2 Repurposing Paper & Pulp

Paper & Our Planet Sourcing • Resources • Inspiration

Papers footprint on our planet

Environmental Effects of Paper Waste

Fashion & our Forests

Tools

Reimagining paper through design & reusing it as an infinite resource



2.0 Introduction

Repurposing paper is part of a series of sourcing guides and material index's that RawAssembly has put together for our members to help them make responsible decisions and choices around raw material and product selection within their supply chains.

As part of International Day of Forests & Earth Day 2021, we felt that paper & wood pulp was an important material to highlight as part of the Discover the SDG's, '*Make Peace with Nature*' digital event, as the raw material source is such a vital part of our planet's ecosystem, our survival and helping us to combat climate change. Responsible pulp and paper operations can benefit forests, local economies and people, particularly in rural areas.

Forests cover 30% of the earth's land and are essential to human well-being, sustainable development, and the planet's health. An estimated 1.6 billion people, 25% of the global population, depend on forests for subsistence, livelihood, employment and income generation. These very forests are harvested for timber, food, fuel, fodder, non-wood products and shelter, soil and water conservation, and clean air. Forests also prevent the land from degradation and desertification and reduce the risk of floods, landslides, droughts, dust and sand storms and other natural disasters, so its vital for many reasons that we protect them, especially as forests contribute substantially to climate change mitigation and adaptation and in conserving biodiversity.

When sustainably managed, all types of forests are healthy, productive, resilient and renewable ecosystems. [UNSPF]

Sustainable management of forests and trees outside forests is vital to the integrated implementation of the 2030 Agenda for Sustainable Development, including achieving the Sustainable Development Goals (SDGs), especially SDG15 ("Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss"). SDG 12 plays a key role here also, especially for the fashion and textile industries.

Our use of wood pulp goes far beyond paper and packaging today; when we actually stop to think about how many products are produced globally that require trees, its a wonder how we have any left at all.

It all starts with using what already exists today and capturing those materials across all sectors for recycling and reuse. This slow downs demand and helps prevent further illegal clearing of ancient forests and overconsumption.

In this preview guide we share with you some of the problems we face today, tools & resources to help mitigate further impact and sources of suppliers producing responsible and sustainable alternatives within packaging.

2.1 Papers footprint on our planet

Did you know that three billion trees are cut down every year for paper packaging? That means thousand-year-old forests are being destroyed to make boxes. [10]

It was estimated that by 2020, paper mills will be producing 500,000,000 tons of paper and paperboard each year. [10]

Even with our growing reliance on electronic devices, Paper remains the world's most commonly used consumer items [1]

Australia has an 87% recycling rate of paper and cardboard, one of the highest in the world [2]

However, Australia still consumes almost 230kg of virgin paper per person per year [3], which results in both homes and offices using approximately 2.4 million tonnes of paper each year for printing, writing and reading. That's about thirty-one million two hundred thousand trees whose cellulose pulp could be recycled between five to seven times! [2]

In the 15 seconds it takes you to read this, more than 199 tons of paper has already been produced.

The pulp and paper industry, which includes products such as office and catalogue paper, glossy paper, tissue and paper-based packaging use over 40% of all industrial wood traded globally [9] 93% of paper comes from trees.

More than 100 million trees are destroyed each year to make junk mail [5]

50% of the waste of businesses is composed of paper.

Recycling one tonne of newspapers is estimated to conserve around three cubic metres of landfill space. [8]

Packaging makes up 1/3 or more of our rubbish.[7]

Paper accounts for 25% of landfill waste and 33% of municipal waste in the USA [7]

With all the paper we waste each year, we can build a 12-foot high wall of paper from New York to California! [7]

Top Three paper producing countries 1/ China 2/ United States 3/ Japan

References: [1] Suez ANZ [2] Australia Forest Products Association [3] Australian Science & Suez [4] Fuji Xerox - The Paper facts [5] Earth Day [6] Clean Up australia Ltd.

[7] The World Counts [8] Cutter skip hire [9] WWF [10] Canopy Style [11] New York Times

2.2 Environmental Effects of Paper Waste

As one of the world's largest industrial sectors, the pulp and paper industry greatly influences our global forests. According to the WWF, this sector uses over 40 percent of all industrial wood traded globally, with the U.S. still one of the world's largest paper consumers.

The forest practices associated with some pulp and paper operations have had devastating impacts on some of the world's most ecologically important places and species. Unsustainable pulp and paper operations have contributed to converting high conservation value forests, illegal harvesting, human rights and social conflicts, and irresponsible plantation development. Given the pulp and paper sector's global nature, paper from these unsustainable sources reaches us all.

Responsible pulp and paper operations can benefit forests, local economies and people, particularly in rural areas. Many pulp and paper companies demonstrate leadership in responsible forestry and plantation management, clean manufacturing processes, and recycled content. [1] Consumers worldwide can play a key role in driving responsible forestry through their paper choices and their choices in fashion.

In January 2020, the international environmental group, Canopy, developed and launched a visionary action plan that describes how to transform the unsustainable global paper packaging and viscose textile industries by removing 50 percent of the forest fibre from pulp manufacturing and replacing it with Next-generation alternative fibres such as agricultural residues and waste cotton textiles.

According to Canopy, a US-headed NGO that works with the forest industry's biggest customers and their suppliers to develop business solutions that protect the last frontier forests, doing so will enable 30 percent of the world's forests to be conserved by 2030.

Launched in Davos, Switzerland, the report, "SURVIVAL – A Pulp Thriller: A Plan for Saving Forests and Climate ", provides a lifeline for averting the climate and biodiversity catastrophe within ten years. The IPCC has listed the protection of forests, especially original forests, critical to a safe world. The transformation will cost **US\$69 billion** over the next decade to establish mills that can pulp alternative fibres, introduce reduction/efficiency initiatives and plant new well-sited, well-managed fibre supply forests – which in turn enable the restoration of plantations currently sited on high carbon/biodiverse landscapes.

The plan has been developed in response to the climate crisis and extinction crisis threatening thousands of species worldwide and has support from key corporate players.

According to the report, maintaining healthy forests will account for one-third of what's needed to avert the climate crisis and is critical for terrestrial biodiversity. Achieving that will require equal measures of innovation and investment. Eliminating 50 percent of wood fibre from the pulp, paper, packaging, and viscose will require:

- 200 agricultural fibre pulp mills;
- · 107 recycled pulp for paper mills;
- 17 recycled cotton garment and/or microbial cellulose fibre dissolving pulp mills;
- 7.5 million hectares of new forests for fibre planted on lands not prioritized for

food production, habitat restoration or carbon storage;

· Material-efficient design initiatives and re-use will reduce 65 million tonnes of

consumption.

Canopy believes that this ambitious but achievable scenario provides a clear path to protect our planet for all life.

"This is an action plan to shift global production of pulp, paper, packaging and viscose textiles out of Ancient and Endangered Forests and help us secure the scale of conservation that's needed. Our brand partners want these Next Generation Solutions, and the technologies are ready. We're thinking big because there's no point in doing anything less. Now is not the time for climate despair, but for transformative action, and ultimately, hope for our forests, climate, and people the world over."

Nicole Rycroft, Executive Director of Canopy.

The Paper Futures campaign

Let's make all paper free of Ancient and Endangered Forests!

The Paper Futures campaign by Canopy aims to transform the paper supply chain by helping large consumers change their paper selection based on where the wood that goes into making their paper is sourced from, or on paper without containing wood fibre in it. They advocate for using a wide range of 100% recycled and FSC papers that are already available. They support the emergence of straw-based pulps and papers, which can displace significant amounts of pulp fibre from Ancient and Endangered Forests.

Good fibre sourcing decisions are critical to leveraging permanent, legislated protection/conservation in landscapes of hope, globally.

If you are in fashion and are a brand, we encourage you to join Canopy's Paper Futures Campaign and help make sure the paper and pulp used in your packaging and viscose products is not contributing to the devasting loss of our endangered forests and is being produced responsibly.



2.3 Fashion & our forests

CanopyStyle

From Milan's catwalks to New York's 5th Avenue, from your favourite boutique to the local mall, fashion increasingly has a hidden cost that doesn't show up on the price tag. Fashion designers, clothing brands and apparel manufacturers are likely unaware that some of their stylish fabric creations are made from trees – let alone the trees of ancient and endangered forests.

Canopy research has found that, increasingly, these forests are being used in the manufacture of dissolving pulp to produce fabrics such as rayon/viscose, modal and lyocell.

In fact:

• More than 150 million trees are logged every year and turned into cellulosic fabric – if placed end to end, those trees would circle the earth seven times.

• Between 2013 and 2020, it was expected that the number of trees being logged every year and turned into fabric such as viscose would have doubled.

• Dissolving-pulp (the base material for rayon/viscose) wastes approximately 70% of the tree and is a chemically intensive manufacturing process.

• Less than 20 percent of the world's ancient forests remain in intact tracts large enough to maintain biological diversity.

• Forests in Indonesia, Canada's Boreal and temperate rainforests and the Amazon are being logged for next season's fashion and apparel.

• Follow the thread from skirts, suits and t-shirts to their source and learn how your fabric and fashion choices can affect the future of communities in Indonesia, the endangered Sumatran tiger, the songbirds of the vast Boreal forest or the grizzly bears of the Great Bear Rainforest.

CanopyStyle

Learn more about viscose production at **www.rawassembly.com** Sign-up as a member to discover our magazine, platform, newsletters and events, plus don't forget to follow us on Instagram

2.4 Rethinking Packaging Design

Since we only have one livable planet, everyone has to play a part in preserving the environment, starting with our packaging. By rethinking how packaging is designed, its functionality, and its ingredients, we can consider earth-friendly packaging solutions, minimising the waste and pollution that ends up in our landfills and oceans.

Consider why individuals or communities should be burdened with down-cycling or landfilling such products? Society needs worry-free packaging that could be recycled into new materials, safely decomposed or be gathered and used as fertiliser, bringing nutrients back to the soil (to be literally consumed). [1]

First, you have to ask if you need packaging for individual products? And if you continue to use packaging that does not consider environmental and human impacts, what would the long term effects on our climate be?

We all need to design and partner with companies producing environmentally intelligent materials today that are safe for both humans and the planet.

This guide will help you consider different aspects of your packagings' raw materials, design, production, and extended cycles.



The following considerations can help you re-imagine your packaging functionality enabling you to design more responsibly.

Product use

• Consider if your project needs individual packaging - If so, why?

• Could your products be shipped in one master bag/ packaging solution instead of individually?

• How can you streamline your packaging design to use fewer materials and less weight?

• Could the packaging be part of the product? Or an additional product that offers your customers an additional plus with purpose?

• How could the packaging teach or share knowledge about the product with the consumer?

• How can you share the packagings supply chain story with your clients, sharing traceability and transparency.

Consider the functionality of your product needs to have

• Could your packaging be used for the repair or refurbishment of the actual product - could this be possible? If so, how?

• Could your packaging be used to help service a return system? Returning goods from a subscription service, goods for repair, refurbishment, or end-of life cycle solutions?

• What other purposes could the packaging serve? We have the opportunity to think outside the box, be creative and innovative whilst changing our current systems.

Know your Origin

• Understand where your packaging or paper product raw materials come from.

• Start by mapping your packaging supply chain, know your raw material origin, producer and supplier.

• Source paper products with FSC, Cradle to Cradle, SFI, PEFC and GRS certifications.

Materials

• Choose recycled, recyclable, renewable, biodegradable, compostable or returnable packaging over single-use

• When using paper packaging, use recycled materials over virgin materials

• How could the packaging material fit into scaleable recycling or industrial or home composting systems?

• How do you transfer this knowledge to the consumer?

Manufacturing

• Source, manufacture, transport and recycle using renewable energy.

• products are manufactured using clean production technologies and best practice.

• Use ethical supply chains that you can monitor, making sure that no forced labour takes place and each person in the chain is paid an honest and true liveable wage

Create a Packaging Restricted Substance List (PRSL)

• Create an official list of inks that can be used on your packaging based on end-of-life solutions. Make sure these inks can be handled at the dry-sorting stage within a paper mill, making sure fibres aren't damaged and can be used in further cycles.

• Create a list of restricted substances that you do not want to be included in or on your packaging

Recovery

•• Packaging can be effectively recovered and utilised in biological and/or industrial closed-loop cycles.

2.5a Tools

CanopyStyle Viscose Production - 2020 Hot Button Ranking

The hot button ranking is the primary fibre sourcing analysis tool for the fashion sector. This includes the CanopyStyle brands, retailers, and designers committed to eliminating the use of Ancient and Endangered Forests in viscose and other cellulosic fabrics and giving preference to textiles made from innovative fibres.

https://hotbutton.canopyplanet.org/

The CanopyStyle Audits

The CanopyStyle Audits of global producers of human-made cellulosic fibre (i.e. rayon and viscose) are based on a robust set of criteria created by Canopy with the approval of the CanopyStyle Leaders for Forest Conservation comprised of Inditex/Zara, H&M, EILEEN FISHER, Stella McCartney and Marks & Spencer.

These criteria are designed to establish a credible, third-party verification process to be undertaken by viscose producers. The audits are to be used by apparel brands, retailers, and designers as one of the reference points as they implement their CanopyStyle sourcing policies. The CanopyStyle Audit Guidelines describe how auditors will verify that producers meet the criteria and whether and when they can be recognized as being at low risk of sourcing from ancient and endangered forests or controversial sources.

https://canopyplanet.org/resources/canopystyleaudit/

Quick Guide to Ancient and Endangered Forests

Canopy's corporate partners have policies in place in which they commit to avoid sourcing in Ancient and Endangered Forests. Find out what they are in this quick guide **Here**

Canopy's ForestMapper

A mapping tool that incorporates geospatial data from scientific experts helps companies transition to more sustainable fibre supply chains and help identify areas of potential sourcing risk.

This interactive tool is the only one of its kind to represent ancient and endangered forests on a global scale visually. ForestMapper includes numerous ecological values divided into four categories: forests, species, carbon and landscapes.

How to work ForestMapper

https://canopyplanet.org/tools/forestmapper/

Transparency across the pulp and paper sector - WWF

WWF has developed free tools such as the Paper Company Environmental Index and the Check Your Paper Database that encourage paper producers to demonstrate transparency by reporting on the environmental parameters associated with their paper products and for paper buyers to evaluate papers and paper companies.

https://epci.panda.org/

Canopy Pack4Good

https://canopyplanet.org/campaigns/pack4good/

Global Forest Goals & Targets of the UN strategic plan for forests 2030

The Strategic Plan serves as a reference framework for the United Nations system's forest-related work and the fostering of enhanced coherence, collaboration, and synergies among United Nations bodies and partners towards the vision and mission (set out below). It also serves as a framework to enhance the coherence of and guide and focus the international arrangement on forests and their components.

A shared United Nations vision

The shared United Nations vision is of a world where all types of forests and trees outside forests are sustainably managed, contribute to sustainable development and provide economic, social, environmental and cultural benefits for present and future generations.

The shared United Nations mission is to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development, including strengthening cooperation, coordination, coherence, synergies and political commitment and action all levels.

https://www.un.org/esa/forests/wp-content/uploads/2019/04/Global-Forest-Goalsbooklet-Apr-2019.pdf

United Nations's FAO, The State of Forests 2020.

Reports on the status of forests, recent major policy and institutional developments and key issues concerning the forest sector. It makes current, reliable, and policy-relevant information widely available to facilitate informed discussion and decision-making with regard to the world's forests.

http://www.fao.org/state-of-forests/en/

Learn more about viscose production at **www.rawassembly.com** Sign-up as a member to discover our platform, magazine, newsletters & don't forget to follow us on **Instagram**

2.5b Tools

The World Economic forum

Design and Management for Circularity - the Case of Paper

This report offers a useful alternative through simple ecodesign rules for paper products, in order to provide essential guidance to all actors in the supply chain without limiting innovation and the introduction of new techniques. Initiators of orders for a fibre-based graphic paper or packaging product have many priorities on their agendas, such as meeting customer requirements, creating functionalities that meet purpose and profitability, and respecting certain environmental considerations. To help businesses also consider design and management for circularity, this document summarizes the key choices to be made and identifies the important actors that can influence these choices.

http://www3.weforum.org/docs/WEF_Design_Management_for_Circularity.pdf

Australian Packaging Covenant Organisation Sustainable packaging guidelines

The Australian Packaging Covenant ('the Covenant') is a national regulatory framework under the National Environment Protection (Used Packaging Materials) Measure 2011 (NEPM) that sets out how governments and businesses across Australia share the responsibility for managing the environmental impacts of packaging.

Sustainable packaging guidelines - apco.

https://documents.packagingcovenant.org.au/public-documents/Sustainable%20 Packaging%20Guidelines%20(SPGs)

https://apco.org.au/

Ellen MacArthur Foundation The New Plastics Economy

The report explores the intersection of these two themes, for plastics and plastic packaging in particular: how can collaboration along the extended global plastic packaging production and after-use value chain, as well as with governments and NGOs, achieve systemic change to overcome stalemates in today's plastics economy in order to move to a more circular model?

https://www.ellenmacarthurfoundation.org/assets/downloads/EllenMacArthurFoundation_TheNewPlasticsEconomy_Pages.pdf

2.5b Tools cont.

AFIRM Packaging RSL

This report offers a useful alternative through simple ecodesign rules for paper products, in order to provide essential guidance to all actors in the supply chain without limiting innovation and the introduction of new techniques. Initiators of orders for a fibre-based graphic paper or packaging product have many priorities on their agendas, such as meeting customer requirements, creating functionalities that meet purpose and profitability, and respecting certain environmental considerations. To help businesses also consider design and management for circularity, this document summarizes the key choices to be made and identifies the important actors that can influence these choices.

https://www.afirm-group.com/packaging-restricted-substance-list/

RESPONSIBLE PACKAGING MOVEMENT Packaging

Responsible Packaging Movement, launched by prAna, to eliminate plastic by 2021, as well as eliminate virgin forest fibers by 2025 or those from endangered and ancient forests from its consumer packaging by 2022. Since its inception, other sustainable and ethical brands have joined the movement such as Mara Hoffman, Outerknown,

Toad and Co., and non-profit partners 5 Gyres and Canopy.

But we need everyone's help to achieve this.

They are asking you, designers, brands, and worldwide prAna community, to join them on this journey toward eliminating excess packaging waste from our supply chains in a responsible, long-lasting way. Together, let's #ReshapePackaging

https://www.prana.com/sustainability/responsible-packaging-movement.html

2.5c Standards & Certifications

Forest Stewardship Certification

Independent, non-governmental, not-for-profit organisation

FSC forest management certification confirms that the forest is being managed to preserve biological diversity and benefits the lives of local people and workers while ensuring it sustains economic viability.

https://fsc.org/en/forest-management-certification

Cradle to Cradle Certified®

Cradle to Cradle Certified® is a globally recognised measure of safer, more sustainable products made for the circular economy.

The Cradle to Cradle Certified[®] Product Standard Version 4.0 is the most ambitious and actionable standard yet for designing and making products today that enable a healthy, equitable and sustainable future.

https://www.c2ccertified.org/

ASTM

ASTM International, ASTM D7612 – 10(2015)

Standard practice for categorising wood and wood-based products according to their fibre sources.

• ASTM D6400-19 - Standard Specification for Labeling of Plastics Designed to be Aerobically Composted in Municipal or Industrial Facilities

https://www.astm.org/Standards/paper-and-packaging-standards.html

ISO

• ISO, ISO 38200:2018

Specifies requirements for a chain of custody (CoC) of wood and wood-based products, cork and lignified materials other than wood, such as bamboo, and their products.

https://www.iso.org/standard/70179.html

2.5C

Standards & Certifications cont.

SEDEX

Tools & services to help businesses operate responsibly and sustainably, protect workers and source ethically.

Sedex is one of the world's leading ethical trade membership organisation, working with businesses to improve working conditions in global supply chains. Sedex's vision is to drive organisations globally to improve the lives of the people they impact.

https://www.sedex.com/

ILO, Labor Standards

The ILO has maintained and developed a system of international labour standards to promote women and men's opportunities to obtain decent and productive work in conditions of freedom, equity, security, and dignity.

Other Resources

Forest Management

- Forest Stewardship Council (FSC)
- American Tree Farm System (ATFS)
- Canadian Standards Association (CSA)
- Forest Stewardship Council (FSC)
- Sustainable Forest Initiative (SFI)

Wood Procurement

- FSC Controlled Wood
- SFI Fiber Sourcing
- SFI Certified Sourcing

Chain of Custody (CoC)

- Forest Stewardship Council (FSC)
- Programme for the Endorsement of Forest Certification (PEFC)
- Sustainable Forest Initiative (SFI)

2.6 Suppliers [Packaging Solutions]

TIPA Sustainable Packaging

A corn-based packaging inspired by nature.

TIPA®'s vision for flexible packaging is to have the same end-of-life as organic matter while maintaining the qualities of conventional plastics that consumers and brands have come to rely on, like durability, transparency, barrier, sealability, printability, and shelf-life. TIPA's packaging offers a protective layer that decomposes back into the soil with no toxic residue, microplastics, or other pollutants.

TIPA® focuses on the food and fashion industries, two segments with a very high flexible packaging volume.

https://tipa-corp.com/ https://tipa-corp.com/wp-content/uploads/TIPA-A5-catalog-05-2017-screen.pdf https://youtu.be/f0KyVyKaqwQ

The Better Packaging Company

The team at TBPC offer a range of packaging solutions from comPOST packs made from biodegradable, compostable and partially from renewable materials that brands all across Australia, New Zealand and beyond have jumped on.

Better Packaging is currently trialling their SWOP product, made from rPET that allows brands to do away with disposables altogether by joining the re-evolution of packaging. Each product is made from recycled materials and has been designed to be recycled at end-of-life. SWOP offers a sturdy packaging solution that can be used over and over again.

https://www.betterpackaging.com/

RePack

RePack is a packaging service that enables the return and reuse of delivery packaging for online retailers and their users. Made from recycled materials, each RePack product can last at least 20 cycles, if not more. Users fold and drop the empty bag to a postbox, anywhere in the world for free, and it gets returned to RePack for checking, cleaning and redistribution so clients can reuse them.

Clients: Zalando, Ganni, Makia and Weekday

https://www.repack.com/

Earthpack

Earthpack produces custom made affordable recycled packaging in the USA https://www.earthpack.com/

Clients: VANS, Surfside, Huntington Surf & Sport, Patagonia, TOMS

COAT HANGERS

Arc & Hook

Offer sustainable, high quality and custom made hangers that include Forest Stewardship Council (FSC®) certified wood, upcycled ocean-bound plastics or recycled plastics - all of which are fully recyclable.

https://archandhook.com/

Normn

Paper-based hangers made from 100% recycled compressed pulp fibres. The hangers are durable, lightweight, plastic-free and completely recyclable.

https://normanhangers.com/clothes-hangers/ https://normanhangers.com/

Flexi-Hex

Adaptable plastic-free packaging solutions. Using a patented honeycomb design made from recycled paper, Flexi-hex's sustainable packaging is strong, adaptable, and biodegradable. Resulting in an eco-friendly product that doesn't compromise on quality and functionality.

https://www.flexi-hex.com/

Industries: Sport, Wine, Cosmetics, commercial & homeware Clients: Bombay Sapphire, Surfdome, Grolsch

https://www.flexi-hex.com/

ALTERNATIVES MATERIALS

Woola Compostable Packaging

Woola uses waste wool from Europe to replace plastic bubble wrap. Wool is a fully compostable and naturally high-tech material, yet so much of it goes to waste. Woola is changing this by producing a woollen bubble wrap that protects products when shipping and prevents the raw materials from being burned or landfilled. They also produce a two-layer wool envelope made from recycled paper and a woollen inner layer.

https://www.woola.io/

*Please note that despite some of the mentioned suppliers above are producing responsible packaging solutions, some may also continue to produce single-use plastic products within their other ranges. We encourage brands to ask questions about these ranges and understand how each company plans to phase out single-use products. By encouraging conversation, we encourage action and change.

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