August 2022

The world's tissue paper companies

and their care for forests.

Colophon

The world's tissue paper companies, and their care for forests.

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Clearcut in a remote part of Vancouver Island, British Columbia, Canada.
Photo by Dave Mantel on iStock, uploaded 3 September 2020.

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Executive summary

Tissue paper

Tissue paper is a collective term for toilet paper, paper handkerchiefs, paper towels, kitchen rolls, napkins, face masks etc. Diapers, feminine care products, and wipes are usually not labelled as tissue paper. These products are however most often produced by the same companies, so in this report they are also part of the collective term.

Tissue paper constitutes around 10% of the world's paper use. Its use has doubled the last 20 years. It is predicted that the use of tissue paper will be growing steadily, especially in the Asia-Pacific region.

While worldwide there is a lot of attention for paper recycling, this is not what the tissue paper sector does. Some companies even advocate against the use of recycled fibers. Around 80% of all cellulose fibers used to manufacture tissue paper have forests or plantations as their origin. All these fibers will never be recycled.

The sourcing of virgin pulp to produce tissue paper may come at the cost of the world's remaining forests, and therefore cause climate change, biodiversity loss and land disputes. The increasing use of tissue paper worldwide puts the forests at extra risk. The countries exporting most virgin pulp are Brazil, Canada, United States, and Indonesia. Especially in Canada and Indonesia valuable forests may be cleared for the production of tissue paper.

Boreal caribou, under threat from the Canadian logging and pulp industry
iStock, Mar 2021

Tissue rolls on an assembly line
iStock, Jul 2019

The nine largest tissue paper companies and sustainable sourcing

In this report, the sustainable sourcing of fibers by the nine largest tissue paper companies worldwide is compared. Three companies dominate the North American market: Kimberly-Clark, Procter & Gamble, and Georgia-Pacific. Leading companies on the Chinese market are Sinar Mas, Essity, and Hengan. Inside Europe the largest tissue companies are Essity and Sofidel. CMPC (Softys) is Latin America's second largest tissue company, after Kimberly-Clark. Unicharm, which is especially active in Asia, is one of the world's three main diaper producing companies.

All the nine tissue paper companies source pulp from the world's main pulp suppliers. Three of the companies have their own forestry operations: Essity (via its sister company SCA, mainly operating in Scandinavia), Sinar Mas (in Indonesia and China, and via its related company Paper Excellence also in Canada, Brazil, and the United States), and CMPC (operations in Chile and Brazil, mainly).

Certification of forest management by the Forest Stewardship Council (FSC) is not flawless, but it is broadly accepted by NGOs as the superior and most legitimate forestry certification.

Five out of the nine companies source most of their pulp from forests/plantations with FSC certification for forest management. These are Sofidel, CMPC (Softys), Kimberly-Clark, Essity, and Procter & Gamble. Sofidel, Kimberly-Clark, Essity, and Procter & Gamble have also explicitly expressed their preference for FSC certification, while CMPC (Softys) has forest management certification of FSC as well as PEFC.

Two out of the nine companies source most of their pulp from forests/plantations that are either FSC certified or PEFC certified for sustainable forest management. These are Unicharm and Hengan. These companies have not expressed any preference regarding FSC certification.

Two out of the nine companies do not source from forests/plantations that do have FSC certification for sustainable forest management. These are Georgia-Pacific and Sinar Mas. Georgia-Pacific sources from forests/plantations in the United States that do have PEFC certification. Sinar Mas has been disassociated from the FSC. Its sourcing for the operations of APP Indonesia is covered by PEFC certification for more than 95 %. The sourcing of pulp by APP China is however only partly covered by some certification for sustainable forest management, 20% in 2019.

Of the three companies dominating the North American market, Procter & Gamble and Kimberly-Clark both source from the North American Boreal Forest biome. The North American Boreal Forest biome, inclusive of Canada and Alaska, is estimated to contain 25% of the world's remaining intact primary forests. Procter & Gamble purchases around 3% of all pulp produced in Canada. Kimberly-Clark has a target to reduce its sourcing from the North American Boreal Forest biome. Procter & Gamble does not have such reduction target.

Of the three leading companies in China, Sinar Mas scores significantly poorer on sustainable sourcing than the other two companies. Most of its sourcing is not covered by any certification for sustainable forest management.

Some companies have initiatives with regard to future use of earlier used paper in their tissue paper production. The trend is however that the recycled content of produced tissue paper is decreasing. This is shown by Essity and Kimberly-Clark, which report decreases from 41% to 36% in the period 2017-2021, and 35% to 24% in the period 2011-2021, respectively.

The three largest tissue producers in the United States - Procter & Gamble, Kimberly-Clark, and Georgia-Pacific - make all their household tissue products from 100 percent virgin forest fiber.

Essity, Kimberly-Clark and APP Indonesia responded to draft-chapters sent to the nine companies for review. Their response is incorporated in this final report.

Table 1
Comparison of sustainable sourcing by the nine tissue companies

TISSUE PAPER COMPANY	YEAR	FSC FOREST MANAGEMENT	OTHER CERTIFICATION
Sofidel	2021	80%	PEFC (18%), FSC CW (2%)
CMPC (Softys)	2021	~75% FSC	Mostly FSC Controlled Wood
Kimberly-Clark	2021	67%	SFI (20%), PEFC (5%), FSC Controlled Wood (8%)
Essity	2021	63%	PEFC (35%), FSC CW (2%)
Procter & Gamble	2021	59%	FSC CW (26%), SFI (13%), PEFC/CSA-SFM (2%)
Unicharm	2020	95% FSC, PEFC, SFI, and other bodies	
Hengan	2021	100% FSC or PEFC	
Georgia-Pacific		None	>90% SFI
Sinar Mas	2019 and 2020	None	Indonesia (2020): >95% PEFC China (2019): 19.8% PEFC, 80.2% no certification

Conclusions and recommendations

Bornean Orangutan, a critically endangered species, inside the Rimba Raya reserve, Central Kalimantan, Indonesia
Wikimedia Commons, Jul 2019

Conclusions

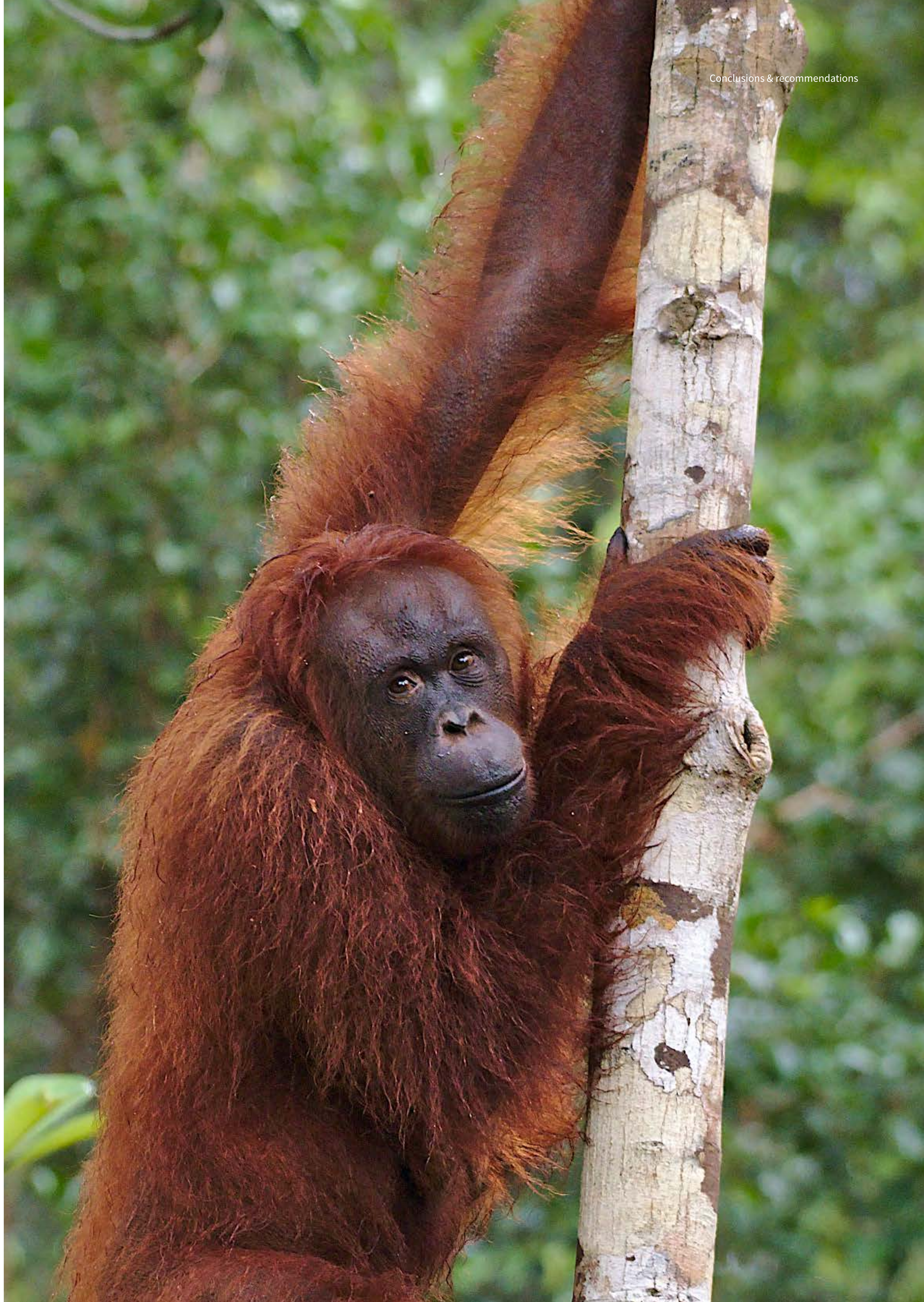
There is room for improvement with regard to the sustainable sourcing of raw materials by the world's largest companies producing tissue paper.

The use of virgin fibers for the production of tissue paper is expected to increase globally, as more tissue paper will be used and less recycled paper is used for the production of tissue paper. The increasing use of virgin fibers puts more of the world's remaining forests at risk.

Recommendations

The world's largest companies producing tissue paper should increase the use of recycled fibers and achieve 100% FSC certification for forest management.

'The increasing use of virgin fibres puts more of the world's remaining forests at risk.'



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Chapter One

The world's tissue market

1.1

The third largest user of paper

10% of worldwide paper use

Tissue paper is a collective term for a wide range of paper products: toilet paper, paper handkerchiefs (often called facial tissues), towels, napkins, and face masks. Diapers (for babies and adults), feminine care products (also called sanitary napkins) and baby wipes are also put in the tissue category for this report, though for these also other materials than paper are used in the production process, and though often these are characterized as Personal care products, not as tissue paper.

Sanitary and household tissue constitutes the third largest use of paper, after containerboard/packaging and printing/writing paper. Sanitary and household tissue accounts for 10% of worldwide paper use. In the period 2000-2019, its use worldwide has almost doubled.[1] Global use of tissue paper is generally projected by research organisations to grow around 5 or 6% per year, with the Asia-Pacific region expected to be the main growth market. The annual growth in the period 2000-2019 was however 3.5%.[2]

Table 2
Global paper use in the years 2000 and 2019

TYPE OF PAPER/BOARD	2000 (MILLION TONNES)	2019 (MILLION TONNES)	INCREASE/DECREASE
Containerboard	96	170	77%
Other paper and board	70	94	34%
Printing and writing	104	93	-11%
Tissue	21	41	95%
Newsprint	39	17	-56%
Total	**330**	**415**	**26%**

China, Europe and United States are the largest markets

The global tissue market can be categorized into 5 markets: China, Other Asia (excluding China), North America (United States, Canada, Mexico), Europe and Latin America. In terms of tonnes of paper/pulp per year, Asia-Pacific accounts for 49% of the world's tissue capacity. Europe, North America, and Latin America account for 21%, 16%, and 10% respectively.[3]

According to Statista, the largest tissue & hygiene paper markets in terms of 2022 revenue are China (USD 60 billion), Europe (USD 59 billion), the United States (USD 44 billion), and India (USD 36 billion).[4]

Ready for supermarket shelves, Henley Beach, South Australia
Flickr, Jul 2021

White toilet paper rolls
Pexels, Mar 2020

1.2

Product types

Toilet paper the largest category

Per product type, the world's tissue production is divided into: consumer bath (mainly toilet paper, 51%), consumer facial (mainly handkerchiefs, 15%), consumer towel (13%), commercial bath (7%), commercial towel (5%), consumer napkin (4%), commercial facial (2%), and other (3%).[5] The term commercial refers to the Away-From-Home market (offices, schools, restaurants, hospitals etc.). Diapers and feminine care products are not included in this calculation.

Some product types have less frequent use in certain regions. For example, after using the toilet, most countries in Asia use water instead of toilet paper.[6] Another example is that people in the United States consume nearly half of all the world's paper towels. They do not use sponges like lots of people in Western Europe do.[7]

'... people in the United States consume nearly half of all the world's paper towels.'

Pulp products of the Klabin company in Ortigueira, Paraná, Brazil
Wikimedia Commons, Jul 2020

1.3

Pulp trade for tissue products

Most market pulp is used for tissue products

Globally around 178 million tonnes of wood pulp is made from virgin fibers annually. Of this total, 58% is used by integrated paper mills that – entirely or partly - have their own facilities for further processing. The remainder, around 75 million tonnes, is market pulp. Market pulp is sold to paper manufacturers that do not have their own mills. Some is also purchased by integrated mills, complementing their own production. Tissue paper is the largest application for market pulp, and currently accounts for approximately 41 percent of global consumption. Fluff pulp accounts for another 10%. Fluff pulp is used in diapers and wipes, among other. All in all, more than half of the virgin fiber woodpulp traded worldwide is used for the production of tissue products.[8]

Sea of eucalyptus in Lençóis Paulista, state of São Paulo, Brazil
Unsplash, Jul 2018

The world's largest pulp exporters

The countries Brazil, Canada, United States, Indonesia, and Chile were the world's largest pulp exporters in 2020:

- Brazil is the largest exporter of pulp suitable for tissue production. It exported 15.6 million tonnes in 2020, of which 48% to China, 23% to Europe, 15% to the United States, and 14% to other countries.
- Canada, the world's second largest pulp exporter, exported 8.6 million tonnes in 2020, of which 49% to China, 34% to the United States, and 17% to other countries.
- Being a huge importer of pulp from Canada and Brazil, the United States is also a large pulp exporter. It exported 7.8 million tonnes in 2020, of which 24% to China, 20% to Europe, and 56% to various other countries.
- The world's fourth and fifth largest pulp exporters are Indonesia and Chile. Indonesia exported 4.9 million tonnes in 2020, of which 75% to China, and 25% to various other countries. Chile exported 4.2 million tonnes in 2020, of which 60% to China, and 40% to various other countries.[9]

EXPORTER	TOTAL	IMPORTER					
		CHINA	EUROPE	UNITED STATES	SOUTH KOREA	JAPAN	OTHER COUNTRIES
Brazil	15.6	7.4	3.6	2.4	0.4	0.4	1.4
Canada	8.6	4.2	0.1	2.9	0.3	0.4	0.7
United States	7.8	1.8	1.5		0.2	0.6	3.7
Indonesia	4.9	3.7			0.4		0.8
Chile	4.2	2.6	0.4	0.1	0.2	0.1	0.8
Sweden	3.9	0.2	2.9	0.3			0.5
Finland	3.8	1.4	1.8		0.1		0.5
Uruguay	2.8	0.8	1.5		0.2		0.3
Russia	2.5	1.7	0.3		0.2	0.1	0.2
Total	**54.1**	**23.8**	**12.1**	**5.7**	**2.0**	**1.6**	**8.9**

Table 3
Top-9 export countries of pulp suitable for tissue production, 2020, million tonnes

1.4

The world's tissue paper companies

The eight largest in production capacity, and one added

The production capacity of tissue machines was the leading criterion for the determination which companies to analyse for this report. An extra company was also chosen: Unicharm. This company does not appear in the top-10 of tissue companies in terms of production capacity, yet the company does have a huge market position in the baby diaper and feminine care sectors in countries such as China, Indonesia and Japan. In terms of revenue, Unicharm belongs to the nine largest tissue companies in the world.[10]

According to data from RISI World Tissue Business Monitor, the 10 largest companies in the world in terms of tissue production capacity at the end of 2020 were: Essity, Kimberly-Clark, APP Sinar Mas, Georgia-Pacific, Hengan, Procter & Gamble, Sofidel, CMPC (Softys), Lee & Man, and WEPA. According to data from the research consultancy ResourceWise, the 10 largest tissue companies in the world in terms of tissue production capacity were: Essity, Georgia-Pacific, Kimberly-Clark, APP Sinar Mas, Hengan, Sofidel, Procter & Gamble, Vinda (part of Essity), C&S, and CMPC (Softys).[11] Of all these companies above, eight were chosen to be analysed for this report. Three companies were not chosen, due to their insufficient tissue production capacity: C&S, Lee & Man, and WEPA.

Kleenex facial tissues

Flickr, 2020

Market leaders in their region

The nine largest tissue companies analysed for this report have a large presence in specific regions. The table below shows in which regions the companies are among the leading companies in the tissue sector, i.e. have a large presence. Some companies have tissue brands that are marketed throughout most parts of the world. Examples are Pampers diapers of Procter & Gamble, Kleenex tissue of Kimberly-Clark, and TENA feminine care products of Essity.

TISSUE PAPER COMPANY	CHINA	NORTH AMERICA	EUROPE	LATIN AMERICA	OTHER ASIA
Essity	Large		Large		
Kimberly-Clark		Large		Large	Large
APP Sinar Mas	Large				Large
Unicharm					Large
Procter & Gamble		Large			
Hengan	Large				
Georgia-Pacific		Large			
Sofidel			Large		
CMPC (Softys)				Large	

Table 4
The main global tissue paper companies and their "large presence" regions

China

In China, three companies stand out in terms of tissue paper production for the Chinese market: Gold Hongye Paper Group (part of Sinar Mas), Hengan, and Vinda (part of Essity). Their combined market share may however be not more than 30% in terms of weight in tonnes produced.[12] Kimberly-Clark, Procter & Gamble and Unicharm have a large market share on the Chinese diaper market, but they are not large in terms of tonnages produced.[13]

North America

North America stands for the United States (331 million inhabitants) and Canada (38 million inhabitants), and sometimes Mexico (129 million inhabitants) is also added. The United States tissue paper market is dominated by Georgia-Pacific, Kimberly-Clark, and Procter & Gamble. For example, the three companies controlled 70% of the United States toilet paper market in 2020.[14]

Europe

According to data from RISI World Tissue Business Monitor over the last quarter of 2019, Essity and Sofidel accounted for 27.6% and 12.3% of the capacity shares in the West European tissue market, respectively.[15]

Latin America

Kimberly-Clark and CMPC (Softys) are the two largest players on the Latin America tissue market. Some data on their market position could be found. Latin America's largest market is Brazil. When a recent proposed acquisition is approved, CMPC (Softys) would cover 26% of Brazil's market.[16]

Other Asia

The countries/regions using most tissue paper in Other Asia (Asia without China) are likely Japan, South Korea, Indonesia and India, Pakistan, and the Indian subcontinent (India, Pakistan, and Bangladesh).[17] Despite being the world's second largest populated country, India does not have a lot of tissue paper use. This is partly due to the fact that on the Indian subcontinent no toilet paper is used.[18]

The companies Kimberly-Clark, Sinar Mas, and Unicharm have a large presence in Other Asia. The leading company in South Korea is Yuhan-Kimberly, a joint venture between Korea's Yuhan Corporation and Kimberly-Clark. It has a dominant market share in bathroom tissues, baby diapers, and sanitary napkins. Its revenue amounted to KRW 1.46 trillion in 2021 (equivalent to USD 1.3 billion).[19] In 2020, Kimberly-Clark acquired the Indonesian company Softex Indonesia. It currently holds the number two market share position of diapers in Indonesia, and approximately 80 percent of its sales come from diapers. In feminine care, Softex holds the number three market share position.[20]

APP Sinar Mas has a #1 market position in Indonesia on toilet paper, facial tissues, bathroom rolls and napkins. It produced 1.0 million tonnes of tissue paper in 2020, also for export purposes, and Paseo is the name of its main brand in Indonesia.[21]

Unicharm has a #1 market share in Japan and Indonesia for disposable baby diapers, feminine care, and adult incontinence care. It also has a #1 market share in Japan concerning face masks, wet tissues, and cosmetic puffs[22]. The two largest companies on the diaper market in India are Procter & Gamble and Unicharm.[23]

1.5

Pulp suppliers of the world's tissue paper companies

Eucalyptus plantation in São Paulo state, Brazil
iStock. Apr 2018

At the cost of high biodiversity forests?

The sourcing of virgin pulp may come at the cost of the world's remaining forests. On tissue paper, the main forests at risk seem to be the tropical rainforests of Indonesia/Malaysia, and the remaining old-growth forests of Canada. In Indonesia/Malaysia, the deforestation is due to conversion of forests into plantations. In Canada, it is often logging operations in old-growth forests that cause the damage. These operations aim for sawn wood as well as pulp wood.

Brazil and Chile are the largest pulp producing countries in Latin America. The pulp is made from the harvest of eucalyptus plantations and in Chile also radiata pine plantations. The largest pulp producing companies in Latin America are Suzano, CMPC, Eldorado Brasil (51% owned by JBS, 49% by Paper Excellence), and Arauco.

The largest pulp producing companies in Indonesia are Asia Pulp & Paper (APP, part of Sinar Mas), and APRIL (part of Royal Golden Eagle group of companies). The pulp is made from the harvest of acacia and eucalyptus plantations.

In Scandinavia (Finland, Sweden and Norway) pulp is made from spruce, pine, and birch trees. Yet, Scandinavia has few protected forests, and for example in March 2021 Swedish nature protection organisations and indigenous communities wrote that the Swedish forestry model is wreaking havoc.[24]

Via acquired trade data and company information some pulp suppliers selling to the tissue paper producing companies could be revealed.[25] It should be stressed that trade data are only available to some extent, so the displayed overview in the table below is far from complete.

PULP ORIGIN	PULP SUPPLIER	Essity	Kimberly-Clark	Sinar Mas	Unicharm	Procter & Gamble	Hengan	Georgia-Pacific	Sofidel	Cmpc (Softys)
United States	International Paper	X	X		X	X				X
	Georgia-Pacific		X		X	X		X		X
	Paper Excellence		X	X	X					
	Rayonier					X				X
	Cascades			X						
	Ekman	X								
Canada	West Fraser	X		X						
	Sappi			X						
	International Paper	X								
	Paper Excellence			X						
	Rayonier			X						
	Canfor			X						
Latin America	Suzano	X	X						X	X
	CMPC	X								X
	Klabin		X							X
	JBS + Paper Excellence									X
	Arauco								X	
Europe	SCA	X							X	
	Metsä Fibre						X		X	
	UPM						X			
	Paper Excellence			X						
	Rosenthal								X	
	Glatfelder					X				
	Södra								X	
New Zealand	Rimbunan Hijau			X						
	Oji Holdings			X						

Table 5
Identified pulp suppliers of the world's largest tissue paper companies

Canadian pulp suppliers scoring insufficient on sustainability

In October 2021, the Natural Resources Defense Council (NRDC) published its report Pulp fiction. For this report, it identified the largest pulp suppliers in Canada by evaluating the capacity of their pulp mills. Companies were assessed according to important criteria based on core principles that have been highlighted by the global community as important for sustainable development: respecting the rights of Indigenous communities, protecting the habitat of threatened species, safeguarding primary forests, and ensuring that forestry occurs under superior forest certification standards. The assessed companies were: Paper Excellence/Domtar, Canfor, West Fraser, Mercer International, Resolute Forest Products, Aditya Birla Group, and Alberta-Pacific Forest Industries (Al-Pac). Five companies did not get a better score than Insufficient on all the criteria mentioned in the scorecard. Aditya Birla Group and Al-Pac scored Near Alignment and Fully aligned, respectively, on the criterium whether the company exclusively manages lands certified under the Forest Stewardship Council (FSC).[26]

Paper Excellence's Skookumchuck pulp mill, British Columbia, Canada
Google Earth, Oct 2021

Chapter Two

Sustainable sourcing of fibers

2.1

Increasing use of virgin fibers

Only 19% of fiber use comprises recovered fibers

Virgin fiber is a term for fibers from wood extracted from natural forests or pulpwood plantations. Of all fibers used for tissue paper, around 81% comprises virgin fibers and 19% recovered fibers.[27]

Recycled fiber is predominantly used in the Away-From-Home market (offices, schools, restaurants, hospitals etc.). For example, almost a third of tissue products in the United States and Canada are used in the Away-From-Home market, and 80 per cent of that is recycled.[28] Essity states in its Annual and Sustainability Report 2021: "Operations in North and South America used 79% recycled fiber, while the proportion of recycled fiber in Europe was 33%." This corresponds with Essity's prominent position on the North American Away-From-Home market, compared to its small position on the North American consumer tissue market. Of all recycled fiber used by Essity worldwide, 65% was used in the Away-From-Home market and 35% in the consumer tissue market.[29]

A 2019 survey in the United Kingdom noted that the use of recycled fiber in toilet paper has declined over the years.[30] According to the Finnish tissue producer Metsä Tissue, the amount of recycled paper-based fiber in its products is decreasing as the availability and quality continue to deteriorate. Metsä Tissue states that this is due to a decrease in the amount of paper used in offices and newsprint consumption as a result of digitalisation. Recycled fiber also has more competitive applications, for example in the packaging industry.[31] Essity's Annual and Sustainability Report 2021 shows that its use of recycled fibers as a percentage of its total fiber use decreased from 41% in 2017 to 36% in 2021.[32] The recycled content of Kimberly-Clark's tissue fibers has been gradually declining over the years, from 35% in 2011 to 24% in 2021.[33]

China has banned imports of mixed paper for recycling since 2018, resulting in more mixed paper being available on European and US markets, seriously reducing prices and therefore also reducing funds for appropriate collection schemes.[34]

Some tissue paper companies, Procter & Gamble included, even advocate against the use of recycled paper, and claim to see more environmental benefit from using virgin fibers, while neglecting the negative impacts virgin fibers tend to have on the world's remaining forests.[35] The Environmental Paper Network, a world-wide network of over 150 civil society organisations, estimates that tissue products from virgin pulp produce far more emissions than recycled content pulp across various types of pollution. It also estimates that three times more greenhouse emissions are produced from virgin pulp tissue than 100% recycled content tissue.[36]

The largest tissue producers in the United States - Procter & Gamble, Kimberly-Clark, and Georgia-Pacific - make their household tissue products from 100 percent virgin forest fiber.[37]

Toilet rolls in a supermarket near Coventry, England
Flikr, Mar 2020

‘ The largest tissue producers in the United States – Procter & Gamble, Kimberly-Clark, and Georgia-Pacific – make their household tissue products from 100 percent virgin forest fiber. ’

Paper recycling rates

According to the International Council of Forest and Paper Associations (ICFPA), 59.1% of paper and paperboard consumed globally is used by mills to make new products.[38] Analysis by the United States Environmental Protection Agency (EPA) shows that in the United States 68.2% of all generated paper and paperboard waste gets recycled. Within the European Union the figure stands at 72.5%, while in Asia it is 53.9%.[39]

The table below sheds some light on what product types of paper and paperboard in the United States have the highest recycling rates. Corrugated boxes stand out with a recycling rate of 96.5%, while corrugated boxes mostly contain recycled fibers. Graphic and tissue paper, which mostly contain virgin fibers of higher quality, have a recycling rate of 43.1% only.[40] The EPA does not further specify for tissue paper, but many other information sources point to the fact that tissue paper almost does not get recycled at all.[41]

PRODUCT TYPE	GENERATED WASTE (MILLION TONNES)	RECYCLED (MILLION TONNES)	RECYCLING RATE
Corrugated boxes	33.3	32.1	96.5%
Graphic and tissue paper	20.4	8.8	43.1%
Packaging (excluding corrugated boxes)	8.6	1.8	20.8%
Newsprint	5.1	3.3	64.8%
Total	**67.4**	**46.0**	**68.2%**

Table 6
Paper and paperboard products in United States municipal solid waste, 2018

2.2

Certification of sustainable forest management

> ‘… confirms that the forest is being managed in a way that preserves biological diversity.’

FSC Forest Management certification

Forest Stewardship Council (FSC) forest management certification confirms that the forest is being managed in a way that preserves biological diversity and benefits the lives of local people and workers, while ensuring it sustains economic viability.[42] FSC forest management certification is not flawless, but it is broadly accepted by NGOs as the superior and most legitimate forestry certification. As this report shows, also main companies producing tissue paper often consider FSC as the preferred certification on sustainable forest management.

FCS logo on Wikimedia Commons

FSC Controlled Wood: less demanding on sustainability

FSC also provides a standard that is less demanding on sustainability. This is the FSC Controlled Wood standard. Controlled wood is material from acceptable sources that can be mixed with FSC-certified material in products that carry the FSC Mix label. It is allowed for Controlled Wood to make up maximum 30 per cent of the total manufactured product. The controlled wood requirements identify five categories of unacceptable sources for wood, which is not allowed to be mixed with FSC-certified material.

These are:

- **illegally harvested wood**
- **wood harvested in violation of traditional and human rights (for example forced or child labour)**
- **wood harvested in forests in which high conservation values are threatened by management activities**
- **wood harvested in forests being converted to plantations or non-forest use**
- **wood from forests in which genetically modified trees are planted**[43]

PEFC: criticized by NGOs

The Programme for the Endorsement of Forest Certification (PEFC) is an umbrella organization that endorses national forest certification systems.[44]

For Canada and the United States, PEFC has endorsed the following forest management standards:

These are:

- Sustainable Forestry Initiative (SFI):
  - SFI 2022 Forest Management Standard
  - SFI Small Lands Group Certification Module
  - SFI Small Scale Forest Management Module for Indigenous Peoples and Families
- Canadian Standards Association (CAN/CSA-Z809)
- American Tree Farm System (ATFS) individual and group certification.

The Sustainable Forestry Initiative (SFI) exists only for Canada and the United States, and it has been heavily criticized by a large range of NGOs, such as Greenpeace, Sierra Club, Natural Resources Defense Council, Rainforest Action Network, and Stand.earth. Nevertheless, it is Canada's most widely adopted certification.[45]

The Canadian Standards Association (CSA) is less widely adopted in Canada, yet it is equally criticized by NGOs. In July 2021, six individuals backed by a trio of environmental organizations (Ecojustice, Stand.earth and the Ancient Forest Alliance) formally requested the governmental Competition Bureau Canada to investigate the CSA for labelling Canada's forestry goods sustainable as false and misleading.[46]

For forests and plantations outside Canada and the United States, PEFC is also generally considered weaker on sustainability by NGOs than FSC.[47]

> ‘FSC forest management certification is not flawless, but it is broadly accepted by NGOs as the superior and most legitimate forestry certification.’

Chain of Custody

Both FSC and PEFC offer Chain of Custody (CoC) certification. CoC is about the link from the forest, or in the case of recycled materials from the moment when the material is reclaimed, to the point where the product is sold with a claim on sustainable forest management and/or it is finished and labelled with a claim on sustainable forest management. Any change of ownership in the supply chain requires the establishment of effective CoC management systems at the level of the respective organisation and their verification by an independent accredited certification body. CoC certification is necessary, along with certification of sustainable forest management, when a company wants to make a sustainability claim about the forest management behind its products.[48]

PEFC logo near
Arnsberg, Germany
Wikimedia Commons, 2015

2.3

Comparison sustainable sourcing by the nine companies

Forest management certification

Five out of the nine companies source most of their pulp from forests/plantations with FSC certification for forest management. These are Sofidel, CMPC (Softys), Kimberly-Clark, Essity, and Procter & Gamble. Sofidel, Kimberly-Clark, Essity, and Procter & Gamble have explicitly expressed their preference for FSC certification, as compared to other certification systems for sustainable forest management. The majority of raw materials sourced by CMPC (Softys) has forests management certification of FSC as well as PEFC.

Two out of the nine companies source most of their pulp from forests/plantations that are either FSC certified or PEFC certified for sustainable forest management. These are Unicharm and Hengan. These companies have not expressed any preference regarding FSC certification.

Two out of the nine companies do not source from forests/plantations that do have FSC certification for sustainable forest management. These are Georgia-Pacific and Sinar Mas. Georgia-Pacific sources from forest/plantations in the United States that do have SFI certification, which is also endorsed by PEFC. Sinar Mas has been disassociated from the FSC. Its sourcing for the operations of APP Indonesia is covered by PEFC certification for more than 95 %. The sourcing of pulp by APP China is however only partly covered by some certification for sustainable forest management, 20% in 2019.

Pulp mill of Paper Excellence, a related party of Sinar Mas, at Crofton, British Columbia, Canada
iStock, Feb 2021

Comparison per region of large presence:
United States

Procter & Gamble, Kimberly-Clark and Georgia-Pacific dominate the North American tissue market. Procter & Gamble and Kimberly-Clark source most of their pulp from forests/plantations that do have FSC certification for forest management. Georgia-Pacific scores poorer on forest certification, but it mainly sources from areas with a relatively low risk of forestry causing social and environmental damage.

In contrast to Georgia-Pacific, Procter & Gamble and Kimberly-Clark both source from the North American Boreal Forest biome. The North American Boreal Forest biome, inclusive of Canada and Alaska, is estimated to contain 25% of the world's remaining intact primary forests. Procter & Gamble purchases around 3% of all pulp produced in Canada. Kimberly-Clark has a target to reduce its Natural (Northern) Forest Fiber footprint by 2025 with 50%, compared to the 2011 baseline of 756,531 tonnes. Procter & Gamble does not have such reduction target.

Essity (Vinda), Hengan, and Sinar Mas (Gold Hongye Paper Group) are the leading tissue companies in China. Sinar Mas scores significantly poorer than the other two companies, as most of its sourcing is not covered by any certification for sustainable forest management.

Comparison per region of large presence:
China

'The North American Boreal Forest biome, inclusive of Canada and Alaska, is estimated to contain 25% of the world's remaining intact primary forests.'

TISSUE PAPER COMPANY	YEAR	FSC FOREST MANAGEMENT	OTHER CERTIFICATION
Sofidel	2021	80%	PEFC (18%), FSC CW (2%)
CMPC (Softys)	2021	~75% FSC	Mostly FSC Controlled Wood
Kimberly-Clark	2021	67%	SFI (20%), PEFC (5%), FSC Controlled Wood (8%)
Essity	2021	63%	PEFC (35%), FSC CW (2%)
Procter & Gamble	2021	59%	FSC CW (26%), SFI (13%), PEFC/CSA-SFM (2%)
Unicharm	2020	95% FSC, PEFC, SFI, and other bodies	
Hengan	2021	100% FSC or PEFC	
Georgia-Pacific		None	>90% SFI
Sinar Mas	2019 & 2020	None	Indonesia (2020): >95% PEFC China (2019): 19.8% PEFC, 80.2% no certification

Table 7
Comparison of sustainable sourcing by the nine tissue companies

Person holding toilet paper
Pexels, Mar 2020

Comparison on use of recycled fibers

A comparison on the use of recycled fibers has not been made for this report, as the score would be largely depending on the share of the nine companies in the Away-From-Home markets. In the Away-From-Home segment of the tissue sector much more recycled paper is used, compared to the consumer market.

Chapter Three

Essity

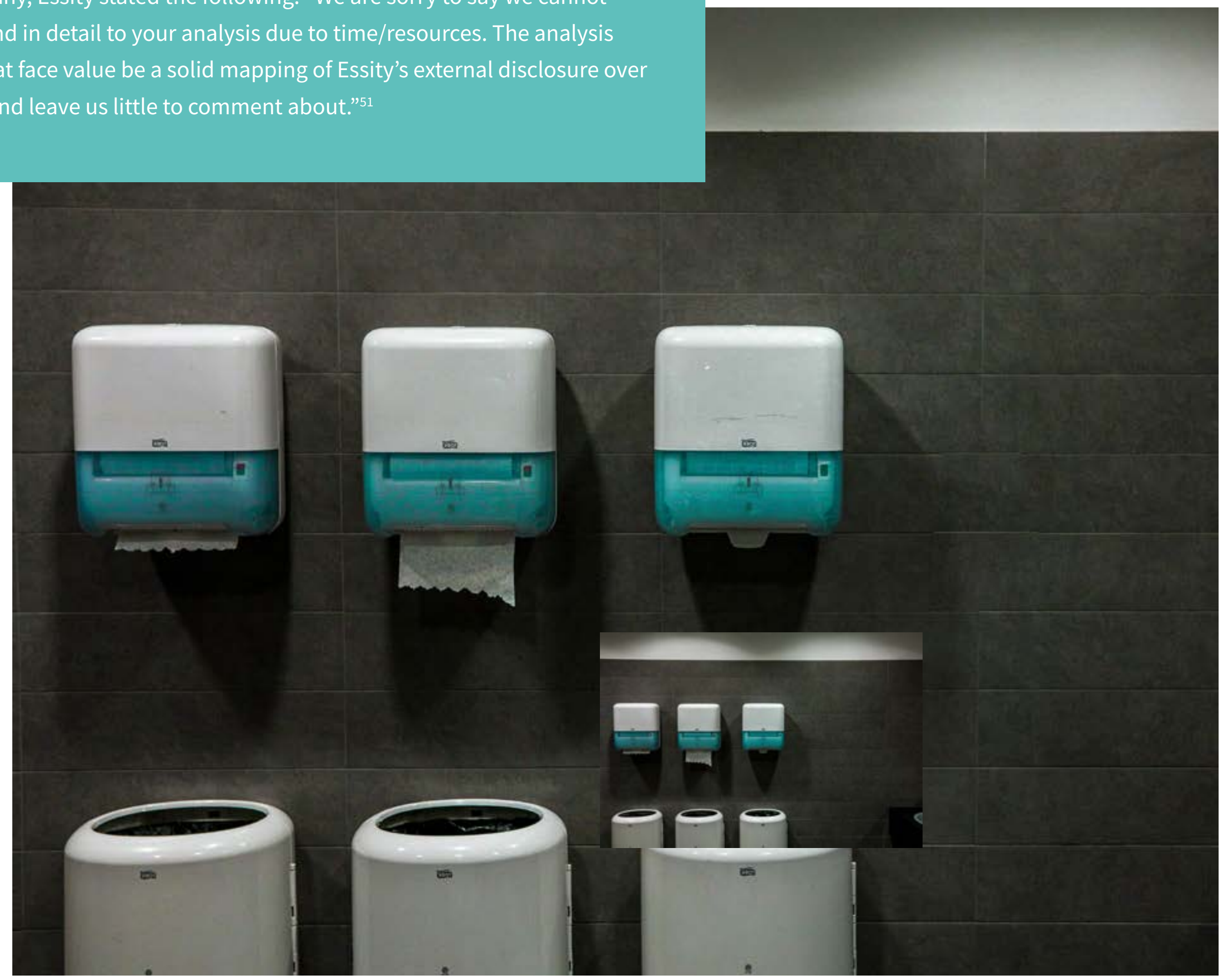
Company profile

The Sweden-based SCA Group split itself into two separate listed companies in 2017: one hygiene and health company, Essity, and one forest products company, SCA. Essity generated a revenue of SEK 121.9 billion (equivalent to USD 14.2 billion) in 2021. Over half of the revenue was derived in Europe (54%). Asia (18%), Latin America (13%), North America (12%), and other regions (3%) accounted for the remainder. Essity is listed on the Nasdaq Stockholm.[49]

Essity's presence in Asia is mainly via the company Vinda International Holdings Limited (Vinda). As of 31 December 2021, Essity held a 51.67% stake in Vinda that is listed on the Hongkong stock exchange (ticker 3331.HK). Vinda has a 1.4 million tonnes annual tissue production capacity. Its revenue was HKD 18.7 billion (equivalent to USD 2.4 billion) in 2021. Mainland China, Hongkong and Taiwan generated 85% of the revenue, while the remainder was made up by Malaysia (8%) and other countries.[50]

In its response to draft-chapters sent by Aidenvironment to the company, Essity stated the following: "We are sorry to say we cannot respond in detail to your analysis due to time/resources. The analysis seem at face value be a solid mapping of Essity's external disclosure over time and leave us little to comment about."[51]

Tork paper towels in Bieleveld, Germany
Unsplash



Tissue paper

Essity leads the global market in incontinence products with the TENA brand, and in professional hygiene with the Tork brand. Essity's market position is #1 in Europe for incontinence products, professional hygiene, consumer tissue (mainly due to its Tempo brand) and medical solutions. Essity's market position is #1 in Latin America for feminine care and incontinence products. Essity's market position is #1 in Asia for consumer tissue.[52]

Sales are conducted in approximately 150 countries under the leading global brands TENA and Tork, and other strong brands, such as JOBST, Leukoplast, Libero, Libresse, Lotus, Nosotras, Saba, Tempo, Vinda and Zewa.[53]

Essity's used 5.0 million tonnes of pulp for tissue production in 2021, of which 3.2 million tonnes of virgin fiber (64%) and 1.8 million tonnes of recovered paper (36%).[54]

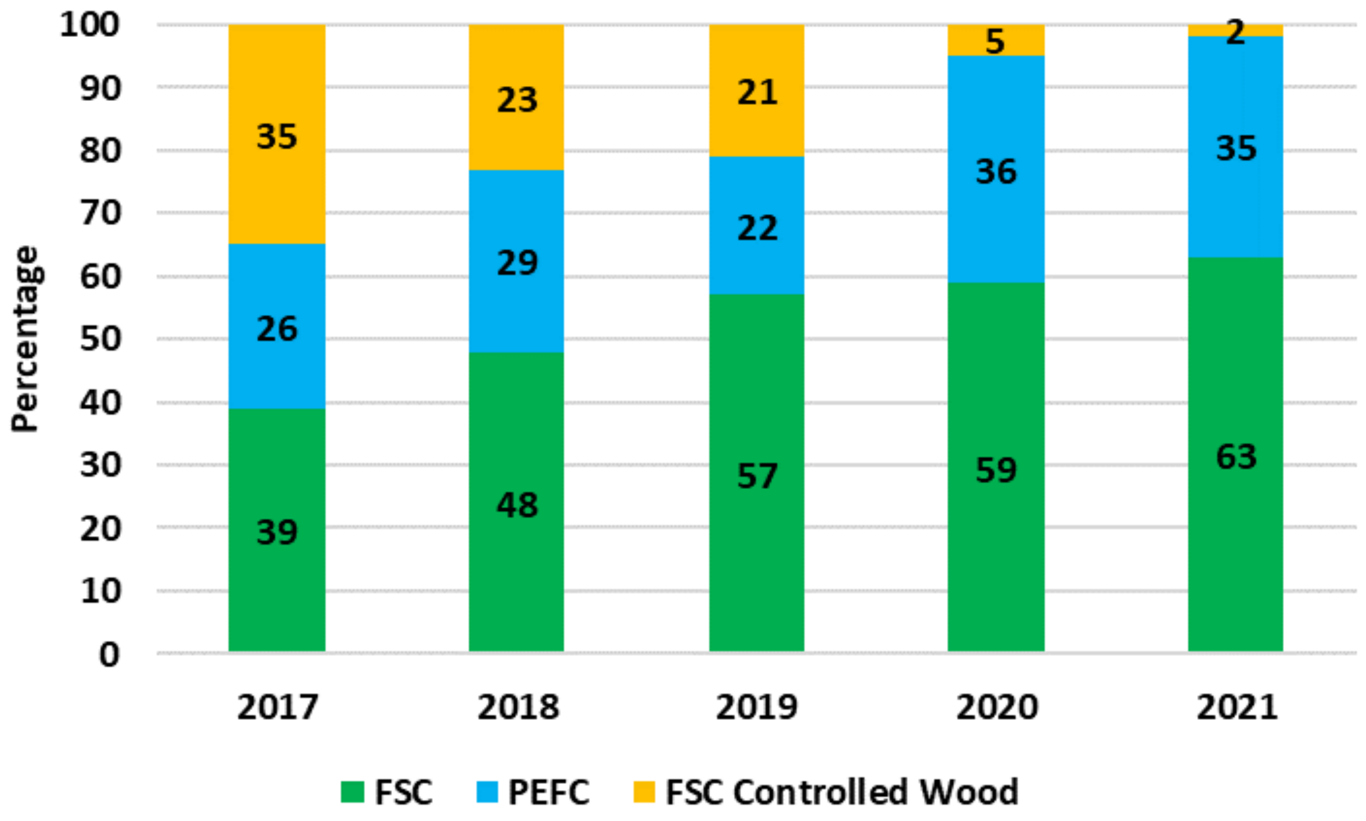


Figure 1
Essity, forest management certification of purchased virgin fibres

Sustainable sourcing

Essity's Fresh wood based fiber sourcing policy, adopted in June 2018, states: "All fresh wood based fiber raw material in our products will be FSC® or PEFC™ certified. The share of FSC-certified fibers is to be continuously increased. The material must always be accompanied by an FSC Controlled Wood Chain of Custody certificate, irrespective of whether the material complies with PEFC or another non-FSC forest certification scheme."[55]

In 2021, Essity purchased virgin fibers that had the following forest management certification: FSC (63%), PEFC (35%), and FSC Controlled Wood standard (2%). According to Essity, the target fulfilment was 98% in 2021 (all, excluded the FSC Controlled Wood certification).[56] The graph below shows the target fulfilment over last years.[57]

Areas and companies of sourcing

In its Annual and Sustainability Report 2020, Essity stated: "The eight largest pulp suppliers to Essity's wholly owned companies represent 81% the volume sourced."[58] In its Annual and Sustainability Report 2021, Essity did not disclose the volume sourced by its largest suppliers. SCA will very likely be a supplier of Essity, as Europe is SCA's core market and SCA is a main pulp supplier to tissue manufacturers.[59]

In its Annual and Sustainability Report 2020, Essity also stated: "Approximately 60% of Essity's strategic suppliers for raw materials and finished products are located in Europe, 32% in North and South America and 8% in Asia and Africa."[60]

Some of Essity's pulp suppliers could be tracked down via acquired trade data on pulp imports by the United States and Colombia. United States import data over the first four months of 2022 reveal that Essity's Chinese company Vinda imported 1,439 tonnes of Canadian pulp from International Paper and 1,426 tonnes of Canadian pulp from West Fraser. Another 322 tonnes of Canadian pulp were imported from International Paper by the Colombian hygiene company Productos Familia, also a subsidiary of Essity. Colombian import data for the period October 2021 – January 2022 show that Productos Familia imported 3,326 tonnes from CMPC in Chile, 1,971 tonnes from International Paper in the United States, 1,963 tonnes from Ekman in the United States, and 1,376 tonnes from Suzano in Brazil.[61]

Use of recycled fibers

Essity's Annual and Sustainability Report 2021 shows that its use of recycled fibers as a percentage of its total fiber use decreased from 41% in 2017 to 36% in 2021. Operations in North and South America used 79% recycled fiber, while the proportion of recycled fiber in Europe was 33%. This corresponds with Essity's prominent position on the North American Away-From-Home market, compared to its small position on the North American consumer tissue market. Of all recycled fiber used by Essity worldwide, 65% was used in the Away-From-Home market and 35% in the consumer tissue market.[62]

'... shows that its use of recycled fibers as a percentage of its total fiber use decreased from 41% in 2017 to 36% in 2021.'

Chapter Four

Kimberly-Clark

Sweety diapers in a supermarket in Jakarta
© Aidenvironment, Oct 2020

Company profile

The US-based Kimberly-Clark Corporation generated a revenue of USD 19.4 billion in 2021. The company is listed on the New York stock exchange. Kimberly-Clark's revenue was generated by the following businesses: Personal care (53%), Consumer tissue (31%) and KC professional (16%). Over half of the revenue is derived in North America. Net sales to Walmart Inc. as a percent of its consolidated net sales were approximately 14 percent in 2021.[63]

Kimberly-Clark responded to draft-chapters sent by Aidenvironment to the company. Its response has led to some clarifications included in the final report.[64]

Tissue paper

Kimberly-Clark is the world's largest tissue paper producer, and tissue paper is the company's main business operation. Kimberly-Clark's products are sold in more than 175 countries, and it has a #1 or #2 market position in 80 countries. The company has five brands that generate more than one billion dollar of revenue each year: Huggies, Kleenex, Kotex, Scott and Cottonelle.[65]

In 2021, Kimberly-Clark used 2.85 million tonnes of fiber, of which 0.55 million tonnes (19.3%) were recycled fibers. In its response to draft-chapters sent by Aidenvironment to the company, Kimberly-Clark stated: "At Kimberly-Clark, we purchase two types of virgin fiber wood pulp to produce our products: (1) baled pulp for tissue products (e.g. toilet paper, facial tissue and paper towels); and (2) fluff pulp for personal care products (e.g. diapers, feminine pads and adult incontinence garments). We also purchase recycled fibers for use in our tissue products at some of our manufacturing facilities. All three of these pulp types are included in our reported total fiber use." The total weight of the products sold by Kimberly-Clark amounted to 4.9 million tonnes in 2021.[66]

Brands of Kimberly-Clark include:

- Personal care (among other diapers, feminine care and baby wipes): Huggies, PullUps, Little Swimmers, Good Nites, Dry Nites, Kotex, U by Kotex, Intimus, Depend, Plenitud, Poise, Sweety.
- Consumer tissue (among other paper handkerchiefs and toilet paper): Kleenex, Scott, Cottonelle, Viva, Andrex, Scottex, Neve.
- K-C Professional (among other facial tissues, toilet paper and paper towels on the Away-From-Home market): Kleenex, Scott, WypAll, Kimtech and KleenGuard.

‘ Kimberly-Clark's products are sold in more than 175 countries, and it has a #1 or #2 market position in 80 countries. ’

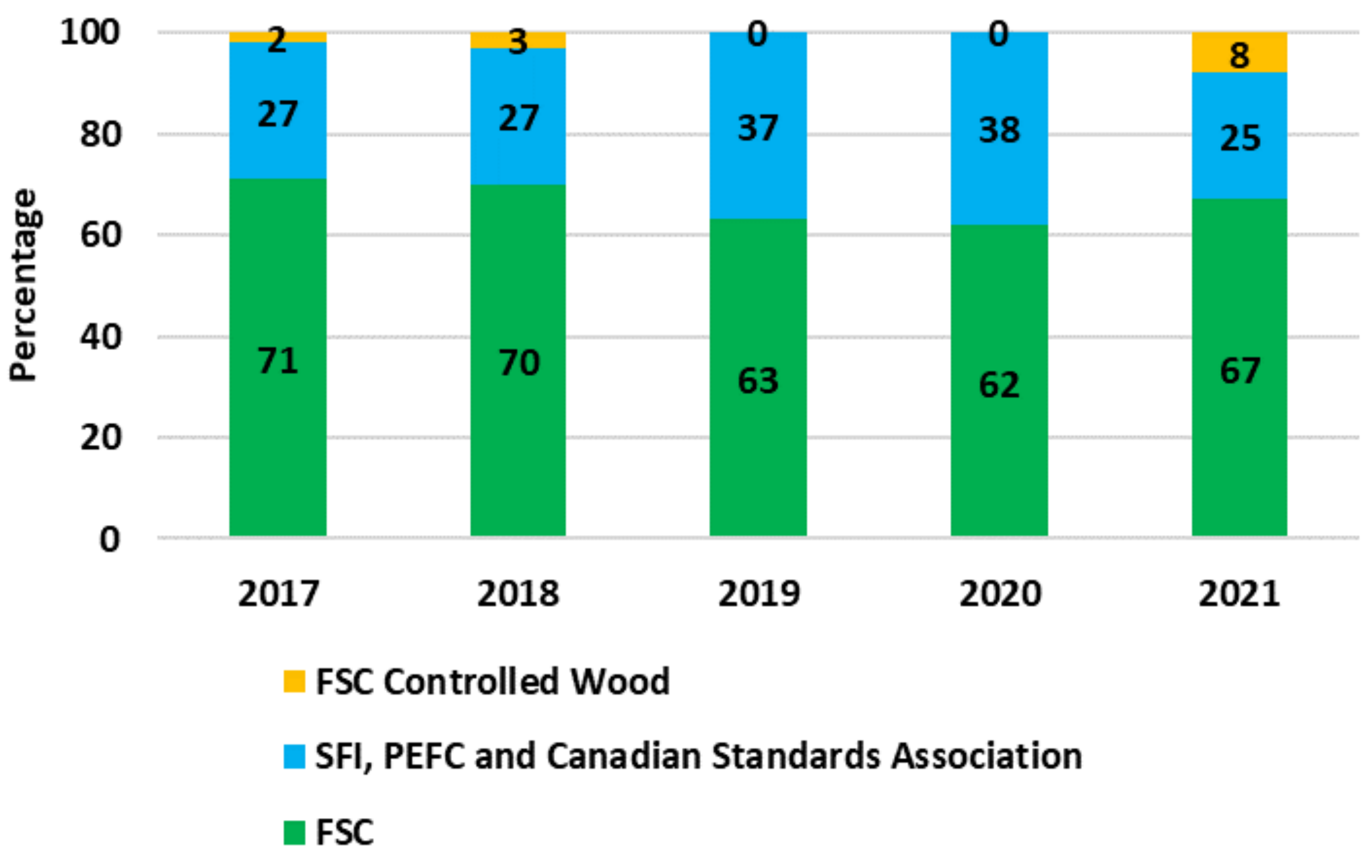
Sustainable sourcing

Kimberly-Clark has a sustainable sourcing policy with clear targets for 2025:

- Increase the use of environmentally preferred fibers – e.g., recycled and alternative fibers and virgin fibers certified by the Forest Stewardship Council. The company wants to have 90% of its tissue sourced from environmentally preferred fibers by 2025. Through 2021, environmentally preferred tissue fiber use was 87%.[67]
- Reduce the use of natural forest fibers, which for Kimberly-Clark are primarily fibers from northern boreal and temperate forests. The company wants to reduce its Natural (Northern) Forest Fiber footprint by 2025 with 50%, compared to the 2011 baseline. It ended 2021 with a 34% reduction.

The volume of fibers purchased from natural forests was 0.5 million tonnes in 2021. The background of the reduction target is that the North American Boreal Forest biome, inclusive of Canada and Alaska, is estimated to contain 25% of the world's remaining intact primary forests. According to Kimberly-Clark, despite Canadian laws and regulations requiring post-harvest replanting, important issues related to commercial forest management in Canada's boreal may be obscured, including indigenous rights, biodiversity conservation (including forest management impacts on caribou habitat), and climate change.[68]

Figure 2
Kimberly-Clark, forest management certification of purchased virgin fibers



In 2021, Kimberly-Clark purchased virgin fibers that had the following forest management certification: FSC Forest Management (67%), Sustainable Forest Initiative (19%), PEFC (5%), and FSC Controlled Wood (8%). And recycled fibers comprised 19.3% of total fiber use. However, there was also a calculation of environmentally preferred tissue fiber use, 87%, over 2021. The percentage was made up of 63% FSC chain-of-custody certified virgin wood fiber and 24% recycled fiber.[69] Aidenvironment had sent Kimberly-Clark some questions with regard to its calculations of percentages. In its response, Kimberly-Clark clarified the different percentages on FSC and recycled fiber. The company's reporting of forest certification percentages (e.g. FSC® vs SFI vs PEFC) includes both types of virgin fiber pulp used: baled pulp for tissue products and fluff pulp for personal care products. The calculation of the percentage environmentally preferred fibers is for tissue fibers only. It excludes fluff pulp for personal care products. This accounts for the differences in reported percentages for the same categorical variable (e.g. % FSC®) between total fiber and tissue fiber specific tables.[70] At Kimberly-Clark, fluff pulp appears to have higher percentages of FSC forest management certification and lower recycled content, compared to the company's tissue fiber use.

FSC-certified virgin fiber is the only virgin fiber Kimberly-Clark considers to be an environmentally preferred fiber. The company believes FSC certification applies the most rigorous criteria for the conservation of biodiversity and the protection of the rights of Indigenous communities.[71]

Areas and companies of sourcing

Kimberly-Clark reveals its virgin fiber sourcing by pulp mill country of origin. Over 2021, the figures were Brazil (46%), United States (25%), Canada (13%), Sweden (6%), Chile (3%), Finland (3%), and other countries (4%).[72]

Some pulp suppliers of Kimberly-Clark could be tracked down via the acquisition of trade data. Domtar, International Paper and Suzano appear to be large suppliers to Kimberly-Clark companies in Indonesia, Mexico, Peru or India. The pulp supplied by Domtar and International Paper originated from the United States, while Suzano supplied pulp from Brazil. Klabin (pulp from Brazil), Georgia-Pacific, and Central National Gottesman (both pulp from the United States) were identified as large suppliers to Kimberly-Clark in Colombia. Central National Gottesman is a trader of pulp, not a producer of pulp.[73]

In its response to draft-chapters sent by Aidenvironment to the company, Kimberly-Clark stated that the scope of the data represented in the table below is limited to 5 countries of import, and does not represent the full scope of Kimberly-Clark's sourcing. The company recommended that this data be represented as a sample and not an indication of its full portfolio.[74]

Table 8
Some pulp suppliers of Kimberly-Clark

Source
Seair, Eximpedia, import by Indonesia, Colombia, Mexico, Peru, and India, HS code groups 4701, 4703, 4704, 4705,

PULP SUPPLIER	IMPORT ACCORDING TO TRADE DATA (TONNES)				
	Indonesia (Jan - Sept 2021)	Columbia (Oct 2021 - Jan 2022)	Mexico (second half 2021)	Peru (Jan - Mar 2022)	India (Jan - 22 April 2022)
Sinar Mas (Domtar)	23,504				
International Paper	19,251	789		1,986	4,835
Suzano		672	11,980	7,075	
Klabin		6,351			
Georgia-Pacific	1,392	4,557			
Central National Gottesman		3,927			
Zhejiang Chinapack Pulp Paper	1,782				
Supplier unknown		3,887			
Total	**45,929**	**20,183**	**11,980**	**9,061**	**4,835**

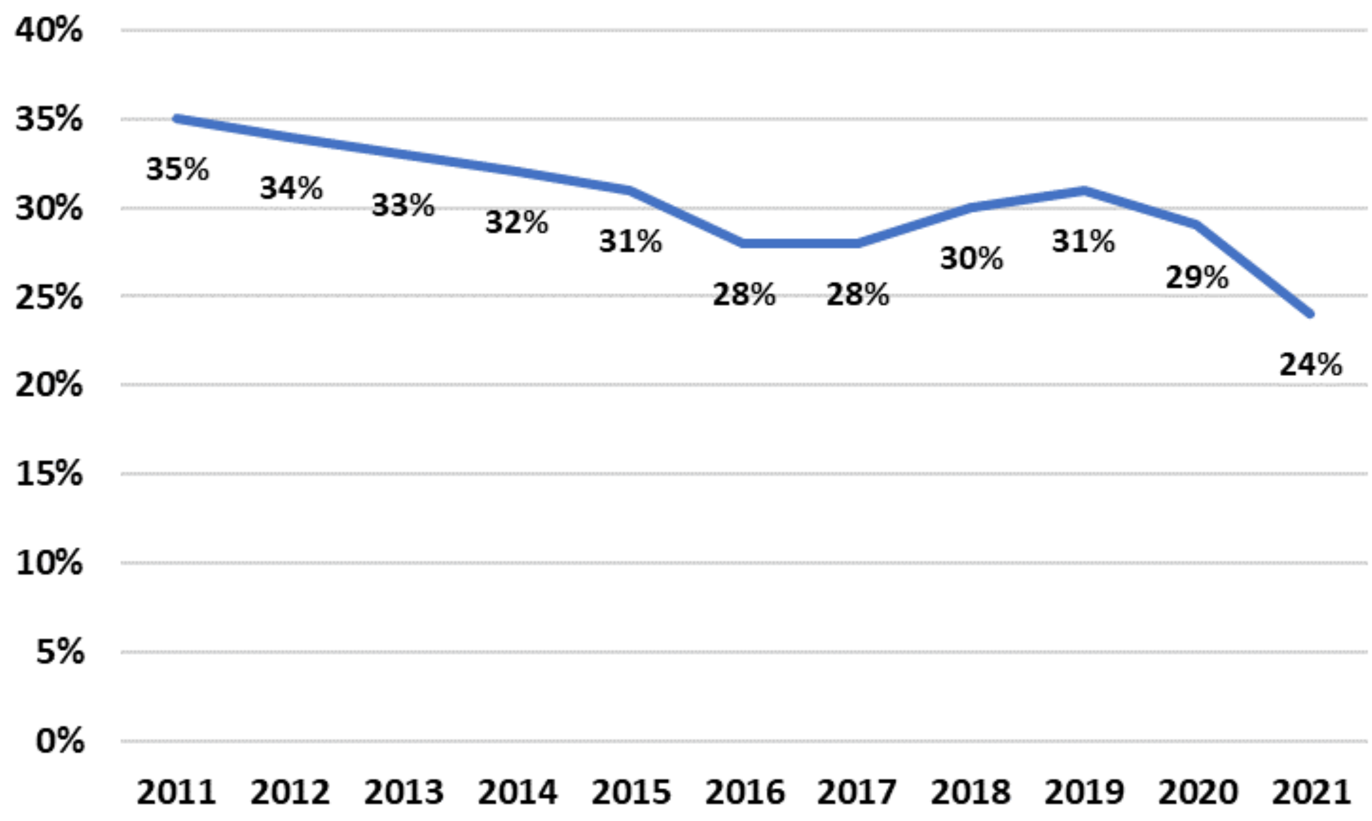


Figure 3
Recycled content of tissue fibers use globally by Kimberly-Clark

Use of recycled fibers

In its Global sustainability report 2020, Kimberly-Clark reported that demand for its Away-From-Home products, which account for the greatest percent of its recycled fiber use, declined as people were confined to their homes. In 2021, recycled fibers comprised 19.3% of Kimberly-Clark's fiber use worldwide.[75]

Kimberly-Clark also produces calculations on its use of tissue fibers, in contrast to all fibers used (which includes packaging, among other). Over the years the recycled content of Kimberly-Clark's tissue fibers has been gradually declining, from 35% in 2011 to 24% in 2021.[76]

> ‘Over the years the recycled content of Kimberly-Clark's tissue fibres has been gradually declining, from 35% in 2011 to 24% in 2021.’

Chapter Five

Sinar Mas

5.1

Tissue operations in China and Indonesia

Company profile

Asia Pulp & Paper (APP) is part of the Indonesia-based Sinar Mas conglomerate. It has huge pulp and paper manufacturing operations in Indonesia and China.[77]

APP Indonesia generated a revenue of USD 7.1 billion in 2020, and it produced 6.7 million tonnes of pulp, 1.0 million tonnes of tissue products, and 5.9 million tonnes of other paper and board.[78] Two main subsidiaries of APP Indonesia are listed on the Indonesian stock exchange: PT Indah Kiat Pulp & Paper (ticker: INKP) and PT Pabrik Kertas Tjiwi Kimia (ticker: TKIM).[79]

APP China generated a revenue of CNY 65.1 billion (equivalent to USD 9.4 billion), and a productivity of 11.8 million tonnes, both in 2019.[80] In 2020, however, it acquired the company Shandong Bohui Paper, which mainly produces coated board. Shandong Bohui Paper is listed on the Shanghai stock exchange (ticker: 600966), and its revenue amounted to CNY 16.3 billion (equivalent to USD 2.5 billion) over 2021.[81]

APP Indonesia responded to draft-chapters sent by Aidenvironment to the company. Its response has led to some adjustments in the final report. AAP China and Paper Excellence did not receive draft-chapters for review.[82]

Paper Excellence's large interests in the Americas

Paper Excellence is said to be owned by Jackson Widjaja, a member of the billionaire Indonesian Widjaja family, which owns APP as well as Sinar Mas. Mr. Jackson Widjaja is the son of Teguh Ganda Widjaja, the CEO of APP.[83] Paper Excellence (PE) has large interests in the Americas. PE has four active pulp mills in Canada, two pulp mills in France, and paper making facilities in Canada. It has over 2.8 million tonnes of production annually. Recently PE acquired the pulp and paper company Domtar, which has a capacity to produce 3.4 million tonnes of pulp annually from mills in Canada and the United States. On 6 July 2022, PE announced another acquisition. Pending stockholder and regulatory approvals, its acquisition of forest products company Resolute would add 1.1 million tonnes of pulp to PE's capacity, among other. Finally, PE has a 49% share in the company Eldorado Brasil, which produced 1.8 million tonnes of pulp from eucalyptus plantations in 2021. Except for small amounts by Resolute, PE does not produce tissue paper.[84]

In its response to draft-chapters sent by Aidenvironment to the company, APP stated that Paper Excellence (PE) is not a part of APP or the Sinar Mas group and should not be categorised as such, as this is inaccurate. According to APP, neither APP nor Sinar Mas holds any equity in PE and their environmental or production footprint cannot be attributed to or cited as under Sinar Mas. According to APP, the relationship between APP and PE is strictly one of fibre supplier-client. PE is subject to the same Supplier Evaluation and Risk Assessment (SERA) process by APP before any purchase orders are issued.[85] APP China, APP Indonesia, and Paper Excellence officially have undisclosed owners, as ultimately the companies are all registered in secrecy jurisdictions. In practice, it is clear that the companies are owned by members of the Widjaja family.

> 'The figure below shows that Paper Excellence (PE) is presently dominating the Canadian pulp market.'

Dominance of the Canadian pulp market

The figure below shows that Paper Excellence (PE) is presently dominating the Canadian pulp market. Seven PE pulp mills are in operation (marked in red), while Canada has a total of 34 pulp mills in operation. Pending stockholder and regulatory approvals, PE will get two mills extra (marked in green) from its acquisition of forest products company Resolute. Earlier, the governmental Competition Bureau Canada ordered the sale of one pulp mill in British Columbia, as a condition for PE's acquisition of Domtar. Otherwise, the company would have had a market share likely exceeding 70% in the purchase of wood fiber in the Thompson/Okanagan region of British Columbia province. Still, with its Skookumchuck, Crofton and Howe Sound mills, PE has a dominant position in the region. British Columbia has experienced severe forest loss over the last twenty years, and its remaining primary forests are at risk of being cleared by the logging and pulp industry.[86]

Forest clearing at Sunshine Coast in British Columbia, Canada
Unsplash, March 2018

Figure 4
Pulp mills in operation in Canada, with Paper Excellence ones marked in red and Resolute ones marked in green)

Source
National Pollutant Release Inventory (NPRI) Canada, Google Earth, company websites

Virjoy toiler paper in
U-Select Supermarket, Hongkong
Wikimedia Commons, Feb 2020

Tissue paper

APP Sinar Mas has tissue paper producing operations in Indonesia and China. It is the market leader for tissue products in both countries.

APP China's tissue company is Gold Hongye Paper Group.[88] According to a report by Guolian Securities released in 2019, Gold Hongye had a #1 market position among the manufacturers of household paper in China, with a market share of 9.7%.[89] According to a 2019 article on the China Pulp Paper website, Gold Hongye had an annual output of 1.8 million tonnes and a revenue of CNY 10.74 billion (equivalent to USD 1.6 billion), presumably both for 2018.[90]

APP also has a #1 market position in Indonesia. It produced 1.0 million tonnes of tissue paper in 2020, and Paseo is the name of its main brand in Indonesia. APP Indonesia has tissue machines in the Indonesian provinces of Riau, South Sumatra, and Jambi (all on the island of Sumatra), and West Java.[91]

The main tissue paper brands of APP are:

- APP China: Qingfeng, Emporia, Virjoy, Zhenzhen, Breeze and Yili.[92] According to a company website, for at least the brands Virjoy, Zhenzhen and Breeze only virgin pulp is used.[93]
- APP Indonesia: Paseo, Jolly, Nice, Livi.[94]
- United States: Fiora.[95]

' ... substantial, publicly available information that APP was involved in destructive forestry practices and was thus in violation of FSC's Policy for Association. '

Disassociation by FSC from APP

FSC disassociated from Asia Pulp and Paper (APP) in October 2007 because of substantial, publicly available information that APP was involved in destructive forestry practices and was thus in violation of FSC's Policy for Association. In November 2021, APP has submitted to FSC an independently verified report sharing the corporate structure of the APP Group. This data disclosure fulfils one of the various initial pre-requisites FSC stipulated prior to entering into a roadmap process – to end APP's disassociation.[87]

5.2

Sourcing by APP China

Sustainable sourcing

APP China's total productivity was 11.8 million tonnes in 2019.[96] It is unclear what is included in this calculation, as APP China does not report this. Purchases of pulp by APP China amounted to 5.6 million tonnes only in 2019, compared to 5.3 million tonnes in 2018. Part of the difference between 11.8 and 5.6 million tonnes is due to the pulp production by APP China, which likely amounts to over 1.8 million tonnes. APP China only uses a small amount of recycled paper in its production process, 0.2 million tonnes in 2019.[97]

Purchased pulp and wood fibers only partly certificated

According to APP China, certified pulp (PEFC) as a share of total pulp purchased (5.6 million tonnes) amounted to 19.8% in 2019. The figure was 14.2% in 2018. Among other regions, the pulp was purchased from North America (26%) and Asia excluding China (26%).[98] It is likely that APP Indonesia and the Canadian Sinar Mas company Paper Excellence are among the sellers from Asia and North America. As both these companies largely have PEFC certification, it seems that the third parties that sell pulp to APP China have no certification for forest management.

APP China also imports wood fibers for its pulp production process. It does not disclose amounts, yet it does disclose the percentage that successfully underwent the certification process for sustainable forest management. In 2019, certified (PEFC) wood fiber comprised 19.4% of all wood fiber purchases, compared to 16.9% in 2018.[99]

APP China's self-managed concessions and pulp production

APP (China) manages around 268,000 hectares of industrial tree plantations in China. The plantations are located in Hainan province and Guangxi autonomous region. The APP companies Hainan Jinhai Pulp & Paper Co Ltd and Guangxi Jingui Pulp & Paper Co Ltd produce pulp from the harvest, with a pulp production capacity of 1.2 million tonnes and 0.6 million tonnes respectively. The pulp making operations by these companies however have no direct relations with APP's tissue operations, as APP China uses the pulp locally for the production of office paper and packaging board.[100] The area of plantations managed by APP China that has passed CFCC/PEFC FM certification by the end of 2019 amounts to 246,700 hectares, which is 92% of APP China's self-managed concessions. By the end of 2019, 54% of APP China's self-managed areas had completed HCV assessments.[101] Apparently it is possible to have CFCC/PEFC FM certification without a completed HCV assessment.

Figure 5
APP China's pulp mills in Hainan province and Guangxi autonomous region

Source
Google Earth, address data on company websites

'According to APP China, certified pulp (PEFC) as a share of total pulp purchased (5.6 million tonnes) amounted to 19.8% in 2019.'

Areas and companies of sourcing

APP China does not reveal its suppliers. In its 2018 report, it stated to have 31 pulp suppliers worldwide.[102] In its 2019 report, it revealed the origin of its pulp purchases: China (44%), North America (26%), rest of Asia (26%), Europe (3%), and South America (1%).[103] It is likely that APP Indonesia and the Canadian Sinar Mas company Paper Excellence are among the sellers from Asia and North America, as these are related companies.

Use of recycled fibers

The purchase volume of waste paper raw materials by APP China amounted to 0.2 million tonnes only in 2019.[104] The company is not active on the containerboard market, which mainly uses recycled paper.[105]

5.3

Sourcing by APP Indonesia

Wild orangutan in Central Kalimantan, Indonesia
Shutterstock

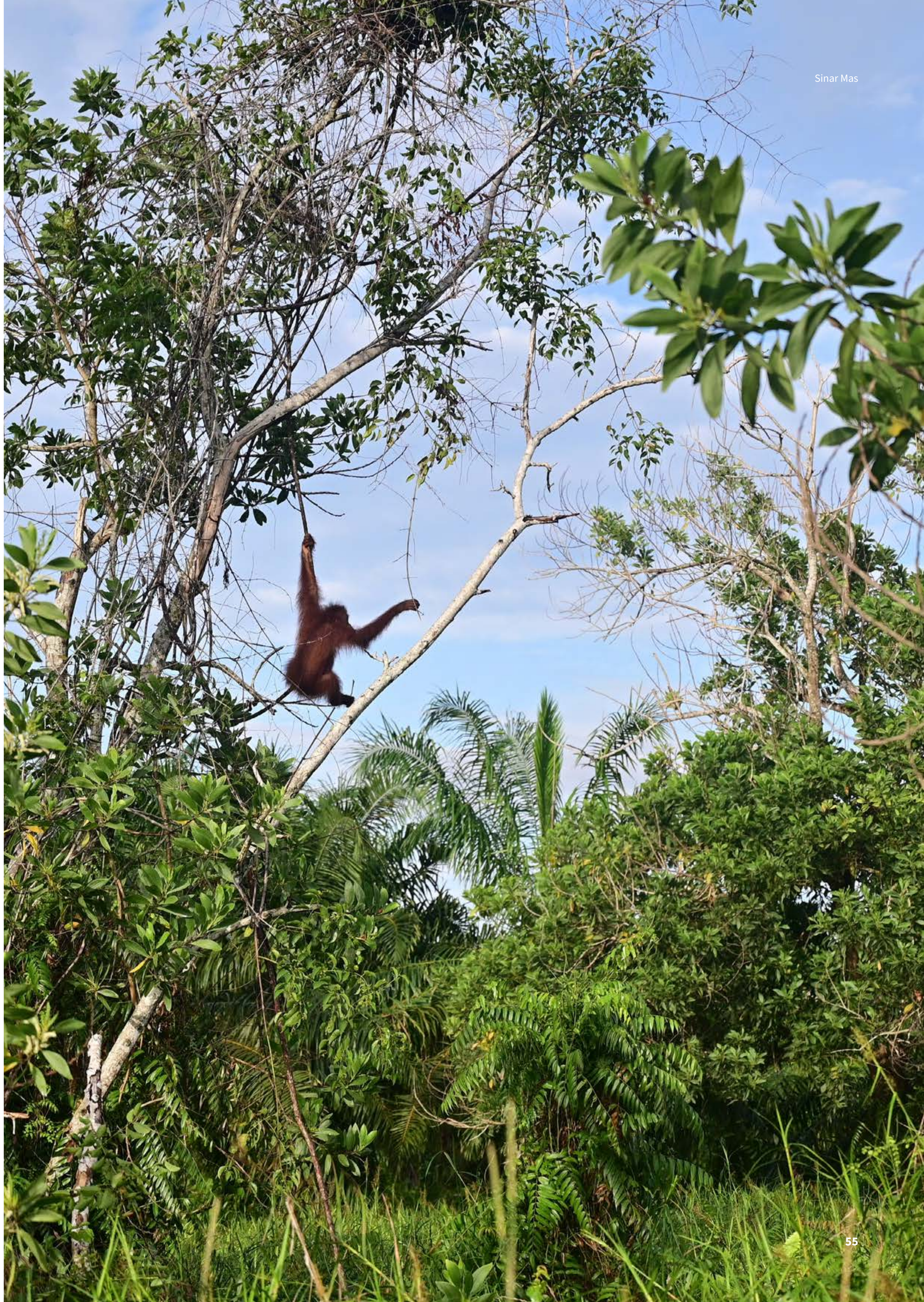
Sustainable sourcing

APP Indonesia adopted its Forest conservation policy in February 2013. The policy applies to APP Indonesia, all its suppliers in Indonesia and any Indonesian fiber utilised by APP's mills elsewhere. It includes commitments to the following: Free, Prior and Informed Consent (FPIC) for indigenous and other local communities, zero burning, preventing poor working conditions, and preserving High Conservation Value (HCV) areas and High Carbon Stock (HCS) areas. It does not rule out new plantings of industrial trees on peatland.[106] An extensive study released by Trase in February 2021 noted that between 2015 and 2019, deforestation had fallen by 85% compared to the 2010-2012 period inside the 91 concessions supplying wood fiber to Indonesian pulp mills belonging to APP Indonesia, Royal Golden Eagle and Marubeni.[107]

According to APP Indonesia, 95% of its pulpwood purchases in 2020 were covered by PEFC Sustainable Forest Management certification, with the remaining 5% certified under the Government of Indonesia's mandatory scheme for sustainable forest management (*Pengelolaan Hutan Produksi Lestari*).[108]

Areas and companies of sourcing

APP Indonesia reveals its suppliers. It has long-term pulpwood suppliers, continuous suppliers, one-time suppliers, and community forest suppliers. Most of the fibers are sourced from plantations owned by APP or connected to APP. APP Indonesia has industrial tree concessions totaling 1.1 million hectares in Indonesia. In addition, it relies on long-term pulpwood suppliers that have a total concession area of 1.6 million hectares in Indonesia.[109]



For its 2020 production APP Indonesia used the following fiber sources: Indonesian plantation fiber (53%), imported fiber (7%), and Indonesian recycled fiber (40%).[110]

APP Indonesia also imports pulp. The import amounted to 216,000 tonnes during the first nine months of 2021, according to purchased trade data. Two-thirds of this volume was imported from APP's related company Paper Excellence, which has pulp mills in Canada and France.[111] In its response to draft-chapters sent by Aidenvironment to the company, APP stated it pulled its data, and that it imported 271,000 tonnes from Canada, the United States, France and New Zealand during this time period.[112]

PULP SUPPLIER	TOTAL	COUNTRY			
		Canada	New Zealand	France	United States
Paper Excellence	145,580	123,146		22,434	
Rimbunan Hijau (Winstone)	24,707		24,707		
Supplier not identified	21,132	20,582			550
Cascades	18,774				18,774
Canfor	3,173	3,173			
Rayonier	1,158	1,158			
West Fraser	904	904			
Sappi	636	636			
Oji Holdings	347		347		
Total	**216,411**	**149,599**	**25,054**	**22,434**	**19,324**

Table 9
Suppliers of pulp to APP Indonesia

Source
Seair, Eximpedia, import by Indonesia, HS code groups 4701, 4703, 4704, 4705

'APP Indonesia exported 2.8 million tonnes of chemical woodpulp during the first nine months of 2021.'

Use of recycled fibers

Indonesian recycled fibers accounted for 40% of APP Indonesia's paper production in 2020. In 2019 this was 36%, in 2018 it was 35%.[113] APP Indonesia has a factory in Serang (Banten province) that produces paperboard and boxes, and purchases at least one million tonnes of post-consumer recycled fiber annually.[114]

Export by APP Indonesia

APP Indonesia exported 2.8 million tonnes of chemical woodpulp during the first nine months of 2021. More than 22% was sold to the company Shandong Bohui Paper that was acquired by APP China in 2020. Another 56% also had China as its destination, and was sold to trading companies belonging to Sinar Mas. Of this amount, it remains unclear what proportion is bought by APP China. The remaining 22% was sold to third parties in South Korea, China, India, Vietnam, Bangladesh and some other countries.[115]

In the six-month period April-September 2021, APP Indonesia exported 260,000 tonnes of tissue paper. The main importing countries were South Korea (17%), Taiwan (15%), United States (7%), Philippines (7%), Greece (6%) and Malaysia (5%).[116]

Chapter Six

Georgia-Pacific

Company profile

Georgia-Pacific is a large producer of toilet paper, paper towels, napkins, tableware, paper-based packaging, cellulose, specialty fibers, nonwoven fabrics, building products and related chemicals. Its Recycling subsidiary is among the world's largest traders of paper, metal and plastics. Georgia-Pacific is US-based, and it has a strong focus on the North American market.

It is not listed on a stock exchange, and therefore also exempt from the information requirements of stock exchanges. Its revenue is not disclosed by the company. Georgia-Pacific is one of the main companies of the Koch Industries. Koch Industries is an oil-based conglomerate, and it is one of the largest privately held companies in the United States. It states to have an annual revenue of about USD 115 billion.[117]

Brawny paper towels
Flickr, Jan 2020

Stacked toilet rolls
Unsplash, Sept 2021

Tissue paper

Georgia-Pacific is among the three biggest tissue producing companies in the United States, next to Kimberly-Clark and Proctor & Gamble. Georgia-Pacific's most well-known tissue brands are:

- Toilet paper: Quilted Northern, Angel Soft
- Paper towels: Brawny, Sparkle
- Tableware: Dixie
- Napkins: Vanity Fair
- Automated dispensing systems: enMotion[118]

Sustainable sourcing

Georgia-Pacific claims that virgin fibers originating in the United States are certified to the Sustainable Forestry Initiative (SFI) Fiber Sourcing standard.[119] The company holds chain of custody certifications from SFI, FSC and PEFC at many of its locations.[120]

Moreover, Georgia-Pacific claims to perform controlled wood risk assessments while sourcing fibers to avoid and/or mitigate the risk of:

- Harvesting in high conservation-value forests
- Conversion to plantations, or areas of non-forest use
- Illegal harvesting
- Violating traditional and civil rights, and
- Using genetically modified trees.

Areas and companies of sourcing

According to its 2021 sustainability brochure, over 90% of the virgin fibers Georgia-Pacific uses in its products is grown in the United States. Outside of the United States, the company has a factory in Canada that produces Oriented Strand Board (OSB). Likely this factory sources virgin fibers that are grown in Canada.[121]

Georgia-Pacific purchases all its virgin wood fiber for its United States operations from landowners and other third-party suppliers in the United States. It purchases some market pulp from other countries.[122]

Use of recycled fibers

Georgia-Pacific yearly uses about 2 million tonnes of recycled paper in its mills, where they are made into tissue, towel products, office paper, containerboard and corrugated boxes. The tissues and towels with recycled content are made for the Away-From-Home tissue market.[123]

According to Georgia-Pacific, five of the world's 12 largest tissue paper machines reside at its Savannah River mill facility. This tissue mill is said to divert more than 400,000 tons of wastepaper from the waste stream each year.[124]

Chapter Seven

Procter & Gamble

Company profile

The US-based Procter & Gamble (P&G) generated a revenue of USD 76.1 billion in the year ended 30 June 2021. The company's baby, feminine and family care segment reflects the tissue activities of the company, and generated 25% of Procter & Gamble's revenue, or USD 18.9 billion. P&G's total revenue was generated in the following countries/regions: North America (47%), Europe (22%), Asia Pacific (10%), Greater China (9%), Latin America (6%), India, Middle East & Africa (6%). The company is listed on the New York Stock Exchange.[125]

Tissue paper

According to P&G's 2021 Annual report, it has the following main brands and market positions in the baby, feminine and family care segment:

- Baby care. Annual net sales of over USD 7 billion. Global market leader with over 20% global market share. Pampers is P&G's largest brand.
- Feminine care. Global market leader in the feminine care category with 25% global market share. Main brands are Always and Tampax. In the key markets in which P&G competes there is also a 10% market share in the adult incontinence category, with Always Discreet being the main brand.
- Family care. Predominantly a North American business. North America market shares are over 40% for Bounty (paper towels) and approximately 25% for Charmin (toilet paper).[126]

In the year ended 30 June 2021, P&G purchased 1.48 million metric tons of air-dried pulp for its baby, feminine and family care segment.[127]

Sustainable sourcing

P&G requires that 100% of the wood pulp it sources is certified by one of the following third party certification systems: Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), and Programme for the Endorsement of Forest Certification (PEFC).[128] Of P&G's sourcing of wood pulp in the year ended 30 June 2021, third party certification was composed as follows: FSC COC (59%), FSC CW (26%), SFI (13%), PEFC/CSA-SFM (2%).[129]

P&G Family Care brands (tissue and towel products) will achieve FSC certification for 75% of its sourcing of wood pulp by 2022. The ambition is to source 100% FSC by 2030.[130] By the end 2021, supplies from the Canadian provinces Ontario and Quebec for the Family Care brands contained 95% FSC certified fiber.[131]

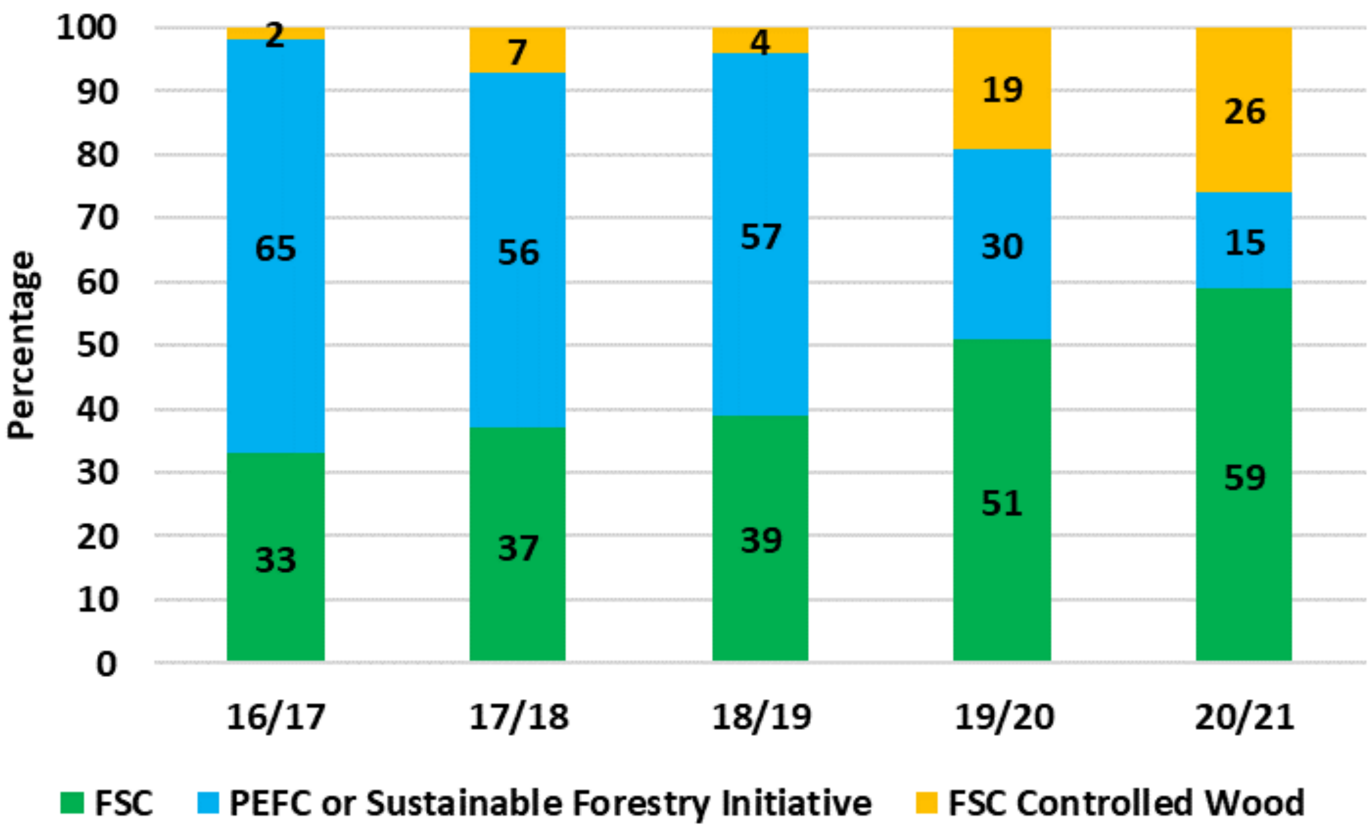


Figure 6
Procter & Gamble, forest management certification of purchased virgin fibers

Areas and companies of sourcing

In the year ended 30 June 2021, P&G's sourced pulp from Brazil (34%), Canada (34%), United States (28%), and Europe (4%). P&G purchases 3% of all pulp produced in Canada. In the year ended 30 June 2021, it sourced 0.5 million tonnes of pulp from the provinces of Alberta, British Columbia, Ontario and Quebec.[132]

Some pulp suppliers of Procter & Gamble could be tracked down via the acquisition of trade data. International Paper and Georgia-Pacific were the largest suppliers to Procter & Gamble in India during the first 4 months of 2022. The pulp supplied by International Paper, Georgia-Pacific and Rayonier originated from the United States, while Fitesa and Nanning exported from China and Glatfelder from Germany.[133]

Use of recycled fibers

P&G competes in the household market. All premium household tissue brands P&G sells in the United States use 100% virgin fibers.[134]

> ‘In the year ended 30 June 2021, P&G's sourced pulp from Brazil (34%), Canada (34%), United States (28%), and Europe (4%).’

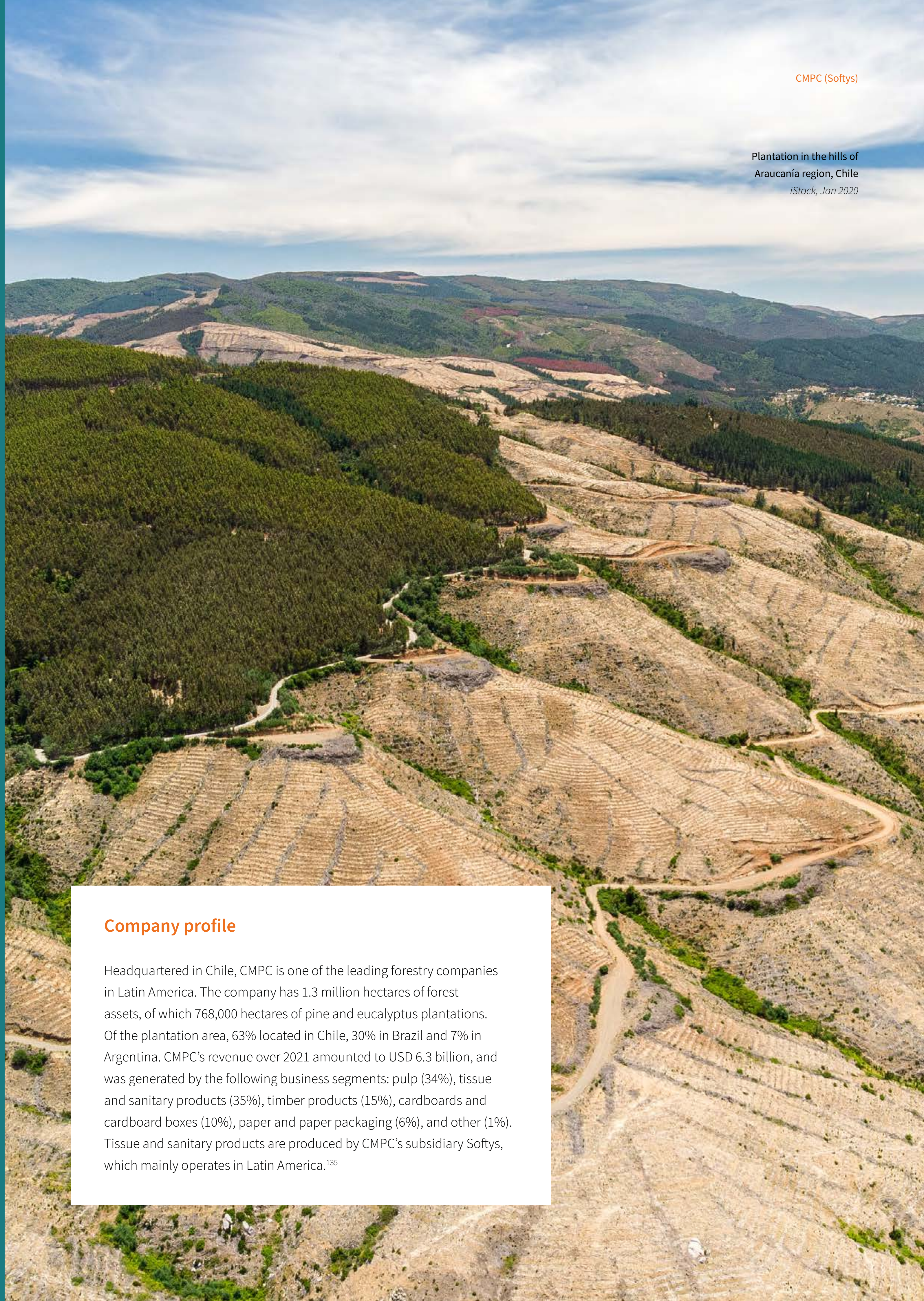
Table 10
Some pulp suppliers of Procter & Gamble

Source
Seair, Eximpedia, import by India, HS code groups 4701, 4703, 4704, 4705

PULP SUPPLIER	IMPORT ACCORING TO TRADE DATA (TONNES)
	India (period Jan - 20 Apr 2022)
International Paper	4,496
Georgia-Pacific	2,283
Rayonier	1,866
Glatfelder	1,484
Fitesa (China)	802
Nanning Qiaohong New Materials	405
Total	**11,336**

Chapter Eight

CMPC (Softys)



Plantation in the hills of
Araucanía region, Chile
iStock, Jan 2020

Company profile

Headquartered in Chile, CMPC is one of the leading forestry companies in Latin America. The company has 1.3 million hectares of forest assets, of which 768,000 hectares of pine and eucalyptus plantations. Of the plantation area, 63% located in Chile, 30% in Brazil and 7% in Argentina. CMPC's revenue over 2021 amounted to USD 6.3 billion, and was generated by the following business segments: pulp (34%), tissue and sanitary products (35%), timber products (15%), cardboards and cardboard boxes (10%), paper and paper packaging (6%), and other (1%). Tissue and sanitary products are produced by CMPC's subsidiary Softys, which mainly operates in Latin America.[135]

Tissue paper

Softys is the second largest producer of tissue paper in Latin America and the world's eighth largest tissue producer. Softys' production capacity amounts to 1.0 million tonnes of tissue paper, 6.1 billion units adult or baby diapers, and 1.7 billion feminine care units. Softys reports the following market positions in Latin and Middle America:

- Toilet paper: Uruguay 84%, Chile 68%, Peru 46%, Argentina 42%, Brazil 14%, Mexico 13%, Ecuador 13%, and Colombia 4%.
- Diapers: Uruguay 61%, Peru 33%, Chile 31%, Argentina 21%, Brazil 10%, Ecuador 8%, Colombia 4%, and Mexico 2%.

Brands of Softys include Elite, Nova, Confort, Higienol, Premier, Noble, Babysec, Ladysoft, Cotidian, OK Pet, Elite Professional, and Rendipel. Its 2021 revenue was generated in Chile (25%), Brazil (20%), Mexico (13%), Argentina (12%), Peru (11%), and other countries (19%).[136] In November 2021, CMPC announced the acquisition of the Brazilian tissue company Carta Fabril. After the acquisition CMPC's market share in the Brazilian tissue market will be around 26%. The acquisition will increase CMPC's tissue production capacity to 1.2 million tonnes.[137]

PULP SUPPLIER	IMPORT ACCORDING TO TRADE DATA (TONNES)		
	Peru (Jan - Mar 2022)	Columbia (Oct 2021 - Jan 2022)	Mexico (second half 2021)
Suzano	8,541		2,002
CMPC	6,195	4,598	2,277
Klabin			1,248
Georgia-Pacific		1,065	985
International Paper	801		
JBS + Sinar Mas		670	
Rayonier	214	411	
Total	**15,751**	**6,744**	**6,512**

Table 11
Some pulp suppliers of CMPC

Source
Seair, Eximpedia, import by Peru, Colombia and Mexico, HS code groups 4701, 4703, 4704, 4705

Sustainable sourcing

Of CMPC's own forest assets totalling 1.1 million hectares, 89.3% CMPC's forests in Argentina are still in the process of getting this FSC certification. Around 16% of the raw materials used from Chile and Brazil stems from third parties. There is a proportion of third party suppliers that does not have FSC forest management certification, according to CMPC. Third party suppliers are 100% FSC certified, yet this includes FSC controlled wood certification.[138] For this report it is estimated that around 75% (84% * 89.3%) of the fibers used by Softys has FSC forest management certification.

Areas and companies of sourcing

Softys uses pulp produced by CMPC Cellulose. Of CMPC's pine and eucalyptus plantation area, 63% is located in Chile, 30% in Brazil and 7% in Argentina. CMPC has pulp mills in Chile and Brazil, with a capacity of 2.4 million tonnes and 2.0 million tonnes, respectively.[139]

Trade data for Peru, Colombia, and Mexico show that CMPC indeed is a large supplier to CMPC companies. CMPC does however also have other suppliers in Mexico, Colombia and Peru. The pulp supplied by Suzano, Klabin and JBS + Sinar Mas originated from Brazil. Georgia-Pacific, International Paper, and Rayonier supplied from the United States.[140]

Pulp sold in 2021 by CMPC to third parties went to China (25%), Europe (22%), other countries in Asia (19%), United States (12%), Chile (8%), Brazil (5%), and other countries not in Asia (9%). The company claims to be the second largest global producer of market pulp.[141]

MATERIALS	TISSUE PRODUCTS	%	PERSONAL CARE PRODUCTS	%
Cellulosic materials (fibers, cardboard, boxes)	1,046,980	92	72,521	40
Plastic materials in packaging	31,383	3	7,593	4
Chemicals and adhesives (super absorbent, adhesives, etc.)	60,229	5	58,360	31
Other materials (nonwovens, polyethylene, elastic tapes, etc)	–	–	44,848	25
Total materials used	**1,138,592**	**100**	**183,322**	**100**

Table 12
Materials used for Softys products in 2020

Use of recycled fibers

To manufacture its tissue products, Softys used 982,000 tonnes of fiber in 2020, of which 47% was recycled fiber. For its personal care products, Softys did not use recycled fibers, and its virgin fiber use was 71,000 tonnes in 2020. In 2019, Softys used 50.4% of recycled fibers to manufacture tissue products. According to Softys, the decrease in use of recycled fibers in 2020 compared to 2019 (47% versus 50.4%) was due to the lower availability of recovered fiber as result of the Covid-19 pandemic.[142]

In its Sustainability report 2020, Softys reported all the materials it used for production and packaging. Cellulosic materials accounted for 92% of tissue products, and 40% in personal care products (diapers, feminine care).[143]

Chapter Nine

Hengan

Company profile

The China-based Hengan International generated a revenue of CNY 20.8 billion (equivalent to USD 3.2 billion) in 2021. The company is listed on the Stock Exchange of Hong Kong (ticker 1044.HK). Customers in China accounted for more than 90% of the revenue, which was generated by the following businesses: tissue paper (47%), feminine care (30%), disposable diapers (6%), and others (17%).[144]

'Hengan International had a #2 market position in China, with a market share of 8.5% among the manufacturers of household paper.'

Tissue paper

According to a report by Guolian Securities released in 2019, Hengan International had a #2 market position in China, with a market share of 8.5% among the manufacturers of household paper in China.[145] The main brand names of Hengan are:

- Tissue Paper: Hearttex, Pino, Bamboo π, Junichi
- Feminine care (sanitary napkins): Space 7, 七度空間, Xiaohaisen, Anerle. Hengan accounts for more than 20% of menstrual pad sales in China.[146]
- Disposable Diapers: Q•MO, Anerle, Banitore, ElderJoy.

The production capacity of the company's tissue paper segment amounted to 1.4 million tonnes in 2021.[147]

Sustainable sourcing

Six paper production subsidiaries of Hengan were FSC/CoC-certified in 2021. In 2021, 100% of pulp suppliers of Hengan obtained FSC or PEFC (Programme for the Endorsement of Forest Certification Schemes) certificates. Hengan states that it encourages suppliers to adopt FSC standards.[148]

In 2020, 90% of pulp suppliers of Hengan obtained FSC or PEFC certificates. Over 2019, the proportion of procured wood pulp with forest system certification was over 99%, yet Hengan did not specify which certification system. Over 2018, Hengan reported that "more than 99% of wood pulp we purchased won the forest certificate by FSC."[149]

Areas and companies of sourcing

Hengan states in its 2021 Environmental Social and Governance report that wood pulp is mainly imported from Europe and South America, and only legal, traceable and renewable wood with a clear origin would be used for pulp production.[150]

The Finland-based pulp manufacturer UPM stated late 2016 that it had been a pulp supplier to Hengan since 2009.[151] Hengan's 2018 Environmental Social and Governance report makes notice of Hengan representatives visiting the pulp manufacturer Metsä Fibre in Finland in April 2018, among other to discuss sustainable forest management. Likely Metsä Fibre also supplies pulp to Hengan.[152]

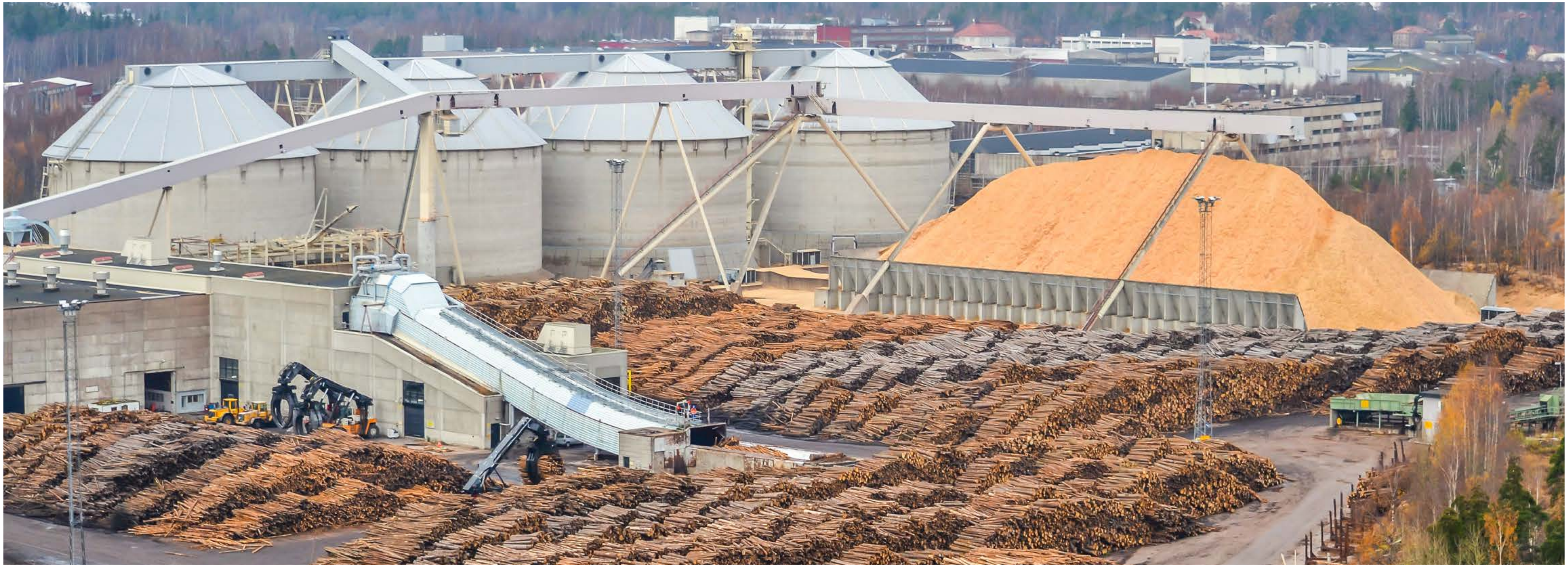
As of 31 December 2021, Hengan had a 36.46% share in the Finnish company Finnpulp Oy.[153] Over the last years, Finnpulp's objective has been to build a large softwood pulp mill in Finland. The project however encountered a negative environmental permit decision issued by the Finnish Supreme Administrative Court in 2019, and was given up in March 2022.[154]

'Hengan states that only legal, traceable and renewable wood with a clear origin would be used for pulp production.'

Use of recycled paper

Hengan does not use recycled paper for tissue production.

Pulp mill in Finland
iStock, Jul 2014



Chapter Ten

Sofidel

Company profile

Sofidel is a privately held Italian company, owned by the Stefani and Lazzareschi families. Its revenue amounted to EUR 2.1 billion in 2021. The revenue was generated in the following countries/regions: United States (22.5%), United Kingdom (15.7%), Italy (13.3%), and other European countries (48.5%). The business segments accounting for the revenue were: Private label (50.2%), Brands and B-Brands (31%), Away-From-Home (12.1%), and Parent reels (6.7%).[155]

Eucalyptus trees in a plantation
© Casadphoto, Dreamstime.com

Tissue paper

Sofidel's most well-known brand is Regina. Regina is marketed in around 30 countries worldwide, and it particularly has a large market position in Italy, the United Kingdom, Ireland, and Poland. Regina is joined by seven other brands acquired or launched by the Group in various European countries: Softis in Germany and Austria, Le Trèfle and Sopalin in France, Cosynel and Nalys in the Benelux area, KittenSoft in Ireland and Lycke in Sweden.[156]

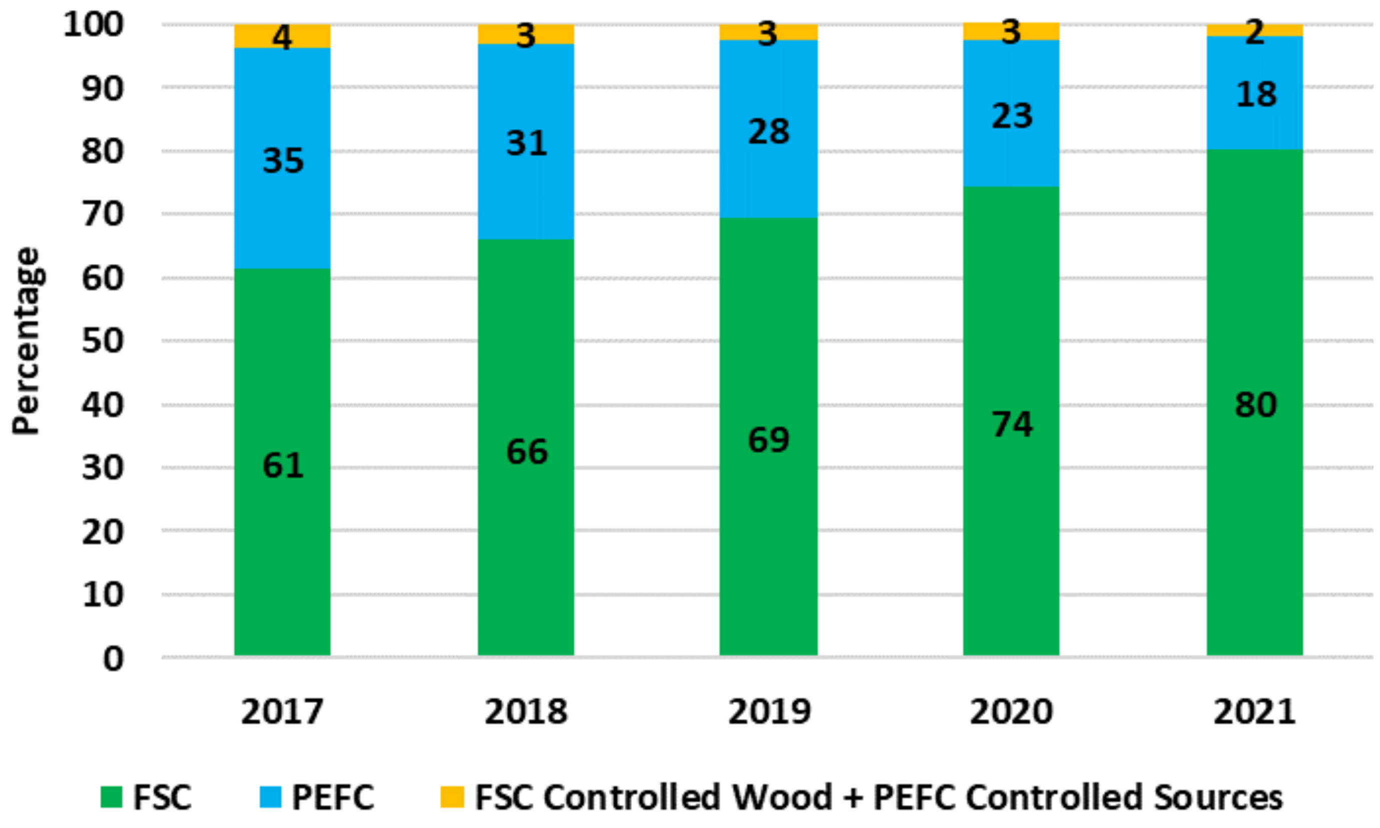
Sofidel purchased 1.25 million tonnes of virgin fibrous and recycled raw material in 2021, of which 7.3% comprised recycled raw material.[157]

Sustainable sourcing

Already in 2017, Sofidel stated to aim for 100 per cent of its tissue paper products in the consumer sector in Italy, Great Britain, Spain, France and the Benelux carrying the FSC label. In October 2017, it also supported FSC's Vancouver Declaration, a public promise made by companies that see FSC as the most credible and widely acceptable choice for forest management certification. In November 2020, Sofidel America received the 2020 FSC Leadership Award.[158]

In the course of 2021, Sofidel purchased a total of 1.16 million tonnes of virgin fibers, of which 80.2% certified with FSC Chain of Custody. The remaining quantity (17.8%) received PEFC certification and 2% of the total had received FSC Controlled Wood certification.[159]

Figure 7
Sofidel, forest management certification of purchased virgin fibers



'Already in 2017, Sofidel stated to aim for 100 per cent of its tissue paper products in the consumer sector in Italy, Great Britain, Spain, France and the Benelux carrying the FSC label.'

Areas and companies of sourcing

Of the virgin fibers purchased in 2021, 52.9% stemmed from South America, 44.9% from Europe, and 2.2% from North America.[160]

There have been four editions of Sofidel's Suppliers Sustainability Award. The awards winners in the pulp producers category have been disclosed by Sofidel. It remains unclear what volumes of pulp were supplied by these companies:

- 2021: Metsä Fibre, Arauco
- 2018: Södra
- 2017: Suzano Pulp and Paper Europe, Zellstoff- und Papierfabrik Rosenthal GmbH
- 2016: SCA, Arauco[161]

Use of recycled fibers

Recycled raw materials comprised 7.3% of all the fibers used by Sofidel in 2021, decreasing from 7.8% in 2020, 8.9% in 2019, 8.4% in 2018, and 9.9% in 2017. In Germany, Sofidel uses recycled paper in its production process. Sofidel Germany manufactures tissue paper reels and finished products.[162]

Chapter Eleven

Unicharm

Mamypoko diapers in a supermarket in Jakarta
© Aidenvironment, Oct 2020

Company profile

The Japan-based Unicharm Corporation generated a revenue of JPY 782.7 billion (equivalent to USD 7.1 billion) in 2021. The company is listed on the Tokyo Stock Exchange. The company's personal care segment reflects the tissue activities of the company, and generated a revenue of JPY 624.8 billion (equivalent to USD 5.7 billion) in 2021, or 80% of Unicharm's total revenue. The personal care segment comprises wellness care products, feminine care products, and baby care products. Unicharm's revenue was generated by the following countries or regions: Japan (38%), Asia minus China and Japan (32%), China (14%), other (16%).[163]

‘ Forestry materials accounted for 70% of the raw materials used in 2020.’

Tissue paper

Unicharm's main brands are: MamyPoko (diapers), Moony (diapers), Sofy (feminine care), Lifree (incontinence). According to Unicharm's Integrated report 2021, in some countries the company has a large market position:

- Disposable baby diapers: #1 Japan, Indonesia, Thailand, Vietnam, Saudi Arabia, #2 in India, #4 in China.
- Feminine care: #1 Japan, Indonesia, Thailand, Vietnam, Taiwan, #2 in China.
- Adult incontinence care: #1 Japan, Indonesia, Thailand, Vietnam, Taiwan.
- Face masks, wet tissues, cosmetic puffs: #1 Japan.[164]

In Indonesia, PT Uni-Charm Indonesia Tbk is listed on the stock exchange (ticker: UCID). It claims to have a market share in Indonesia of 44% for baby diapers (Mamypoko brand), 45% for feminine care products (Charm brand) and 42.0% for adult diapers (Lifree brand) in 2021. Forestry materials (pulp, tissue and paper separator) accounted for 70% of the raw materials used in 2020. The Sinar Mas conglomerate has a 20.8% stake in PT Uni-Charm Indonesia Tbk. The Indonesian convenience store chains Indomaret and Alfamart generated 16% and 11% of Uni-Charm Indonesia's revenue in 2021, respectively.[165]

Sustainable sourcing

In its Sustainability report 2021, Unicharm claimed that it has reached a 99% third party certification of paper and pulp suppliers for its 2020 operations in Japan, and 93% third party certification of paper and pulp suppliers for its 2020 overseas operations. These percentages refer to certification for forest management. Unicharm does not disclose the proportion that is FSC certified on forest management. Unicharm has PEFC Chain of Custody certification at its factories in Thailand, Indonesia and Japan. In its Integrated report 2021, Unicharm stated: "In 2020, we switched over 95% of our wood-derived materials by weight (not including recycled paper) to sustainable forest resources certified by the FSC, PEFC, SFI and other bodies."[166]

The 2020 target was 100% certification for both overseas and Japanese operations.[167] More specifically, in its Sustainability report 2021 the company stated on this 2020 target: "When using virgin pulp (as opposed to waste paper or recycled pulp), Unicharm will collaborate with suppliers to fully verify that no damage is caused to forest resources. Specifically, Unicharm will verify third-party certified raw materials, such as FSC and PEFC, and certificates of origin confirming that materials do not come from High Conservation Value Forests (HCVF) and High Carbon Stock Forests (HCSF)."[168]

According to its Sustainability report 2021, Unicharm's 2030 target is to "expanding the use of certified pulp (PEFC and CoC certified) to 100%."[169] In October 2017, Unicharm supported FSC's Vancouver Declaration, a public promise made by companies that see FSC as the most credible and widely acceptable choice for forest management certification.[170] At present, it is not clear whether Unicharm prefers FSC to PEFC on certification for forest management.

Areas and companies of sourcing

In its Integrated report 2021, Unicharm stated that over 90% of the pulp used by Unicharm comes from North America.[171] In its Sustainability report 2021, Unicharm states: "The absorbent parts of our products are made of pulp from conifers grown in FM (Forest management)-certified forest in North and South America. The tissue covering these absorbent materials is made from timber felled in FM-certified forests in North America, China and Indonesia."[172]

Some pulp suppliers of Unicharm could be tracked down via the acquisition of trade data. Georgia-Pacific and International Paper (partly sold to Unicharm via the Itochu Corporation) appear to be large suppliers to Unicharm companies in Indonesia or India. The pulp produced by Georgia-Pacific, International Paper and Domtar originated from the United States.[173]

PULP SUPPLIER	IMPORT ACCORDING TO TRADE DATA (TONNES)	
	Indonesia (Jan - Sept 2021)	India (Jan - 20 Apr 2022)
Georgia-Pacific	32,248	14,451
International Paper	25,396	1,130
Sinar Mas (Domtar, sold via Ekman)		1,348
Total	**57,645**	**16,928**

Table 13
Some pulp suppliers of Unicharm

Source
Seair, Eximpedia, import by Peru, Colombia and Mexico, HS code groups 4701, 4703, 4704, 4705

Use of recycled fibers

Among the key initiatives for Unicharm's Kyo-sei Life Vision 2030 are "expanding our line of recycled models" and "Promotion of product recycling." By 2030, the company aims to have introduced 10 or more disposable paper diaper recycling facilities, and have started the commercial production of diapers containing recycled fibers.[174]

In 2018, Japan produced about 23.5 billion disposable diapers (15.1 billion for babies and 8.4 billion for adults) with a total weight of 880,000 tonnes. According to Unicharm, disposable diapers account for about one-eighth of total household trash, the majority of which is collected and incinerated as combustible waste, driving up carbon dioxide emissions that contribute to global warming. Unicharm's analysis shows that greenhouse gas emissions can be reduced by about 87% when this recycling system is used as a substitute to disposal through incineration. For this process technology to be impactful, it must be implemented at scale. To this end, starting in 2016, Unicharm began collaborating with local government authorities and recycling firms to achieve full-scale separated collection and recycling of used diapers in Shibushi City, Kagoshima Prefecture. The longer-term goal is to build a recycling system that can be adopted widely across Unicharm's domestic and international markets.[175]

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