



FIM



# Update on Global Timber Demand

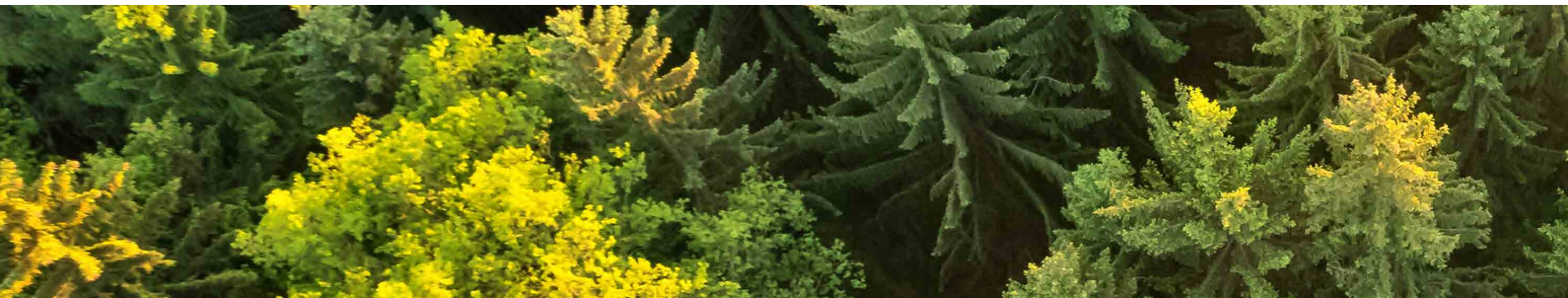
[www.fimltd.co.uk](http://www.fimltd.co.uk)

October 2017

## Contents

---

	Page
1. Executive Summary	2
2. Introduction	3
3. Global Industrial Roundwood Consumption	4
4. Global Sawnwood Consumption	7
5. Outlook	9
6. Impact on UK	13

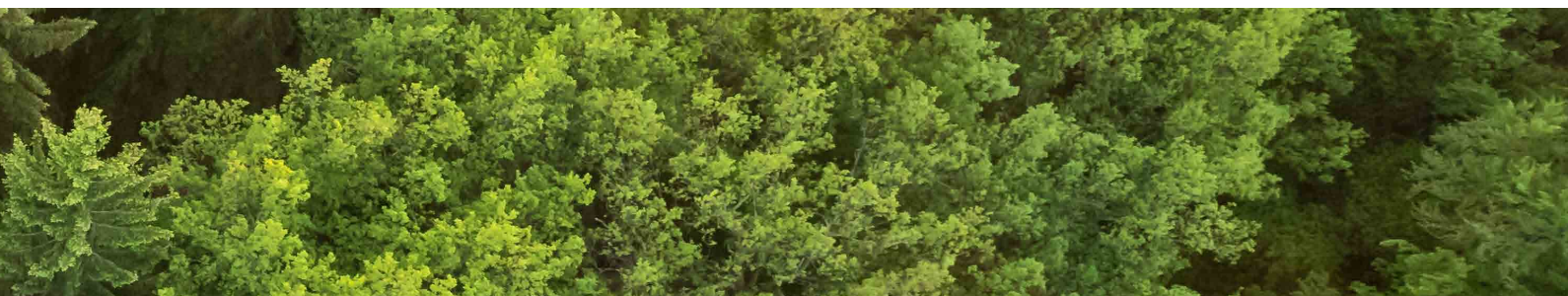


# 1. Executive Summary

---

Global consumption of timber is now at record levels:

- Consumption in the Developed World has been recovering since 2009 as construction by house builders gathers momentum.
- Consumption in the Developing World exceeded that in the Developed World for the first time in 2009.
- Global consumption of Industrial Roundwood now exceeds the 2005 pre-recession all time high, with consumption in the Developed World still 15.9% below the peak.
- Global consumption of Sawnwood is now back to its 2006 pre-recession peak with the Developed World's consumption still 22.2% below.
- US housing starts are still 46% below the 2005 peak, indicating there is significant scope for further growth in the world's second largest market (after China) for sawn timber.
- Increasing use of biomass in energy generation is creating new markets for timber.
- Increasing global demand will encounter increasing constraints on supply, which will push timber prices upwards, benefitting forest owners.
- Readily available reserves of timber with suitable infrastructure in place to permit economic exploitation are not only fixed but are declining.
- Rising timber prices will drive asset values, pushing forest values higher.



**Global timber demand is impacted by three major factors, which historically have not combined simultaneously:**

- **Rising demand in the Developed world;**
- **Rising demand in the Developing world; and**
- **New uses creating substantial new demand for timber.**

**FIM believe that the convergence of these three demand drivers is likely to lead to a significant rise in the price of timber given the increasing constraints on supply.**



## 2. Introduction

---

This paper analyses why timber and plantation values are expected to rise further from current levels as:

- Global consumption of timber products will grow substantially from current levels, with both Developed and Developing countries increasing consumption at the same time.
- Construction output, including house building in the Developed World, still remains far below pre-recession levels.
- New markets for timber will compete for supply with traditional uses.

The paper focuses on the consumption of Industrial Roundwood and Sawnwood at three points in time:

- 2005: when global consumption reached peak levels.
- 2009: when consumption fell to the lowest point following the global financial crisis.
- 2015: the most recent year for global consumption data released by The Food and Agricultural Organisation of the United Nations (FAO).

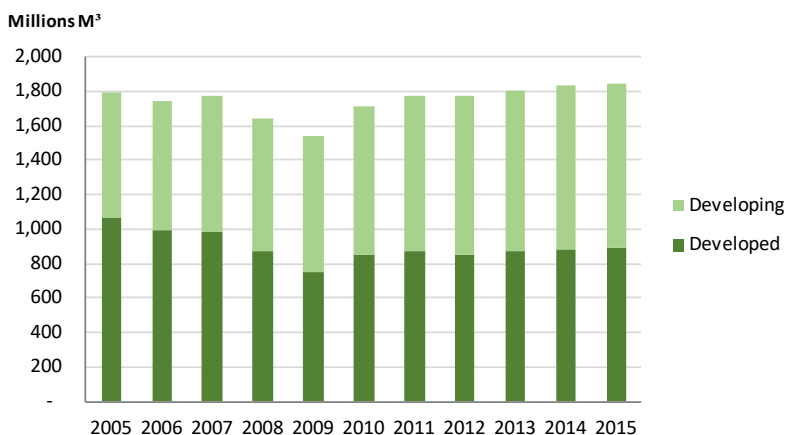
Industrial Roundwood (unprocessed logs) is the raw material for the manufacture of commercial wood products such as Sawnwood (construction products, fencing and furniture), pulp (newspapers and magazines and packaging), wood based panels and biomass. The consumption of Industrial Roundwood, is an important indicator of overall wood demand. As a population's wealth increases, so their consumption of timber related products increases.

The paper also focuses on the consumption of Sawnwood (the conversion of logs into planks) as the highest unit value in growing timber is in the sawlog content of the tree. With correct silvicultural management, circa 70% of the value of a tree is in the sawlog and is thus the main driver of timber prices for plantation owners.

### 3. Global Industrial Roundwood Consumption

Global timber consumption is back at a level of 1.8 billion tonnes last seen in 2005.

Figure 1: Global Industrial Roundwood Consumption, from 2005 to 2015 highlighting the growing share of consumption in the Developing World.



Source: FAO Products statistics 2010 – 2015

Figure 2: Overview of Global Industrial Roundwood Consumption, highlighting how the Developed World is consuming 15.9% less Industrial Roundwood in 2015 than 2005.



Source: FAO Products statistics 2010 – 2015

Consumption increased at a Cumulative Average Growth Rate (CAGR) of 2.7% per annum in the Developing World between 2005 and 2015, and has increased at an impressive 3.8% since 2009.



### 3.1 Period 2005 to 2009 From Peak to Trough: Developed World Consumption of Industrial Roundwood Declined Drastically; Conversely Developing World Consumption Greatly Increased

Global consumption of Industrial Roundwood peaked in 2005 at 1.79 billion cubic metres buoyed by strong construction output in the Developed World. US housing construction was the largest global market for timber. In 2005, US housing starts were over 2 million per annum. Soon afterwards, US financial institutions began to experience severe financial difficulties, especially those that had offered 'sub-prime' mortgages.

Mortgage lending tightened, weakening the housing market and housing starts declined from 2006, to reach a low of 0.55 million in 2009. The situation escalated beyond the US, resulting in the 2008 global financial crisis and as economic activity collapsed in the Developed World, there was a dramatic fall in its demand for Industrial Roundwood, reaching a low in 2009, 29.5% below the 2005 peak.

Conversely, in the Developing World, Industrial Roundwood consumption grew 8.6% over the period, largely due to growth in China, whose economic expansion accelerated from the start of the decade. China became a low cost manufacturer and exporter of goods and embarked on a domestic construction drive to house a growing workforce relocating to cities.

Developing World growth partially offset the fall in demand in the Developed World, but global consumption of Industrial Roundwood in 2009 was still 14.0% below the peak (see Table 1) in 2005.

### 3.2 Period 2009 to 2015: Developed World Consumption Enters Recovery and Developing World's Consumption Gathers Pace

From 2009 to 2015 consumption began to recover in the Developed World and gathered pace in the Developing World, increasing 19.3% and 20.5% respectively (see Table 1).

Despite a return to growth, consumption in the Developed World is still some 15.9% below the 2005 peak, indicating that the full potential, largely dependent on housing starts, is still to be realised.

The Developing World's consumption is 30.9% higher than in 2005 and now consumes more Industrial Roundwood than the Developed World.

The Developing World's rapid consumption growth is largely due to China, with a rise of 69% in the ten years from 2005 to 2015 to make it the second largest timber consuming country after the United States. Chinese consumption grew 9% in the previous nine-year period to 2005 (1% per annum).

Having previously had little impact on growth in global timber markets, the Developing World has now become a major driver of growth.



Table 1: Industrial Roundwood Consumption: (Note 1)

Industrial Roundwood Consumption (million cubic metres)				
	2005 (high)	2009 (low)	% Change	CAGR %
Developed	1,060	747	(29.5%)	(8.4%)
Developing	729	792	8.6%	2.1%
	<b>1,789</b>	<b>1,539</b>	<b>(14.0%)</b>	<b>(3.7%)</b>

Industrial Roundwood Consumption (million cubic metres)				
	2009 (low)	2015 (latest)	% Change	CAGR %
Developed	747	891	19.3%	3.6%
Developing	792	954	20.5%	3.8%
	<b>1,539</b>	<b>1,845</b>	<b>19.9%</b>	<b>3.7%</b>

Industrial Roundwood Consumption (million cubic metres)				
	2005 (high)	2015 (latest)	% Change	CAGR %
Developed	1,060	891	(15.9%)	(1.7%)
Developing	729	954	30.9%	2.7%
	<b>1,789</b>	<b>1,845</b>	<b>3.2%</b>	<b>0.3%</b>

Source: FAO Products statistics 2010 – 2015

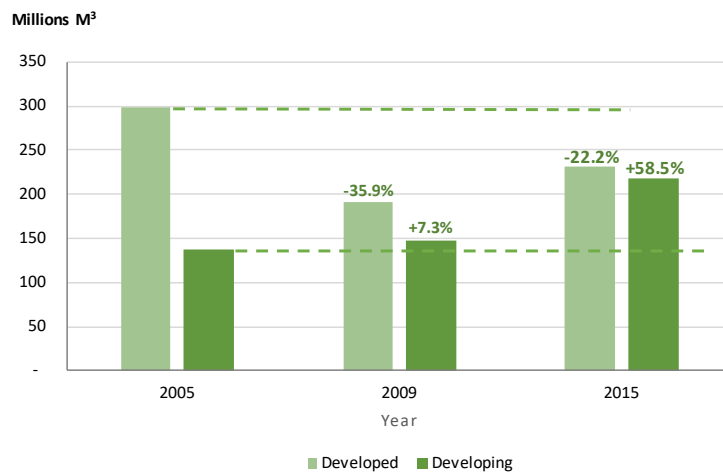


## 4. Global Sawnwood Consumption

**Global Sawnwood consumption by the Developed World is still 22.2% below pre-recession levels.**

Sawnwood is a sub-set of Industrial Roundwood. Sawnwood consumption is strongly correlated to construction activity, more so than Industrial Roundwood, which is influenced by general economic activity.

**Figure 3: Overview of Global Sawnwood Consumption.**



Source: FAO Products statistics 2010 – 2015

### 4.1 Period 2005 to 2009 From Peak Global Demand to Trough: Developed World Consumption Declines Drastically; Conversely Developing World Consumption Increases

The global peak consumption of Sawnwood in 2006 was 443 million m<sup>3</sup>, when US housing starts peaked. Due to the collapse in the US housing market, demand for Sawnwood in the Developed World fell 35.9% between 2005 and 2009. The decline in Sawnwood was larger than for Industrial Roundwood (29.5% decrease) due to the exposure to the housing market.

Conversely, Sawnwood consumption in the Developing World increased 7.3% over the same period, driven mainly by China, where a rapid expansion in construction almost doubled demand from 24.5 million m<sup>3</sup> to 42.5 million m<sup>3</sup>. Global consumption fell to 338 million m<sup>3</sup> in 2009, a fall of 22.3%.



## 4.2 Period 2009 to 2015: Developed World Consumption Enters Recovery and Developing World Consumption Gathers Pace

Consumption in 2015 in the Developed World remains 22.2% below the 2005 peak, whilst US house starts continue to recover, indicating there is significant scope for demand to continue to improve.

The period 2009 to 2015 saw construction output in the Developed World recover, boosting demand for Sawnwood by 21.3% over the period, increasing by 3.9% per annum.

In the Developing World, construction output has soared since 2009. Consumption of Sawnwood is up 47.8% over the six year period, at a growth rate of 8.1% per annum far outstripping that of Industrial Roundwood (3.8%) and is 58.5% above 2005 levels.

Due to the Developing World's pace of growth, global Sawnwood consumption has exceeded the peak level of 2006, despite only a partial recovery in the Developed World.

**Table 2: Sawnwood Consumption Tables**

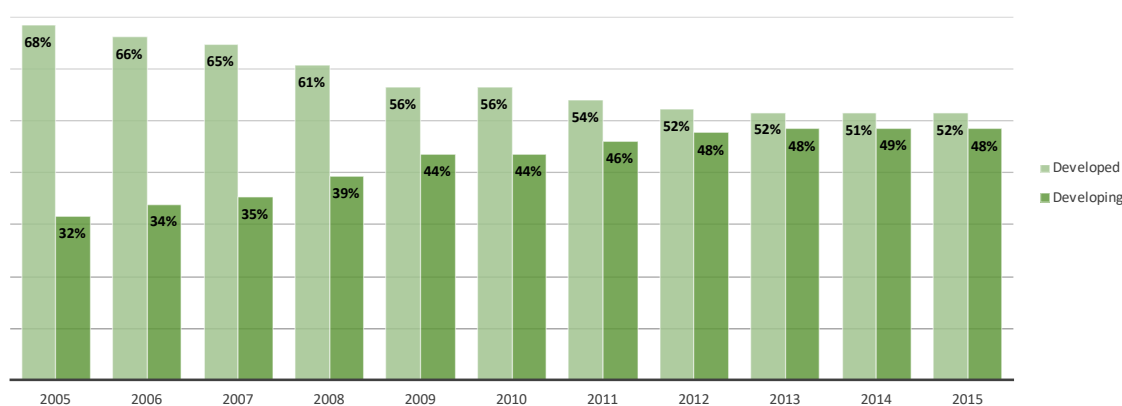
Sawnwood Consumption (million cubic metres)				
	2005 (high)	2009 (low)	% Change	CAGR %
Developed	298	191	(35.9%)	(10.5%)
Developing	137	147	7.3%	2.7%
	<b>435</b>	<b>338</b>	<b>(22.3%)</b>	<b>(6.1%)</b>

Sawnwood Consumption (million cubic metres)				
	2009 (low)	2015 (latest)	% Change	CAGR %
Developed	191	232	21.3%	3.9%
Developing	147	217	47.8%	8.1%
	<b>338</b>	<b>449</b>	<b>32.8%</b>	<b>5.8%</b>

Sawnwood Consumption (million cubic metres)				
	2005 (high)	2015 (latest)	% Change	CAGR %
Developed	298	232	(22.2%)	(2.5%)
Developing	137	217	58.5%	4.7%
	<b>435</b>	<b>449</b>	<b>3.3%</b>	<b>0.3%</b>

Source: FAO Products statistics 2010 – 2015

**Figure 4: Market Share of Global Sawnwood Consumption 2005 - 2015:**



## 5. Outlook

### 5.1 Increasing Demand

The impact of increasing demand for Industrial Roundwood (which includes Sawnwood) in the Developing World on world consumption has to date largely been masked by the fall in demand in the Developed World. As a result of changes in the pattern of demand, consumption of both Industrial Roundwood and Sawnwood has converged. The impact is that growth in consumption in either market will have a profound effect on global consumption as both are of equal relative size.

**The simultaneous growth now occurring in both the Developed and Developing World has not been seen before.**

With growth in the Developing World set to continue and demand recovering in the Developed World, global timber consumption has already exceeded the pre-recession peak of 2005. Based on existing growth levels, FIM predict that global timber consumption in 2020 will be 2.3 billion cubic meters, an increase of 24% from the 2015 level, equivalent to a 4.4% increase per annum.

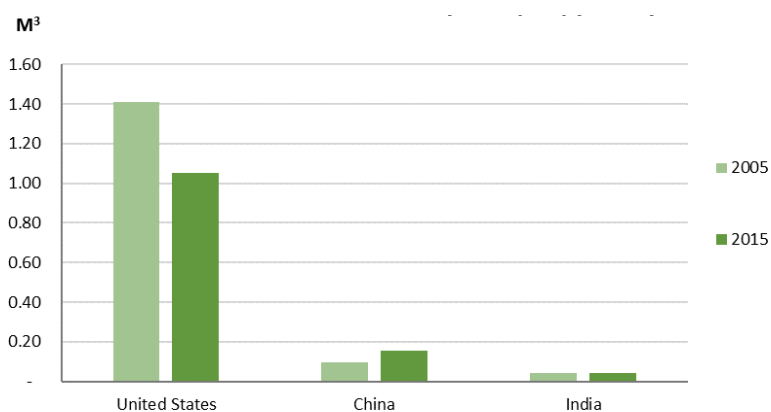
**The World Bank are forecasting that global timber demand is set to quadruple by 2050.**

GDP and population growth are the two main drivers of Industrial Roundwood consumption. PwC forecast that the global economy could more than double by 2050 with the fastest rates of growth in the Developing World. The thirty three year period to 2050 corresponds with the rotation length of conifer forests in the UK, indicating that there will be substantially higher demand for timber when a tree planted today is harvested in 2050.

By 2050, the UN projects the world's population will reach 9.8 billion, with virtually all growth set to occur in the Developing World. In 2015, urbanisation in China was estimated at 56% compared to 81% and 74% in North America and Europe respectively.

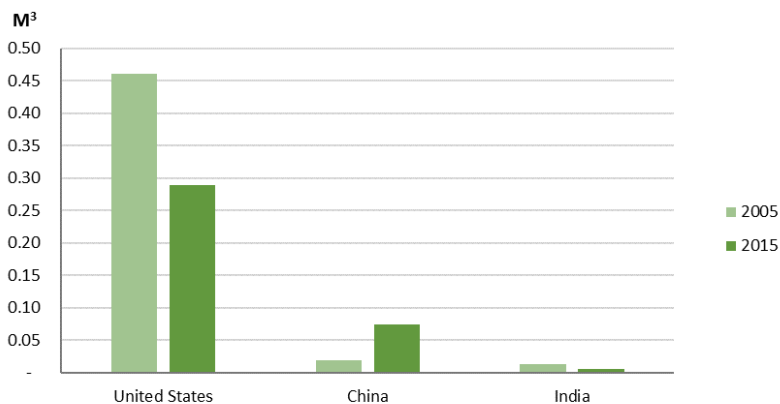
Per capita consumption of Industrial Roundwood in the Developing World remains far below that of the Developed World, again indicating the substantial scope for growth in the Developing World.

**Figure 5: Consumption per Capita Selected Countries (2015)**



Source: FAO Products statistics 2010 – 2015 and United Nations Population Data

**Figure 6: Sawnwood Consumption per Capita (2015)**



Source: FAO Products statistics 2010 – 2015 and United Nations Population Data

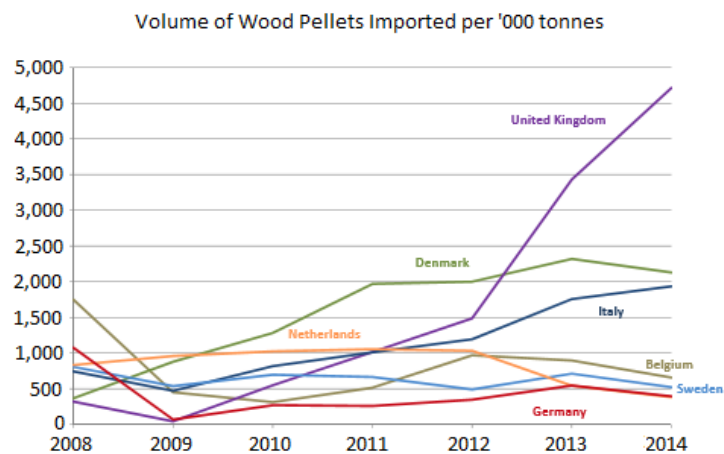
Rising demand in the Developed World as construction output strengthens will continue to drive demand for Industrial Roundwood, specifically Sawnwood.

US house starts reached 1.1 million in 2015, from a low of 0.55 million in 2009. The US is the largest consumer of timber in the world, and house building is the largest market sector. The 2015 housing start figure, a 10.9% increase over 2014 is still only 46% of the 2005 peak of over 2 million starts, indicating there is still substantial growth potential in the largest world market.

Housing starts are on an upward trend, both in the US, which is by far the largest timber user in the world, and in the UK, which like the US is a major importer of timber. Due to the pressure for new house construction in both the UK and the US and other countries in the Developed World, FIM believe that demand for Sawnwood will continue to increase. Construction of new housing is rising, however, to return to the pre-recession peak, housing starts need to increase a further 36%.

### 5.2 New uses are creating substantial new demand for timber

The EU is a net importer of wood pellets. In 2016, 22.2 million tonnes was consumed against production of around 14.8 million tonnes, with the balance being imported primarily from the US. Demand by the EU is expected to expand further to about 25 million tonnes by 2018.



Source: Eurostat International Trade Database<sup>4</sup>



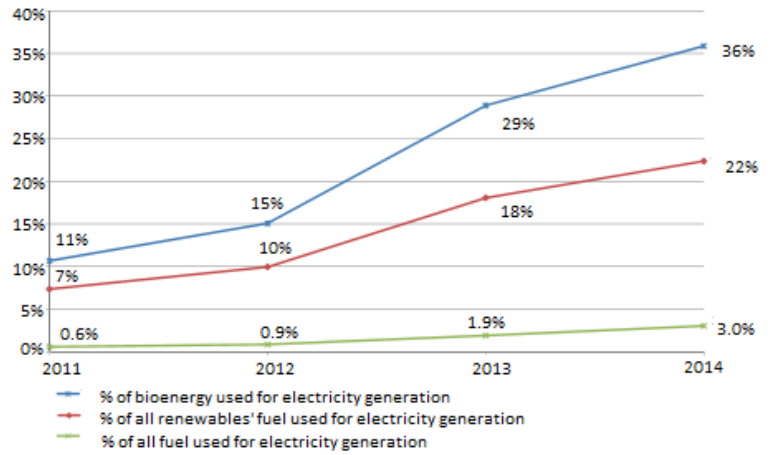
The UK is the biggest consumer of wood pellets in the EU. Between 2008 and 2014, the UK increased its share of total EU imports by tenfold from 4% in 2008 to 40% in 2014. For comparison, the total UK softwood harvest in 2016 was 11.7 million tonnes.

Total imports into the UK from the EU and rest of the world in 2015 was 6.5 million tonnes. This currently makes it the largest importer of wood pellets with over 75% of global exports destined for the UK. EU and UK

policy has incentivised renewable fuel to help decarbonize the energy sector, and conversion of existing coal plants to solid biomass fuel is the most cost effective method for the UK. If all the proposed biomass power plants were up and running based on a total capacity of 2,900MW around 12 to 13 million tonnes of biomass pellets would be required to fuel them.

The major raw material for pellets has traditionally been sawdust and byproducts from sawmills but with increasing competition for sawdust residues, a broader sustainable raw material is becoming necessary. With this increased demand for co-product sawmills can now afford to pay more for timber as more of the timber can be monetised.

Share of Wood Pellets Used in Major Power Stations (%)



Sources: DECC Major Power Producers data & table 5.3, Digest of UK Energy Statistics 2015<sup>7</sup>



### 5.3 Increasing Global Constraints on Supply

The majority of the world's timber is sourced from natural growth forests, softwoods in the northern hemisphere and tropical hardwoods in the southern hemisphere. Increasing constraints will impact on the availability and cost of timber from these natural resources.

The forecast rise in global demand for timber will coincide with increasing constraints on supply, factors which are likely to combine and have a material effect on global timber prices, to the benefit of forest owners.

#### **Future timber supply will be constrained by:**

- Consumer demand to source timber from sustainable certifiable supplies, restricting illegal logging, which still accounts for a significant proportion of Global Industrial Roundwood production;
- There is increasing pressure for large areas of natural forest to be set aside as carbon sinks or for conservation and environmental reasons, restricting the area available for timber harvesting;
- Exploitation to date has concentrated on readily accessible resources; and
- Increasing competition for land with agriculture to provide food for growing populations.

Unlike fossil fuels, there are no new reserves of timber to be found. Traditional reserves take from 30 years to hundreds of years to replace, and new supplies can only be created through establishing new plantations. The supply of land suitable for plantation establishment is dwindling and there is increasing competition from alternative land uses.

#### 5.3.1 Legislation is restricting global supply

A global move towards sourcing sustainable, certified timber is restricting illegal logging, estimated by Transparency International to account for 8% to 10% of the global wood supply (although some groups believe this figure is closer to 40%). In March 2013 the EU Timber Regulation came into force prohibiting the placing of illegally harvested timber and products derived from such timber on the EU market. Similar regulations have already been implemented in the US (2008 Lacey Act Amendments).

Currently less than 10% of the global forest area is certified as sustainable and the majority of this is in Europe and North America.

#### 5.3.2 Competing uses restrict the exploitable resource

Concern on climate change is focussing attention on the requirement for long term carbon storage, which can best be achieved by leaving trees standing rather than harvesting timber.

#### 5.3.3 Major capital expenditure is required to access further supplies

Increased supply can only arise in the medium term from greater exploitation of increasingly remote natural resources, for example those in Siberia.

FIM believe that increased demand for timber combined with constraints on supply should cause prices to rise significantly.



## 6. Impact on UK

---

**FIM believe the outlook for UK forest values is strongly positive.**

Forest owners benefit from long term biological growth which provides stable and predictable returns, based on constant timber prices. The UK's maritime climate is ideally suited to growing Sitka spruce, the UK's principal commercial tree species, with growth rates amongst the fastest in the developed world. Annual growth increases both the volume and the unit value of the timber, as the number of different end uses of larger trees results in competition from more purchasers.

In addition to the compounding returns from biological growth, the main driver of returns from forestry is rising timber prices. FIM believe that timber prices, both in the UK and globally, will increase significantly, causing forest values to rise, enhancing returns to forest owners.

Global markets are highly relevant to UK forest owners, as the UK imported 82% of its overall wood requirements in 2015, so UK prices are directly impacted by global prices. As global demand for timber continues to increase, pressure will be placed on existing resources underwriting the timber price at today's current high levels. An investor in UK forestry will benefit from this re-rating in timber prices and plantation values over the medium to long term.



# Background

Founded in 1979, FIM is the UK specialist in sustainable real asset investments. Assets under management are £850 million, encompassing 78,000 hectares of forestry and 127MW of renewable energy generating assets. Clients include unlisted funds, high net worth individuals, family offices and institutions.

UK forestry and renewable energy are well proven asset classes and are uncorrelated to listed mainstream investments, providing diversification within an investment portfolio. They generate tax efficient returns, with long-term capital appreciation (forestry), or high levels of income (renewable energy).

For further information please contact us at [fim@fimltd.co.uk](mailto:fim@fimltd.co.uk) or on 01451 844655.



### Colin Lees-Millais FRICS

Director - Head of Forest & Land

A Chartered Surveyor with 30 years' experience of investing in commercial forestry both in the UK and internationally, Colin has a strong track record in delivering sustained long term performance from forestry assets. He has particular expertise of the UK forestry market, woodland managers and all silvicultural issues.

Colin has long standing experience of managing relationships with large family office clients. He is a registered adviser with the Financial Conduct Authority.



### Edward Daniels ACA

Director - Executive Manager

Edward oversees the provision of fund management services to FIM's forestry funds and private clients. Prior to joining FIM, Edward worked for Ludgate Investments advising the Ludgate Environmental Fund, an AIM listed closed-ended fund, on investing development capital in cleantech and environmental technology companies. Previously he was at Ernst & Young providing buy-side due diligence and related transaction services to private equity clients in New York and London.

Edward is a Chartered Accountant and is a registered adviser with the Financial Conduct Authority.



### Anthony Crosbie Dawson

Investment Manager

Anthony's background is in Investment Banking, having previously worked for international firms in London, New York and South America. At FIM he is responsible for business development, marketing and sales. He also manages one of FIM's funds.

Anthony holds the Investment Management Certificate and is a registered adviser with the Financial Conduct Authority.



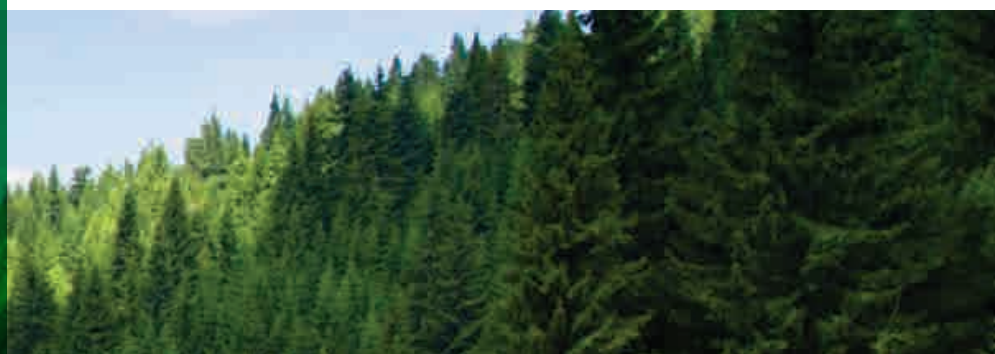
### Jason Sinden FIGFor, MRICS, MBA, BSC (For) Hons

Forestry Director

Based in FIM's Scotland office, Jason is responsible for the effective management of the forestry portfolio on behalf of clients together with continued expansion.

Jason is a Chartered Surveyor and RICS Registered Valuer, Fellow of the Institute of Chartered Foresters, MBA graduate, IMD Alumni and Aberdeen University forestry graduate with key experiences including forestry investment appraisal and due diligence.

Jason has a long background in forestry, timber processing and woodland creation and specialises in forestry investment.





**FIM Services Limited**

Glebe Barn  
Great Barrington  
Burford  
OX18 4US

**Tel: 01451 844655**

**Email: [fim@fimltd.co.uk](mailto:fim@fimltd.co.uk)**

FIM Services Limited is accredited to the ISO 9001 standard



[www.fimltd.co.uk](http://www.fimltd.co.uk)



**UKSIF**  
UK Sustainable Investment  
and Finance Association