number and their investment volume are increasing
Asia	Laos, Thailand and Myanmar	Logging, establishing plantations (in areas bordering China), sawmilling, pulp and paper and timber trading	Large state-owned enterprises – main investors SMEs – investments are significant, and number and their investment volume are increasing
Russia	Siberia and Russian Far East	Forest concessions (leasing), logging, sawmilling, pulp and paper, veneer and plywood, and timber trading	Large state-owned enterprises – main investors SMEs – investments are significant, and number and their investment volume are increasing
Latin America and Caribbean	Argentina, Brazil, Guyana, Peru and Venezuela,	Forest concessions, logging, sawmilling, veneer and plywood, and timber trading	Large enterprises – main investors SMEs - number and their investment volume are increasing

Source: Brack 2014, Weng et al. 2014, Krkoska and Korniyenko 2008

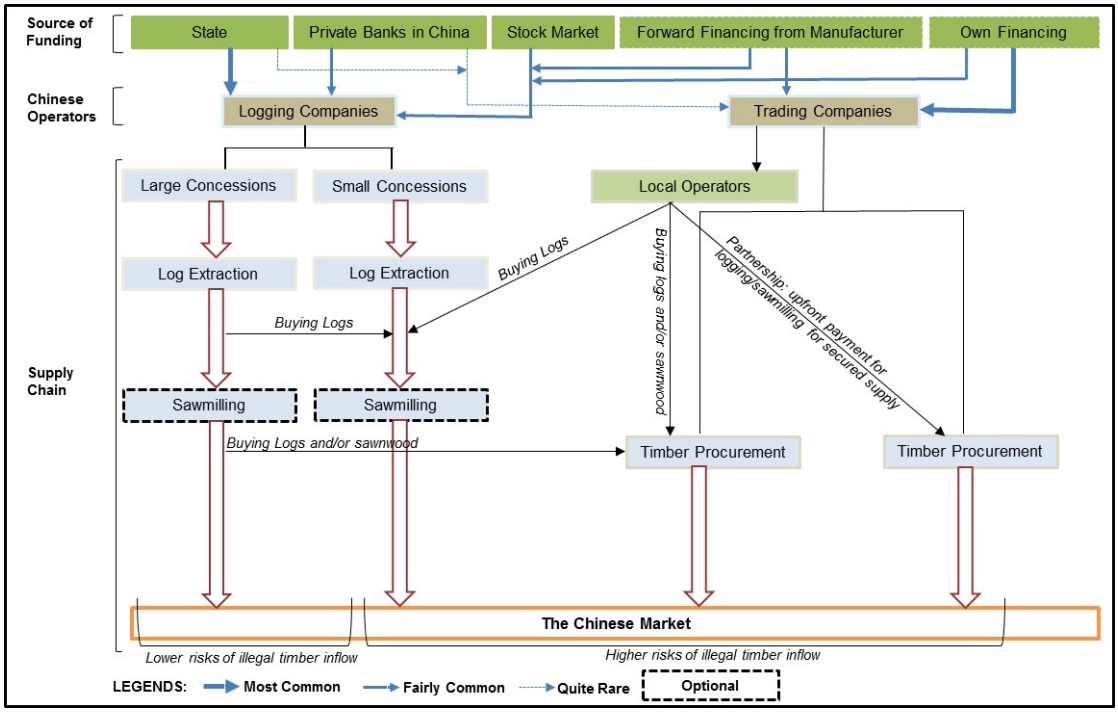
The investment approaches of Chinese enterprises for securing timber and associated supply chain leading to exports to China are rather complex with the presence of a larger number of actors and financing mechanisms (Figure 6.1). The Chinese enterprises invest overseas in timber traders as well as in upstream operations such as logging companies. State-owned enterprises, i.e. those under the national, provincial or municipal administrations, as well as large private enterprises are the key players in logging operations. These enterprises usually receive state funding as well as loans from private banks in China. Some large private companies also raise funding through the stock markets. The large enterprises often secure large forest concessions (Weng et al. 2014). The supply chains leading to the export of timber to China are simpler, compared with that of SMEs, involving log extraction and sawmilling[18] (Figure 6.1). The export of timber to China by these enterprises is less risky of being illegal for a number of reasons:

- These enterprises have financial ties with China and thus can be regulated by the Green Credit Guidelines and other guidelines on responsible overseas forestry investments. This makes them more likely to abide by the laws and regulations in the host countries than those enterprises that do not have any financial ties with China.
- They have financial resources to afford forest certification and follow other sustainability standards. For example, the Chinese operators with large forest concessions in the Congo Basin typically comply with approved forest management plans (Weng et al. 2014).
- They usually care about their reputation, and thus take measures to minimize reputational risks.

[18] Sawmilling is done especially when the host country has a log export ban or high log export tariff. For example, Chinese concessionaires have been persuaded to invest in sawmilling due to log export ban or restrictions in Cameroon and Gabon (Li and Yan 2016), and higher export tariff on log export in Russia (Krkoska and Korniyenko 2008).

- They usually extract timber in large enough quantities to make a profit from each shipment to China and do not need to buy timber from outside sources such as small local operators (see Figure 6.1).

Figure 6.1 Chinese overseas investment approaches for securing timber and related supply chains



The small logging enterprises (usually holding <5000 ha of concessions) often cannot produce a large enough volume from the forests they control to make a profitable shipment to China. Thus, they buy timber not only from large concessionaires but also from local small and large-scale operators. Traders also buy timber from these sources (Figure 6.1). The export of timber by small logging enterprises and traders is at greater risk of being illegal than exports by large logging enterprises for a number of reasons as explained below:

- Buying from the local operators enhances the risk illegality of timber exported to China as they often work informally and are less likely to comply with host-country laws and regulations. In fact, illegal practices such as abuse of permits, bribery, falsification of species on transport permits and customs declaration, and misreported volume by local operators (be small or large)[19] are quite common in Africa (see Weng et al. 2014), Southeast Asia and Russia (EIA 2012).
- They do not typically receive any state funding or loans from private banks[20] meaning they do not have any financial ties with the Chinese government and banks, and thus are less likely to comply with responsible overseas investment guidelines.
- Many logging and trading enterprises also receive up-front financing from wood processing companies in China. This adds to the risks of increasing illegal timber flow into

[19] Some foreign operators also do such illegal practices.

[20] They have their own source of funding, for example, from personal savings and loan from family (Weng et al. 2014).

China as enterprises are then bound to supply the agreed amount of timber to the companies within a given time frame.

- Applying sustainability standards such as forest certification is costly for them.

6.2.3 Level of potentially illegal timber imports into China and effectiveness of Chinese policies in stopping it

Level of Potentially Illegal Timber Imports

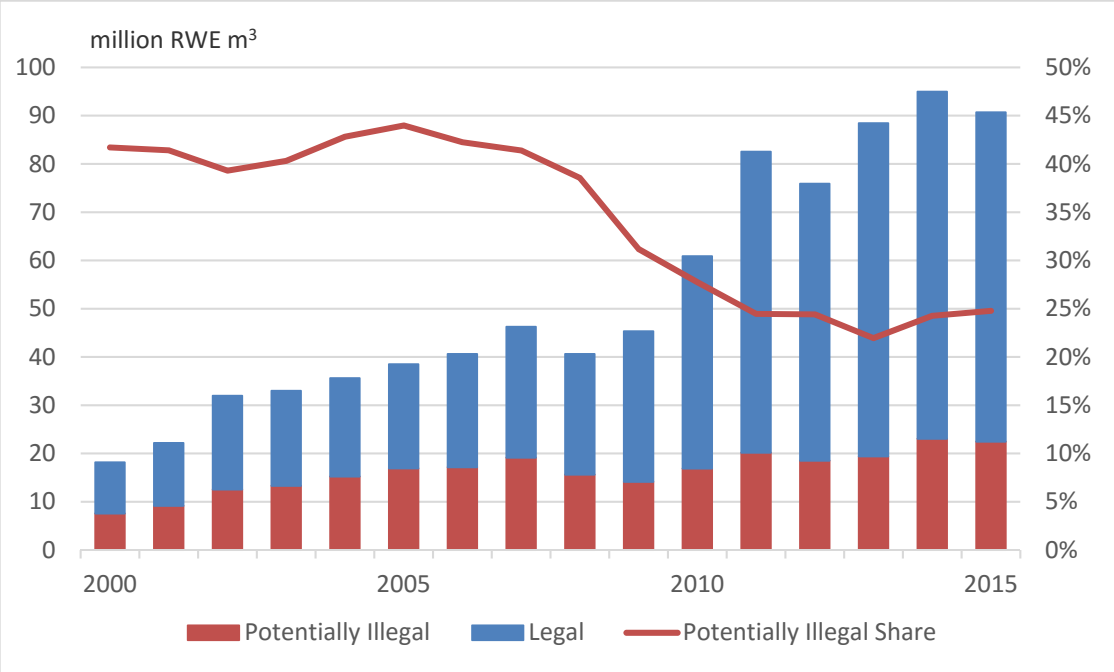
The share of potentially illegal timber (i.e. logs and sawnwood combined) in China's total timber imports from top 20 timber supplier countries[21] decreased considerably both in terms of volume (Figure 6.2) and value (Annex 7). The share in question decreased from 42% in 2000 to 25% in 2015 in terms of volume. Similar declining trend was reported by a Chatham House assessment carried out by Wellesley (2014) on China's illegal timber imports from 2000 to 2013.

Despite the decline in share, the volume (Figure 6.2) and value (Annex 7) of potentially illegal timber imports into China showed an overall increasing trend over the past 16 years. The amount of such imports was estimated to be about 7.6 million RWE m^3 in 2000, which increased to reach a peak of just over 23 million RWE m^3 in 2014 and then declined slightly to about 22.5 million RWE m^3 in 2015. It can be noted here that the level of potential illegal timber imports also decreased in 2008, 2009 and 2012 compared with the respective previous years. Such drops were visible in the potential illegal imports of different types of timber – softwood, tropical and non-tropical hardwood (Figure 6.5). These drops coincided with the decrease in China's total timber imports owing to comparatively slow economic growth in those years (recall discussion in Chapter 3). Indeed, as Figure 6.2 clearly demonstrates, between 2000 and 2015, the imports of potentially illegal timber into China from top 20 supplier countries followed the exactly same trend as the overall timber imports of the country. This suggests that during the period mentioned above the growth in the volume of potentially illegal timber imports was driven by the growth in the volume of China's overall timber imports.

The dramatic increase of the imports of both logs and sawnwood of softwood and non-tropical hardwood species from Russia, a high risk country, was the main reason for the increasing amount of imports of potentially illegal timber by China. A rapid increase in tropical hardwood log imports from PNG, the Solomon Islands and Myanmar, all high-risk countries included in the top 20, also contributed to this.

[21] Over 90% of China's timber import came from these countries in the past 16 years. Recall discussion in Section 3.2.

Figure 6.2 Level of legal and potentially illegal timber import into China from top 20 timber supplier countries (volume)



Source: Indufor analysis based on Global Trade Atlas data

Level of Legal Timber Imports

The volume of legal timber imports into China from top 20 supplier countries grew substantially from an estimated 10.6 million RWE m^3 in 2000 to 68.2 million RWE m^3 in 2015. The growth in legal timber imports was faster than that in overall timber imports both in terms of value and volume. This was attributed to the fact that with the declining share, the growth in volume of potentially illegal timber imports was less than that in overall timber imports. Indeed, between 2000 and 2015, overall timber imports and potential illegal timber imports increased fivefold and threefold, respectively, in terms of volume (Figure 6.2).

Effectiveness of Policy on Chinese Overseas Forestry Investments

During the first half of the past 16 years (i.e. 2000 – 2007), as discussed earlier in this Chapter, there was no significant decrease in the share of China's imports of potentially illegal timber from top 20 supplier countries. Rather, the volume of imports of potentially illegal timber increased steadily (Figure 6.2).

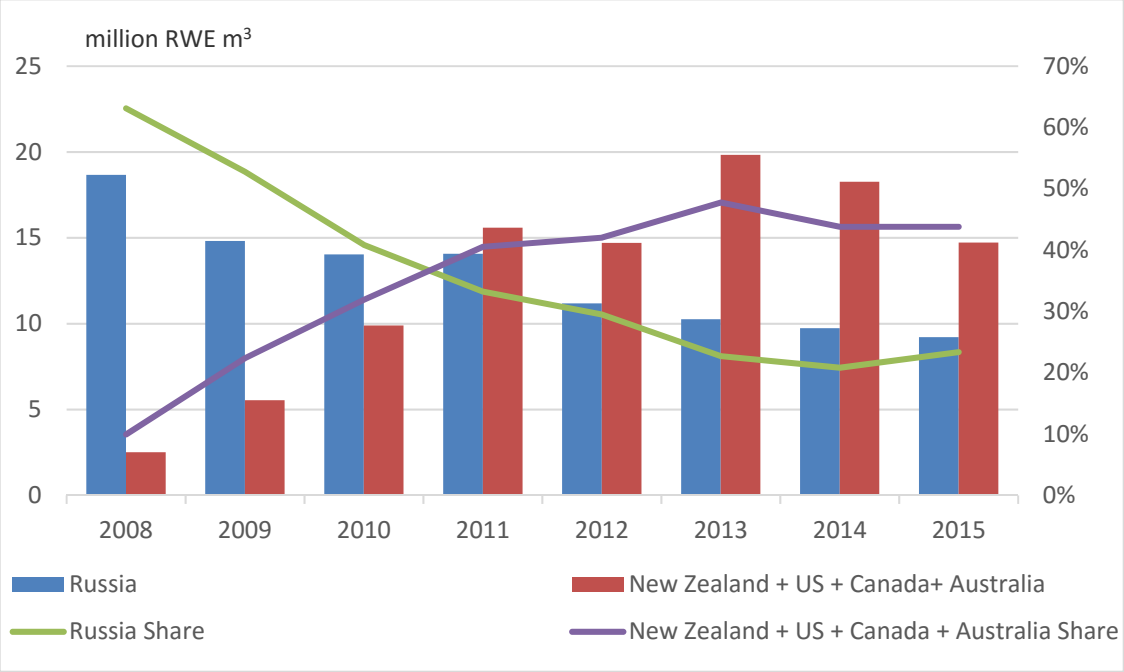
This steady increase in the imports of potentially illegal timber between 2000 and 2007 is no surprise as the period was marked by the absence of any Chinese policy on responsible overseas forestry investments. Indeed, the first one of them, i.e. guide on Sustainable Overseas Silviculture by Chinese Enterprises was issued only in late (27 August) 2007. There were no demand-side measures either to stop illegal timber trade flow taken by China's major timber product export markets such as the US and the EU. The US LAA came into effect in 2008, while EUTR did so in 2013. Also the EU signed the first ever VPA with Ghana in 2009 even though the FLEGT Action Plan was introduced in 2003. In addition, the presence of a degree of disorderliness in overseas forestry investment projects by Chinese enterprises following the adoption of the Going Global Strategy might have also provided an impetus for importing timber from high-risk countries at in increasingly larger volume.

Between 2008 and 2013, the share of potentially illegal timber imports decreased considerably from 39% to 22% (Figure 6.2). By looking at the timing of the decrease in such share, one might

think that the Chinese policy on responsible forestry investment issued in late 2007 started to take the intended effects. However, the actual reasons were most probably unrelated to the Chinese policies in question. The reasons are explained below.

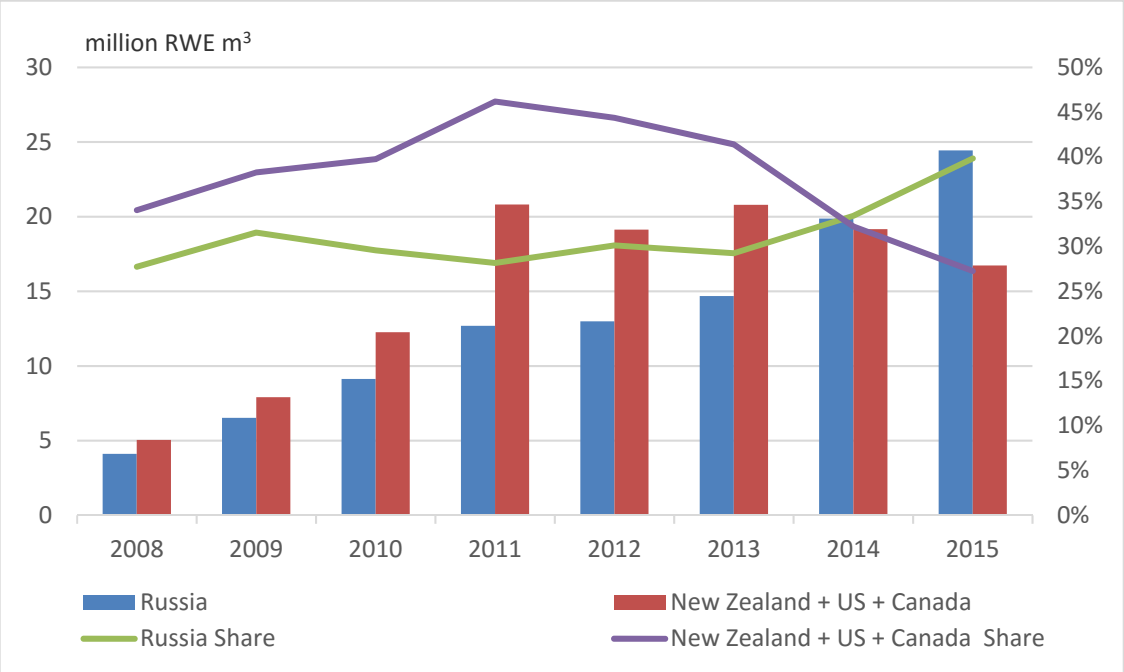
First, the hike in log export tariffs by the Russian government in 2008 suddenly made log imports from Russia more expensive (recall Section 3.3.2). Second, the LAA in the US imposed in 2008 made it mandatory to prove the legality of timber used in processed products before entering into the US, the biggest export market of China for such products. These two factors caused many Chinese timber processing enterprises to reduce log imports from Russia. Instead, they started to import more logs from safe countries (in terms of timber legality), most notably, New Zealand, the US, Canada and Australia. As Figure 6.3 demonstrates, between 2008 and 2013 the log imports from Russia decreased considerably while from safe countries increased. The sawnwood imports from particularly New Zealand, the US and Canada also increased considerably during this period (Figure 6.4).

Figure 6.3 China log imports from high risk and safer countries since Russian log export tariff hike and the US LAA



Source: Global Trade Atlas

Figure 6.4 China sawnwood imports from high risk and safer countries since Russian log export tariff hike and the US LAA



Source: Global Trade Atlas

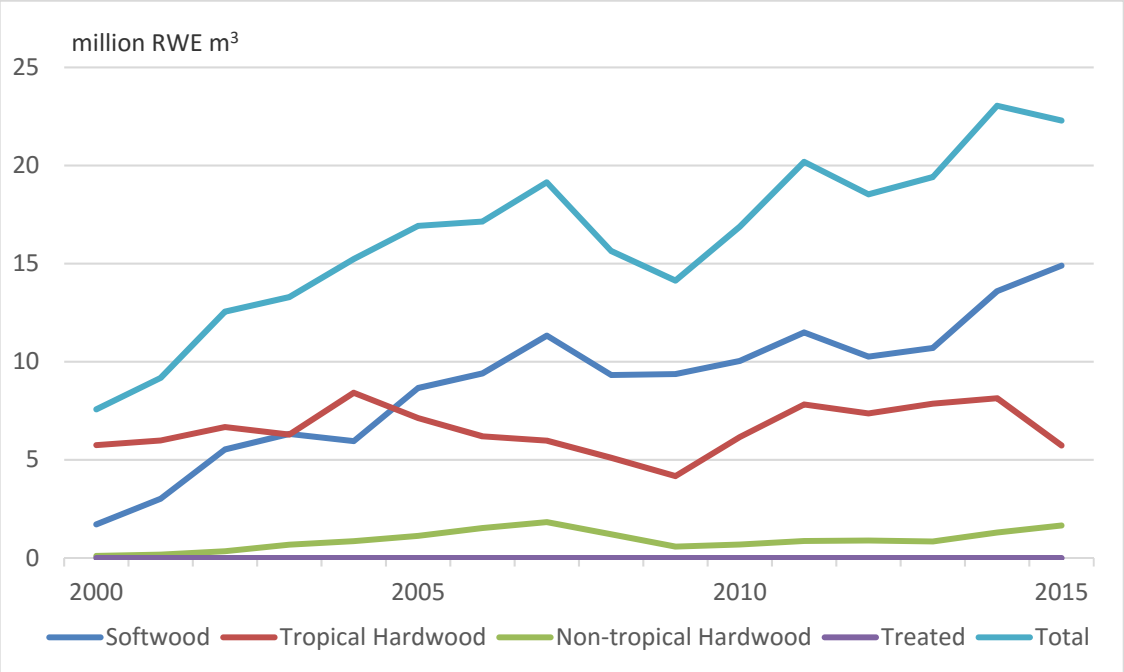
The slight increase in the share of potentially illegal timber imports into China[22] from the top 20 supplier countries during 2014 – 2015 (Figure 6.2) points further to the ineffectiveness of the Chinese policies on responsible overseas forestry investments. The ineffectiveness of these policies can also be evidenced by the generally increasing trend of total volume of imports[23] of potentially illegal timber to China.

The imports of potentially illegal softwood and non-tropical hardwood from the top 20 supplier countries followed an overall increasing trend between 2008 and 2015, (Figure 6.5). This corresponded to increasing imports of sawnwood (Figure 6.4) particularly from Russia. This suggests the ineffectiveness of the Chinese overseas forestry investment policies in cutting the imports of potentially illegal softwood and non-tropical hardwood. Rather the increasing trend of potentially illegal timber imports also reflected the increase in the number of Chinese SMEs and expansion of their investment volume in logging and sawmilling operations in Russia. These SMEs typically do not have any financial ties with the Chinese state and thus harder to regulate under Chinese policies on overseas forestry investments.

[22] This can be explained by two facts. First, a sharp decline in log import quantity from the four safe countries (i.e. New Zealand, Australia, the US and Canada) compared with just a modest decline in imports from Russia. As a result, Russia's share in China's overall log imports increased, while the share of those four countries declined sharply in 2014 – 2015 (Figure 6.3). Second, during the same period, the volume of sawnwood imports from Russia increased steadily, while the combined imports of that product from Canada, New Zealand and the US decreased (Figure 6.4). These meant that the share of timber from high-risk Russia increased while from safe countries decreased, and naturally the share of potentially illegal timber imports increased.

[23] The noticeable decreases in the imports of potentially illegal timber into China in 2009, 2012 and 2015 compared with the respective previous years were due to decrease in China's total timber imports owing to comparatively slow economic growth in those years as discussed earlier in this report. The Chinese policies on responsible overseas forestry investments most probably did not have any do with such decreases.

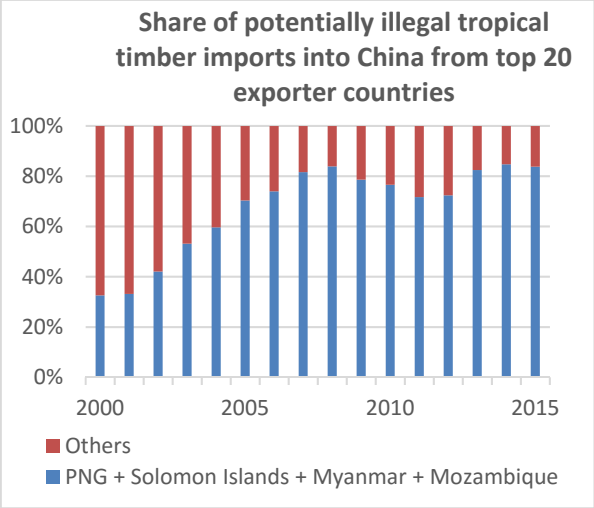
Figure 6.5 Breakdown of potentially illegal timber imports from top 20 exporter countries by timber types (volume)



Source: Global Trade Atlas data

The imports of potentially illegal tropical hardwood timber also followed the same trend as the overall imports of potentially illegal timber into China from the top 20 exporter countries between 2008 and 2014, (Figure 6.5). This is further evidence that the Chinese overseas forestry investment policies had been ineffective in cutting the flow of potentially illegal timber imports into China. The flow level dropped in 2015, but it was not due to the Chinese policies (see Box 6.1).

Box 6.1 Imports of potentially illegal tropical hardwood timber into China



Source: Indufor Analysis based on Global Trade Atlas Data

The imports of potentially illegal tropical hardwood timber were estimated to have increased from about 5 million RWE m^3 in 2008 to over 8 million RWE m^3 in 2014 before falling to about 6 million RWE m^3 in 2015 (Figure 6.5). The increase in imports of such timber during the period mentioned above were linked to increasing log imports particularly from PNG, Solomon Islands, Myanmar and Mozambique. Illegal logging is thought to be a real problem in these countries as reported by the Illegal Logging Portal of the Chatham House (www.illegal-logging.info). As the graph above demonstrates, on average about 80% of China's imports of potentially illegal tropical timber from top 20 timber supplier came from these four countries since 2008.

It can be noted here that PNG, the Solomon Islands and Myanmar are just in the pre-negotiation phase of the FLEGT VPA process, while Mozambique is not even a VPA country. This means FLEGT VPA had not been in a position to cut the illegal timber imports from these four countries during the period of analysis.

It can also be noted here that the share of imports of potentially illegal timber from Indonesia, Malaysia and Thailand, all which are in the advanced phases of FLEGT VPA process, had been decreasing since 2000. The cases of Indonesia and Malaysia were due to decreasing overall timber imports, and increasing the quantity of imports of plantation timber - which is usually considered lower risk or safer of being illegal. As a result of Indonesia's complete log export ban in 2001 and partial sawnwood export ban in 2003, China's overall timber imports from the country had been in decline. On the other hand, Malaysia reduced timber exports due to an overall decrease in tropical forest resources in the country (Yanjie et al. 2012). However, the area of tropical hardwood plantations expanded considerably in both countries in the past few decades due to different government incentive programs (Barua et al. 2014). Consequently, the timber supply from plantations increased, leading to more plantation timber being exported. In the case of Thailand, increasing imports consisted mainly of sawnwood of two species, rubber and eucalyptus. These two species are typically grown in plantations and not usually the target for illegal logging (see Footnote 24). Thus, timber of these species are considered to be of low risks concerning legality.

The drop in potentially illegal tropical timber imports in 2015 corresponded to the decrease in China's imports of all timber in general, and tropical timber, in particular, following slowing economic growth. The decrease of log imports from the high-risk countries concerning timber legality such as PNG, the Solomon Islands, Mozambique, and Myanmar greatly contributed to that drop. The decrease in imports from Myanmar attributed to log export ban imposed in 2014. The reduction in imports from PNG, the Solomon Islands and Mozambique was most probably due to raising global concern for unsustainable logging practices and conserving tropical forests there. Indeed, the forest area in these countries reduced considerably in the past 10 years (Table 6.2), and logging was one of the main reasons for that. In 2014 – 2015, the decline of timber imports from these high-risk countries was compensated by increasing the imports of lower-risk or safer timber sourced from plantations in Thailand and forests in Cameroon.

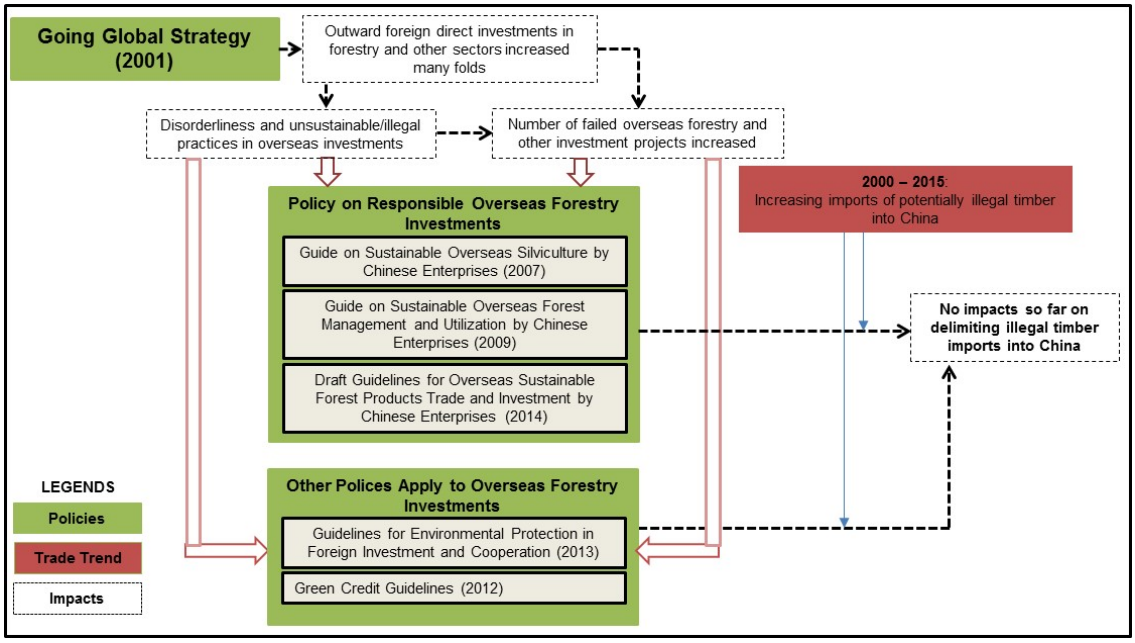
As transpired in the analysis above and illustrated in Figure 6.6, there was no evidence whether the Chinese policies on responsible overseas forestry investments had any effects on curbing the imports of potentially illegal timber into China from the top 20 timber supplier countries during the past 16 years. It is true that the State Forestry Administration (SFA) started piloting the guidelines by training Chinese overseas enterprises in Russia and a number of African countries. However, the independent investigations by, for example, Environmental Investigation Agency (EIA) (2013) and WWF (Smirnov et al. 2013) suggested that illegal behaviour by the Chinese enterprises in Russia remains widespread. Another investigation by EIA (2014) revealed that one Chinese company operating in Mozambique got engaged in exporting illegal logs to China just one month after its representatives attended a guideline training. The voluntary nature of these policies without any mandatory reporting requirements for Chinese enterprises investing overseas was certainly a key reason for such ineffectiveness. The increasing number of SMEs in forestry operations overseas, which are harder to regulated under any Chinese policies due to lack of financial ties with the state, was another important reason. Also one has to remember that a significant portion of China's timber imports was supplied by foreign and local enterprises operating in the exporting countries. These enterprises do not fall under the jurisdiction of any Chinese laws or policies.

Table 6.2 Deforestation in China's leading tropical timber supplier countries

Country	Total Forest Area in 2015	Net forest loss	
		2005 - 2010	2010 - 2015
		million ha	
Mozambique	37.94	1.11	1.03
Myanmar	29.04	1.55	2.73
Papua New Guinea	33.56	2.75*	2.75*
Solomon Island	2.19	0.03	0.03

Source: FAO 2015; * primary forests

Figure 6.6 Effectiveness of Chinese policies on cutting illegal timber imports



6.3 EU Policies – FLEGT VPA and EUTR

6.3.1 Status of implementation

Background

The EU introduced the FLEGT Action Plan in 2003. It consists of two components, (i) FLEGT VPA, and (ii) EUTR. FLEGT VPAs are bilateral agreements between the timber producer countries and EU. VPAs establish control and licensing procedures in producer countries, i.e. VPA Partner Countries, for exporting legal timber and timber products to the EU markets, and thus are a supply-side measure. The EUTR introduced in 2010 and came into full effect in March 2013 requires the importers in the EU to produce adequate documentation for proving legality of imported products. Thus the EUTR is a demand-side measure.

FLEGT VPA

Each country entering into a VPA, designs and develops, with the assistance from EU, its own legality assurance system (LAS) based on its existing control mechanism and legislative framework. The system includes verifications of forest operations, control of timber transport, verification of supply chain control, and procedure for issuing FLEGT License to timber by a national authority and independent monitoring. FLEGT licensed timber is granted access to EU markets. VPAs are voluntary at first, but become legally binding once ratified (EU FLEGT Facility 2015). The product scope of VPAs primarily includes logs, sawnwood, plywood and veneer. However, other timber products can also be added.

As of now 26 timber producer countries are engaged in the VPA process[24], i.e. VPA partner countries. Only six partner countries have so far signed a VPA. In addition, nine more countries entered into VPA negotiations between 2007 and 2014 (Table 6.3). No new countries have been admitted to the VPA negotiation since 2014. This reflects the fact that the EU wants to focus on the significant challenges emerging with the implementation in six signed VPA countries and to get VPAs signed with the nine negotiating countries. All six signed VPA countries have ratified their respective VPAs and are currently developing the systems needed to control, verify and license legal timber. This implies that the first shipment of FLEGT licensed timber is yet to arrive in Europe.

Although the primary scope of VPAs is the exports to the EU, the partner countries are free to include the domestic timber market and export to non-EU countries in the scope. Indeed, the six countries that signed a VPA have included the export to non-EU countries in the scope of their respective VPAs (EU FLEGT Facility 2016). The other VPA partner countries have expressed their interest to follow the suit of these six countries (according to the Evaluation of the EU FLEGT Action Plan[25]). In any case, as implementing VPAs involve improving regulation and governance of the forest sector in the partner countries, they have the potential to stop illegal logging and promoting exports of legal timber and timber products to non-EU countries including China as well.

[24] A VPA processes consists of four phases: pre-negotiation, negotiation, ratification and implementation. In the pre-negotiation phase a timber producer country, in consultation with national stakeholders (i.e. government, private sector and civil society) decides whether to pursue a VPA. A positive decision in the pre-negotiation phase leads to negotiations within and among national stakeholders, and between the national government and EU to define the contents of VPA. The ratification process formalizes a VPA and marks the formal beginning of the implementation phase.

[25] Done by Terra, S-FOR-S and TOPPERSPECTIVE (2016).

Table 6.3 Status of FLEGT VPA implementation

Phases of FLEGT VPA Process	Countries (year of achievement)
Signed VPA	Ghana (2009), Cameroon (2010), the Republic of Congo (2010), Central African Republic (2011) Liberia (2011) and Indonesia (2013)
Negotiation	Malaysia (2007), Vietnam (2010), Democratic Republic of Congo (2010), Gabon (2010), Guyana (2012), Honduras (2012), Ivory Coast (2013), Laos (2013) and Thailand (2013)
Preparing for Negotiation	Cambodia and Myanmar
Pre-negotiation	Bolivia, Colombia, Ecuador, Guatemala, Papua New Guinea, Peru, Philippines, Sierra Leone and the Solomon Islands

Source: EU FLEGT Facility 2016

EUTR

EUTR aims at the demand side by requiring the operators within EU to produce adequate documentation for proving legality of imported products. An operator has to fulfil prohibition, due diligence system and traceability obligation requirements to prove the legality of imported timber. Each EU Member State is responsible for controlling the legality of its import by designating a competent authority (CA) with responsibility to enforce EUTR. The EUTR covers the products already included under FLEGT VPA as well as a range of other processed timber products. Naturally timber and timber products covered by FLEGT licenses are considered to meet the EUTR requirements. The same is true for the products covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) permits. Third party certification (such as by FSC and PEFC) may be considered as another way of fulfilling the EUTR requirements (Overdevest and Zeitlin 2014).

According to the Evaluation of the EU FLEGT Action Plan (Terra, S-FOR-S and TOPPERSPECTIVE 2016) and EUTR Review (EC 2016), the overall level of implementation of EUTR has been perceived as slow and uneven. There are clear differences regarding EUTR implementation between front-runner EU Member States and the slow followers. While some member countries (such as Finland, France, Germany, the Netherlands, Sweden and UK) have progressed in fulfilling the obligations of EUTR, four member countries (Spain, Hungary, Greece and Romania) as of mid-2015 did not have adequate regulations in place for EUTR implementation. Insufficient resources allocated to CAs has been a major challenge for EUTR implementation. Austerity measures taken in a number of Member States means that they are unwilling or unable to allocate sufficient resources. Difference in regulations supporting implementation and in understanding of EUTR across the Member States also add to the challenge (EC 2016). Indeed, many member states have deliberately taken time in introducing necessary legislations. This has acted as grace period that has allowed to build understanding both in government agencies and timber trade of practical steps for effective implementation. Some member states such as the Netherland and Sweden are, however, moving into the effective implementation phase already by starting to take actions against non-compliant operators (Saunders 2016).

EU-China Bilateral Coordination Mechanism (BCM) on FLEG

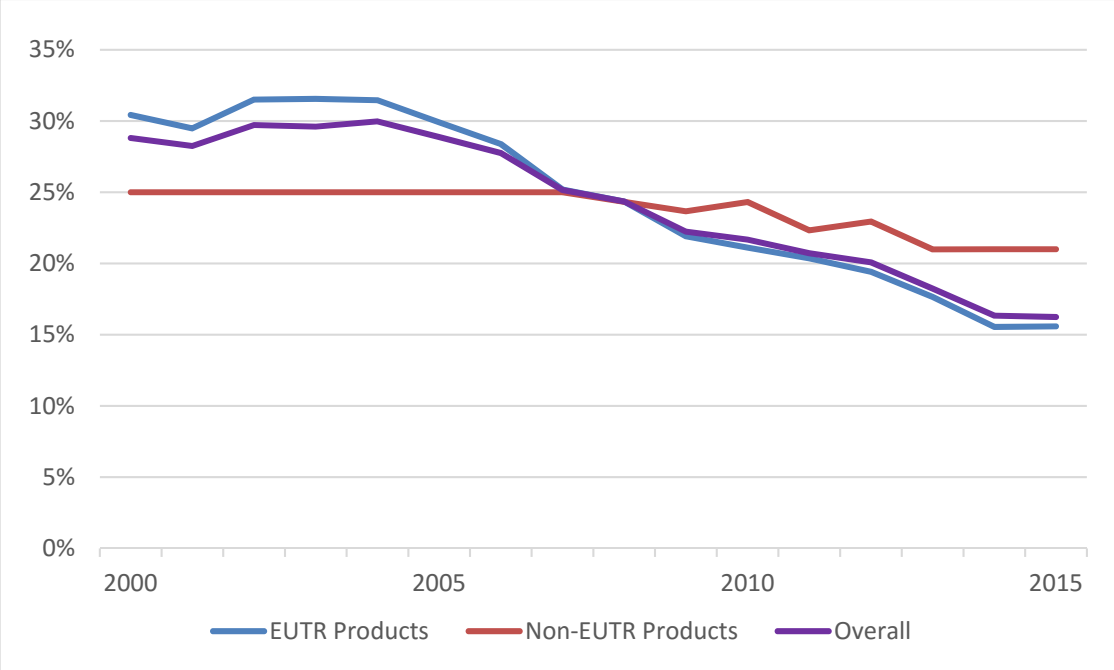
The EU and China established a BCM on FLEG in 2007. It is a policy dialogue forum for sharing information on the respective policy and legal frameworks with the EU Member States participating in the mechanism. Under this mechanism, the EU works together with China in countries in Southeast Asia, Africa and Russia to help eliminate illegal logging through combining capacity building with demand-side measures (EU FLEGT Facility 2016). For example, recently both parties have agreed to conduct joint studies on timber supply chains from the Russian Far East and Myanmar (Terra, S-FOR-S and TOPPERSPECTIVE 2016). However, this mechanism does not impose any concrete action on cutting illegal timber flow.

6.3.2 Level of potentially illegal timber and timber products imports into EU and effectiveness of EU policies on tackling it

Level of Potentially Illegal Timber and Timber Products Imports

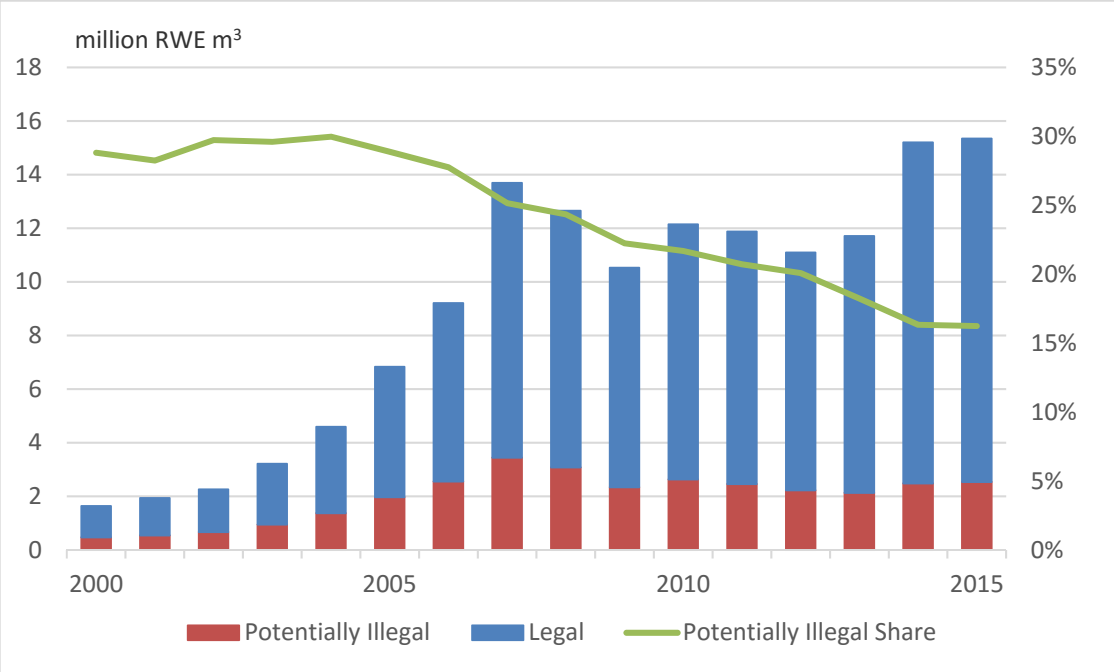
The share of potentially illegal products of the total EU timber and timber products imports from China decreased considerably both in terms of volume (Figure 6.7) and value (Annex 8). The share for all products included in the study decreased from 28% in 2000 to 16% in 2015 in terms of volume. The decline was sharper for the EUTR products than the non-EUTR products. The potentially illegal products in EU's total imports of EUTR products was estimated to constitute 15.5% in 2015 down from the peak of 31.5% in 2004. The share in question for the non-EUTR products remained rather stable at 25% during 2000 – 2007 before gradually declining to 21% in 2015.

Figure 6.7 Shares of potentially illegal timber and timber products imports into EU from China by product category (volume)



Source: Indufor analysis based on Global Trade Atlas data

Figure 6.8 Level of potentially illegal timber and timber products import into EU from China (volume)



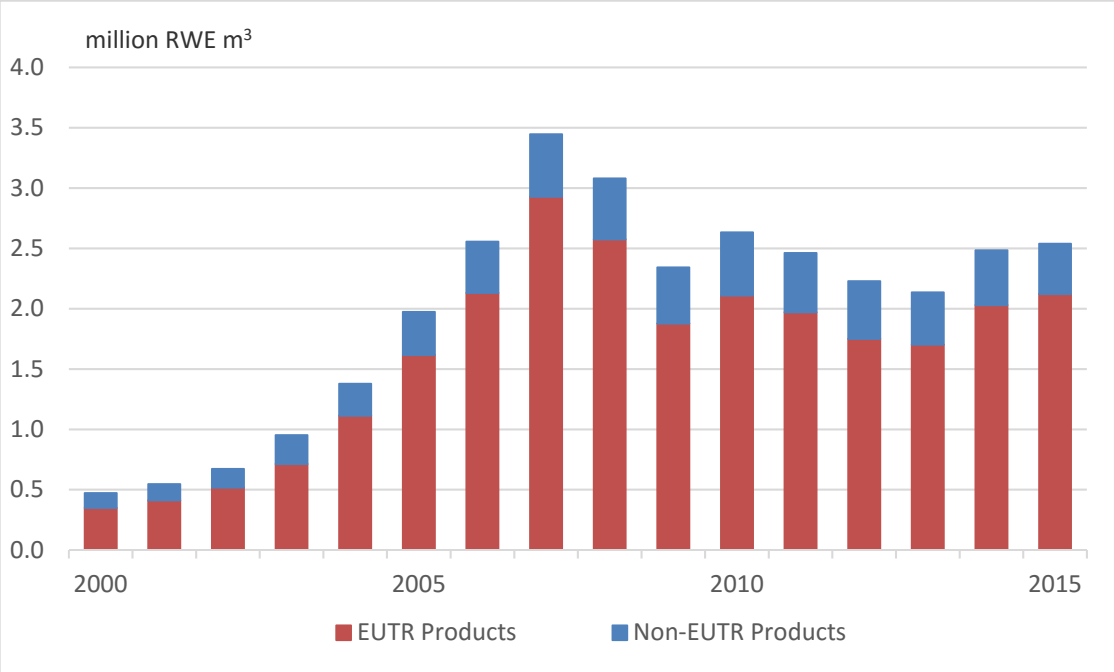
Source: Indufor analysis based on Global Trade Atlas data

The steady decline in share was not translated into a decrease in volume (Figure 6.8) and value (Annex 8) of potentially illegal timber and timber products imports. Rather the imports of potentially illegal timber and timber products generally followed the trend of overall imports of into EU from China during the past 16 years. The volume of such imports increased steadily from an estimated just over 0.5 million RWE m^3 in 2000 to peak at 3.4 million RWE m^3 in 2007, then started to decline to reach about 2 million RWE m^3 in 2013 before increasing slightly to reach 2.5 million RWE m^3 in 2015. The steady decline in the share of imports of potentially illegal products ensured that the growth in imports of such products increasingly fell behind that in overall imports. As a results, the imports of potentially illegal products peaked lot earlier in 2007 than the overall imports did in 2015.

EUTR products constituted the majority share of imports of potentially illegal products (Figure 6.9). This corresponded to highly skewed distribution of the total EU timber and timber products imports from China towards the EUTR products (as discussed in Chapter 4). The UK, the Netherlands, Germany, France and Belgium were the top five recipients inside the EU of potentially illegal timber and timber products imports from China in the last five years, i.e. 2011 – 2015 (Table 6.4). This is unsurprising as these countries were the top importers among EU member states of Chinese timber and timber products during the same period.

Among the EUTR products, potentially illegal imports mostly came as wooden furniture and plywood (see also Box 6.2) to those top five countries as well as to the whole EU; especially in the last five years. This reflected the fact that these two products dominated EU's imports of EUTR products from China. Regarding the potentially illegal product imports on non-EUTR category, printed media dominated (Table 6.1). This was not only due to the fact that printed media constituted the single largest share in EU's import of non-EUTR products, but also the possibility of mixing legal timber with illegal one while manufacturing these products.

Figure 6.9 Breakdown of potentially illegal wood product imports into EU from China by product types (volume)



Source: Indufor analysis based on Global Trade Atlas data

Table 6.4 Level of potentially illegal wood products imports from China into top 5 EU Member States in last five years

Country	EUTR Products		Non-EUTR Products	
	Total potentially illegal	Key products (Share in total)	Total potentially illegal	Key products (Share in total)
UK	2.90 million RWE m3	Wooden furniture (29%) Plywood (27%) Paper (20%)	0.70 million RWE m3	Printed media (76%) Products of CH 44 not included in EUTR26 (13%) Wood charcoal (4%)
Netherlands	1.69 million RWE m3	Plywood (49%) Wooden furniture (10%) Veneer (8%)	0.22 million RWE m3	Printed media (51%) Products of CH 44 not included in EUTR (40%) Filament tow, fibre, yarn & fabrics (3%)
Germany	1.05 million RWE m3	Wooden furniture (47%) Plywood (16%) Paper (16%)	0.41 million RWE m3	Printed media (51%) Products of CH 44 not included in EUTR (33%) Filament tow, fibre, yarn & fabrics (12%)
France	0.85 million RWE m3	Wooden furniture (52%) Plywood (14%) Paper (12%)	0.23 million RWE m3	Printed media (62%) Products of CH 44 not included in EUTR (25%) Filament tow, fibre, yarn & fabrics (5%)
Belgium	0.55 million RWE m3	Plywood (32%) Joinery (27%) Wooden furniture (18%)	0.10 million RWE m3	Printed media (44%) Famine hygiene products (21%) Products of CH 44 not included in EUTR (19%)

Source: Indufor analysis based on Global Trade Atlas data

Box 6.2 Suspicious plywood imports into the UK from China

Plywood is an intermediate product consisting often of veneers of several tree species in the face and core layers. This means a single sheet of plywood can have timber coming from different sources and various countries. In other words, the timber supply chain of the plywood industry can be long and complex. The Regulatory Delivery, the EUTR enforcement authority of the UK, recently carried out an investigation on some leading companies that together constitute about 10% of the country's total annual plywood imports. The companies came under scrutiny as they did not fulfil their due diligence requirements imposed under the EUTR. The investigation aimed to identify the species used in sample of plywood imported from China by these companies. It was found that about 70% of the plywood products tested did not match with the species declaration obtained from the companies in question. The investigation concluded that plywood imported from China should be considered a high risk product for the UK.

Source: Pillet and Sawyer 2015

[26] There includes wood wool and wood flour, tools, tool bodies, tool handles etc., tableware and kitchenware, wood marquetry and ornaments etc. and other unspecified articles of wood (see Annex 3 for HS codes).

Level of Legal Timber Imports

The volume of imports of legal timber and timber products into EU from China grew considerably from an estimated 1.1 million RWE m^3 in 2000 to 12.8 million RWE m^3 in 2015. The growth in legal timber imports was faster than that in overall imports both in terms of value and volume. This was attributed to the fact that with the declining share, the growth in the volume of potentially illegal timber imports was less than that in total timber imports (Figure 6.8).

Effectiveness of EU policies

The steady decline in the share of imports of potentially illegal timber and timber products, and slower growth in the volume of such imports compared with overall imports generally reflected the rising awareness within the EU of illegal logging and associated trade following the introduction of the EU FLEGT Action Plan in 2003. For example, the buyers in the EU's leading importers such as the UK, the Netherlands, France, Germany and Belgium have been making increasing efforts to source legally verified timber and timber products from abroad (Brack 2014). Moreover, it is confirmed by the EU FLEGT Action Plan evaluation (2016) that the action plan has been effective in terms of raising awareness of the problem of illegal logging, contributing to improved forest governance globally and particularly in partner producer countries. The action plan has helped reduce demand for illegal timber in the EU.

The policies of other consumer countries to eliminate illegal timber trade particularly the US LAA 2008 also contributed to the declining share of potentially illegal timber and timber product imports into the EU from China. The US has been the single biggest market for China's timber and timber products exports (Forest Trends 2015). Naturally the LAA had high leverage to delimit China's exports of potentially illegal timber and timber products not only to the US, but also to other markets such as EU where there is a concern for illegal timber trade. The leverage came through the fact that the LAA made many Chinese manufacturers to switch to procure timber and other raw materials from legally verified sources to have continued access to the US markets. As a considerable number of these manufacturers also supply timber and timber products to the EU markets, there was a positive spill-over effect of the LAA on EU's imports from China.

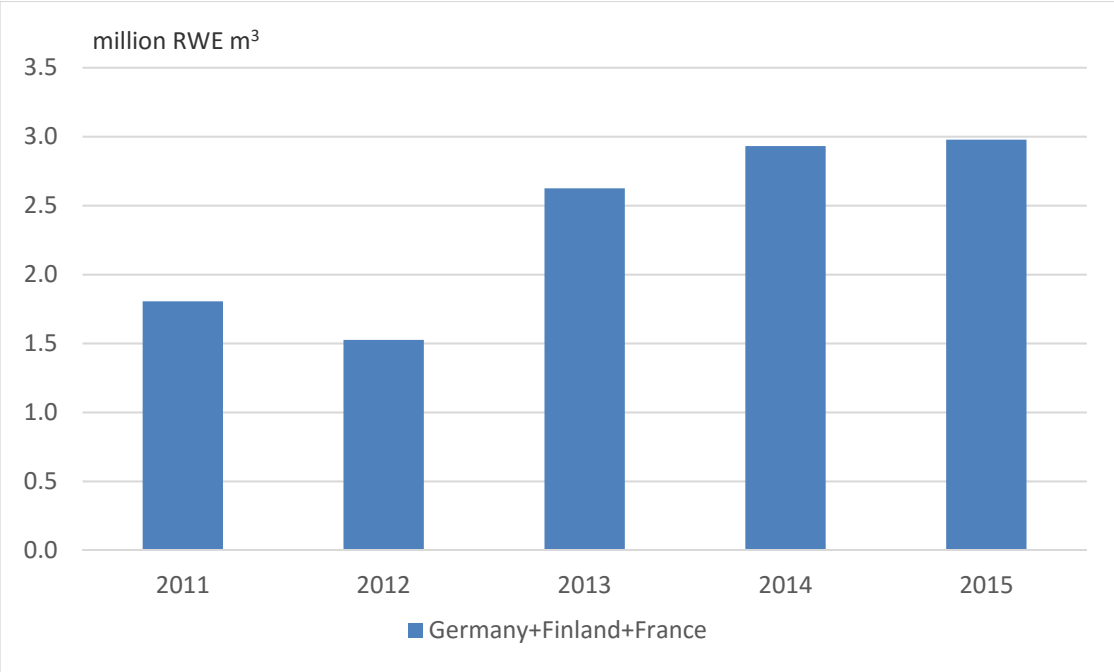
The positive effects of the LAA were particularly visible through EU's imports of non-EUTR products from China. The share of potentially illegal products in such imports started reduced since the LAA came into effect in 2008 (Figure 6.7). This was due to the fact that LAA practically covers all timber and timber products, and thus the positive spill-over effects, as explained above, was also extended to the EU's imports of non-EUTR products from China. Raising awareness within EU about illegal timber trade might also have contributed marginally in this regard. However, the EUTR, as it does not cover these products, probably did not have any notable effect.

Overall, the EUTR and LAA made China to increasingly replace potentially illegal non-tropical timber with legally verified sources for manufacturing products that were destined for the US and EU markets. This means an increasingly larger volume of legal timber was sent to the EU markets after processing in China (Figure 6.8). This was evidenced by the following two facts. First, since the US LAA came into effect in 2008, China imported more logs from safe countries in terms of timber legality, notably, New Zealand, the US, Canada, and Australia reducing imports from Russia (Figure 6.3), which is considered a high risk country. It is true that the log export tariff hike in 2008 (from 4% to 25%) suddenly made log imports from Russia more expensive. Despite this, China paid USD 20 more per RWE m^3 on average for log imported from these four safe countries compared with what it paid for the Russian logs since 2008. This clearly indicates that it was the US LAA that made China to substitute Russian logs, not the tariff hike in Russia.

Second, since the EUTR came into full effect in 2013, China's non-tropical timber imports from safe EU Member States namely Finland (mainly sawnwood), France (mainly logs) and Germany (logs and sawnwood both) increased considerably (Figure 6.10). Much of the timber that came from the safe or low-risk countries was certified. For example, most of the timber in Finland,

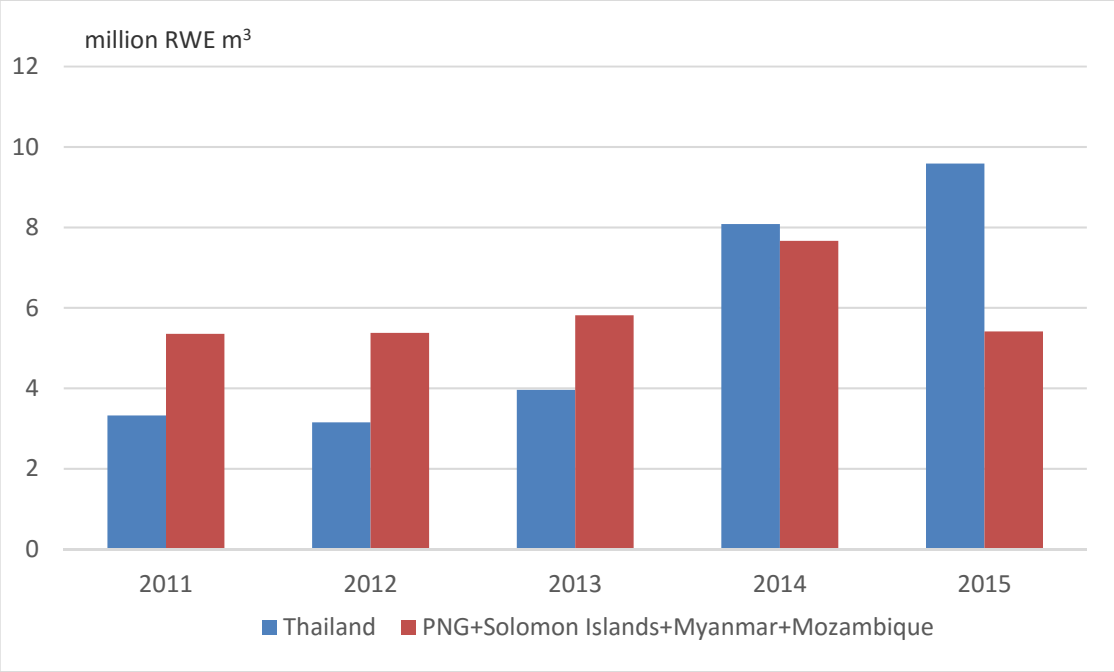
France, Germany, New Zealand, Australia, Canada and the US comes from the sources certified by FSC or the schemes endorsed by PEFC. This suggests that China's imports of the legal timber increased since 2008.

Figure 6.10 China's import from low risk timber from EU in last five years



Source: Global Trade Atlas

Figure 6.11 China's imports from low risk and high risk timber in last five years



Source: Global Trade Atlas

Moreover, during the last five years, the imports of low-risk or safe tropical plantation timber from Thailand increased rapidly (Figure 6.11). Also increasingly larger quantity of tropical plantation timber was imported from Indonesia and Malaysia (Box 6.1). That plantation timber imports met China's increasing demand for tropical timber. These imports also, at least partially, filled up the gap created by decreasing imports of the high-risk tropical hardwood logs sourced from natural forests in PNG, the Solomon Islands, Myanmar and Mozambique particularly since 2013.

As emerged from the above analysis, FLEGT Action Plan particularly the EUTR and the US LAA provided incentives for China to use more legally verified timber to have continued access to the EU and the US markets by making it mandatory to prove the legality of timber. Indeed, the FLEGT Action Plan augmented by the US LAA contributed to the steady decline in share of imports of potentially illegal timber and timber products into EU from China. The policies also resulted in slower growth in the volume of imports of potentially illegal products compared with the growth in overall imports to the EU from China. Particularly, the EU policies, together with the US LAA, made China to at least partially substitute its non-tropical timber imports from high-risk countries such as Russia with timber from low-risk or safe countries. Moreover, these policies made the country to import increasingly larger quantity of non-tropical timber from safe countries to meet its growing timber demand.

However, China's increasing import of tropical plantation timber might not be fully due to EU policies or the US LAA. It might also be associated with increasing scarcity of tropical natural forest resources and related market drivers. Timber from tropical natural forests had been getting scarcer as tropical deforestation continued at high rates over the past decades (FAO 2015). This was particularly true for the leading tropical timber supplier countries of China, namely, PNG, the Solomon Islands, Myanmar and Mozambique (Table 6.2). At the same time, the demand for tropical timber in China and other markets continued to grow (Barua et al. 2014). The scarcity, coupled with the demand growth, had been pushing the price of timber from natural tropical forests high[27]. In response, comparatively cheaper[28] and safer (concerning legality) timber from plantations of tropical hardwood species had been, at least partially, substituting natural tropical forest timber in China's imports. This implies that the scarcity of tropical natural forest timber and the resultant market factors such as increasing price of such timber were the most important drivers for China's import shifts towards lower-risk or safer tropical plantation timber. The EU policies, together with the US LAA, also provided impetus for such a shift.

Much of the timber sourced from safe or low-risk countries was channelled, as processed products, to EU and other markets (such as the US and Australia) that demand timber legality to be proved as a pre-requisite for entering their markets. This resulted in the steady decline in the share and thus slower growth in the quantity of imports of potentially illegal timber and timber products into EU from China.

Despite above, the flow of imports of potentially illegal timber and timber products into the EU from China did not stop or even reduce. Potentially illegal timber and timber products continued to enter into the EU markets from China in significantly large amount every year in the past 16 years. The above discussion suggests that the EU policies, even though augmented by the US LAA, cannot be considered fully effective in delimiting the flow of potentially illegal timber into EU markets.

However, one has to bear in mind that it is too early to expect a dramatic impact of FLEGT Action Plan on global timber market as the EUTR came into force barely three years ago and the FLEGT licensing is not fully operational yet. It would not be wise to expect that the EU's

[27] Indeed, forest industries relying on natural tropical forest timber in China and other countries have been downsizing during the recent decades due to the scarcity and resultant higher price of timber. Family-run SMEs have been the most affected ones in this regard.

[28] For example, during the last five years (2011 - 2015), the average import price (CIF) that China paid for timber from Thailand was USD 165 per RWE m^3, while the prices for timber from PNG, Myanmar and Mozambique were USD 231 per RWE m^3, USD 421 per RWE m^3 and USD 309 per RWE m^3, respectively. The Thai timber predominantly came from plantations, whereas that from other countries came mainly from natural forests.

imports of potentially illegal timber from China would decrease significantly in such a short period of time. There are a number of other reasons that might also hamper the effectiveness of the EU policies. First, a large number of timber products, and considerable trade volume and value are still outside the scope of EUTR. Consequently, as clearly evidenced by the data analysis (Figure 6.7), the decline in the share of imports of potential illegal non-EUTR products into the EU from China was less than the EUTR products (Figure 6.7). Also such decline was primarily driven by the LAA, not the EUTR. Second, the overall level of implementation of EUTR has been perceived as slow and uneven, and has varied a lot among the EU member states (EU FLEGT Action Plan evaluation 2016). These have created loopholes for importing potentially illegal timber into EU. Third, in case of highly processed products such as pulp and paper, and printed media there is always the risk that the timber from low risk countries are mixed with that from high-risk countries. Last but not least, China is the recipient of a large volume of timber smuggled from Myanmar, Laos and Cambodia. This timber does not show up in the trade statistics, rather enters into the Chinese supply chain as domestic timber (EIA 2012).

7. RECOMMENDATIONS

7.1 For the Chinese Government

The Chinese policy guidelines on responsible overseas forestry investments should be made mandatory. Also the guidelines should be implemented jointly with the timber supplier countries. The guidelines should have mandatory compliance requirements for those Chinese enterprises that are investing overseas in timber extraction. They remained ineffective in delimiting the illegal timber trade flow into China largely due to their voluntary nature. Moreover, adequate initiatives should be taken to implement the guidelines together with the respective supplier countries. This would enhance the chance of effective implementation.

There should be a national system in China to store the records of all enterprises – large, medium and small – who are investing overseas in forestry operations. It should be made mandatory for all enterprises to register into the system before investing overseas. This would help establish a formal tie between the enterprises and the Chinese state, and thus enable the monitoring of compliance with the guidelines on responsible overseas investments. Currently, most Chinese enterprises investing in forestry overseas, particularly SMEs, remain outside of Chinese state monitoring and thus cannot be penalized for illegal activities committed overseas.

China should be more open on sharing the investment data. This would enhance transparency in China's overseas forestry investment sector, and help portray a good image of China as a responsible timber importer in the global market.

Financial institutions and as well as public enterprises in China should be encouraged through incentives such as tax benefits to provide loans to SMEs wishing to invest in forestry operations overseas. This would facilitate the effective implementation of the Chinese policy on responsible forestry investments overseas through the establishment of financial ties between SMEs and the State.

China should adopt and effectively implement a demand-side measure like the EUTR to stop the inflow of illegal timber into the country. This would make it mandatory to prove the legality of all timber entering into China, and thus would call for more vigilance in customs and trade documents, which in turn would enhance the effectiveness of Chinese policies on responsible overseas investments. More importantly, such a measure would create a powerful inventive for companies of non-Chinese origin to supply only the legal timber to China from producer countries. Currently, a significant quantity of potentially illegal timber is supplied to China by such companies particularly from tropical countries such as PNG and the Solomon Islands. The jurisdiction of Chinese policies or legislation does not reach to these foreign jurisdictions.

There should be a national recording mechanism for domestic timber in China. This could be a part of the Chinese timber legality verification system (TLVS) that is being developed. Such a recording mechanism would control the entry of smuggled timber from neighbouring countries such as Myanmar, Laos and Cambodia into the Chinese timber supply chain.

7.2 For the private sector in China

Downstream buyers should be encouraged to commit to responsible timber sourcing through financial incentives. There is a need to develop more innovative incentive mechanisms for encouraging the private sector to engage in responsible timber sourcing. This would ensure that the manufacturers source only the legal timber. This in turn would allow them to have continued access to the lucrative markets such as the EU, the US and Australia. Proving timber legality is a pre-requisite for entering into these markets.

7.3 For the EU

The product-scope of the EUTR should be widened. A large number of timber products and significant trade volume and value are currently outside the scope of the EUTR. Also the level of EU's imports of non-EUTR products from China increased over the last 16 years. A significant amount of potentially illegal timber entered into the EU through imports of non-EUTR products from China during the past 16 years. Consequently, as analysis demonstrated, the EUTR was not effective in eliminating trade on illegal timber entirely.

EU – China Bilateral Coordination Mechanism (BCM) should have more concrete measures on cutting the flow of potentially illegal timber into China. Currently BCM does not to have any definitive measures to stop such flow.

7.4 For EU-China joint action

Russia should be involved by both China and EU in the effort to cut the flow of illegal timber trade. Russia is by far the biggest supplier of both legal and potentially illegal timber to China, much of which is then supplied to the EU as processed products. Thus, without Russia on board, the trade on illegal timber cannot be eliminated. BCM could be one platform for engaging with Russia for more concrete actions.

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Annex 1

Non-EUTR products included in the study

Name	Combined Nomenclature (CN) Codes
Matches	3605
Wood tar, rosin, resin etc.	3805, 3806, 3807
Cellulose sheets	39207, 39211400
Wood charcoal	4402
Other wood products of CH 44 not included in EUTR: Hoopwood, pickets, stakes etc. Wood wool and wood flour Tools, tool bodies, tool handles etc. Tableware and kitchenware Wood marquetry and ornaments etc. Other articles of wood	 4404 4405 4417 4419 4420 4421
Printed materials	49-series, except 4908
Paper yarn	53089050
Filament tow, fibres, yarn & fabrics	550200, 5504, 55070000, 55095100, 5510, 551511, 5516
Audiovisual cabinets and cases	85299041
Seats	94019030
Puzzles and playing cards	95030061, 95044000
Pencils, drawing charcoals & smoking pipes	960910, 96099010, 96140010
Feminine hygine products, nappies	9619007, 9619008
Postage stamps	97040000

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Annex 2

Conversion factors used for EUTR products

Product	HS/CN code	Conversion factors		Source
		tonne to m^3	m^3 to RWE m^3	
Fuelwood	4401	1.25	1	WWF UK
Logs	4403	1.25	1	WWF UK
Sleepers	4406	2.02	1	WWF UK
Sawnwood	4407	3.07	1	WWF UK
Veneer	4408	1.33	2.5	Sun et al. 2004
Mouldings	4409	1.25	1.9	Sun et al. 2004
Particleboard	4410	2.5	1	WWF UK
Fibreboard	4411	1.42	1.8	Sun et al. 2004
Plywood	4412	1.33	2.5	Sun et al. 2004
Densified wood	44130000	1.25	2	Sun et al. 2004
Wooden frames	441400	3.8	1	WWF UK
Packaging boxes and cases	4415	1.25	1.65	Sun et al. 2004/WWF UK*
Casks, barrels etc.	44160000	3.8	1	WWF UK
Builder's joinery and carpentry of wood	4418	1.25	3.5	Sun et al. 2004/WWF UK*
Pulp (combined)	47	n/a	n/a	
Mechanical wood pulp	4701	2.5	1	WWF UK
Chemical woodpulp, dissolving grades	4702	5	1	WWF UK
Chemical woodpulp, soda or sulfate (not dissolving)	4703	5	1	WWF UK
Chemical woodpulp, sulfite (not dissolving)	4704	5	1	WWF UK
Semichemical woodpulp	4705	2.75	1	WWF UK
Paper and paperboards	48	4.1	1	WWF UK
Wooden furniture	940330	3.8	1	WWF UK
Wooden furniture	940340	3.8	1	WWF UK
Wooden furniture	94035000	3.8	1	WWF UK
Wooden furniture	940360	3.8	1	WWF UK
Wooden furniture	94039030	3.8	1	WWF UK
Prefabricated buildings	94060020	1.25	3.5	Sun et al. 2004/WWF UK

* Conversion factor for tonne to m^3 from Sun et al. (2004).

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Annex 3

Conversion factors used for non-EUTR products

Products		Conversion Factors		Source
		Tonne to m^3	m^3 to RWE m^3	
Matches		1.3	1.8	Sun et al. 2004
Wood tar, rosin, resin etc.		not converted		
Cellulose sheets		5	1	WWF UK
Wood charcoal		1	6	WWF UK
Other wood products of CH 44 not included in EUTR	Hoopwood, pickets, stakes etc	1.25	2	Sun et al. 2004
	Wood wool and wood flour	1.25	1	Sun et al. 2004
	Other articles of wood	1.25	1.25	Sun et al. 2004
Printed materials		1	1	
Paper yarn		4.3	1	WWF UK
Filament tow, fibres, yarn & fabrics		4.3	1	WWF UK
Audiovisual cabinets and cases		5	1	WWF UK
Seats		3.8	1	WWF UK
Puzzles and playing cards	Wooden puzzles	3.8	1	WWF UK
	Playing cards	1.25	1.25	Sun et al. 2004
Pencils, drawing charcoals & smoking pipes	Pencils	4.1	1	WWF UK
	Drawing charcoals etc.	1.25	1.25	Sun et al. 2004
	Shaped wood for smoking pipes	1	6	WWF UK
Feminine hygine products, nappies		1.25	1.25	Sun et al. 2004
Postage stamps		4.1	1	WWF UK

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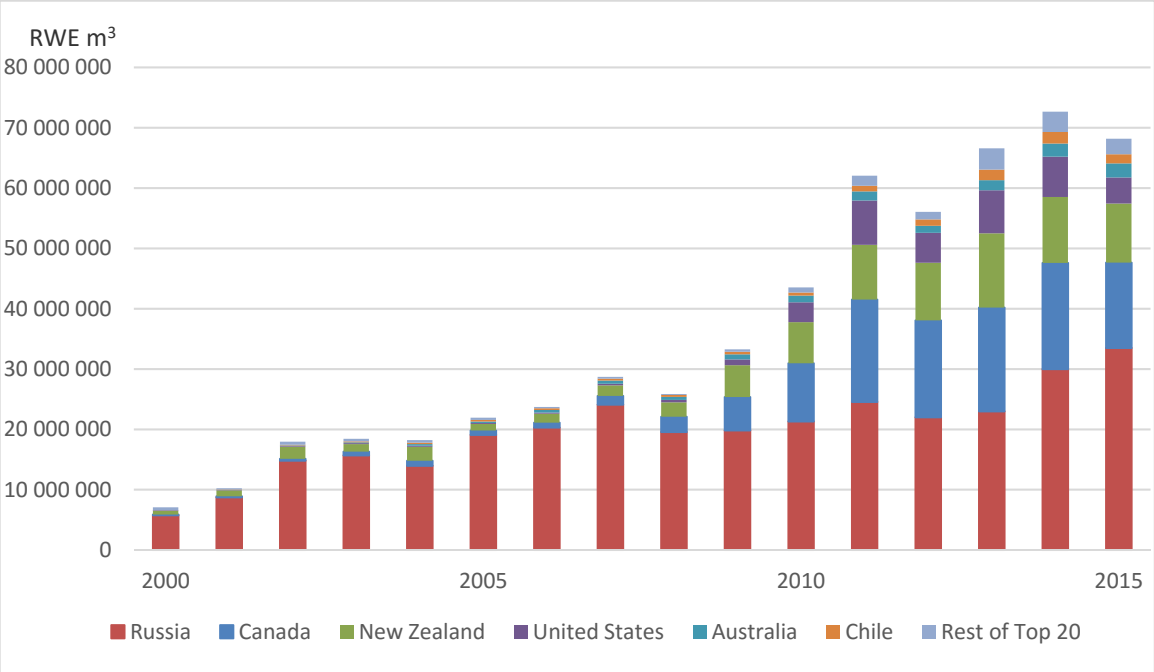
Annex 4

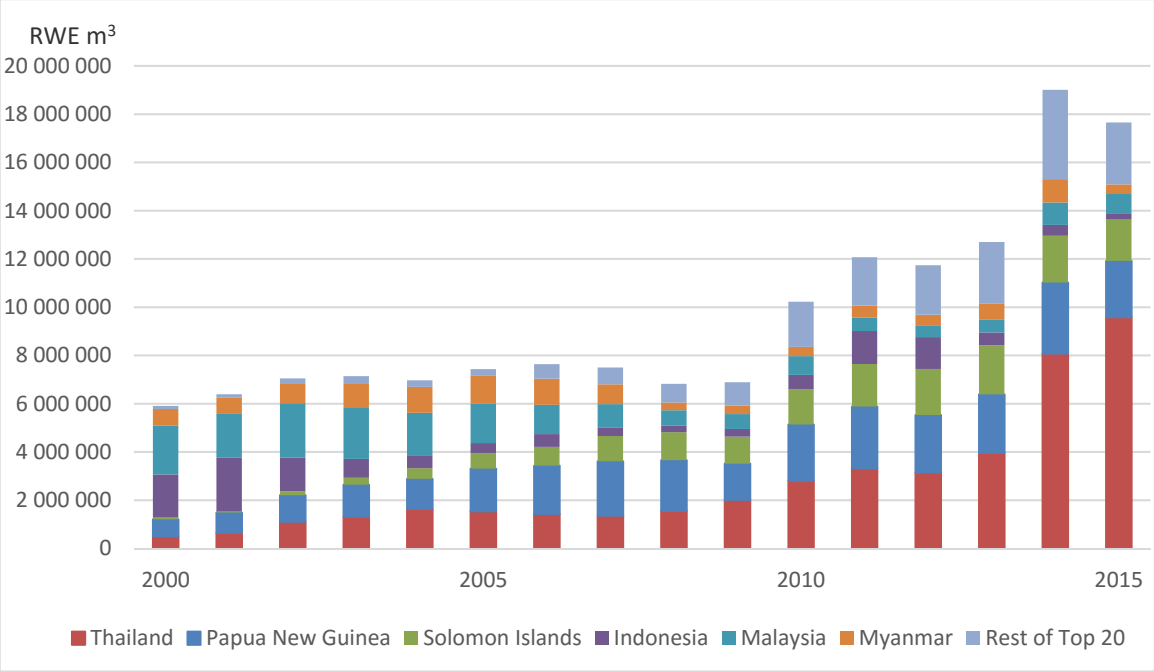
Country-wise breakdown of imports of different types of timber to China

Annex 4A: Country-wise breakdown of China's softwood timber imports



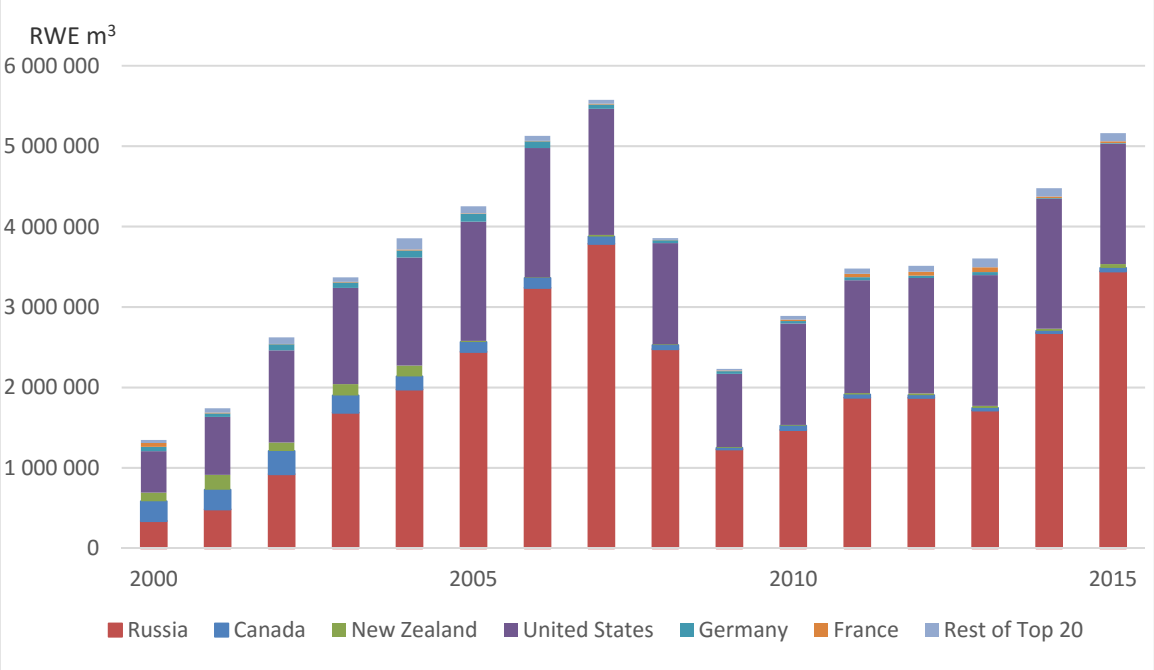
Source: Global Trade Atlas

Annex 4B: Country-wise breakdown of China's tropical hardwood timber imports



Source: Global Trade Atlas

Annex 4C: Country-wise breakdown of China's non-tropical hardwood timber imports



Source: Global Trade Atlas

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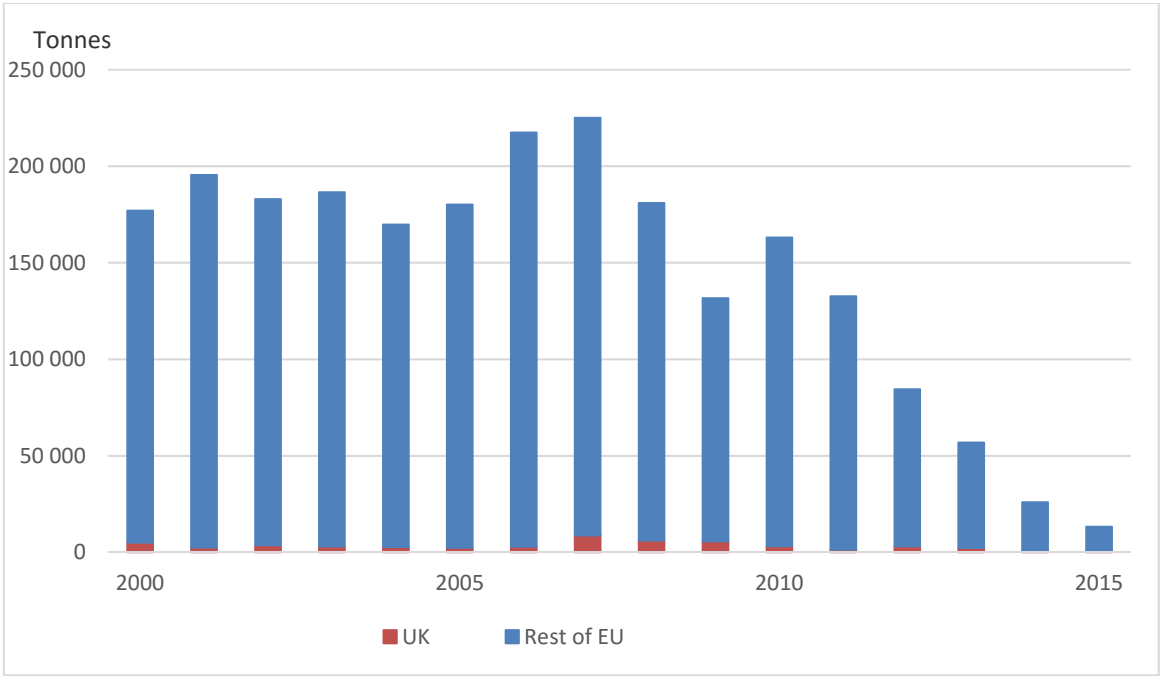
Annex 5

Imports of wood turpentines, rosin and resin, gums, wood tars and wood tar oils by EU and UK from China (quantity)



Source: Global Trade Atlas

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Annex 6

Timber trade routes between top 10 supplier countries and China

Trade routes between top 10 exporter countries and China

Timber export routes to China

Russia, being world's largest country, is characterized by long timber transportation distances. Timber harvested from vast Siberian forests is first transported with log trucks for a few hundred kilometres and then transferred to railway transportation before reaching sawmills and other processing facilities. The majority of timber processing sites are located along or nearby the rail network. Rail transport distances vary from hundreds to thousands of kilometres. Russian timber is exported to China by both land and sea routes. Zabaykalsk in Zabaykalsky Krai, located just opposite of the Chinese border town of Manzhouli in Inner Mongolia, is the main land border crossing for exporting timber to China. For exports by sea, timber is usually transported by railway to the port of Vladivostok in the Russian Far East. From there, the timber is shipped to various Chinese ports.

Canada exports timber products to China mainly through ports in British Columbia. The largest ports for exporting timber are the port of Vancouver located in the south, and the port of Prince Rubert located in the north of the Pacific coast of BC. These ports are connected by roads to forested in-land areas of BC, and other parts of Canada. This allows efficient timber transportation from forests to ports (Canada's Pacific Gateway 2016).

New Zealand's largest timber export ports are located in the northern parts of the North Island. The largest share of timber is exported to China and other countries through the port of Tauranga, followed by ports of Whangarei and Gisborne. Together these three ports accounted for more than 60% of the timber (by volume) that New Zealand exported in 2014 (NZFOA 2015). The main timber export ports in South Island include ports of Dunedin, Christchurch, Nelson and Picton. About 17% of timber was exported through these ports in 2014 (Table 1).

Table 1 Main timber export ports in New Zealand

Port	Share of total export (volume) in 2014
Tauranga	37%
Whangarei	13%
Gisborne	11%
Napier	9%
Dunedin	5%
Christchurch	5%
Wellington	4%
Nelson	4%
Picton	3%
Invercargil	3%
Auckland	3%
Timaru	2%
New Plymouth	1%

Source: New Zealand Forest Owners Association 2014

The United States exports timber to China via the Pacific Ocean from ports in the west coast. Historically, the main timber product port of the West Coast has been the port of Longview in Washington State. Other major ports of the region include ports of Seattle and Tacoma in the northern part of the West Coast, as well as ports of Oakland, San Francisco, Los Angeles, and Long Beach in the southern part in California state.

Thailand's two largest ports are both located by the Gulf of Thailand. These are the ports of Bangkok and Laem Chabang. These ports are used for exporting timber from Thailand to China and other countries.

Papua New Guinea's timber transportation is characterized by difficult terrain and poor quality road networks. Many parts of the long coastline in the country are only accessible by sea. Moreover, access to most of the inland areas is only possible via inland waterways. Thus, timber harvested in different parts of the country is usually transported by waterways to the ports of Port Moresby and Lae. These are the main ports for exporting timber from the country. Some smaller ports, most notably, the port of Madang in the northern coast of the New Guinea island, and ports of Kimbe and Rabaul on the New Britain island are also used for exporting timber.

Australia exports major share of its timber through the port of Portland in the Victoria state. Indeed, more than half of Australia's timber export to China and other countries took place through this port in 2014. Burnie in Tasmania and Brisbane in Queensland were the other two major ports for timber exports (Table 2).

Table 2 Main timber export ports of Australia

Port	Share of total export (volume) in 2014
Portland	51%
Burnie	13%
Brisbane	13%
Hobart	7%
Devonport	5%
Bunbury	4%
Adelaide	3%
Bell Bay	2%
Fremantle	2%
Newcastle	0%

Source: Ports Australia 2016

Solomon Islands has two international ports, namely port of Honiara and port of Noro. Honiara, also capital of the Solomon Islands, is located on the Northwestern coast of Guadalcanal island, while Noro is a small town located in western part of the New Georgia island. Most of the country's timber exports take place through the port of Honiara. As Solomon Islands spreads to six major islands and more than 900 smaller islands, logs are often harvested from islands having no commercial port. Then the logs are transported by waterways from these islands to the port of Honiara before exporting overseas (SIPA 2016).

Chile has several ports spread along the long pacific coast line. The largest ports in the country are the port of Valparaíso and San Antonio, both located close to country's capital Santiago. These are the main ports for exporting timber to China and other countries from Chile.

Indonesia's large majority of exports including timber takes place through the country's main commercial port, the port of Tanjung Priok, located in the capital city Jakarta in the Java island. The country has a larger number of small ports spread across its various islands. However, there are just a few commercial container ports. Some of them are also used for exporting timber sourced from other islands than Java. Usually smaller ships are used for transporting timber and other products from them to larger ports in Singapore and Malaysia where products are reloaded to bigger vessels for long distance transportation.

The main forms of transportation for exporting timber from top 10 supplier countries to China are summarized in Table 3.

Table 3 Main forms of timber transportation from top 10 timber supplier countries to China

Top 10 countries	Main form of transportation to China
Russia	Road-railway / ship freight
Canada	Ship freight
New Zealand	Ship freight
The United States	Ship freight
Thailand	Ship freight
Papua New Guinea	Ship freight
Australia	Ship freight
Solomon Islands	Ship freight
Chile	Ship freight
Indonesia	Ship freight

Main timber import ports in China

Timber products are imported to China through various ports located along the country's long coast line. The ten largest ports by volume (RWE m^3) of timber imported in the last five years are presented in Table 4. The largest import port was the port of Nanjing located along the Yangtze river, followed by the ports of Shanghai, Manzhouli, and Qingdao. The in-land ports in Manzhouli, Harbin, and Hohhot are used for importing timber from Russia.

Table 4 Timber imports to China by port

Port	Port type	Share of total (by volume)
Nanjing	River	21%
Shanghai	Sea	15%
Manzhouli	Land	15%
Qingdao	Sea	11%
Harbin	Land	7%
Shenzhen	Sea	6%
Tianjin	Sea	5%
Guangzhou	Sea	5%
Xiamen	Sea	3%
Hohhot	Land	3%
Others		10%

Source: Global Trade Atlas

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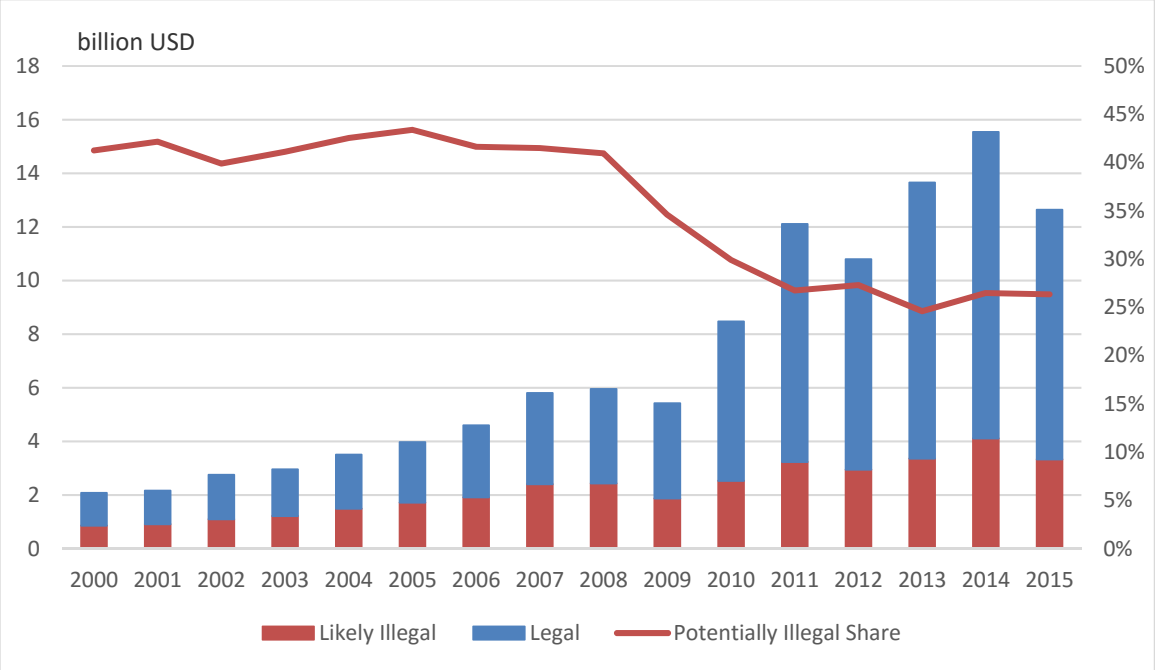
Annex 7

Level of potentially illegal timber imports into China from top 20 timber supplier countries (value)



Source: Indufor analysis based on Global Trade Atlas data

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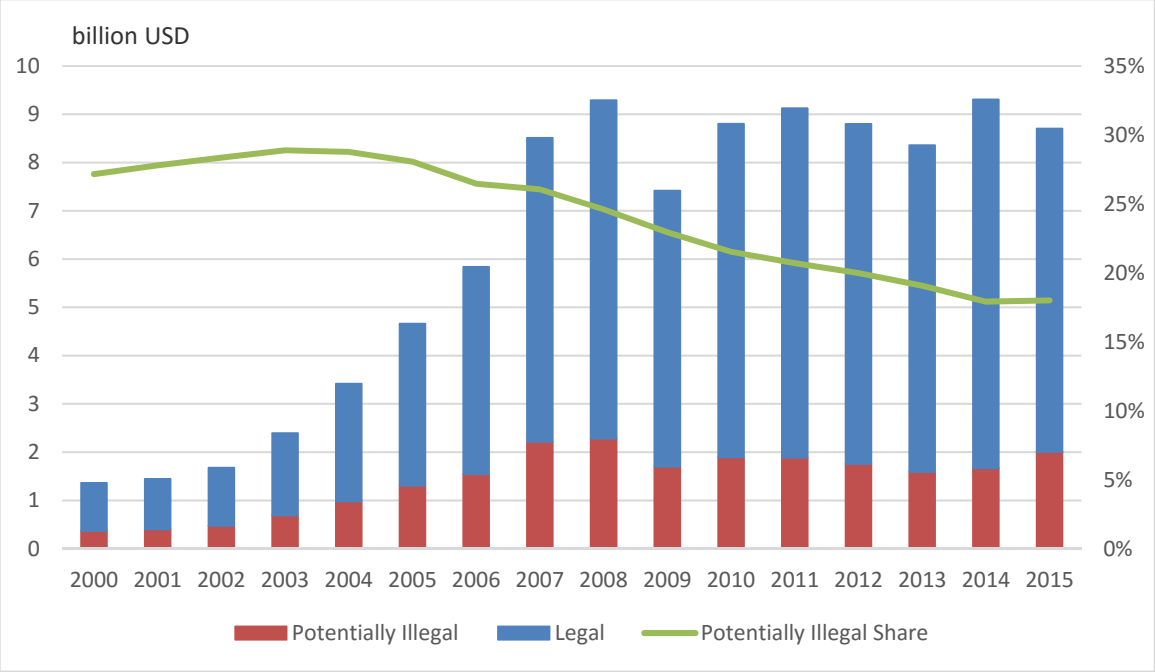
Annex 8

Level of potentially illegal timber and timber products imports into EU from China (value)



Source: Indufor analysis based on Global Trade Atlas data

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