

## Annexes

[English only]

## Annex I

## Committee on Forestry and Forest Industry market statement

## I. Overview of forest products markets in 2015 and 2016

1. The general condition of forest products markets in the ECE region remained relatively stable in 2015. With the exception of the paper and paperboard industry, consumption of all other forest products in 2015 increased by between 1.3 and 2.6% year-on-year (Table 1). There were, however, wide differences between subregions.

TABLE 1  
*Apparent consumption of industrial roundwood, sawnwood, wood-based panels, and paper and paperboard in the ECE region, 2011-2015*

		million	2011	2012	2013	2014	2015	Change (volume) 2014- 2015	Change (%) 2014- 2015	Change (%) 2011- 2015
<b>Europe</b>										
Industrial roundwood	m <sup>3</sup>	385.5	375.7	381.8	393.8	401.6	7.89	2.0	4.2	
Sawnwood	m <sup>3</sup>	103.4	97.0	96.8	100.8	101.1	0.34	0.3	-2.2	
Wood-based panels	m <sup>3</sup>	66.9	64.6	71.4	67.9	68.4	0.45	0.7	2.2	
Paper and paperboard	m.t.	92.5	90.7	92.9	89.4	88.0	-1.45	-1.6	-4.8	
<b>Commonwealth of Independent States (CIS)</b>										
Industrial roundwood	m <sup>3</sup>	166.8	173.7	175.1	181.6	185.3	3.69	2.0	11.0	
Sawnwood	m <sup>3</sup>	19.0	19.7	19.9	19.0	18.1	-0.89	-4.7	-4.7	
Wood-based panels	m <sup>3</sup>	16.0	17.7	17.8	17.6	16.8	-0.81	-4.6	4.5	
Paper and paperboard	m.t.	9.5	9.4	9.4	9.3	9.0	-0.34	-3.6	-5.9	
<b>North America</b>										
Industrial roundwood	m <sup>3</sup>	487.2	481.2	486.8	490.2	494.3	4.14	0.8	1.5	
Sawnwood	m <sup>3</sup>	89.8	95.5	101.1	106.3	112.7	6.43	6.0	25.5	
Wood-based panels	m <sup>3</sup>	42.0	46.4	48.0	49.9	52.0	2.09	4.2	23.7	
Paper and paperboard	m.t.	79.7	81.1	75.3	76.1	75.9	-0.13	-0.2	-4.8	
<b>ECE region</b>										
Industrial roundwood	m <sup>3</sup>	1,039	1,030	1,043	1,06	1,081	15.71	1.5	4.0	
Sawnwood	m <sup>3</sup>	212.2	212.2	217.9	226.1	232.0	5.88	2.6	9.3	
Wood-based panels	m <sup>3</sup>	125.0	128.7	137.2	135.4	137.1	1.73	1.3	9.8	
Paper and paperboard	m.t.	181.7	181.2	177.7	174.8	172.9	-1.91	-1.1	-4.9	

*Note:* Sawnwood does not include sleepers.

*Source:* ECE/FAO TIMBER database, 2016

2. North American and European markets experienced moderate consumption growth, benefitting from generally positive economic developments and improvements in the housing and construction industry. In contrast, deteriorating economic conditions and currency depreciations primarily accounted for a more than 4% contraction of sawnwood and panels consumption in countries of the Commonwealth of Independent States (CIS).

3. As in the past years, currency volatility played an important role in the trade of forest products. In particular, imports of wood products jumped about 10% in the United States, while exports declined by about the same ratio, as a result of the strong US dollar. In the CIS countries, a weakened ruble pushed exports to record highs for all major product categories, in many cases more than countering the lack of domestic demand and thus increasing production.

4. The pulp and paper sector continues to undergo major structural changes. Increased use of electronic media and competitive pressure from outside the region led to reduced consumption and production in all subregions of the ECE region.

#### **A. Economic developments with implications on the forest sector**

5. The world economy slowed down in 2015, driven by weakened performance in emerging economies. In the ECE region, growth rates differed widely. The gap between the pace of expansion in the United States and the European Union (EU) narrowed, as economic activity in the euro area picked up significantly. Growth in the new EU member countries was much faster than the expansion observed in the rest of the EU, so convergence with income levels in older EU members continued, albeit at a slower rate than before the global financial crisis. By contrast, the adverse trends observed in the CIS in late 2014 became stronger, and sluggish growth was followed by an outright output contraction. A major factor explaining the diversity of economic performances in the ECE region was the decline in oil prices, which almost halved, as this impacted energy-exporting and -importing countries differently. Lower oil prices also negatively affected investment in the energy sector in some advanced countries.

6. In the United States, job creation has been fast but wage growth has only recently picked up. As unemployment approaches levels close to what could be considered full employment, wage increases are likely to accelerate. Conditions improved in the euro area, driven by the continued output recovery in a context of moderate wage increases. However, the unemployment rate remains well above pre-crisis levels, and the aggregate figure masks significant differences, with unemployment being still very high in some countries. Labour market reforms have brought increased flexibility but employment growth has often been dominated by low quality jobs. In the CIS, the labour market has been relatively resilient, given the scale of the decline in economic activity, but unemployment has increased and remittances, which are sizeable in the poorest economies, have shrunk sharply.

7. The improvement in labour markets and easier financing conditions have boosted housing prices and residential investment in some advanced countries. In the United States, construction performed particularly well, soaking up pent-up demand and being supported by an acceleration in the rate of household formation. In the euro area, investment in construction turned positive after years of sustained decline. Rising real incomes and low mortgage rates have driven this turnaround but, in some countries, including Portugal, Spain and Finland, high levels of household debt continue to have a dampening influence on construction investment. In the euro area as a whole, housing prices have increased but they continued to fall in some countries, including France, Finland, Greece and Italy.

8. Overall investment (i.e. including residential and non-residential investment) in advanced countries has remained relatively weak, amid lingering concerns over the strength of global demand, bouts of financial turbulence and, in some countries, still high levels of indebtedness.

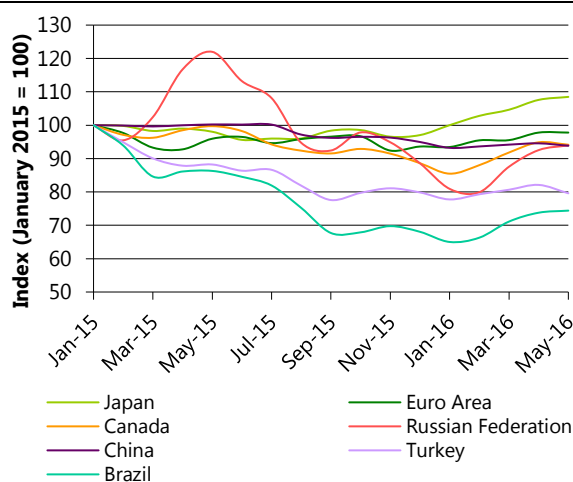
However, easier financing conditions have facilitated deleveraging and debt refinancing, while low oil prices have been positive for corporate profitability.

9. A more sustained and robust recovery in the United States than in the euro area has reflected the divergence of monetary policies. While the US Federal Reserve increased rates after seven years of no change in December 2015, the European Central Bank announced further easing measures in March 2016. However, rapid tightening in the United States seems implausible, given renewed concerns over growth and the easing bias signalled by monetary authorities in other advanced countries. Past expectations on the direction of monetary policy drove movements in exchange rates, with a sharp appreciation of the US dollar in 2014 that dampened recent export performance. The euro strengthened in relation to the US dollar from recent lows in early 2016 but appreciation has been limited. In the CIS, large exchange rate depreciations have taken place, as the shocks in energy-exporting countries have been transmitted to other economies in this subregion (Graph 1). In early 2016, some recovery in commodity prices was accompanied by currency strengthening.

10. The different role of fiscal policy in supporting the recovery after the 2008-2009 financial crisis in the United States and the euro area contributes to explaining the differences in economic performance in recent years. In the euro area, past tighter fiscal policy has now been replaced by a more relaxed stance. In a number of EU countries, the refugee crisis has been a source of additional fiscal outlays and is expected to provide further impetus to the construction sector. In the CIS, energy exporters were forced to undertake significant fiscal adjustments, as oil prices were expected to stay low for some time.

GRAPH 1

**Major currencies used to trade forest products, indexed against the US dollar,  
January 2015-May 2016**



Source: IMF, 2016.

11. Overall, the pattern of weak recovery from the global financial crisis will continue in 2016. Some moderation in the pace of economic expansion in the United States and the EU is expected. Output in the CIS is expected to shrink for a second consecutive year. Prospects are improving in line with the firming of oil prices but vulnerability to further shocks remains.

12. There are a number of risks that cloud the horizon. Geopolitical tensions, which have disrupted trade and undermined confidence in the CIS, have not yet disappeared. The refugee crisis, while providing a short-term boost to economic activity, is creating strains in a number of European countries. The United Kingdom vote to leave the EU has added a source of uncertainty that is unlikely to dissipate in the immediate future.

## **B. Policy and regulatory developments affecting the forest products sector**

13. Policy initiatives such as the EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan, due diligence procedures for conformance to the US Lacey Act and the EUTR, and the continued expansion of the certified forest area worldwide, demonstrate that the forest products sector is playing a leading and innovative role in developing the green economy.

14. An evaluation of the EU FLEGT Action Plan found that it had contributed to improving forest governance globally, and helped – alongside the EUTR – to reduce European imports of illegal timber. It concluded that the Plan needs to be adapted to address new challenges, particularly forest conversion, and more focus is needed on private-sector engagement and communication. A review of the first two years of operation of the EUTR indicated that, while implementation has been uneven, the regulation is already contributing to significant changes in trade attitudes, structures and distribution networks.

15. Canada and the EU have concluded negotiations on the Comprehensive Economic and Trade Agreement (CETA), while the Transatlantic Trade and Investment Partnership (TTIP) – a trade agreement between the EU and the United States – is still under negotiation. Both the CETA and the TTIP should encourage transatlantic trade, particularly in value added forest products.

16. The Softwood Lumber Agreement (SLA) between Canada and the United States has expired. The SLA is not likely to be settled in 2016. However, Prime Minister Trudeau and President Obama committed to resolving the issue. There is some expectation that agreement might be reached before the second quarter of 2017.

17. In 2015, Armenia and Kyrgyzstan officially joined Belarus, Kazakhstan and the Russian Federation in the Eurasian Customs Union, which is designed to reduce barriers to the movement of goods, services, capital and labour, and is expected to increase the trade in forest products among these countries.

18. The two major certification schemes (the Forest Stewardship Council - FSC - and the Programme for the Endorsement of Forest Certification - PEFC) report a combined total of 462 million hectares of certified forests globally, an increase of 15.8 million hectares (3.5%) over the previous reporting year. This includes more than 50 million hectares of overlap due to double certification, according to ongoing research. Excluding the double-counting of forests certified under both schemes, the certified forest area worldwide amounts to 11% of the global forest area. The share of roundwood production that is certified is estimated to account for about 29% of global production.

19. The Paris Agreement - the main outcome of COP21 to the UN Framework Convention on Climate Change (UNFCCC) - signaled that cutting emissions from deforestation and promoting sustainable forestry are now recognized globally as among the most efficient ways to address climate change.

20. Active engagement by the forest sector in trade policies, environmental and climate initiatives, and voluntary programmes is contributing to increased recognition of the benefits of wood. However, policy uncertainties associated with ongoing debates and extended negotiations have the potential to hinder further progress on several fronts, such as forest carbon trading, sustainability rules for biomass, transatlantic trade agreements, FLEGT licensing, and green building efforts. Greater alignment of these diverse efforts is needed to realize the full benefits of forests and forest products.

## **C. Pallets and wooden packaging**

21. Wooden pallets, crates and packaging cases play important roles in the movement and storage of goods worldwide. Proper design and quality standards ensure that performance is

sufficient to protect the goods transported. When the economy booms, so too does the pallet and wooden packaging industry.

22. Pallets and wooden packaging are well positioned to flourish under policies and laws aimed at a low-carbon economy and sustainability because they have very high rates of reuse, repair and recycling, and they can be used for wood energy or the manufacture of particle board at the end of their useful lives. The sector is aware of the importance of proper phytosanitary measures to ensure that no invasive pests and diseases are spread via pallets and wooden packaging.

23. Pallets are by far the most common type of wooden packaging. They provide a safe, effective transport and storage platform throughout the handling and distribution process. Pallet construction is becoming more standardized in Europe, with a migration to the EUR-pallet; the 800 x 1,200 mm unit is most prevalent. In contrast, pallet sizes and designs are much less standardized in North America, where most pallets in use are custom-designed to suit transport and shipping configurations.

24. It is estimated that there are about 4 billion pallets in circulation in Europe and about 2 billion in North America. In Europe, the pallet and wooden packaging industry consumed more than 20 million m<sup>3</sup> of sawnwood (mostly softwood) in 2015. Similar data for North America refers to 2011 production of 800 million pallets (both new and rebuilt units), using about 16.5 million m<sup>3</sup> of new lumber and 12.6 million m<sup>3</sup> of reclaimed lumber. Pallet pools – whereby companies rent, lease or share the use of pallets – are increasingly used. Many companies are finding benefits in pooling, such as consistent quality, flexibility, the avoidance of capital expenditure, the reduction of costs, more cost certainty, and a reduction in the loss of assets, especially in closed pools (where pallets remain the property of the pooler). In North America, rental pallets are expected to facilitate the movement of food and consumer goods between the United States, Canada and Mexico.

25. France and the United States dominate global barrel exports, with France accounting for about \$807 million and the United States for \$450 million of the value of barrel exports in 2015.

## **II. Summary of regional and subregional markets for key forest products**

### **A. Wood raw materials**

26. The total consumption of roundwood – comprising logs for industrial uses and fuel – in the ECE region was estimated at 1.28 billion m<sup>3</sup> in 2015, an increase of 1.2% from 2014 and the third consecutive year of growth. Total log usage reached its highest level in almost ten years in each of the three ECE subregions in 2015 due to increased demand from the sawlog sector.

27. Removals of industrial roundwood in the ECE region were up by 0.9% in 2015, with the biggest increase in Europe (+2%) and practically no change in North America. Although log production in the CIS subregion was only 1.1% higher in 2015 than in 2014, the longer-term trend is more impressive, with 2015 removals almost 10% above those in 2011. Almost all the increase in the timber harvest in the ECE region in 2015 was of coniferous logs, with removals of non-coniferous logs continuing steady.

28. Of the total roundwood removals in the ECE region in 2015, approximately 16% (204 million m<sup>3</sup>) were used for fuel. This volume was consumed predominantly in Europe, which accounted for almost 58% of total woodfuel consumption in the ECE region.

29. The ECE region continues to be a net exporter of logs, with globally significant trade flows of softwood logs from North America and the Russian Federation to China and the

Republic of Korea. Of the top five trade flows of softwood logs worldwide, shipments to China from New Zealand, the Russian Federation and the United States were all lower in 2015 compared with 2014.

30. Wood raw-material costs for the forest industry in the ECE region trended downward in much of 2015 and in early 2016, with sawlog and pulpwood prices, in US dollar terms, reaching their lowest levels in more than six years in the first quarter of 2016.

31. Wood costs, which account for approximately 60% of the production cost when manufacturing pulp, have also fallen steadily in many countries of the ECE for almost five years, with wood fiber costs generally declining more in Europe than in North America.

32. COFFI forecasts that removals of industrial roundwood are expected to increase in the ECE region at an annual rate of 1.2% in 2016 and 1.4% in 2017. The subregional breakdown is as follows: Europe showing an increase of 0.6% in 2016 and a rise of 1.7% in 2017; CIS is expected to increase 3.1% in 2016 and then 1.4% in 2017; and North America to increase 0.9% in 2016 and then 1.1% in 2017.

## **B. Sawn softwood**

33. As in 2014, 2015 saw generally mixed and unsettled global economic trends. Total sawnwood consumption in the ECE region increased by 2.5% - from 191.5 million m<sup>3</sup> to 196.4 million m<sup>3</sup>. The recovery in North America continued for the sixth consecutive year, and sawn softwood consumption increased by 6.1%. Sawnwood consumption was steady in Europe, but economic conditions and depreciating currencies in the CIS countries resulted in a decline in sawn softwood consumption of 2.2% in that subregion. The US dollar strengthened against most currencies in the first half of 2015, and volatile exchange rates affected countries differently.

34. The optimism and anticipated growth forecast a year ago in Europe levelled off in 2015, with apparent consumption in Europe remaining at the 2014 level of 89 million m<sup>3</sup>. Economic conditions are highly variable between countries, and this is reflected in the wide range of growth rates in softwood sawnwood consumption in 2015. Europe produced 102.6 million m<sup>3</sup> of sawn softwood in 2015, a small decrease (0.7%) over 2014. Producers lacked an incentive to increase production, given sluggish demand in Europe and key overseas export markets.

35. Apparent sawn softwood consumption decreased by 2.2% in the CIS subregion in 2015, to 16.7 million m<sup>3</sup>. However, the production of sawn softwood was estimated at 36.3 million m<sup>3</sup> in 2015, up by 0.4% from 2014. The devaluation of the Russian ruble enabled them to achieve large sales margins and high profitability, despite the strong decline in global prices (in US dollars) in the key sawn softwood export markets. Russian sawn softwood production increased slightly (by 0.2%) in 2015, to 32.1 million m<sup>3</sup>, but domestic consumption fell by 9%, to 9.8 million m<sup>3</sup>. The volume of sawn softwood exports from the Russian Federation achieved a record high of 22.4 million m<sup>3</sup> in 2015, up by 5% from 2014, with China representing 44% of Russia's export volume.

36. Apparent North American sawn softwood consumption increased 6.1% to 90.8 million m<sup>3</sup> in 2015. An increase in US housing starts resulted in US consumption of 75.0 million m<sup>3</sup> (up by 4.2%, year-on-year) and, in Canada, consumption reached 15.8 million m<sup>3</sup> (up by 16.6%). US sawn softwood output was 54.3 million m<sup>3</sup> in 2015, an increase of 1.0% compared with 2014. Canadian sawn softwood production soared by 8.3% in 2015, to 45.4 million m<sup>3</sup>. The Canadian dollar has been depreciating against the US dollar since 2014, providing Canadian producers with a competitive advantage in shipments to the US market.

37. COFFI forecasts that production of sawn softwood will increase in the ECE region at an annual rate of 2.6% in 2016 and 0.3% in 2017. The subregional breakdown is as follows: Europe

with a gain of 2.3% in 2016 and 1.5% in 2017; CIS is expected to increase 1.5% in 2016 and another 1.4% in 2017; and North America will gain 3.5% in 2016 and decline 1.3% in 2017.

### **C. Sawn hardwood**

38. Sawn hardwood production in the ECE region increased by 1.8% to 40.7 million m<sup>3</sup> in 2015, with production increasing in all three subregions during the year. Consumption of sawn hardwood in the ECE region also increased to 35.6 million m<sup>3</sup> in 2015, a 0.9% rise compared to 2014 and the fourth consecutive year of increase. Falling consumption in Europe and the CIS in 2015 was offset by rising consumption in North America.

39. European consumption of sawn hardwood decreased 2.8% to 12.2 million m<sup>3</sup> in 2015, mainly due to a significant decline in Turkish consumption. Sawn hardwood consumption in the CIS subregion fell 25.9% to 1.46 million m<sup>3</sup> in 2015 following a 3.6% fall the year before. However, hardwood production in the CIS increased 2.3% to 3.4 million m<sup>3</sup>, with exports taking up the slack. The weakness of the ruble encouraged a 50.5% increase in sawn hardwood exports by the Russian Federation to 1.4 million m<sup>3</sup>. The Russian Federation exported 1.2 million m<sup>3</sup> to China in 2015, 49% more than in 2014 and by far the highest level ever recorded.

40. North American sawn hardwood consumption increased 5.7% to 22.0 million m<sup>3</sup> in 2015, with domestic sales in North America benefitting from rising new homes construction in the United States. However, there are signs of slowing consumption in some sectors, notably pallets, flooring and board roads. US sawn hardwood exports to countries outside the subregion decreased 8.4% to 3.0 million m<sup>3</sup> in 2015, following five consecutive years of growth. Exports slowed to all the leading markets in 2015 including (in order of export volume) China (accounting for 47% of all exports by volume), Vietnam, Mexico, the United Kingdom, Japan and Italy.

41. Outside the ECE region, China continued to dominate the sawn hardwood trade. China's imports of tropical and temperate sawn hardwoods were valued at \$4.1 billion in 2015, marginally less than the previous year, when imports had increased 32% by value compared with 2013. Key innovations in the hardwood sector aim to extend its use into new applications, notably structural applications through the development of new hardwood Cross Laminated Timber (CLT), glulam and Laminated Veneer Lumber (LVL) products.

42. COFFI forecasts that production of sawn hardwood will decline in the ECE region at an annual rate of 2.1% in 2016 and then rise slightly by 1.3% in 2017. The subregional breakdown is as follows: Europe is expected to gain 2.5% in 2016 and 0.9% in 2017 (excluding Turkey); CIS increases 1.6% in 2016 and 3.1% in 2017; and North America with expected increase of 0.1% in 2016 and 1.3% in 2017.

### **D. Wood-based panels**

43. The geographic development of the wood-based panel sector varies significantly across the ECE region. Plywood production in North America (at 11.2 million m<sup>3</sup>) is almost three times greater than in both Europe and the CIS region. Similarly, Oriented Strand Board (OSB) production in North America (at 18.8 million m<sup>3</sup>) is three times greater than in Europe and more than 23 times greater than in the CIS region. Particleboard production in Europe (at 36.6 million m<sup>3</sup>) is four times greater than in the CIS region and more than 6 times that in North America. Finally, medium density fibreboard (MDF) production in Europe (at 16.3 million m<sup>3</sup>) is about four times greater than in North America and almost 6 times greater than in the CIS region.

44. Overall, wood-based panel production was generally stable in Europe and North America, while it was up strongly in the CIS region. However, the trend in production differed substantially across different product categories. Both particleboard and plywood production trends were

lacklustre across the entire ECE region. Particleboard production was down slightly in both Europe and the CIS region and up very slightly within North America. Plywood production showed little growth within Europe and the CIS region and was down within North America. Production trends for OSB and MDF panels were slightly more positive, particularly in the CIS region where significant increases were reported. OSB production showed moderate growth in both Europe and North America, while production was up by almost 120% in the CIS region where the OSB industry has only been established since 2012. Finally, MDF production, which was essentially stable in Europe, grew by over 3% in North America and by 26% in the CIS region.

45. The trade situation was also interesting as currency valuations sharply affected trade patterns for wood-based panels across the ECE region. For example, the weak ruble contributed to double digit growth in exports across all product categories for the CIS region as well as double digit declines in panel imports. Overall, the CIS region remained a net exporter of wood-based panels in 2015. Within Europe, the trend was mixed, with exports of plywood and MDF moderately up, and imports of plywood and OSB also rising moderately. Overall, European trade of wood-based panels was up by almost 5% over 2014, and Europe maintained a slight trade surplus in wood-based panels. By and large, North America displayed a trade deficit in wood-based panels across almost every product category, with the exception of OSB where there was a slight trade surplus. Overall, the North American trade deficit increased by 20% in 2015.

46. COFFI forecasts that production of wood-based panels will increase in the ECE region at an annual rate of 1.6% in 2016 and by 1.7% in 2017. The subregional breakdown is as follows: Europe will grow 1.3% in 2016 and 1.2% in 2017; CIS should increase by 4.3% in 2016 and 3.8% in 2017; and North America is forecast to grow 2.0% in 2016 and 1.6% in 2017.

## **E. Paper, paperboard and wood pulp**

47. Paper and paperboard production fell in Europe and North America in 2015, largely as graphic paper capacity continued to be closed, itself the result of increased electronic communication including the internet. Wood-pulp production rose in the CIS due to new investment into market pulp capacity.

48. Overcapacity in the pulp, paper and paperboard segments led to closures and consolidation in 2015 and in the first half of 2016. However, a series of strategic investments, mainly in tissue, specialty packaging and dissolving pulp, in recent years breathed life into the pulp and paper sector in the ECE region. Wood-pulp production in the ECE region declined in 2015 due to closures of integrated paper machines, longer maintenance downtime as a result of unplanned mechanical issues and as market pulp capacity was permanently removed. Currency exchange rates and increased competition from market pulp mills outside the ECE region were in part the cause.

49. Capacity closures in graphic grades in Europe and North America continued as a result of declining demand. Prices that had been on the decline for years finally appeared to bottom, and a recovery was underway in early 2016. Large-scale rationalization and concentration of the paperboard sector was largely over by the end of 2015. However, a series of expansions by converting idled newsprint capacity was still viewed as a financially viable option.

50. Emerging markets and increased standards of living provided the impetus for further expansions in sanitary and household tissue capacity, while research and marketing opportunities allowed for strategic investments into specialty packaging assets.

51. Outside the ECE region, major ongoing investments into chemical pulp, tissue and specialty packaging papers continue to have a profound influence on Europe, North America and the CIS. Continuous investment into research and innovation is allowing industries to thrive.



However, challenges remain as companies in the ECE region face mounting pressures from outside competitors, many of which enjoy favourable exchange rates, advantageous production and cost structures, as well as financial assistance from state-run development banks and financial institutions. These pressures exerted on ECE mills have often led to trade sanctions including the imposition of import tariffs.

52. The global pulp, paper and paperboard industry is constantly evolving, and the challenges facing the ECE region are vast and complex. Nonetheless, innovation, research into new products, and entrepreneurship are leading the way to maintaining a vital industry for so many stakeholders.

53. COFFI forecasts that production of pulp is expected to increase in the ECE region at an annual rate of 0.8% in 2016 and 1.0% in 2017. The subregional breakdown is as follows: Europe will increase 2.1% in 2016 and is expected to gain 2.2% in 2017; CIS is expected to increase 1.6% in 2016 and then a further 2.4% in 2017; and North America is forecast to increase 0.1% in 2016 and the same in 2017.

54. COFFI forecasts that production of paper and board will decline in the ECE region at an annual rate of 0.1% in 2016 and in 2017. The subregional breakdown is as follows: Europe is gaining 0.1% in 2016 and is expected to gain a further 0.5% in 2017; CIS is forecast to gain 0.4% in 2016 and gain 1.0% in 2017; and North America would decline 0.4% in 2016 and decline by 1.0% in 2017.

## **F. Wood energy**

55. Wood energy consumption shows year-on-year variations associated with the fluctuation of weather patterns and competing energy sources. The expectation of future demand for wood pellets, for instance, continues to drive growth in installed manufacturing capacity, but 2015 saw prices for industrial and residential pellets decline in Europe and North America as a result of oversupply and lower demand linked to mild seasonal temperatures. Wood pellet trade continues to expand, and North America exported 6.2 million tonnes to the EU in 2015, with the United Kingdom being the largest importer of industrial pellets. Demand for wood energy feedstock (including pellets, briquettes and chips) is increasing within the CIS, and the depreciation of the Russian ruble might enhance opportunities for increased exports - although geopolitical dynamics might counter that effect.

56. The UNFCCC's Paris Agreement to curtail greenhouse gas emissions could support the expansion of wood energy use but the role that wood will play toward meeting targets will depend on many external factors, including the frameworks adopted by each nation for carbon accounting. Sustainability guidelines for the use of wood for energy continue to evolve after many years of collaboration between public and private stakeholders, and standards might be adopted in the near future. Changes to the policy environment, ranging from an international climate agreement to regional renewable energy efforts such as a post-EU2020 agenda (2009/28/EC), add significant uncertainty to wood energy markets. The public policy renewable energy framework seems to be in flux with potential amendments to eligibility rules and financial incentive programmes. Small-scale, highly efficient combined-heat-and-power (CHP) units using woodfuels present opportunities for the expansion of wood energy, and some seem close to commercial feasibility, but low-priced fossil fuels and the enhanced cost-effectiveness of other renewables pose significant barriers.

57. COFFI forecasts that production of wood pellets will increase in the ECE region at an annual rate of 6.8% in 2016 and 3.1% in 2017. The subregional breakdown is as follows: Europe is forecast to increase by 6.6% in 2016 and a further 0.6% in 2017; CIS is expected to increase 11.4% in 2016 and 13.6% in 2017; and North America is estimated to increase 6.3% in 2016 and then 4.6% in 2017.

## G. Value-added wood products

58. Value-added wood products markets are recovering unevenly, depending largely on housing and renovation expenditures. Accordingly, US import markets have grown rapidly to reach pre-crisis levels, but European markets growth was more moderate or even stagnant. Trade flows have been strongly impacted by the strength of the US dollar against all major currencies.

59. Global furniture production was \$410 billion in 2015, down slightly from 2014. Similarly, the volume of furniture trade declined slightly to an estimated \$140 billion in 2015, but the overall trend is for increasing furniture exports. About 65% of furniture is consumed in the countries in which it is manufactured, and the other 35% is exported. The furniture industry has changed dramatically in recent decades, with domestic producers seeking to retain competitiveness and market share by improving their ability to serve the marketplace in terms of quality, customization and quick delivery.

60. US imports of builders joinery and carpentry (BJC) have continued a strong increasing trend, reaching \$2 billion in 2015, driven by increased remodelling spending. In contrast, European imports were essentially flat. However, the strong devaluation of the euro translated into much lower import values in US dollar terms.

61. Profiled-wood markets have been growing at a slower rate. Many larger suppliers to the US markets have increased production capacity, while a large share of the existing production is now targeted at other markets, principally China. Profiled-wood markets in Europe declined in 2015 and are supplied mainly by regional producers.

62. North American production of engineered wood products (EWP) such as glulam, wooden I-beams and LVL have made significant gains from 2010 through to the forecast for 2016. This is tied to the increase in new housing construction. In contrast, European glulam production has been more uneven, with some countries' output heavily affected by their exports to Japan (e.g. Austria, Finland and Romania) while others benefit from sustained domestic demand (Germany and Sweden).

63. CLT production is expanding globally, with new production facilities outside the DACH countries – Germany, Austria and Switzerland – where production originally began. Global production in 2015 was estimated at 650,000-700,000 m<sup>3</sup>. In DACH countries, production growth has been slowing in the past year partly because of slowing exports and softer domestic demand. In Europe, CLT construction is 10-15% more expensive than masonry or cement construction, but it is hoped that costs will come down with the further development of the industry and the standardization of products. In contrast, in North America the use of CLT for building is quickly gaining momentum, thanks in large part to interest shown in west-coast cities with strong wood cultures (e.g. Portland, Seattle and Vancouver), the newly established quality and performance standards, and investment in manufacturing the product.

## H. Housing

64. The European and North American housing markets are still recovering from the 2008 financial crisis. In general, subdued economic forecasts for many advanced countries in the ECE region suggest that housing construction and sales in 2016 and 2017 might be similar to those reported in the past few years.

65. In Europe, construction increased by 0.1% between March 2015 and March 2016, primarily thanks to improvements in the building construction sector, while the civil engineering sector declined, year-on-year. On a monetary basis, remodelling is the largest component (about 60%) of euro-area residential construction. New residential construction is forecast to increase at a higher rate than remodelling in the immediate future. The key factors positively affecting the

residential sector are financing and improved economic prospects, consistent with a slowly recovering European economy. Belgium, France, Germany, the Netherlands and Spain currently account for 73% of total residential output, and these countries are forecast to lead housing starts in the short term. The renovation of buildings to reflect changing demand requirements and preferences in light of demographic ageing will also become an essential aspect of future housing construction.

66. The US housing market has continued its ascent from the 2009 trough, while the Canadian market has remained steady, despite recent declines in oil prices and revenues. All sectors of the US housing market improved in 2015. Beginner or starter housing is weak, however, and the number of dwellings built is insufficient to match population growth. Residential investment (new homes, remodelling, manufactured homes, brokers' fees) is a crucial contributor to US GDP: it accounted for 6.1% of GDP in 2005 but was only 3.0% in 2014 and 3.2% in 2015, an indication that the new-housing construction market has further room to expand.

67. Just over 280,000 residential buildings were built in the Russian Federation in 2015, a decrease of 1.1% over 2014. Overall, 418.2 million m<sup>2</sup> of floor space was put in place, an increase of 3.4%, year-on-year, indicating an increase in the average floor area of new buildings. Subdued short-term economic growth is expected to result in sizeable budget cuts and delays in residential construction programmes.

68. Overall construction investment (i.e. including both residential and non-residential investment) in advanced countries has remained relatively weak amid lingering concerns over the strength of demand, bouts of financial turbulence and, in some countries, continued high levels of indebtedness.