70 YEARS WORKING TOGETHER IN THE SERVICE OF FORESTS AND PEOPLE

EUROPEAN MARKET OVERVIEW

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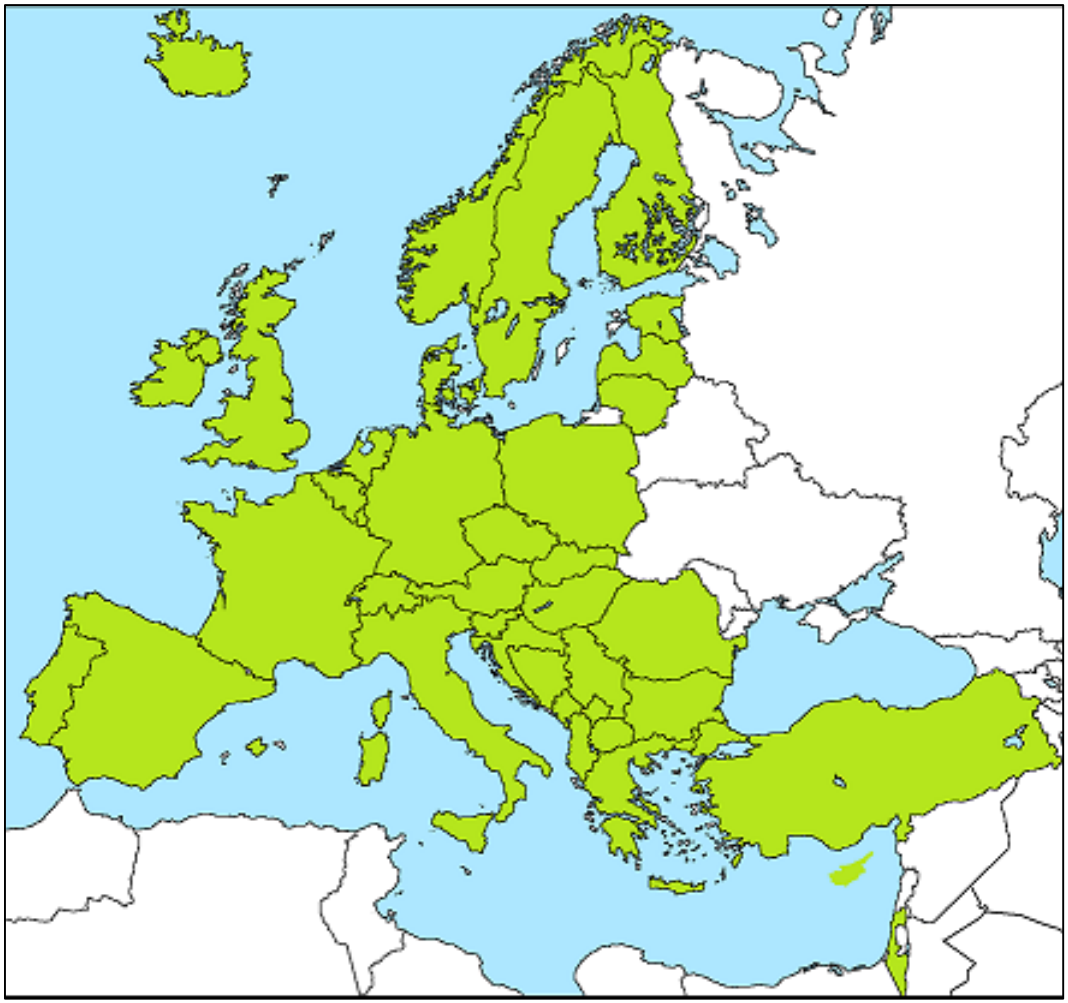
Europe sub-region of UNECE



Total graphic paper consumption and production

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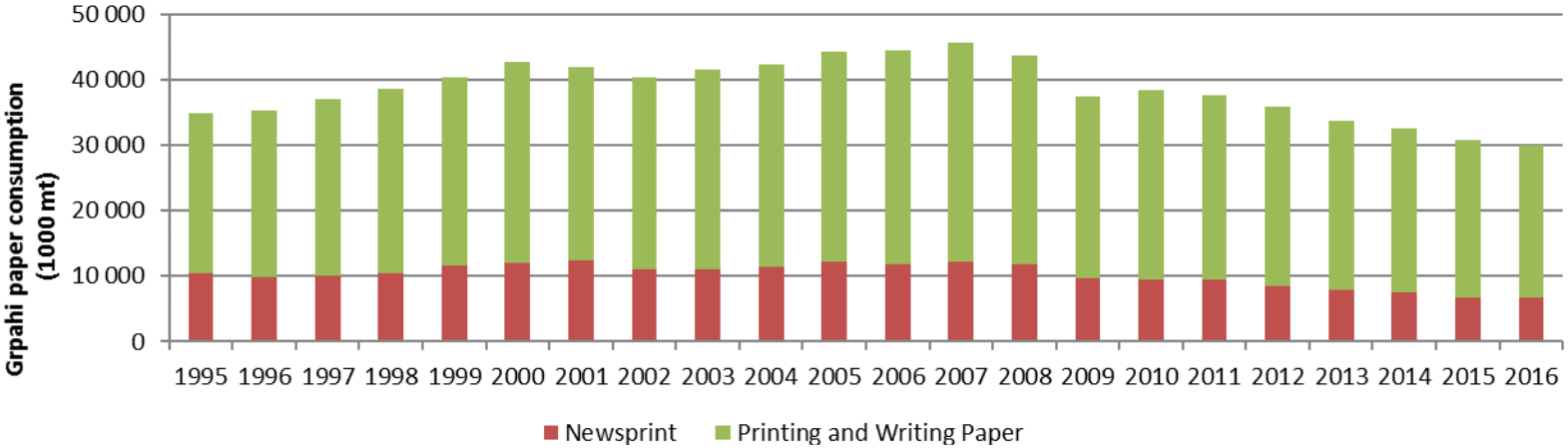

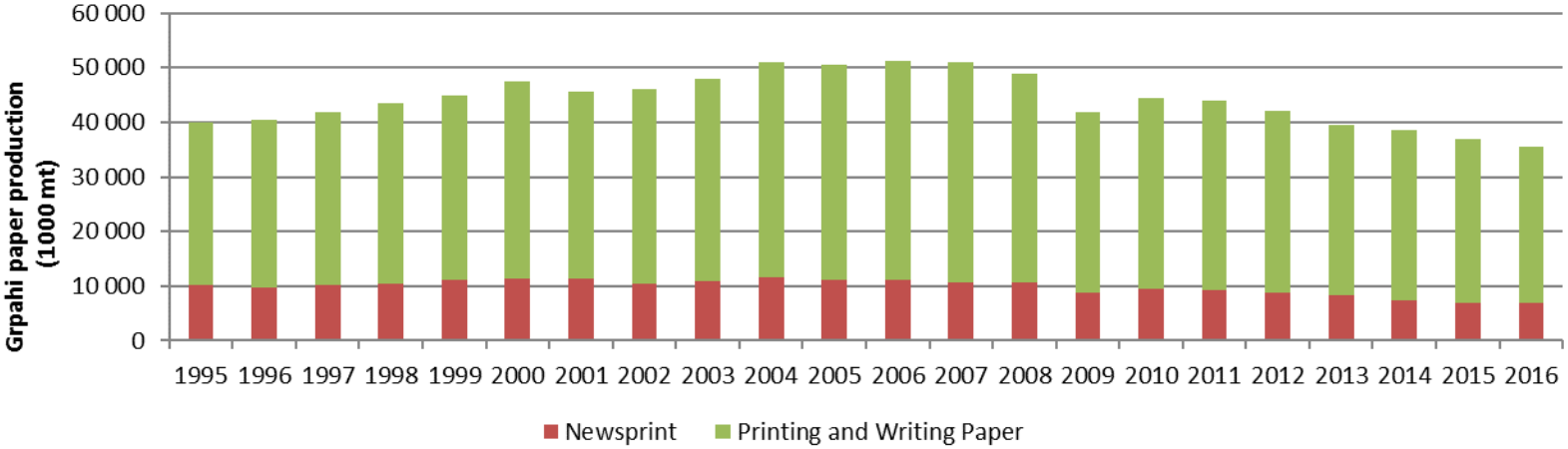

Losses in total consumption and production of newsprint and printing and writing paper, 1000 tonnes

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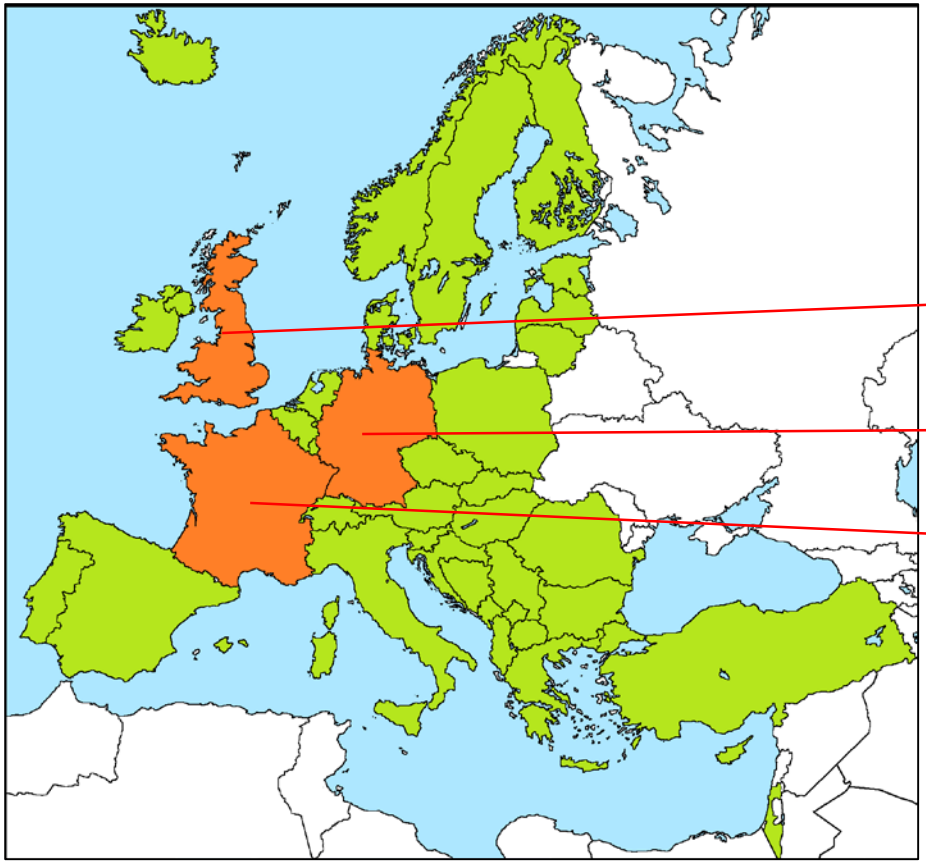

Consumption in Europe since 2007 has declined by 5,524 in newsprint and 10,218 in printing and writing paper. Production has declined by 3,962 and 11,413.

Total graphic paper consumption decline by country

UK -3431 (-47%)

Germany -1855 (-19%)

France -2135 (-40%)

The decrease is assessed to continue

Packaging materials consumption and production

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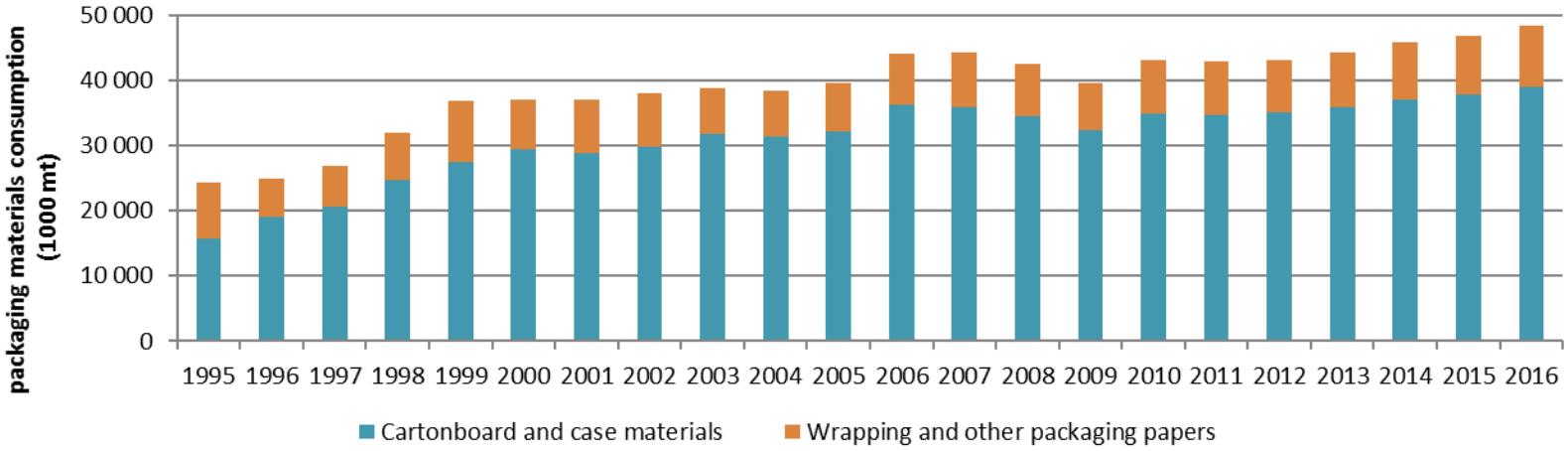

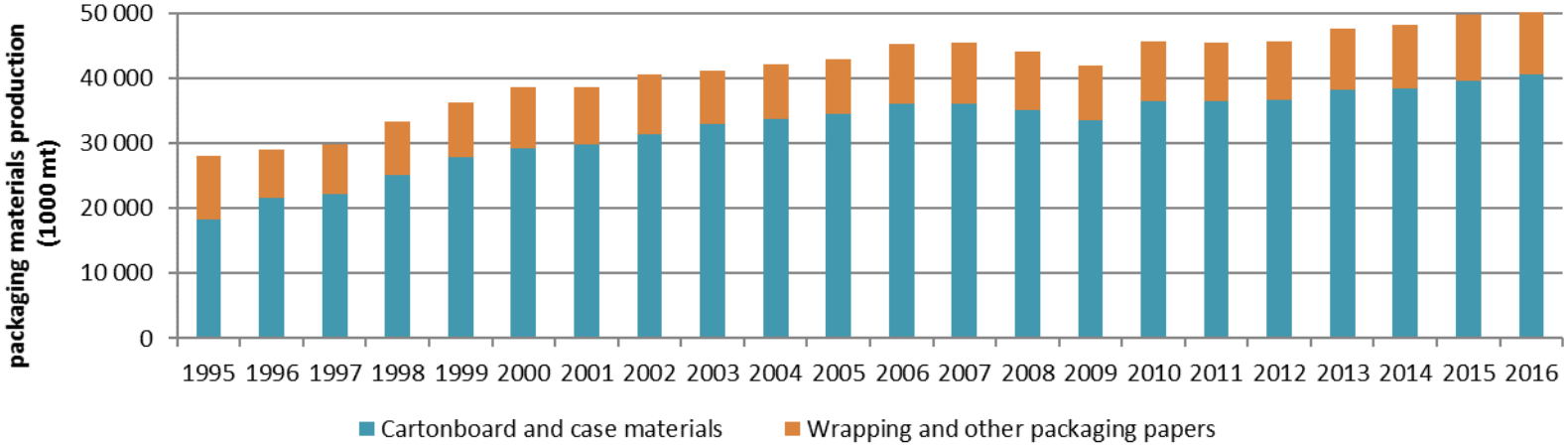

Gains in total consumption and production of packaging materials 2007-2016, 1000 tonnes

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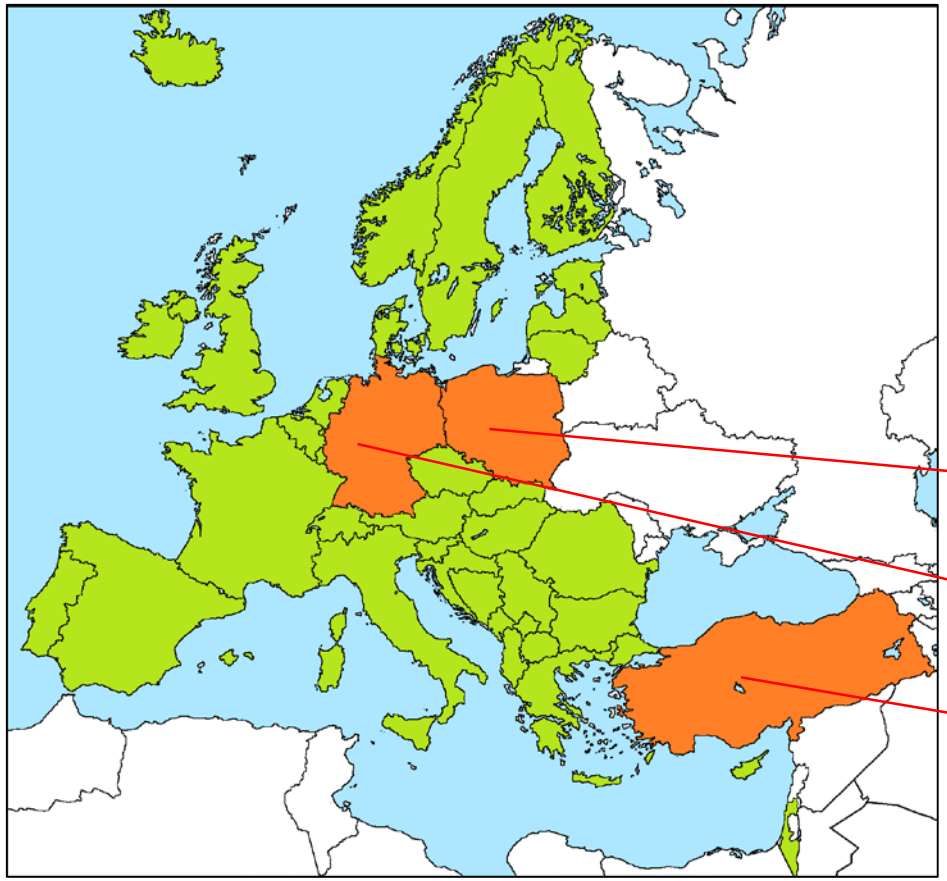

Consumption in Europe since 2007 has increased by 3,241 in cartonboard/case materials and 891 in wrapping/other packaging. Production has increased by 4,614 and 746.

Total board and packaging paper consumption increase by country

Poland +1994 (+94%)

Germany +1550 (+15%)

Turkey +780 (+31%)

Structural change in containerboard* in Europe

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Total numbers	High Risk for Closure
216 Machines	61 High-Risk Machines
164 Mills	49 High-Risk Mills
103 Companies	39 High-Risk Companies

- substantial structural problems
- the world is now, including Europe, rapidly rebuilding graphic paper machines to paperboard machines adding to the structural change need
- the risk is high that the industry will kill the promising paperboard market by overcapacity

*Containerboard is Fluting+Liner

Green cartonboard

Green cartonboard – 1

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- Stora Enso's Natura Life is a whole family of new products of paperboard with different basis weight and flexural rigidity – unbleached sulphate pulp
- 'Grön kartong' is the first commercial product as a joint venture between Arla, Elopak and Stora Enso produced in Skoghall and Imatra
- This product has 24% less material compared to conventional liquid packaging board. One layer of the board is removed

Green cartonboard – 2

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- If all liquid packaging board consumption in Sweden were to be of this grade, it would mean less wood demand of 1.2 million m^3/yr
- Strong further developments are expected of Natura Life by use of MFC (Micro Fibrillar Cellulose)
- Great opportunities can be foreseen to use these grades to increase the yield of utilities per input unit, also valid for the large volume grades (such as containerboard)
- BIOECONOMY DOES NOT NECESSARILY MEAN LARGER WOOD CONSUMPTION – IT MAY BE LESS

Total paper and paperboard consumption and production, 1995-2016

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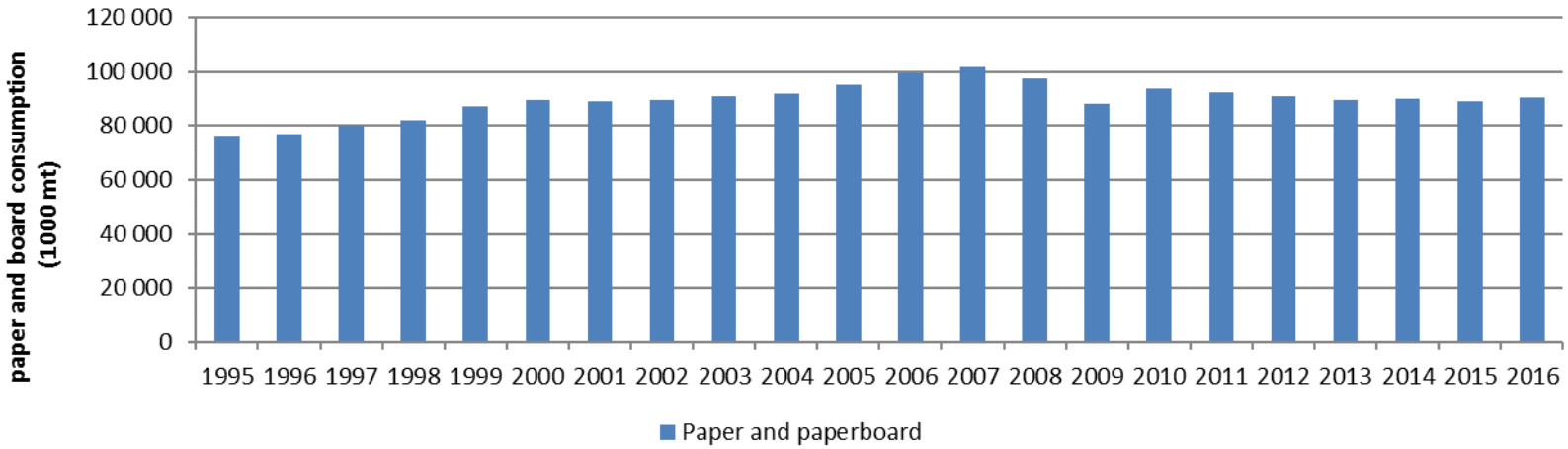

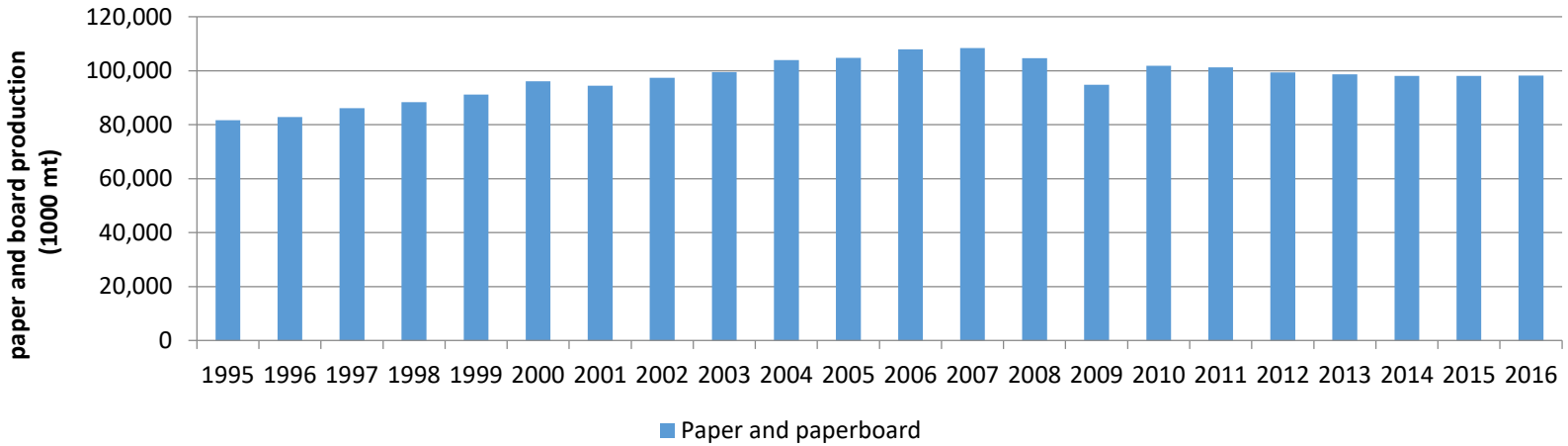

Change in total paper and paperboard, 2007-2016, 1000 tonnes

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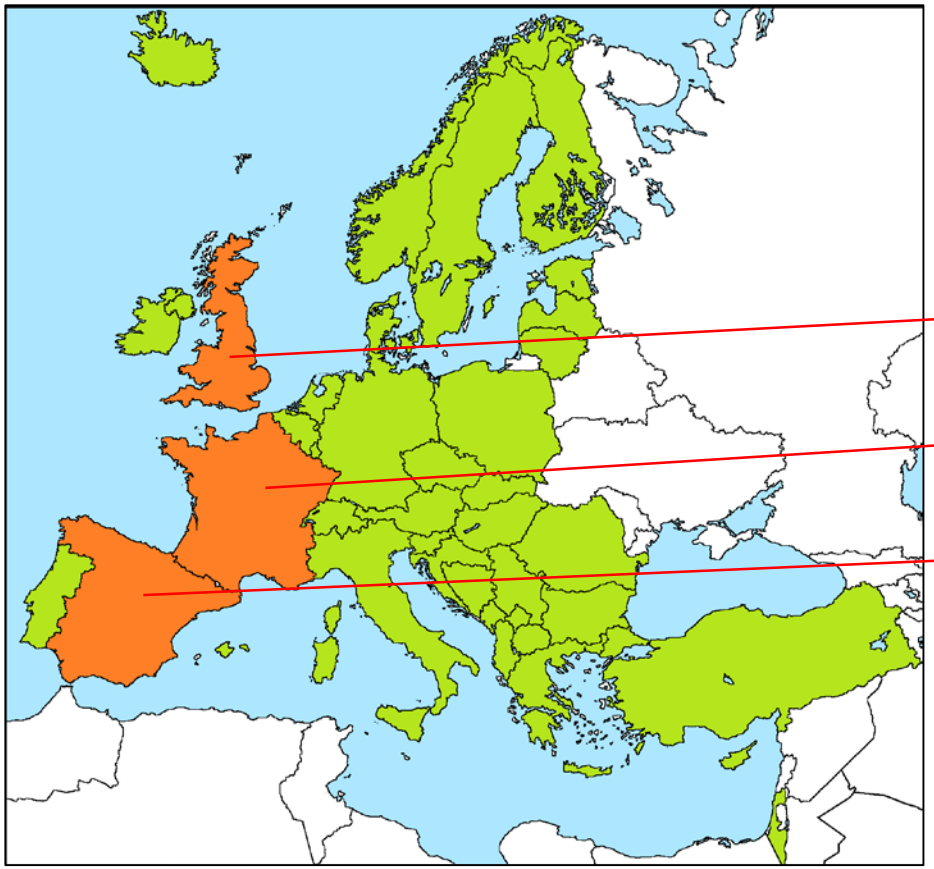

Consumption in Europe since 2007 has decreased by 11,495. Production has decreased by 10,225.

Total paper and paperboard consumption decrease by country

UK -3272 (-27%)

France -2440 (-22%)

Spain -3163 (-32%)

The increase in packaging grades have not compensated for the losses in graphic grades

Total pulp consumption and production

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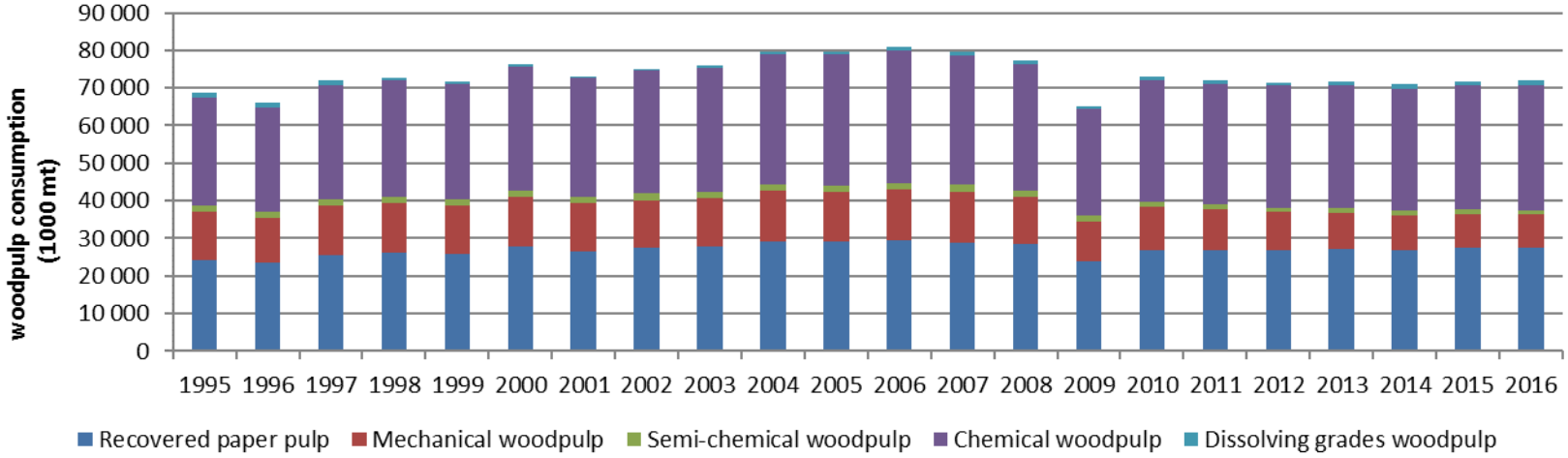

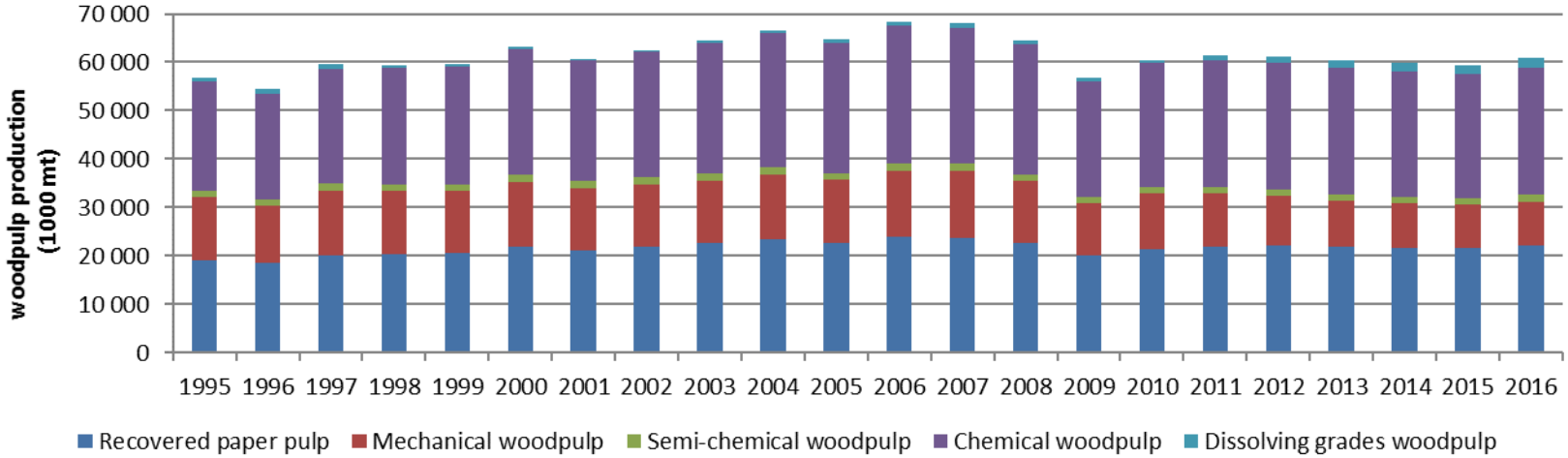

Change in wood pulp and recycled paper pulp consumption and production 2007-2016 1000 tonnes

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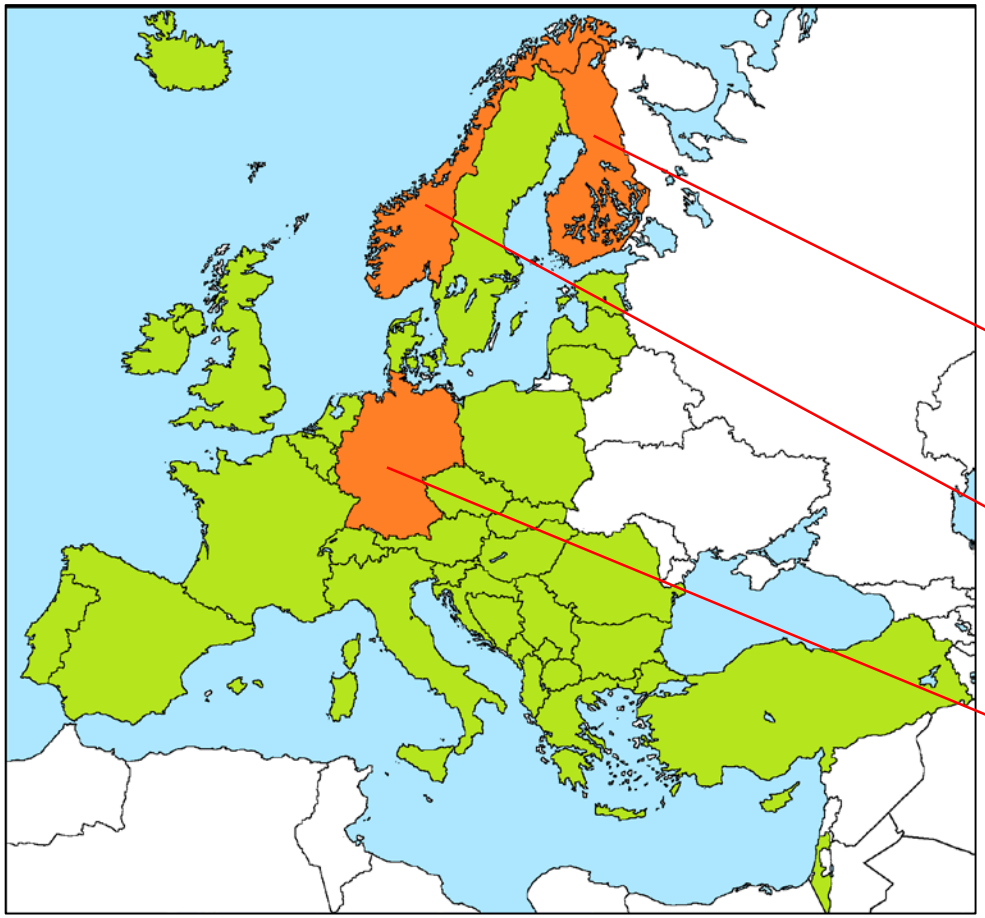

Consumption in Europe since 2007 has decreased by 5,932 in wood pulp and increased by 2,130 in recovered paper pulp. Production has decreased by 5,466 in wood pulp and increased by 1,929 in recovered paper.

Total wood pulp consumption decrease by country

Finland -2872 (-27%)

Norway -1029 (-57%)

Germany -1147 (-16%)

Recovered paper demand by major world region, 1997-2019

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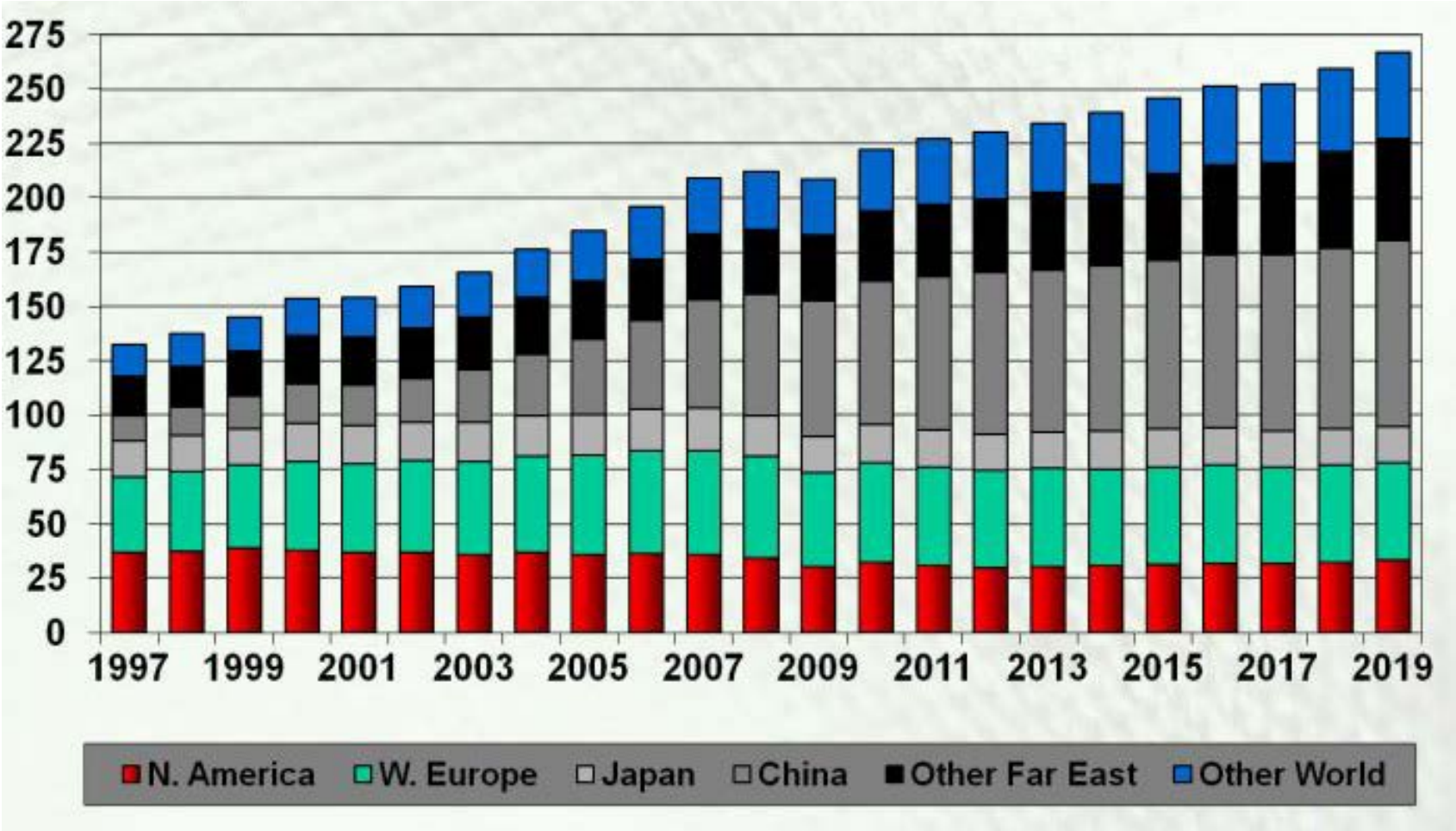

Source: Bill Moore, Moore and Associates, 2016.

Stagnating recovered paper market, 1997-2019

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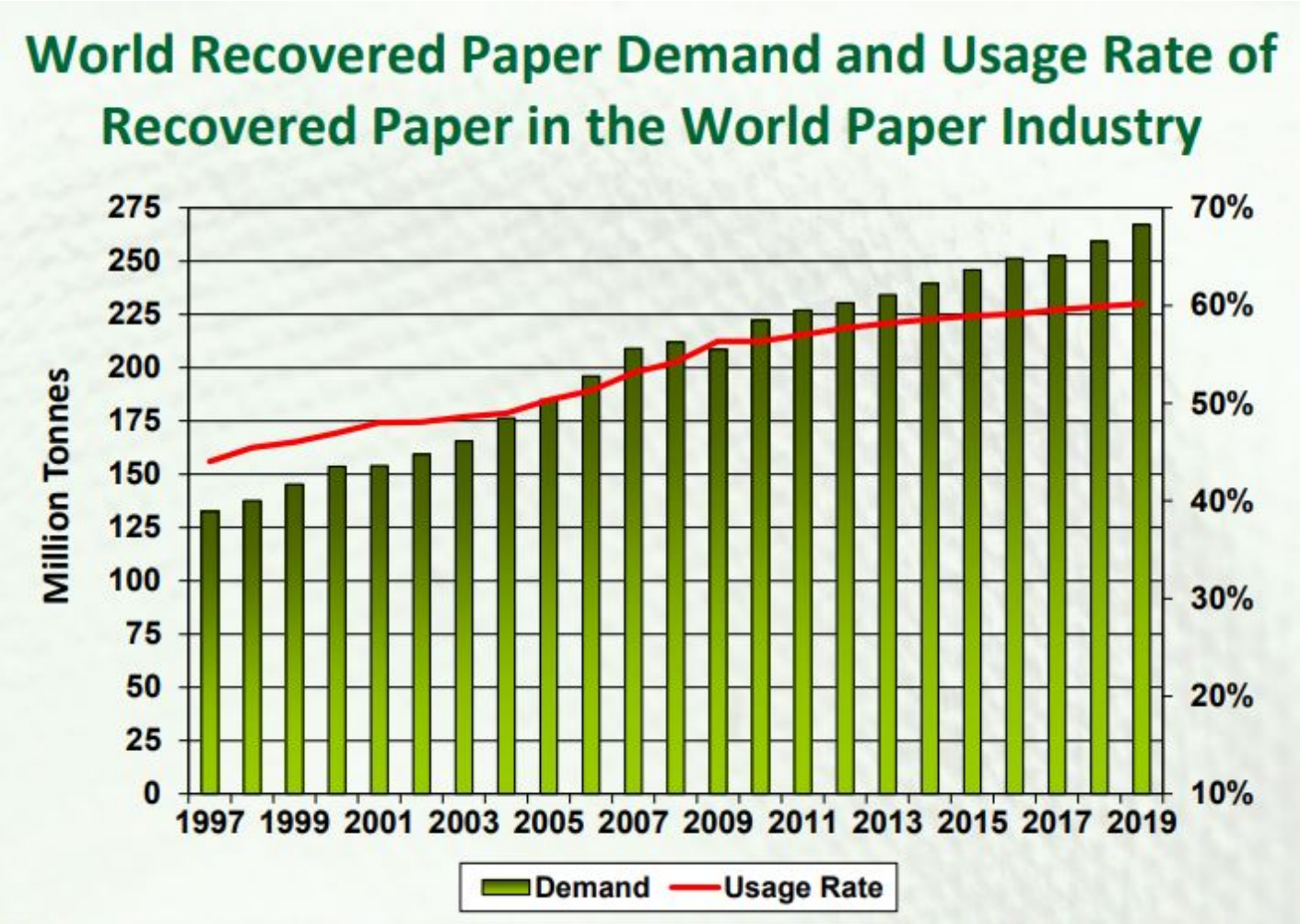

Source: Bill Moore, Moore and Associates, 2016.

World recovered paper usage by major paper & paperboard grades, 1992-2016

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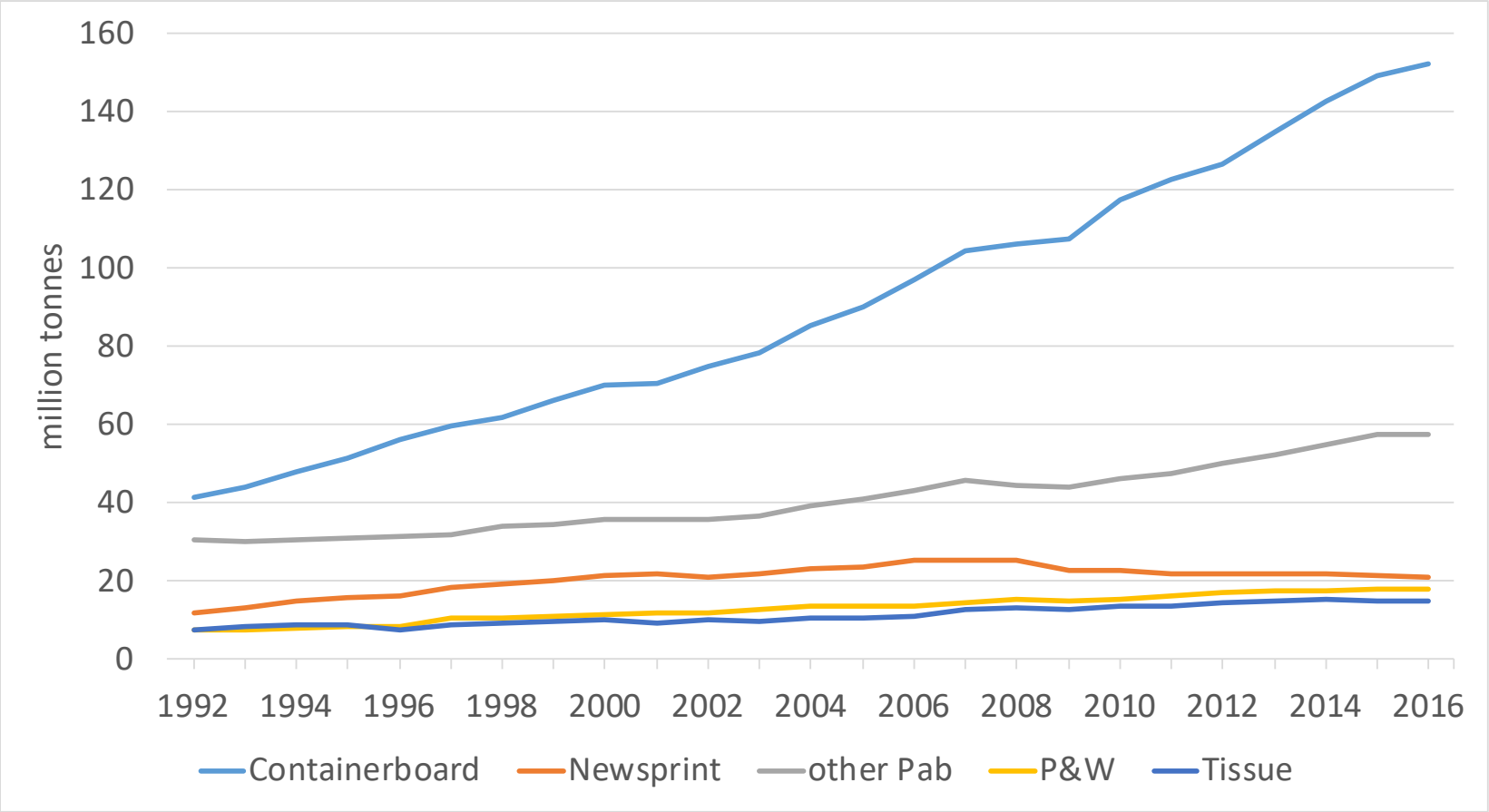

Source: Bill Moore, Moore and Associates, 2016.

The vicious cycle

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- Recycled fiber has had a distinct cost advantage for production of newsprint, containerboard and recycle paperboard but not in P&W and high end packaging
- Consumption of containerboard and recycled paperboard have among the greatest growth rates of paper and paperboard grades
- These grades use most of the recovered paper
- There will be a much tighter global demand/supply balance resulting in higher collection and processing costs
- The quality of recovered paper has declined due to shorter fibers, the result of increased recycled content, increased non-fiber and other fiber contaminants, and also has a higher content of unbleachable fibers - the result is lower yields and higher processing costs
- The dilemma is that increased paperboard production, with increased recovered paper use, will change the cost structure and dynamics and make hardwood woodpulp more cost efficient as a raw material

Pulp, paper and packaging in the next decade

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Market demand

CAGR[1] >2% | CAGR 0–2% | CAGR <0%

2016–21	Major product groups	Japan	Western Europe	North America	China	Other Asia	Eastern Europe	Latin America
Tissue	Tissue							
Graphic papers	Mechanical							
	Newsprint							
	Woodfree							
Packaging papers	Kraft paper and specialty							
	Cartonboard							
	Containerboard							
Hardwood pulp	Market BHKP[2]							
Softwood pulp	Market BSKP[3]							

[1]Compound annual growth rate.
[2]Bleached hardwood Kraft pulp.
[3]Bleached softwood Kraft pulp.

Source: McKinsey&Company, 2017.

Sawnwood consumption and production, 1995-2016

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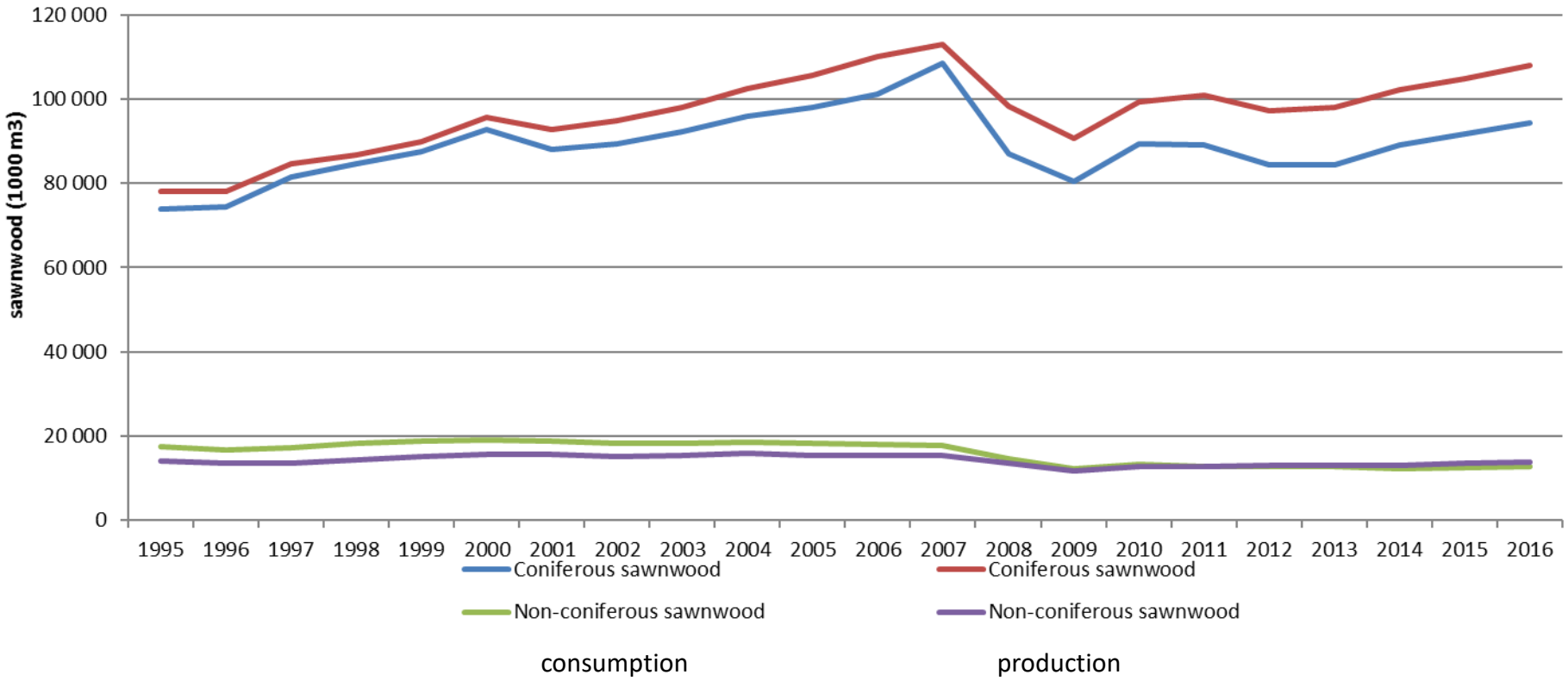

Source: Bill Moore, Moore and Associates, 2016.

Changes in coniferous sawnwood consumption and production 2007-2016, 1000 m^3

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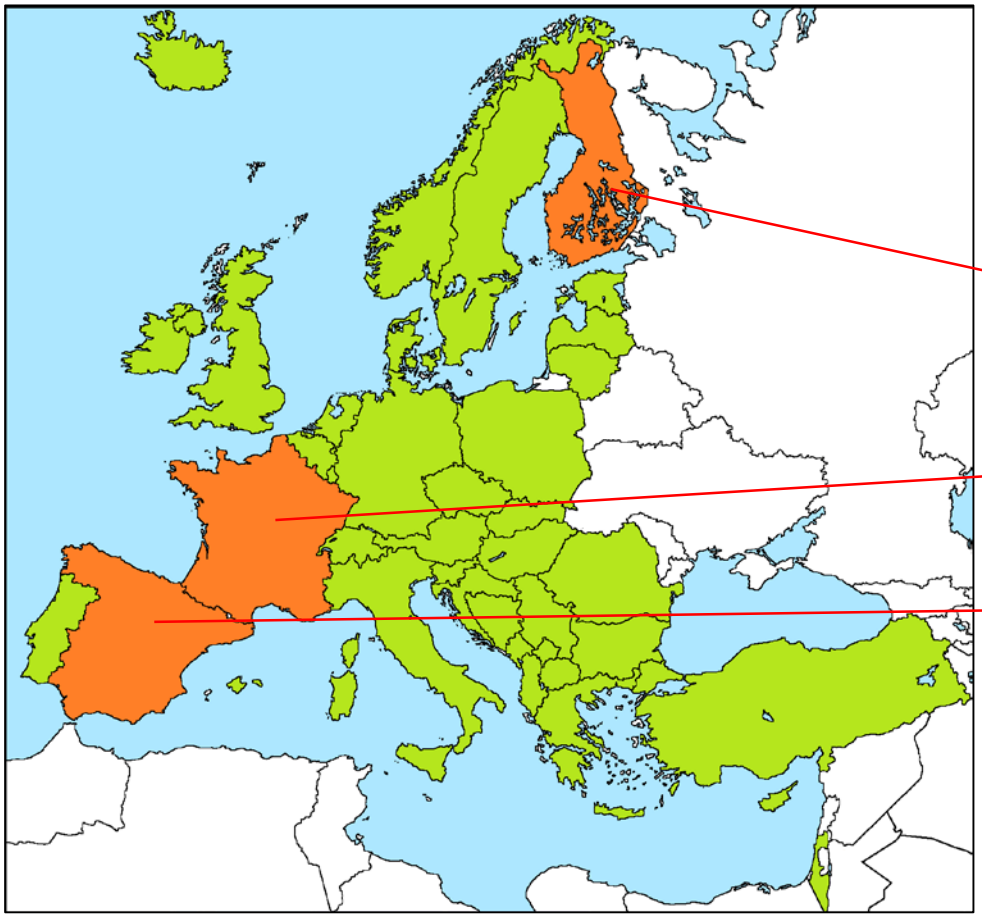

Consumption in Europe since 2007 has decreased by 14068 (-13%) and production has decreased by 4806 (-4%).

Total consumption decrease by country

Finland -2662 (-45%)

France -3526 (-32%)

Spain -2598 (-50%)

Changes in non-coniferous sawnwood consumption and production 2007-2016, 1000 m^3

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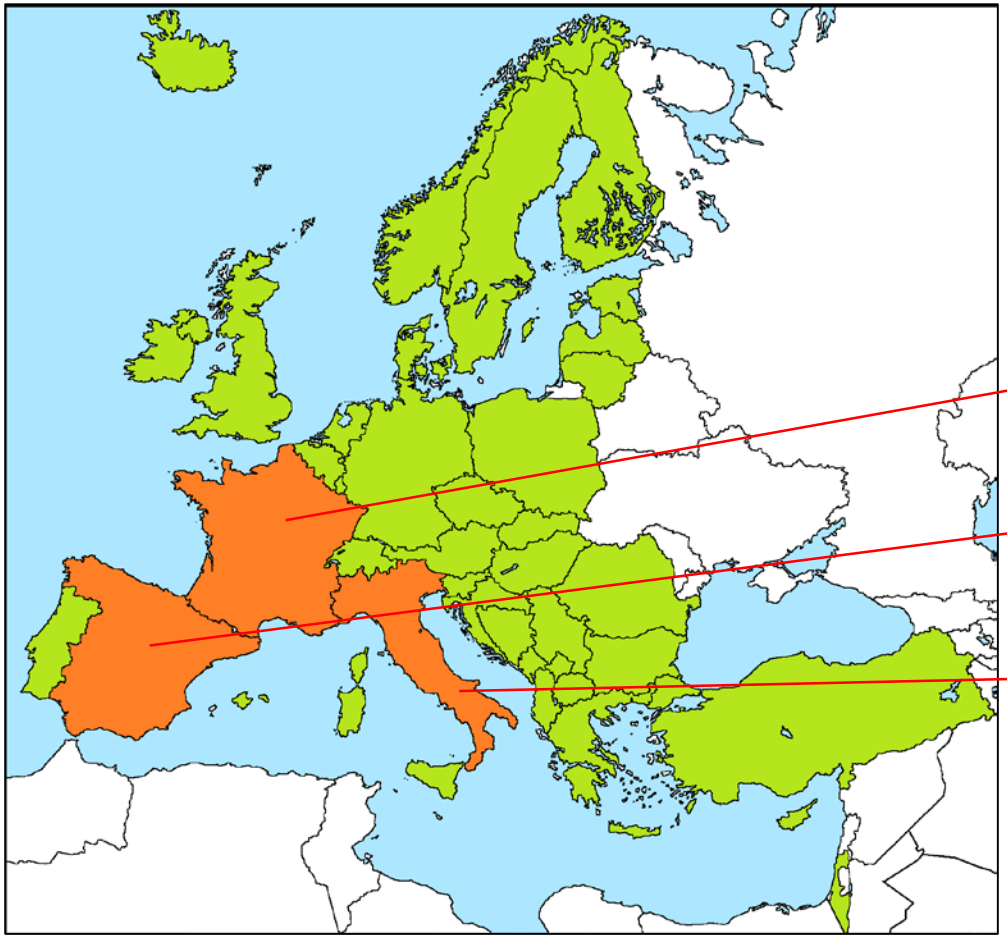

Consumption in Europe since 2007 has decreased by 5008 (-28%) and production has decreased by 1677 (-11%).

Total consumption decrease by country

France -799 (-40%)

Spain -1524 (-75%)

Italy -1011 (-48%)

Total wood-based panels consumption and production

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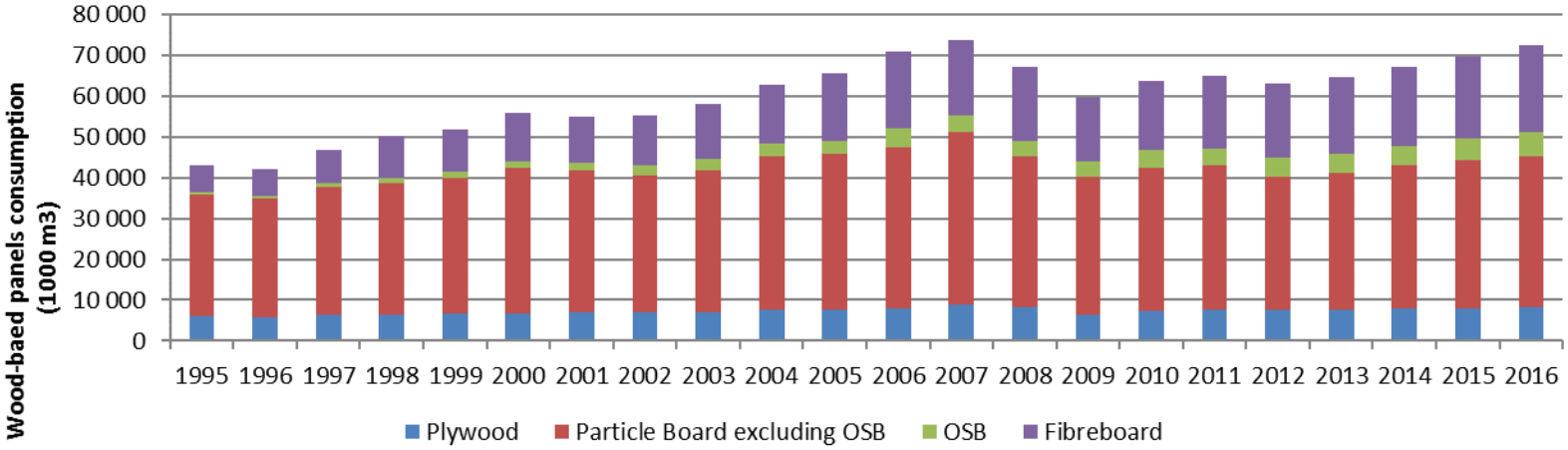

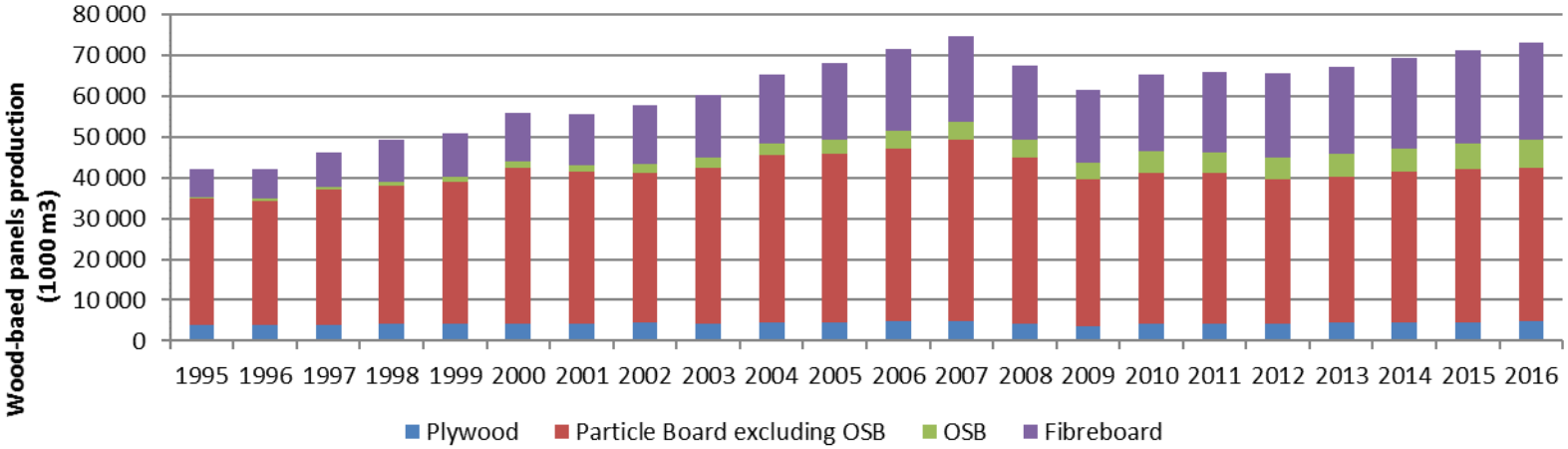

Change in panel production, 2007-2016, 1000 m^3

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Production Change 2007 - 2016 (1000 m3)				
	OSB	Plywood	Particleboard (excl. OSB)	Fibreboard
Europe	+2277 (+51%)	+9 (0%)	-6793 (-15%)	+2893 (+14%)
Largest Increase	Romania +1639 (from 0)	Slovakia +399 (x 20)	Romania +2486 (+321%)	Turkey +2884 (+131%)
2nd Leading Gainer	Germany +287 (+26%)	Romania +224 (+210%)	Turkey +1155 (+38%)	Poland +1775 (+66%)
3rd Leading Gainer	Poland +150 (+25%)	Hungary +42 (+223%)	Sweden +451 (+303%)	Romania +475 (+140%)
3rd Worst Performer	Finland -48 (-12%)	France -128 (-34%)	Italy -1170 (-32%)	Austria -222 (-26%)
2nd Worst Perfromer	Slovakia -55 (-100%)	Spain -140 (-31%)	Spain -1532 (-47%)	Italy -481 (-40%)
Largest Decrease	Spain -478 (-100%)	Finland -270 (-19%)	Germany -4130 (-42%)	Germany -782 (-13%)

Romania and Turkey = winners **Germany = loser**

Wood energy consumption

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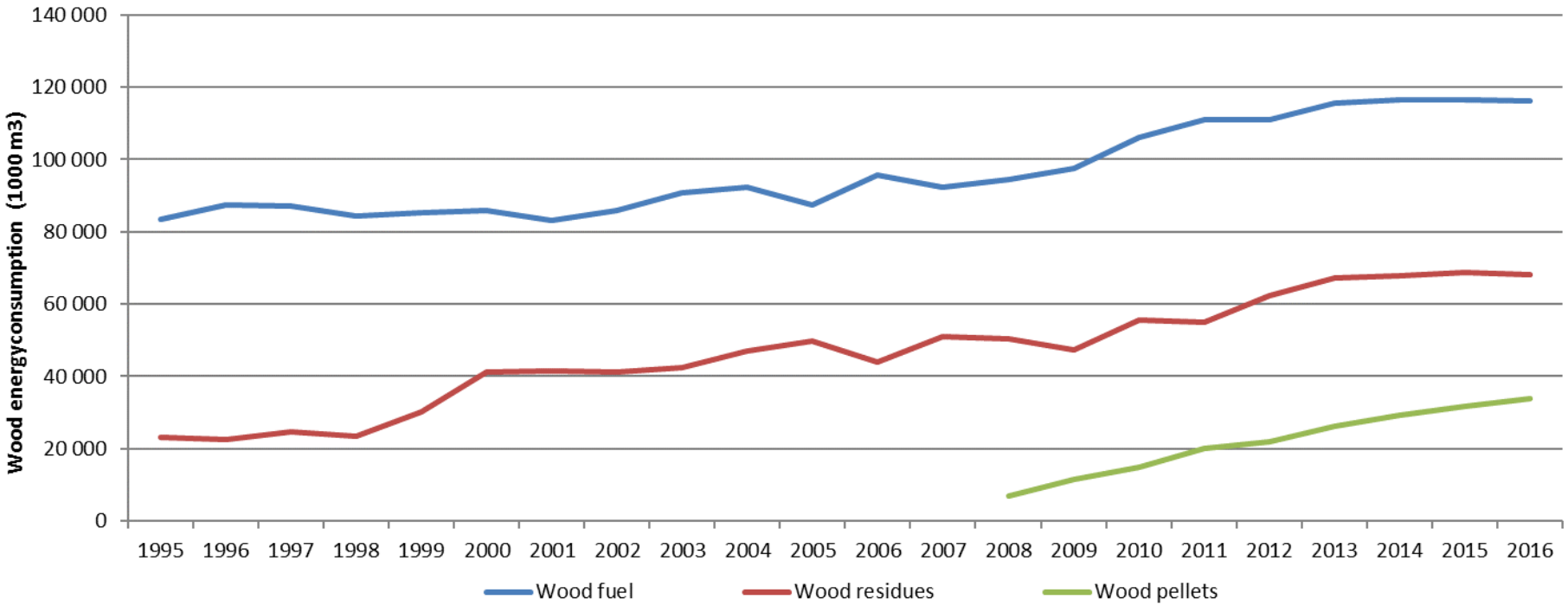
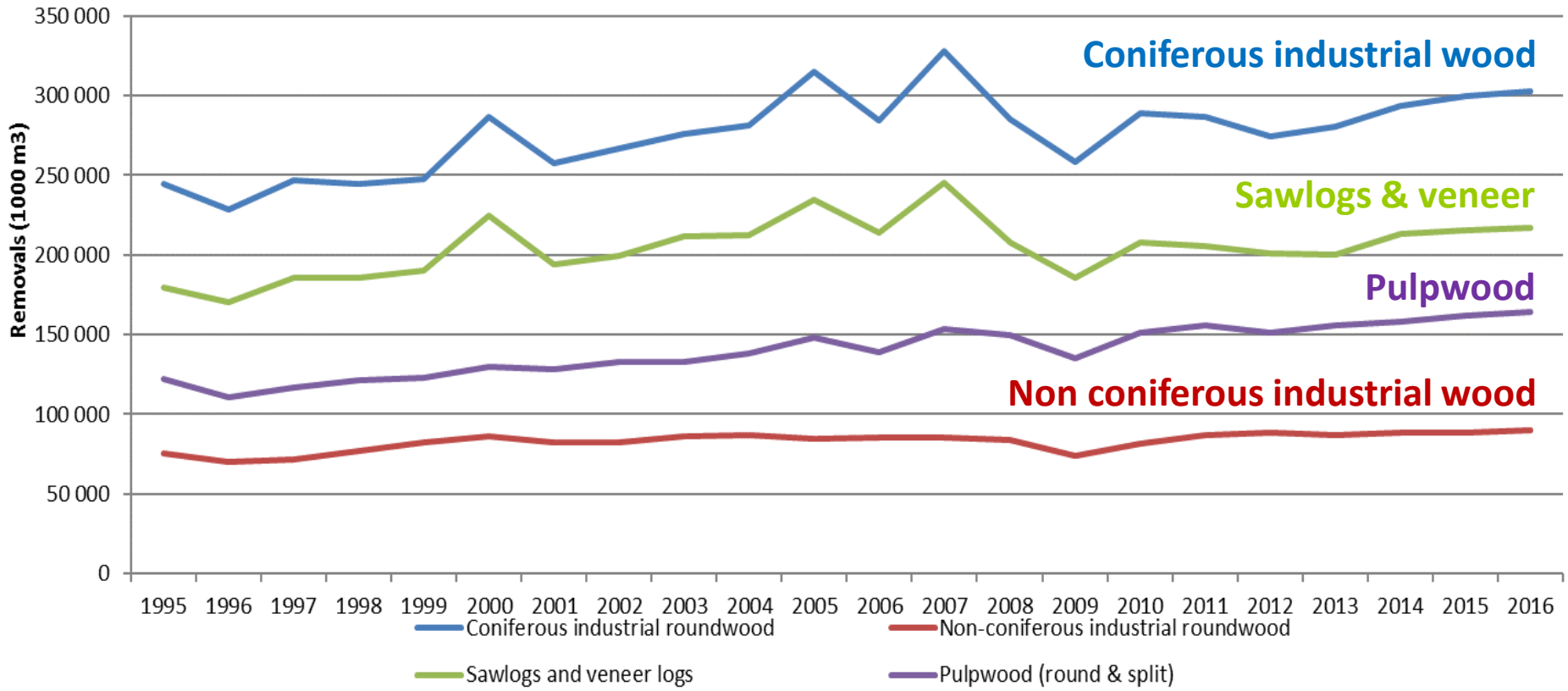


Pellets converted from mt to m³ using 1.51 factor

Raw material removals and production

LAS 2017



Utilization of potential wood resources in 'Central Europe'

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	Coniferous industrial wood	Non-coniferous industrial wood
	Change 1990-2015 (%)	Change 1990-2015 (%)
Germany	-55 ?	-50
France	-17	-55
Romania	+ 9	-25
Italy	-25	-83
Austria	-28	-47
Czech Republic	- 4	-31
Bulgaria	+20	-60
Slovakia	+280	+60
Switzerland	-44	-50
Hungary	+45	-43

Ratio of removals to total wood available for industrial wood supply (%)

Source: Based on Matthew Fonseca, UNECE, 2017

Structural change of forests wrong species – climate change

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Bavaria

- Coniferous forests ’collapsing’
- Transformation of 260 thousand ha to more mixed and non-coniferous forests
- In 2027, 4 million m^3 less coniferous harvesting potential per year – 2.1 million m^3 more of non-coniferous

The same problem in:

- Czech Republic, Slovakia, Austria, Hungary, Romania, Poland, Bulgaria, Switzerland, Italy, etc.

- Increased potential supply of non-coniferous wood and decreased supply of coniferous wood
- Lack of demand and industrial use of non-coniferous wood
- What happens with the economy of the forest sectors?

Challenge 1 – containerboard

LAS 2017

Carry out relevant restructuring of the containerboard industry – the most important grade of paperboards

Challenge 2 – sawnwood

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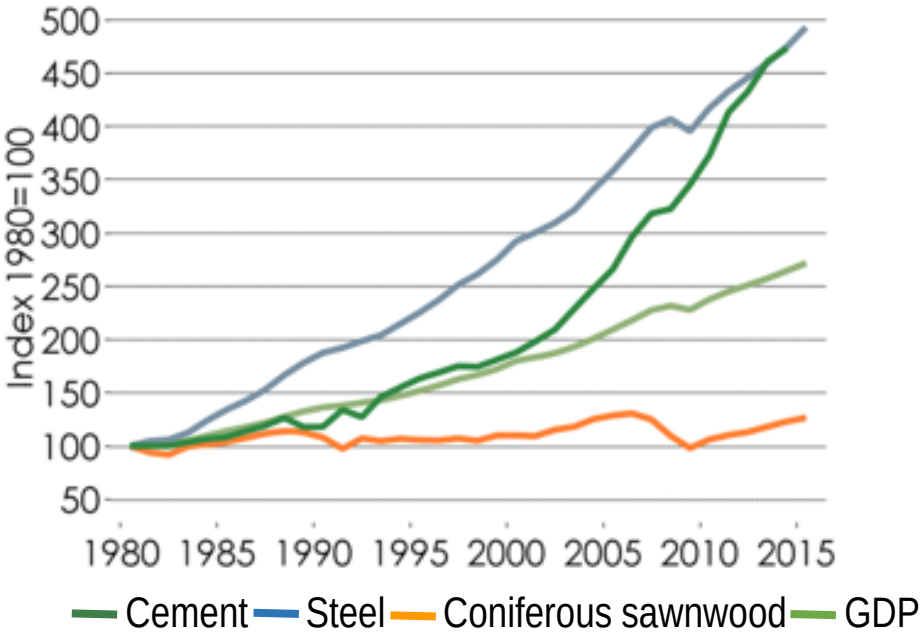
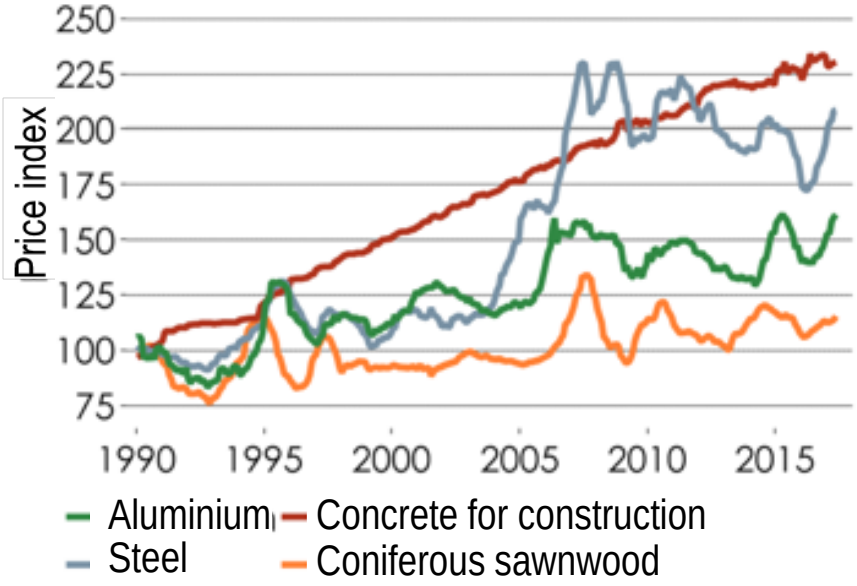
Global production volume



Price development



Source: Macrobond, 2017

Sawnwood: I can't understand why… (1)

LAS 2017

- During the period 1980 - 2016 the global production of cement and steel increased by about 5x (500%), while coniferous sawnwood only by 25 %
- During the period 1990 -2016, global prices for concrete and steel more than doubled, while coniferous sawnwood increased by only 12%
- For the period 2010-2016, coniferous sawnwood production increased by about 30%; and during the same period prices declined!
- During 2007 – 2016, coniferous sawmills have had miserable margins in the European subregion, including mills with latest technologies and expressed economy of scale

Sawnwood: I can't understand why... (2)

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- YET… coniferous sawnwood has the lowest environmental footprint (if sustainably managed) of all leading construction materials
- My only explanation is that the sawmills are not delivering efficient construction systems but bulk products to be handled by the constructors
- Some 250 organizations in Europe promote use of wood – in cement and concrete there are three

Is 2017 the new norm?

LAS 2017

- International trade of coniferous sawnwood is on pace to a new record high in 2017 if the trend from the first 6 months continous
- Consumption of coniferous sawnwood in 2017 has (so far) increased in Europe, North America and China (simultaneously).
- Profitability in 2017 (so far) is back to the relatively high levels of 2007
- Prices in most areas of Europe are up some 10% compared to 2016
- Have we had a long lag effect in coniferous sawnwood market prices, with 2017 representing the new norm?
- Or… is this development just an effect of advantageous exchange rates?

Challenge 3 – are we giving the non-coniferous sawnwood a chance?

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- There has been a substantial decline in Europe in the production of non-coniferous sawnwood during 2010-2016, in spite of better margins for non-coniferous sawnwood when compared to coniferous sawnwood
- Good for ecological and climatological adaptation
- Demand has dropped due to structural change in secondary wood industry especially in the furniture industry
- Needed structural changes and innovations in the non-coniferous wood industry has been lagging
- How to develop new markets?
- Are we giving the non-coniferous saw milling industry a fair chance to develop?

Challenge 4 – under-utilization of the sustainable wood supply potential

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- Even the sustainable wood supply potential of coniferous is under-utilized
- Mobilize the wood utilization

Challenge 5 – a piece of cake for everyone

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Source: Tamás Ali, Ministry of Agriculture, Hungary, 2015.

Challenge 5 – Communication

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- Communication is much more than simply data and information
- It is very much about emotions, opinions and feelings
- The general public is not impressed by conventional arguments regarding economic contribution, value added, employment, etc. – the social and environmental functions are key
- Mapping the general public's demand for information is crucial

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Food and Agriculture Organization of the United Nations

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LAS 2017 WARSZAWA

Thank you!

Sten Nilsson
CEO
Forest Sector Insights
10 October 2017, Warsaw