

# Paper Industry Commentary

## From Fisher International

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# From Plastic to Paper

## How Will Sustainability Trends Impact the Pulp and Paper Industry?

*By Nancy Hasson, Senior Consultant, Business Intelligence, Fisher International*

The massive islands of plastic waste floating in the Pacific Ocean have garnered extensive media attention over the past 18 months, heightening consumer awareness about the excessive plastic pollution both on land and sea.

As governments respond by implementing bans on plastic, brand owners are substituting renewable materials for many types of plastic packaging. How will these trends affect the pulp and paper industry, and will available capacity and fiber supply keep up with demand for fiber-based packaging?

Because only 9% of the plastic produced since the 1950s has been recycled, it's projected that by 2050 there will be around 12 billion tonnes of plastic litter in landfills and the environment.<sup>1</sup> Plastics don't biodegrade, they only break down, slowly, into smaller fragments called microplastics, which are making their way into our food chain and subsequently into our bodies.<sup>2</sup> The health risks of microplastics are not fully understood, but anti-plastic sentiment is already fueling sustainability trends in packaging.

As consumer preference for renewable and environment-friendly materials grows, pulp and paper industry participants are evaluating how the anti-plastics movement will affect fiber-based packaging.

Which packaging applications are most likely to convert from plastic to paper? Which grades will be most impacted, and in which regions of the world? Will fiber availability and paper supply be sufficient to address the future demand? What investments can we expect in capacity to meet the future demand?

### **Market Drivers**

The movement to reduce waste from plastic packaging is driven by government regulation, as well as by changing consumer preferences. These preferences are driving brand owners to replace plastic with renewable and recyclable alternatives and to address plastic in their sustainability goals.

**Legislation:** To address the environmental crisis, government regulation has increased in many countries to help drive change and reduce the impact of plastics.

Certain single-use plastics (e.g., drinking straws, coffee stirrers, plastic bottles, plates, cups, utensils, shopping bags) have been identified as the leading contributors to plastic pollution and are the target of most legislation. While bans on polyethylene shopping bags have been in place in many parts of the world, the EU and UK are leading the way in implementing wider bans on single-use plastics:

- The United Kingdom is set to ban certain single-use plastics
- The EU has approved a ban to tackle marine litter by targeting single-use plastics
- Seven states in the U.S. have plastic bag legislation, and several cities have banned plastic drinking straws<sup>3</sup>

**Consumer:** Public awareness of plastic waste in the environment has risen to an all-time high.

Google Trends' "Interest over Time" index shows that interest in plastic waste and pollution quadrupled in 2019 compared to 2016.<sup>4</sup> A few findings from the 2018 Paper & Packaging Consumer Trends report confirm this:

- 64% of Americans say they prefer paper food packaging over plastic or Styrofoam
- 48% try to reduce their use of plastic items such as straws, cups or bags
- 65% say that sustainability of paper-based packaging is more relevant to them today than 5 years ago<sup>5</sup>

Consumer research firm Mintel predicts sustainability is among the top five trends that will impact the packaging industry over the coming year: "Brands will be called to keep marine conservation at the forefront of packaging development."<sup>6</sup>

**Brand Owners and Retailers:** Packaging trend-watchers say the sustainable packaging trend is here to stay, and brands are making serious commitments to act upon the anti-plastics outcry.

Several well-known consumer goods companies have committed to reducing plastic content in their packaging:

- Nestlé reported in 2017 that 39% of its packaging materials are from renewable sources, primarily paper and board<sup>7</sup>
- Apple has a comprehensive paper and packaging strategy, which explains how it reduced plastic content of its iPhone 7 package by 84% versus the iPhone 6s, with a switch from plastic trays to fiber-based packaging<sup>8</sup>

- Samsung announced plans in January to replace plastic packaging with paper and other renewable materials, even if the alternate materials are higher cost<sup>9</sup>

Another indicator of the importance of replacing plastic is the number of innovations in renewable, eco-friendly packaging, which are being announced at a fast clip, for example:

- Frugal Cup, a coffee cup with a food grade plastic liner that separates readily to facilitate recycling with other papers, and Suzano's Bluecup Bio cupstock, 100% biodegradable with no plastic barrier
- Durapulp, a composite consisting of wood fibers and biopolymer PLA, is the material in Huhtamaki's new fiber-based ready meal package
- KM Packaging's Kpeel lidding film, a seal and peel solution for pulp and pressed board trays
- SIG's new paper straw, strong enough to pierce the hole of aseptic cartons
- Kotkamills' plastic-free AEGLE™ dispersion coated barrier board that is fully recyclable and suitable for food packaging

Large retailers, especially in Europe, are also joining the movement to reduce plastic packaging. For example, UK retailers Iceland and Lidl recently announced goals to remove plastic from certain product lines.<sup>10</sup> In February, French retailer Carrefour signed a French national pact to phase out plastic packaging by 2025, along with other companies including L'Oréal, Nestlé, Danone and Unilever.<sup>11</sup> Last year, supermarket chain EkoPlaza opened the world's first plastic-free shopping aisle in Amsterdam, with plans to roll out similar aisles across 74 branches in 2018.<sup>12</sup>

### Single-Use Plastics

As we consider the impact of the anti-plastics trend on the pulp and paper industry, there are many single-use plastics that have fiber-based substitutes. Let's review some of the high-volume packaging items that could be replaced with paper or molded fiber:

- **Drinking Straws:** Numerous bans have been proposed or implemented on plastic straws, which are rarely recycled. Nestlé and Tetra Pak announced they will eliminate plastic straws; Seattle became the largest U.S. city to ban them; and Starbucks plans to phase out plastic straws by 2020.<sup>13</sup> Paper straws are reported to be 10 times the cost of plastic straws<sup>14</sup>, but still a very inexpensive item at \$.02 - .05 each. In the U.S., straws are estimated to consume about 50,000 tonnes of plastic per year
- **Plastic Shopping Bags** have been a prime target of bans around the world (banned in 55 countries and counting), because billions are used annually for only a few minutes, and used bags clog waterways, drains and choke marine life. However, faced with pay-for-use bags (paper, plastic and re-usable), consumers trend toward the re-usable bag, boosting growth in paper grocery bags only short-term while consumers build their personal re-usable bag inventories

- **Plastic Bottles:** about 200 billion plastic water bottles are produced globally, and the majority end up in landfills. Paper cartons could replace a portion of plastic bottles as consumers seek to avoid plastics
- **Disposable Cups:** paper beverage cups are forecast to grow 4% per year.<sup>15</sup> About 250 billion fiber-based cups are produced every year, compared to 500 billion plastic cups.<sup>16</sup> In municipalities where paper cups are recyclable, they are a renewable alternative to plastic cups
- **Foodservice Packaging:** take-out food containers have been a major market for paperboard, and it's expected consumer preference will continue to drive conversion from plastic to paper in foodservice. In addition, molded fiber packaging has been a growing choice for foodservice items including bowls, plates, trays and clamshell containers--although the latter is three times higher cost in molded fiber than Styrofoam
- **Ready meal containers:** product innovations have been announced for new films and fully biodegradable meal containers which will allow organic and premium brands to launch fiber-based packaging for the fast-growing ready meal market. This market is growing 4-5% per year<sup>17</sup>

These are just a few of the potential packaging segments which will be affected by the trend to replace plastics. It's likely that single-use items will see replacement by fiber-based materials first, as they comprise a huge portion of marine litter and are the target of most anti-plastic regulation.

### Implications for Pulp and Paper

Pulp and paper industry participants need to know where to expect investment as plastic substitution continues over the next few years. Availability of paper and pulp by grade and by region can be analyzed using FisherSolve Next™, to allow estimates of additional capacity needs and possible machine conversions.

We project that virgin paperboard will see a significant increase in demand, as paper food-grade containers and paper cups replace plastic over the next five years. Figure 1 shows the current production capacity for virgin paperboard grades in four regions of the world.

Looking at plastic beverage cups, replacing 10% of plastic cups globally with paper, would require an estimated 588,000 tonnes of cup stock, an 18% increase over 2019 global capacity of 3.5 million tonnes. Currently there is no new capacity announced for cup stock after 2019.

If we calculate potential replacement of plastic packaging in the U.S. and Europe as public concern over plastic waste continues, Fisher estimates that a 5% replacement of plastic with paper would consume 1.5 million tonnes of paper. Assuming this new volume is virgin paperboard (for food and beverage), Figure 2 shows these grades have actual and announced global capacity increase of only 1.8 million tonnes total over the next five years.

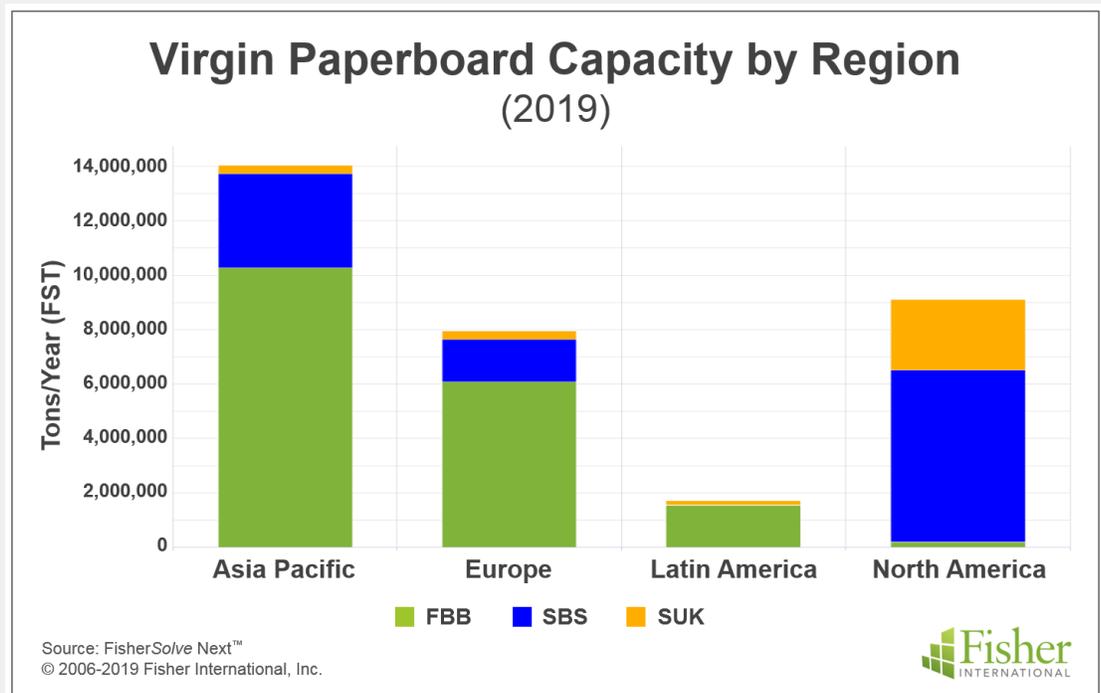


Figure 1

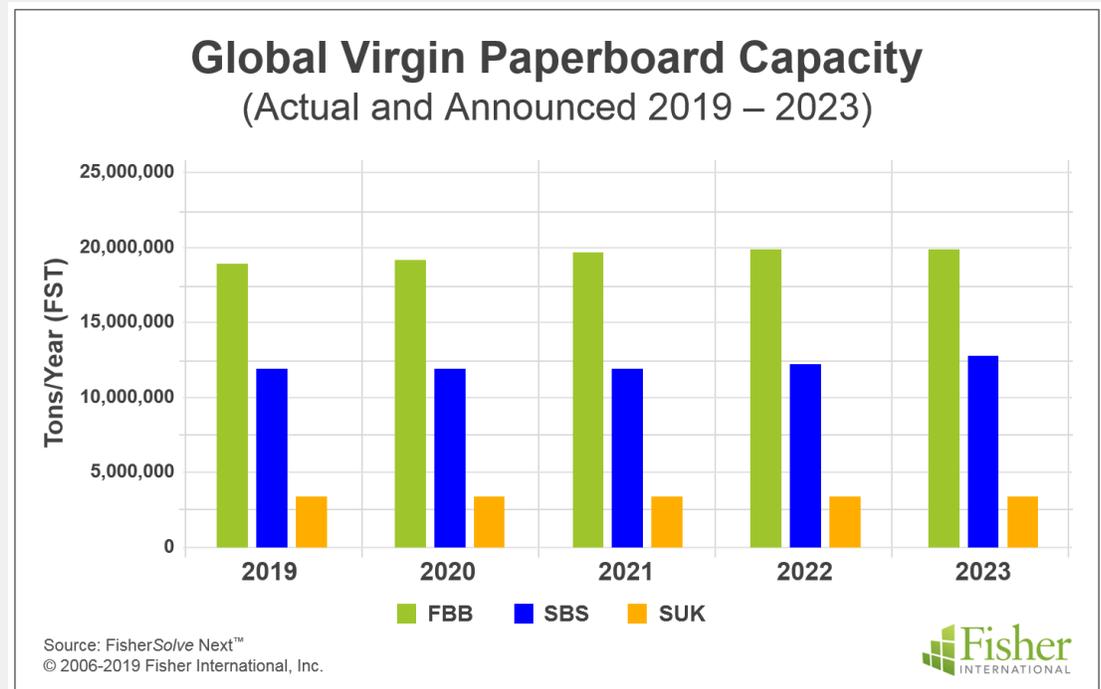


Figure 2

Let's consider paperboard more broadly, including recycled grades. Smithers Pira has projected that demand for cartonboard in packaging will increase 4% per year through 2022.<sup>18</sup>

With data extracted from FisherSolve Next, Figure 3 shows the actual and announced production capacity for the 2019-2023 period. Overall capacity will increase from 85 million to 89 million tonnes, with a Compound Annual Growth (CAGR) of 1.1%, indicating a very tight market over this time period.

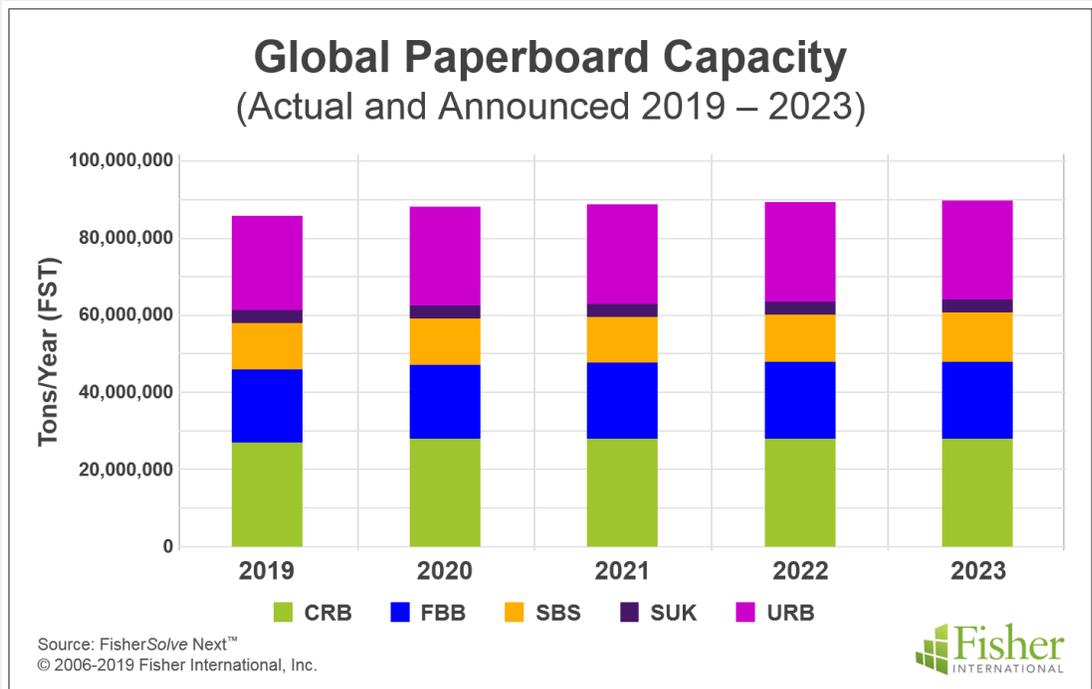


Figure 3

And what about the fiber required to support the shift away from plastic packaging? Beyond paperboard, molded fiber packaging has seen steady growth over the past two years, as reported by the International Molded Fiber Association. Foodservice items and a number of consumer and household product packages are now made with biodegradable molded fiber, instead of plastic. As advancement in manufacturing technology continues for molded fiber, cost reductions and performance improvements will allow more packages to convert to molded fiber, using both virgin and recycled pulp.<sup>19</sup> How will this affect pulp pricing in an already competitive market?

### Sustainable Fiber Supply

To satisfy increased demand for paper and pulp instead of plastic, capital investment in new capacity may be required. The most likely locations would be areas with good fiber resources, such as the Nordic countries, Latin America, Russia and North America.

An additional consideration relating to fiber supply, is the intention of companies like Apple and Samsung to source packaging materials from sustainably-managed forests, as defined by organizations like the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certifications (PEFC).

Figure 4 shows the countries (shaded) with members of the PEFC. PEFC-certified forests include 309 million hectares globally,<sup>20</sup> but in some regions less than half the forest land is certified and would not be considered sustainable/renewable by companies sourcing paper only from responsibly-managed forests. This requirement will place additional pressure on fiber supply for eco-friendly packaging.

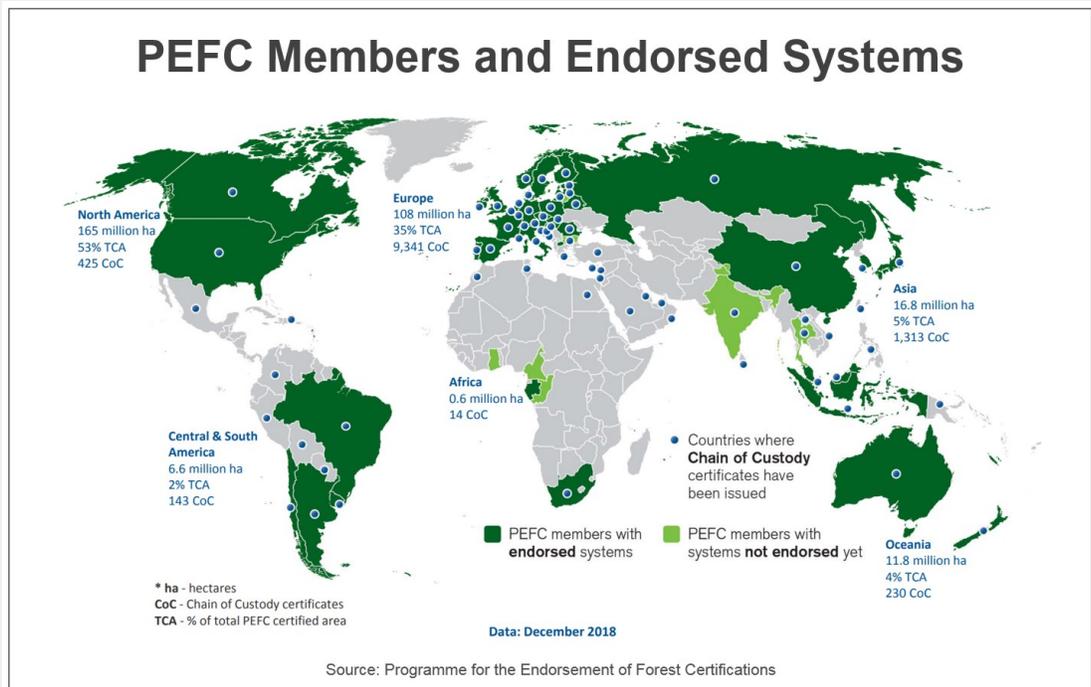


Figure 4

The anti-plastic movement and range of traditional and new packaging materials available to replace plastic brings up important questions and opportunities for the pulp and paper industry. A few issues to consider:

- If more pulp is required to meet demand for paperboard and molded fiber packaging, will pulp prices increase so much that fiber-based alternatives to plastic become cost-prohibitive?
- How quickly will consumer sentiment cause a shift in demand for renewable packaging materials? What will be the pace of investment and substitution of plastic in Europe, North America, South America and Asia Pacific?
- Will fiber from sustainably-managed forests be enough to support growth in pulp and paperboard?
- How quickly will renewable fibers like bamboo, bagasse and straw contribute significantly to fiber supply?

We at Fisher specialize in addressing the important and complex issues facing the pulp and paper industry today. Give us a call if you'd like to talk.

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- <sup>2</sup> Scott, Alex. (February 4, 2019). *The pervasiveness of microplastics*. Chemical & Engineering News.
- <sup>3</sup> *Where are plastic bags banned around the world?* (2019)
- <sup>4</sup> Google Trends
- <sup>5</sup> APP Blog. (January 24, 2019). *2018 Paper & Packaging Consumer Trends Report*.
- <sup>6</sup> Mintel. (December 12, 2017). *Mintel Announces Five Global Packaging Trends for 2018*.
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- <sup>9</sup> Samsung Press Release (January 28, 2019). *Samsung Electronics to Replace Plastic Packaging with Sustainable Materials*.
- <sup>10</sup> Farrell, Steve. The Grocer (September 21, 2018). *Lidl to remove black plastic from fruit & veg lines*.
- <sup>11</sup> Carrefour (February 21, 2019). *Carrefour is taking action against plastic packaging*.
- <sup>12</sup> Packaging Insights (March 1, 2018). *Plastic-free supermarket aisle opens in Amsterdam*.
- <sup>13</sup> Gibbens, Sarah. National Geographic (January 2, 2019). *A brief history of how plastic straws took over the world*.
- <sup>14</sup> Ell, Kellie. (July 9, 2018). *Paper straws cost 'maybe 10 times' more than plastic straws*.
- <sup>15</sup> Future Market Insights (November 2018). *Paper Cups Market*.
- <sup>16</sup> Earthday.org (2018). *Fact Sheet: How much Disposable Plastic We Use*.
- <sup>17</sup> Technavio (January, 2016). *Technavio Releases new report on Global Ready Meals Market*.
- <sup>18</sup> Smithers Pira (May, 2017). *The Future of Folding Cartons to 2022*.
- <sup>19</sup> International Molded Fiber Association (June 18, 2018). *The new "old" packaging material*.
- <sup>20</sup> Programme for the Endorsement of Forest Certification (2019). [www.pefc.org](http://www.pefc.org)

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### About Fisher International, Inc.

Fisher International, by virtue of its deep expertise in the pulp and paper industry, provides insights, intelligence, benchmarking, and modeling across myriad scenarios. By arming companies with the knowledge that will help them gain a better understanding of their strengths and help identify weaknesses, Fisher is helping businesses stave off challenges and better position themselves for long-term growth.

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