



Economic and Social Council

Distr.: General
2 August 2016

Original: English

Economic Commission for Europe

Committee on Forests and the Forest Industry

Seventy-fourth session

Geneva, 18-20 October 2016

Item 3(b) of the provisional agenda

Forest products and markets

Trends and perspectives for pallets and wooden packaging

Note by the secretariat

Summary

This document describes the current situation and markets trends for wood pallets and packaging. The purpose of the document is to inform the Committee about the importance of the sector as it relates to the forest sector at large.

The pallets and packaging sector is an important user of sawn wood, accounting for almost 20% of the production of sawn softwood in Europe and about 14% of all sawn wood in North America. Production for all the main wooden packaging products increased in Europe from 2012 to 2014, with a total value in 2014 of \$11.1 billion. The total estimated value of wood containers and pallets was more than \$8 billion in 2015 in North America.

The Committee is invited to:

- *take note of this item;*
- *discuss the role of wooden packaging and the past and future developments of wooden packaging in the UNECE region;*
- *discuss whether policies should specifically target wooden packaging in the context of the forest sector in the green economy.*

I. Introduction

1. The classification of wooden packaging includes pallets, pallet collars, box pallets, boxes, crates, cable drums, lightweight packaging for fruit and vegetables, barrels, tailor-made constructions, and dunnage for supporting goods under transportation.

2. 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.
3. 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. Although there are standardized versions, pallets are produced in many sizes and configurations to accommodate different handling equipment (generally forklifts), cargoes, space constraints and required longevity (i.e. single or multiple use).
4. Industrial packaging includes, for example, boxes, crates, box pallets, bins, cages and pallet collars. Pallet collars can function as both pallets and (with a lid and bottom) strong boxes; they are stackable, meaning they can form boxes of varying heights, and many versions are collapsible, meaning they can be stored efficiently when not in use. Pallet collars are used widely, such as for the transport and storage of small parts in the assembly industry. Foldable pallet collars with lids and bottoms can create demountable boxes for simple, cheap return transportation and storage.
5. Lightweight packaging includes crates, cases, boxes and small drums; it is used mainly for processed or fresh food, beverages, and other consumer goods demanding quality and protection.
6. Cable drums are used by cable manufacturers in the electrical, electronics and telecommunications sectors.

II. Europe

A. Consumption

7. Most pallets and wooden packaging in Europe are made of softwood produced in sustainably managed forests and currently it is estimated that about 4 billion pallets are in circulation in Europe. The average lifespan of a pallet is 5-7 years. The pallet and wooden packaging industry in Europe consumed more than 20 million m³ of sawnwood in 2015, which was more than 20% of total sawnwood production. When the economy booms, so too does the pallet and wooden packaging industry.
8. Pallets are manufactured to standards or custom-made. There is a high degree of standardization in Europe based on the modular size of 600 x 400 mm. The major pallet footprints in Europe are 800 x 1,200 mm and 1,000 x 1,200 mm, but half-pallets (600 x 800 mm) and quarter-pallets (400 x 600 mm) are also produced; these tend to be used on full-sized pallets, especially for small shops ordering small quantities. The UK and Benelux export markets, where 1,000 x 1,200 mm pallets were previously the standard, are switching to the EUR pallet of 800 x 1,200 mm.
9. In Europe, four-way-entry block pallets (meaning the forklift can enter from any of the four sides of the pallet) are used most commonly: they now comprise 85% of all pallets, up from 80% in 2006. The prevalence of multi-use pallets increased from 55% in 2006 to 60% in 2013, and the number of pallets repaired increased from 71 million units in 2010 to 129 million units in 2013.
10. Pallet pools, whereby companies rent, lease or share the use of pallets, are growing in Europe. The big pools anticipate more pallet repair as the use of pools grows.

B. Production and capacity change

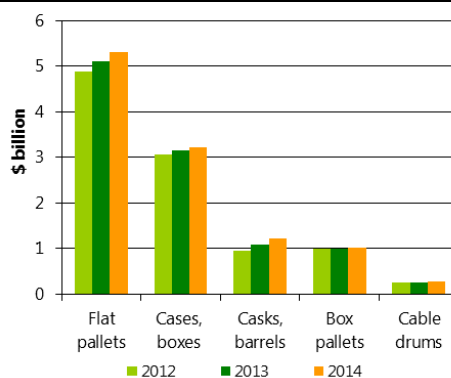
11. The production of pallets and wooden packaging is fragmented in Europe, with a large number of small and medium-sized enterprises operating. Production has been

shifting to eastern Europe, where costs are lower; pallet manufacture is becoming more automated in western Europe, with the industry incorporating more robotics into production and repair. The sector has consolidated in recent years, with fewer and bigger companies, and a few of the larger groups have started operating internationally.

12. Production for all the main wooden packaging products increased in Europe from 2012 to 2014, with a total value in 2014 of \$11.1 billion (graph 1).

GRAPH 1

Production value of flat pallets and pallet collars, EU28, 2012-2014



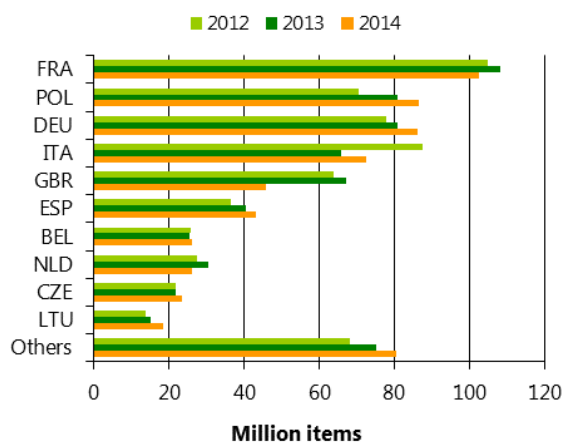
Source: Eurostat, 2016.

C. Flat pallets and pallet collars

13. France, Poland and Germany are the largest producers (in descending order) of flat pallets and pallet collars in the EU28; production has been increasing at the highest rate in Poland (graph 2).

GRAPH 2

Production of flat pallets and pallet collars made of wood, EU28 countries, 2012-2014



Notes: FRA = France; POL = Poland; DEU = Germany; ITA = Italy; GBR = United Kingdom of Great Britain and Northern Ireland; ESP = Spain; BEL = Belgium; NLD = Netherlands; CZE = Czech Republic; LTU = Lithuania.

Source: Eurostat, 2016.

14. The European Federation for Manufacturers of Wooden Packaging (FEFPEB) collects statistics on pallet production from its member organizations. Its data, from 15 countries (Austria, Belgium, Denmark, France, Germany, Italy, Lithuania, the

Netherlands, Portugal, Spain, Sweden, Switzerland, Turkey, the UK and Ireland) show that the number of manufactured pallets increased from 339 million units in 2006, to 371 million units in 2010, to 401 million units in 2013.

15. Wooden packaging material in the EU (and in the US and many other countries) need to comply with the International Standards For Phytosanitary Measures No. 15 (ISPM 15) standard under the International Plant Protection Convention, which is overseen by the Food and Agriculture Organization of the United Nations (FAO). It is an internationally agreed phytosanitary standard for the treatment of all forms of packaging made from solid wood. To comply, wooden packaging must undergo heat treatment or fumigation according to the standard.

16. FEFPEB reported that 38% of pallets manufactured in 2006 were heat-treated, compared with 60% of those made in 2010 and 50% of those made in 2013. Forty-six percent of pallets manufactured in 2010 were heat-treated and kiln-dried, compared with 41% of those made in 2013. The steep increase in heat treatment after 2006 was due to a pinewood nematode infestation in Portugal, which forced all manufacturers in the country to treat all pallets and wooden packaging, triggering a Europe-wide increase in demand for treated pallets and packaging.

17. In some countries, especially the Nordic countries, nearly 100% of sawn softwood timber is heat-treated and kiln-dried. In other countries, the pallets are manufactured from pre-cut green timber, and heat treatment takes place after assembly.

18. Pallet pools of various types are growing in Europe. 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.

19. The most common pallet pool in Europe, the European Pallet Association, (EPAL) - Euro-pallet, originated from wooden pallets used in railway transport. The pallet was standardized in 1961, after which most European industries started using it, optimizing their trucks, forklifts and high-rack warehouses to do so. Euro-pallet is an open pool involving framework agreements among national associations for pallet exchange: freight is delivered on Euro-pallets, and an equal number of Euro-pallets is provided in return ("pallet for pallet"). It is estimated that nearly 500 million EPAL Euro-pallets are in circulation.

20. A total of 73.6 million EPAL Euro-pallets were produced in 2015, up from 67 million in 2012. An estimated 23.9 million units were repaired in 2015, compared with 22.4 million units in 2014.

21. In a closed pool, the pallets always remain the property of the pooler, who manages, tracks, recovers, maintains and repairs the pallets. The Commonwealth Handling Equipment Pool (CHEP), the Faber Halbertsma Group Return System (PRS) and La Palette Rouge (LPR) are major closed pools; together they account for roughly 200 million pallets.

22. CHEP evolved from the Allied Materials Handling Standing Committee, an organization developed by the Australian Government for the efficient handling of defence supplies in the Second World War. The largest CHEP pallet-pool countries in the EU are (in descending order) the UK, Spain, France, Germany and Italy.

23. Pooling Partners (in the Faber Halbertsma Group) is a pooling-services provider, and it also manufactures pallets and boxes. It operates three pooling networks: International Pallet Pool Logipal B.V. (IPP Logipal); PAKi Logistics; and the PRS Return System. The PRS Return System was established in 1997 to rent pallets to the chemical industry when it adopted pallet standardization. It is estimated that Pooling Partners moves more than 75 million pallets per year.

24. The LPR was established in 1989 in France as a pallet-pooling specialist, and it has expanded progressively across Europe, with a focus on the consumer goods supply chain. LPR reported 73 million pallet movements in 2015.

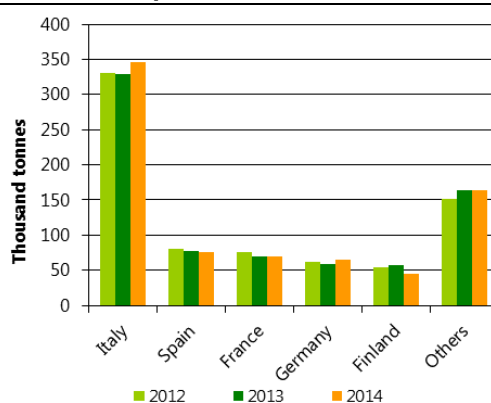
25. Another major pooling provider is the Palettes Gestion Services (PGS) Group; this is mainly a business-to-business pool, with more than 25 million pallets.

D. Box pallets and load boards of wood (excluding flat pallets)

26. The production of box pallets and load boards was fairly stable in the EU28 from 2012 to 2014, with about 764 thousand tonnes produced in 2014. Among EU28 countries, Italy dominates production (graph 3).

GRAPH 3

EU28 production of box pallets and load boards of wood, 2012-2014



Source: Eurostat, 2016.

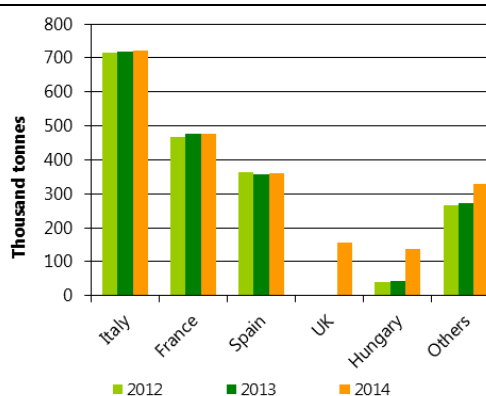
E. Cases, boxes, crates, drums and similar wooden packaging

27. There was an increase in the production of cases, boxes, crates, drums and similar wooden packaging in Europe from 2012 to 2014. Italy was the leading producer, followed by Spain and France (graph 4).

28. The production of cable drums increased by 50% in 2014 compared with 2013, with Hungary increasing production significantly.

GRAPH 4

EU28 production of cable drums, cases, boxes, crates, drums and similar packages of wood, 2012-2014



Source: Eurostat, 2016.

F. Lightweight packaging

29. Lightweight packaging, used mainly for fruit and vegetables, is reported separately in the FEFPEB data. Table 1 and graph 5 show the number of units manufactured in 2010 and 2013 for those countries that provided data to FEFPEB; Spain was the largest manufacturer, followed by France. There was a slight decrease in production in France between 2010 and 2013 and an 18% increase in Spain. Roughly 80% of the lightweight packaging produced in Spain in 2013, and all the production in Portugal, were reported to be heat-treated in conformity with ISPM 15.

TABLE 1

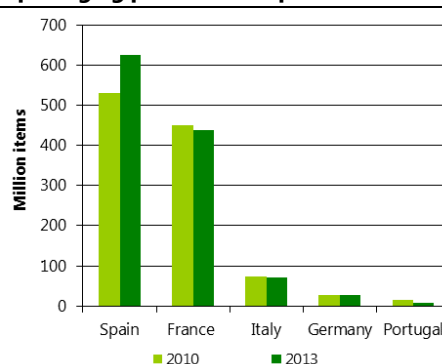
Wood use for lightweight packaging reported to FEFPEB, 2010 and 2013

	2010	2013
Million units	1,095	1,171
m ³	1,232,891	1,243,000

Source: FEFPEB, 2016.

GRAPH 5

Lightweight wooden packaging production, top five EU28 countries, 2010 and 2013



Source: FEFPEB, 2016.

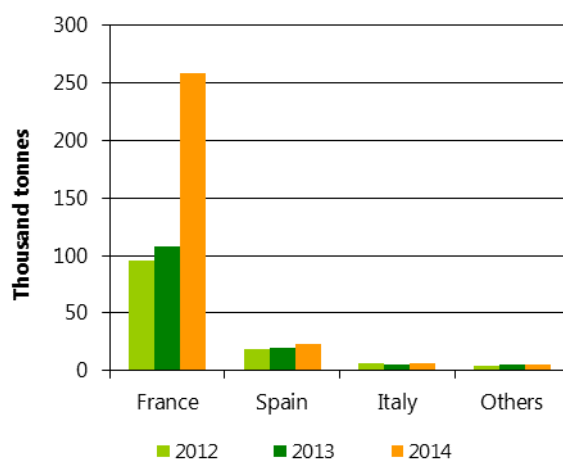
G. Barrels and cooperage products, including staves

30. Casks, barrels, vats, tubs and other cooperage products and parts, including staves, tend to have high values, making them quite cost-effective for long-distance trade. Wine barrels, for example, are made mostly of oak.

31. The main producers of barrels and cooperage products in the EU28 are (in descending order) France, Spain, Italy and Hungary. Production in France, the predominant producer, increased by 170% between 2012 and 2014; over the same period, the increase for the EU28 as a whole was about 125% (graph 6) France is the world's largest exporter of barrels, exporting \$807 million worth in 2015.

GRAPH 6

Production of wooden casks, barrels, vats, tubs and other cooperage products and parts, including staves, EU28, 2012-2014



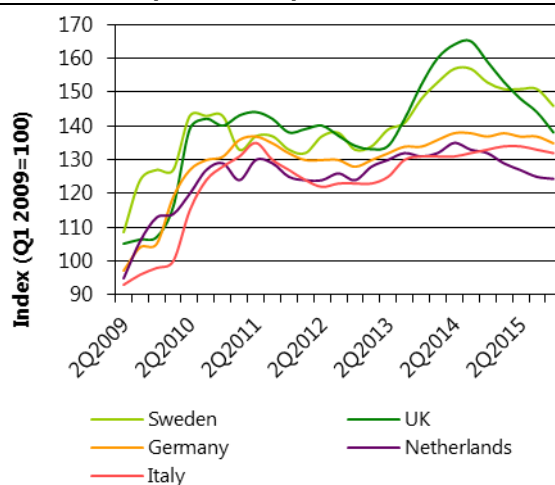
Source: Eurostat, 2016.

H. Prices

32. Pallet prices have been fairly stable in recent years, even though prices of raw materials have fluctuated (graph 7). There is price pressure on pallets, and overcapacity has been reported.

GRAPH 7

FEFPEB pallet timber price index, 2009-2015



Notes: This figure has been produced from the national timber price indices of Germany, Italy, the Netherlands, Sweden and the UK, using comparable pallet wood sizes and a common base year (2009) to make them comparable. The FEFPEB pallet timber price index indicates price trends for the wood used for pallets in Europe.

Source: FEFPEB, 2016.

I. Trade

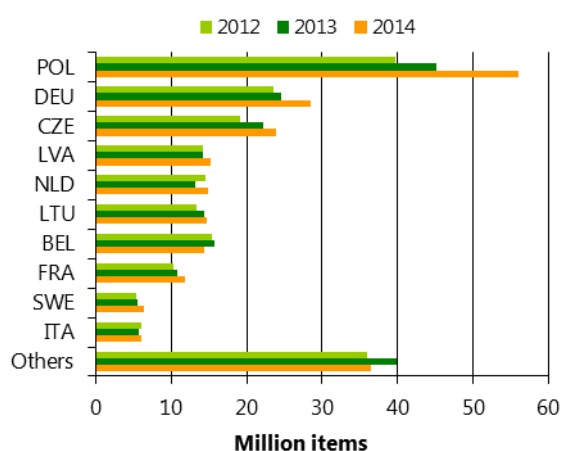
33. Pallets and wooden packaging are mostly shipped with goods, but there is also some trade of empty pallets and wooden packaging, mainly within Europe.

a) Flat pallets and pallet collars

34. This sector is developing strongly in Poland and other eastern EU countries (graph 8). Many western European countries find it hard to compete with eastern European prices; imports are increasing in western Europe and production is moving to low-cost countries. Of the EU28 countries, Germany is the largest importer of pallets and pallet collars (graph 9).

GRAPH 8

Exports of flat pallets and collars of wood, EU28, 2012-2014

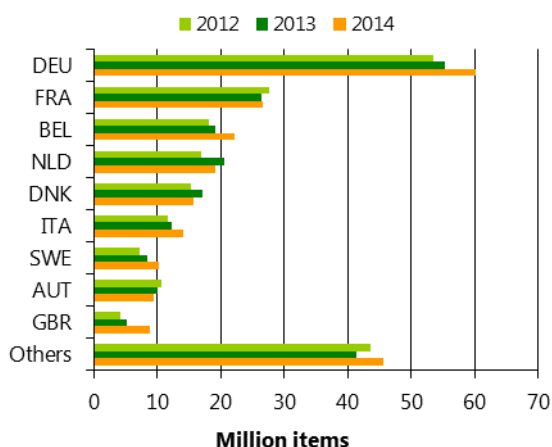


Notes: Pol = Poland; DEU = Germany; CZE = Czech Republic; LVA = Latvia; NLD = Netherlands; LTU = Lithuania; BEL = Belgium; FRA = France; SWE = Sweden; ITA = Italy.

Source: Eurostat, 2016.

GRAPH 9

Imports of flat pallets and collars of wood, EU28, 2012-2014



Notes: DEU = Germany; FRA = France; BEL = Belgium; NLD = Netherlands; DNK = Denmark; ITA = Italy; SWE = Sweden; AUT = Austria; GBR = United Kingdom of Great Britain and Northern Ireland.

Source: Eurostat, 2016.

35. The EU28 countries trade pallets and wooden packaging (excluding casks and barrels) more strongly with each other than extraregionally. Barrels and casks dominate exports, making up about half the value of all imports in the pallets and wooden packaging category. Exports in 2014 for all other categories except pallets (which increased by 12%) fell in 2014 compared with 2013, and imports increased substantially (table 2).

TABLE 2

EU28 exports of pallets and wooden packaging, 2012-2014

	(\$ million)			Change (%) 2013-2014
	2012	2013	2014	
<i>Exports</i>				
Flat pallets	129	137	155	12
Box pallets	54	56	50	-11
Casks, barrels	351	414	399	-4
Cases, boxes	62	77	76	-1
Cable drums	19	20	17	-17
<i>Imports</i>				
Flat pallets	72.1	78.5	106.6	36
Box pallets	21.7	24.1	27.4	13
Casks, barrels	111.8	135.6	177.9	31
Cases, boxes	32.9	33.2	38.7	16
Cable drums	4.5	3.8	6.1	63

Source: Eurostat, 2016.

J. European policy and regulatory influences

a) Circular economy

36. In December 2015, the European Commission launched a communication on “circular economy”, which has now been sent out to member states for consultation. The EU’s action plan for a transition to a more circular economy aims to develop a sustainable, low-carbon, resource-efficient and competitive economy (the targets are under discussion and therefore not yet decided). The pallet and wooden packaging sector is well placed to thrive in such an economy because its products have a very high rate of reuse, repair and recycling and can be used to generate wood energy or in the manufacture of particle board at the end of their useful lives.

37. Legislative proposals on waste, adopted along with the action plan for a transition to a more circular economy, include long-term targets to reduce landfilling and increase the preparation of materials for reuse and recycling, as well as higher recycling targets for packaging materials. The revised waste proposals will also address key issues relating to the calculation of recycling rates, but it is unclear how the number of pallet trips are to be verified and calculated.

38. The targets laid down in the earlier (1994) Directive 94/62/EC of the European Parliament and of the Council for the recovery and recycling of packaging and packaging waste is being amended to increase reuse and recycling in order to better reflect the EU’s packaging waste ambition in moving towards a circular economy. The proposal is as follows: no later than 31 December 2025, a minimum of 65% (increased to 75% at the

end of 2030) by weight of all packaging waste will be prepared for reuse and recycling, with a minimum target of 60% for wood.

b) Other policy issues with impacts on pallets and wood packaging

39. Many ongoing and potential policy issues are affecting the pallet and wooden packaging sector. Environmental product declarations are now often requested, and both users and policymakers are concerned about the carbon footprints of products. The wooden pallet and packaging sector is also well-placed in this area, comparing favourably with competing materials used for pallets and packaging.

40. Purchasers of wood for the manufacture of pallets and wooden packaging in the EU must comply with the EU Timber Regulation. Producers must exercise due diligence and keep records on wood sources.

41. The use of wood as packaging for food has faced regulatory and perceptual hurdles due to the possibility of splinters, wood's porosity, and the view that wood is difficult to clean and sanitize. Two recent studies in France and Spain, however, have demonstrated the superior antimicrobial properties of wood species such as pine and poplar compared with smooth synthetic materials, including plastics.

III. CIS subregion, with a focus on the Russian Federation

42. Demand for wooden pallets grew by more than 82% in the Russian Federation between 2010 and 2014, from 9.8 million to 17.8 million units. The biggest growth was in 2011 and 2012, the result of increases in cargo movements. Growth in demand slowed in 2013, to 5%, and the first decline in demand for five years was recorded in 2014. In line with the economic downturn in the Russian Federation, demand for wooden pallets was forecast to decline further in 2015, by 2.4%, but a rebound is expected in 2016-2019.

43. The vast majority of wooden pallets produced in the Russian Federation are used domestically. Domestic sales accounted for about 95% of total production by volume in 2010-2014, with exports accounting for the remainder. Wooden pallet producers have focused on developing the internal market: domestic sales grew by more than 86% from 2010 to 2014, while exports grew by only 31.5%.

44. The largest international buyers of Russian wooden pallets in 2014 were Belarus (295 thousand units), Germany (262 thousand units) and Lithuania (78 thousand units).

IV. North America

45. Eighty percent of consumer and industrial products moving along North American domestic supply chains are palletized. Pallet sizes and designs are less standardized in North America than in other industrialized regions, with most of those in use custom-designed for specific product shipments through designated supply chains. Unlike in other regions, too, a large number of businesses specialize in collecting, repairing and recycling pallets, whether or not they are reusable. Pallets are specified in commerce in US customary units.

A. Consumption

a) Pallets

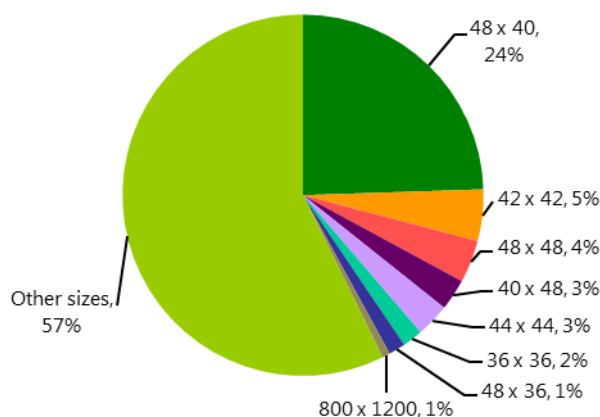
46. In 2011, 742 million wooden pallets were made in the US, and between 50 million and 55 million were made in Canada. Of those made in the US, 56% were manufactured new and 44% were used, repaired or remanufactured. Wooden pallets represent 90-94%

of the manufactured pallets in North America. It is estimated that about 2 billion pallets are in use in domestic supply chains, of which about 100 million are rental pallets provided by CHEP and PECO. The manufacture of pallets in the US consumed 16.5 million m³ of new lumber and 12.6 million m³ of reclaimed lumber and parts in 2011. Sixty-three percent of the wood used was softwoods such as pine, hemlock, spruce, fir and Douglas fir. The other 37% comprised the hardwoods oak, maple, birch, yellow poplar and a mix of other species, such as red alder and aspen. An estimated 13.3% of the wood was certified.

47. Graph 10, which shows pallet sizes and design by market share in the US, reflects the relatively low level of pallet size and design standardization in North America. Although the 48 x 40 inch and 40 x 48 inch pallet sizes have the same plan size, they have different designs. More than half the pallets in use are in dimensions representing less than 1% of pallets sold by manufacturers or rebuilders.

GRAPH 10

Pallet sizes manufactured in the US, by industry sector, 2011



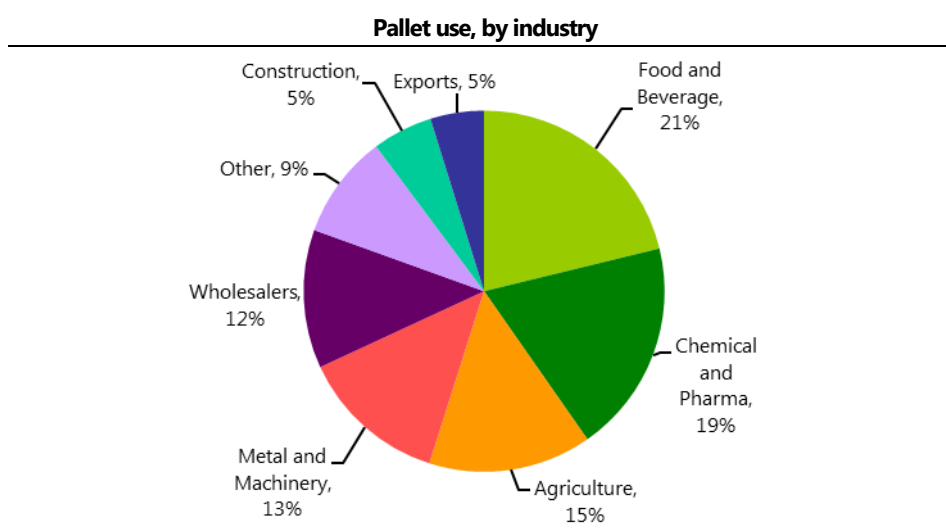
Note: Sizes in inches except 800 x 1200, which is in millimetres.

Source: Bush and Araman, 2015.

48. Some 2,270 firms in the US and 489 firms in Canada were producing wood containers and pallets in 2015. The total estimated value of the product of these firms in 2015 was \$7.7 billion in the US and \$579 million in Canada.

49. The food and related industries are the largest users of pallets in North America, followed by the chemical and pharma industries, and then agriculture (graph 11).

GRAPH 11



Source: IBIS World, 2015.

b) Barrels and cooperage products, including staves

50. The barrel industry has been booming in the US, driven largely by a 50% increase in the production of bourbon whiskey between 2010 and 2013. The US exported about 49,000 tonnes of barrels in 2015 (more than double the quantity in 2011), with a value of about \$450 million.

51. A 2015 survey of the cooperage industry conducted by the Associated Cooperage Industries of America showed that the overwhelming number of responding companies expected demand to stay strong in 2016. The industry supplies new barrels for the production of wine and bourbon, with many used barrels having second lives in the production of scotch whisky.

52. Wine and spirits are often aged in barrels for extended periods, creating a significant lag between barrel demand and demand for wine and spirits. In 2014, more barrels of whisky were aging in Kentucky (population 4.41 million) than there were residents in the state.

B. Production and capacity change

53. Table 3 shows that there was consistent growth in the reuse of recovered, repaired and remanufactured pallets in the US between 1995 and 2011. The ratio of new-pallet to reclaimed-pallet production is expected to stabilize in the future as the condition of used pallets declines and new replacements are needed.

TABLE 3

Estimated production of new and recovered/repaired/remanufactured pallets in the US, 1995-2011 (millions of units)

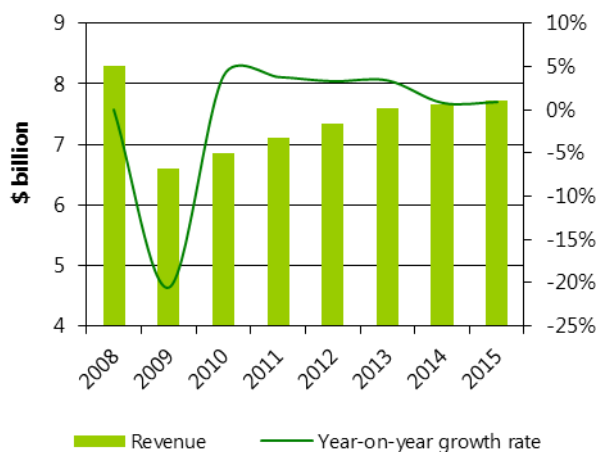
Year	1995	1999	2006	2011
New	411	429	441	416
Recovered/repaired/ remanufactured	143	223	321	326

Source: Bush and Araman, 2015.

54. Revenue in the US pallet-manufacture sector contracted dramatically (by 20.6%) in 2009, corresponding with the economic recession. Annual revenue growth was consistently between 3% and 4% from 2010 to 2013, after which it stabilized (graph 12).

GRAPH 12

Revenue growth in the US pallet sector, 2008-2015



Source: IBIS World, 2015.

C. Prices

55. North American wooden pallet prices increased by an average of 3.8% per year from 2013 to 2016. Prices for hardwood pallet lumber increased significantly for much of the period and have stabilized recently, while prices for softwood pallet lumber have declined somewhat.

D. Trade

a) Imports

56. North America is involved in very little international sale and movement of empty pallets because of the high cost of transportation and the low marginal value of pallets. Pallets coming into North America under product are recovered and sold domestically. The importation of pallets under product has increased in recent years by an annual average of 1.8%, and its estimated value in 2015 was \$489.9 million; nevertheless, imported pallets meet only about 6.5% of domestic demand in North America. There is a growing cottage industry that buys 800 x 1,200 mm Euro-pallets and resells them to manufacturers shipping to Europe. Most product arriving in North America is floor-loaded into containers and not palletized until after arrival. Of the pallets imported into North America, 47% comes from France, 22% comes from China, 17.4% comes from Canada and about 2% comes from Mexico. It is expected that, as the US dollar appreciates, there will be a small increase in pallet imports. The CHEP and PECO pallet rental pools are both establishing in Canada and Mexico, and an increasing proportion of the food and consumer goods moved between the US and these countries will be on rental pallets in the future.

b) Exports

57. The value of exported pallets in 2015 was estimated at \$372.7 million, with the UK and Canada accounting for 53.4% of this trade between them. Annualized growth of exports of 5.8% was predicted but will likely be slower than that due to the increased

value of the US dollar, slower-than-expected growth in the China market, and competition from pallets made of other materials. The ISPM 15 regulation, which requires the treatment of solid wooden packaging materials, including pallets, and is applied in international supply chains, has caused an increase in the cost of wood pallets. Exporters are therefore increasingly using pallets made of non-regulated materials, such as corrugated paperboard, wood-based composites, and plastics.

E. Extra-regional influences affecting North America

58. Pallet-pooling between Asia and North America is growing. It started in the Korean automotive sector with the delivery of parts from the Republic of Korea to Hyundai and Kia assembly plants in the US; most of the pallets used for this purpose are returned empty to the Republic of Korea. Pallet-pooling could be expanded to the electronics industry in intercontinental shipments of parts, subassemblies and final assemblies, enabling two-way movement of pallets under product. A barrier to this, however, is the different pallet sizes in use in Asia and North America. The EU, China and the Republic of Korea use 1,200 x 1,000 mm as the standard pallet size, and it is also the most common size in Central and South America. The 1,219 x 1,016 mm dimensions used in North America are close to this size, and the true 1,200 x 1,000 mm pallet could fit most domestic North American supply chains. If this is true, the US could assimilate and reuse many pallets coming in under product from other regions without costly re-palletization or return to countries of origin. The result would be more reusable pallets entering the US and a subsequent reduction in demand for domestically manufactured pallets.

59. The expansion of the Panama Canal is expected to result in additional warehousing capacity in the eastern US. The larger 12,000 twenty-foot equivalent units vessels arriving in eastern ports will cause a regional shift in North American pallet demand, with demand increasing in the east and intermodal movements from the west to the east declining.

F. North American policy and regulatory influences

60. The US's 2008 Food Safety Modernization Act expanded the authority and responsibility of the Food and Drug Administration (FDA) beyond food manufacturing to include the entire food product supply chain. The sanitation of pallets is a growing focus of the FDA, which has increased pallet inspections for cleanliness and damage. The impact on the market of such greater scrutiny will be the increased use of dry pallets and of treatments to control moulds and insect infestations. Pallet washers are now being used to clean reusable wood pallets. The increased use of plastic and metal pallets, which are perceived to be more sanitary, is having an impact on the wooden pallet market. Wooden pallets still dominate the North American market, but the use of plastic pallets is increasing at a greater rate.

61. The incidence of fire at pallet-manufacturing facilities has increased. In response to this, proposals have been made to regulate the way in which pallets are stored at these locations after assembly. State fire marshals are requiring greater lane space between pallet stacks and between pallet stacks and buildings, which inevitably increases the cost of pallet manufacturing.

62. Several years ago, the federal government considered legislating to favour the use of plastic pallets by government agencies. Recently, the state of Oregon considered a bill that would give preference to paper pallets for state government use. The justification in both instances was that the use of these alternatives reduced the impact of pallet use on the environment. Both initiatives failed, however.

63. A bilateral treaty between the US and Canada permits pallet movement between the two countries without compliance with ISPM 15. This agreement will expire soon and, when it does, significantly more North American pallets will have to be heat-treated or fumigated (there is no timetable for the expiry of the agreement, however). The percentage of new pallets that are heat-treated in the US varies by region, from a low of 30% to a high of 57%, with the highest percentages in the west and east (i.e. the exporting areas) and the lowest in the midwest.

V. Innovation

A. Smaller pallets

64. There is a trend towards the use of smaller pallets for display-ready packaged product to be placed directly on store floors. This includes the so-called half pallet (24 x 40 inches and 600 x 800 mm) and quarter pallet (24 x 20 inches and 400 x 600 mm). Manufacturers palletize their product on these small pallets, which then pass through the supply chain to retail.

B. Smarter pallets

65. Because robotic systems do not adjust well to variation in their operating environments, “smarter” pallets are required as supply chains become more automated. Smarter pallets are pallets that are stiffer and do not sag in storage racks; are more uniform in geometry and dimension; and have flat surfaces for better interfacing with packaging and equipment. The detailed description of pallets to be used in automated materials handling systems can be found in ANSI MH1 2016: “Pallets, slip sheets and other bases for unit loads”.

C. Systems-based design of global supply chains

66. To significantly improve the operational efficiency of global supply chains, supply-chain owners and operators must integrate the design of pallets, packaging and unit-load handling equipment. Today, these three components of the supply chain are designed by three different design communities that do not interact, meaning that supply chains operate with significant avoidable costs. What is needed is a fundamental shift from the “component-by-component” design process to a true “systems” design process that considers how the pallet, packaging, and shipping, storage and handling systems interact mechanically. The pallet is the key because it is the interface between the other two components. The pallet can be used to significantly reduce supply-chain operating costs, improve supply-chain operating safety, and increase supply-chain operational sustainability.

VI. Points for Consideration

67. The information provided above shows, that wooden pallets and packaging is a thriving sector within the forest-based sector. It is an important outlet for lower quality timber from the sawmill sector. Wooden packaging fulfils many requirements for products in the green economy, is a very good example allowing for use, reuse, recycling, and thus allows for cascading use.

68. The Committee is invited to:

69. *Take note of this item.*

70. to discuss the role of wooden packaging ant the past and future developments of wooden packaging in the UNECE region.

71. Discuss whether policies should specifically target wooden packaging in the context of the forest sector in the green economy.
