



ICFPA 2023 SUSTAINABILITY PROGRESS REPORT



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ABOUT THE INTERNATIONAL COUNCIL OF FOREST & PAPER ASSOCIATIONS (ICFPA)

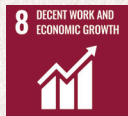
The ICFPA is a global collaboration of 16 pulp, paper, wood and forest fibre-based associations spanning 27 countries. Many of the world's top pulp, paper and wood-producing countries around the world are represented by the ICFPA's member associations.

Sustainable forests and forest products to meet the needs of the planet and its citizens.

ICFPA supports dialogue across regional and national forest products associations from around the world and promotes global commitments to sustainable forest management, recycling, innovation, water conservation, mitigating climate change, ensuring a safe and inclusive workplace, and optimising the use of environmentally-friendly wood and paper-based products.

Sustainable Development Goals

The ICFPA's commitments align with the objectives of the United Nations Sustainable Development Goals (SDGs), demonstrating that our sector's actions address some of the most pressing sustainability issues of our time. Throughout this report, relevant icons note where the ICFPA's efforts are contributing to progress on the SDGs.



ICFPA Steering Committee



Jori Ringman, ICFPA President
Director General of Confederation of European Paper Industries



Jose Carlos Da Fonseca Junior
Executive Director of Brazilian Tree Industry



Heidi Brock, ICFPA Vice-President
President and CEO of American Forest & Paper Association



Ogawa Tsunehiro
President of Japan Paper Association



Jane Molony
Executive Director of Paper Manufacturers' Association of South Africa



David Rhodes
CEO of New Zealand Forest Owners Association



Derek Nighbor
President and CEO of Forest Products Association of Canada

GLOBAL SUSTAINABILITY LEADERSHIP

Autumn tree canopy, Tennessee, United States. Credit: Nathan Anderson

At the ICFPA's ninth international CEO Roundtable in 2019, a group of industry CEOs approved the Global CEO Leadership Statement 2.0 that updates and builds on progress the forest products industry has made since the original 2006 CEO Leadership Statement. The leadership statement affirms that the global forest products industry is uniquely positioned to address crucial sustainability challenges and improve social, environmental and economic well-being for all.

The industry, the products it manufactures, and many of its sustainability achievements have the potential to impact economic growth; jobs; climate change mitigation; renewable energy; education and literacy; food safety and food waste reduction; human health and hygiene; rural development; sustainable cities; skilled workers; and healthy and safe working conditions. The International Council of Forest & Paper Associations (ICFPA)—representing many of the top pulp, paper and wood producers around the world—takes action for a better world.

The leadership statement commits the sector to:

- **Promote Sustainable Forest Management (SFM) through:**
 - Certification of forest lands and products.
 - Procuring legal and sustainable wood sources only.
 - Minimising ecosystem imbalances that may result from land management.
- **Mitigate Climate Change by:**
 - Preserving and optimising carbon sequestration in forests and products.
 - Reducing greenhouse gas emissions through energy-efficient operations.
 - Using carbon-neutral biomass energy in the manufacturing process.
- **Improve Recycling and Reclamation of Wood and Paper Fibre by:**
 - Advocating for improvement in the quantity and the quality of recovered materials to ensure they can be made into new products.
- **Ensure an Attractive and Inclusive Workplace through:**
 - Risk management and prevention to diminish incidents and fatalities.
 - Education and training to ensure all workers maintain and gain skills to thrive at work.

- **Stimulate Innovation** of manufacturing processes as well as traditional and innovative products through investments.
- **Conserve Water by:**
 - Reducing, reusing and recycling the water used in the manufacturing process, and treating and cleaning water before it is returned to the environment.
 - Practising SFM to mitigate impacts on surface and groundwater.
- **Optimise Industry Products and Contribute to the Circular, Bio-Based Economy by:**
 - Delivering products that are biodegradable and compostable.
 - Working to reduce the environmental footprint of products.
 - Showcasing progress in a transparent manner.

The ICFPA will work to earn the trust of stakeholders and communities where the industry operates by transparent reporting of progress on these commitments.

PROGRESS ON OUR COMMITMENTS

ICFPA sees an opportunity for the forest products industry to play a central role in advancing a circular bioeconomy and more sustainable future.

The COVID-19 pandemic reinforced the interconnectedness of our global economy and brought to light the essential nature of our industry. Around the world, the forest products industry has remained focused on worker safety and meeting global demand for essential products with a continued commitment to sustainability. Forests, and the products that come from them, present an enormous opportunity to help the world respond to one of our greatest challenges – meeting climate targets.

The sector and its products proved even more essential in the pandemic scenario with increased demand for hygiene goods, packaging for e-commerce and furniture for home renovations, for example.

Forestry – which yields a vast range of products and ecosystem services useful both for local communities and at a global scale – could play a key role in accelerating a transformation towards societies that simultaneously conserve nature, better provide for human well-being and generate income, particularly for rural people.

- State of the World's Forests 2022¹

This ICFPA Sustainability Progress Report reflects progress achieved in 2020 - 2021. While the trend for some indicators has plateaued in recent years, the overall trend is positive – a reflection that the industry continues to improve in key sustainability areas from our baseline years.

In addition to quantitative metrics that demonstrate our industry's progress towards sustainability commitments, the report includes case studies to provide a more robust and qualitative reflection of our industry's sustainability performance.

Methodology:

The National Council for Air and Stream Improvement, Inc. (NCASI) provided the update on performance metrics in this report. ICFPA members provided environmental data in response to a detailed survey conducted in quarter four of 2022. The report includes a summary of the current metrics calculated using data from 2020 or 2021, as well as an indication of progress made since the baseline year. Associations collect environmental data at different frequencies (even or odd years), and the most recent available data were provided to NCASI and are incorporated into performance metric calculations. Appendix A identifies the countries represented by associations reporting data for ICFPA metrics.

Mondi Merebank Mill, South Africa. Credit: Mondi



PROGRESS ON OUR COMMITMENTS

Tree canopy,
British Columbia, Canada.
Credit: Spencer Watson

Global Performance

	Baseline Year	Reporting Year 2021/2022	Progress
GHG Emission Intensity Scope 1 + Scope 2, metric tonnes carbon dioxide equivalent per metric tonne production	0.689 ^{2004/2005}	0.527	-23.5%
Bioenergy and Renewable Fuel Percentage On-site energy needs met by biomass and other renewable fuel sources	53.0 ^{2004/2005}	63.7	+10.7 percentage points
Total On-Site Energy Intensity Gigajoules lower heating value per metric tonne production	18.2 ^{2004/2005}	17.9	-1.5%
Sulfur Dioxide (SO₂) Emissions Intensity Kilograms sulphur dioxide per metric tonne production	2.0 ^{2004/2005}	0.51	-74%
Water Use Intensity Cubic metres process water discharge per metric tonne production	36.1 ^{2004/2005}	32.6	-9.5%
Sustainable Procurement Percentage of procured wood fibre from third-party certified sustainably managed forests	12 ^{2000/2002}	50	+38 percentage points
Recordable Incident Rate Number of recordable incidents per 200,000 hours / number of hours worked by all employees	4.11 ^{2006/2007}	2.81	-30%
Global Recycling Rate Percentage of paper and paperboard consumed globally and used by mills to make new products	46.5 ²⁰⁰⁰	59.9	+13.4 percentage points

PROMOTE SUSTAINABLE FOREST MANAGEMENT (SFM)

Mosaic planting in the region of Esplanada, Bahia, Brazil. Credit: Bracell/Gleison Rezende

In total, forests cover about 31 percent of the world's land surface (4.06 billion ha). SFM is a foundational commitment for ICFPA and its members, as it allows for the conservation of forests – one of Earth's most beneficial resources – while also allowing for the supply of forest-based products that are present in our daily lives.

When sustainably managed, forests play a central role in achieving global climate targets. Still, the forest sector faces pressure and SFM is not yet mainstream. The FAO Global Forest Resources Assessment (FRA) 2020 estimated that 420 million ha of forest was converted to other land uses such as agriculture and land development without replanting between 1990 and 2020. Although the rate declined over the period, deforestation was still estimated at 10 million ha per year from 2015–2020 (approximately 0.25 percent per year).

By contrast, our forestry sectors ensure replanting, regrowth and replenishment of trees used for commercial or productive purposes. Strong demand for paper and wood products helps support continued long-term investment in SFM. Voluntary forest certification systems are one of the most efficient market-based tools to promote SFM and ensure that the wood and fibres that supply our industries do come from sustainably managed forests.

ICFPA members measure progress toward the SFM commitment by the percent of forest-based wood fibre supplied to ICFPA members from certified, sustainably-managed forests and plantations. This is defined as wood that has been certified by the Forest Stewardship Council (FSC) and/or by a national certification system formally endorsed by the Programme for the Endorsement of Forest certification (PEFC).

The ICFPA members reporting on this commitmentⁱⁱ represent nearly 65 percent (298.17 million ha) of the 463 million hectares certified globally to FSC and/or PEFC in 2021.ⁱⁱⁱ It is noteworthy that about three-quarters of the world's SFM-certified area is in North America and Western Europe,^{iv} and these two regions also account for more than 95 percent of the SFM-certified area reported by ICFPA member associations in this year's survey.

Industry associations at the regional and country levels play a crucial role in promoting SFM certification among their member companies. Since 2000, there has been a significant rise in forestry land certified under SFM. For ICFPA members, the area of certified land has increased 80 percent between 2000 and 2009 and has since remained relatively constant.

It is not anticipated that the total forest lands, nor the SFM-certified area, will increase substantially for the associations represented in the data above. This is due to ongoing shifts in land managed by and/or for the forest products industry's commercial harvest, as well as the near-maximisation of certification on forest lands by reporting associations. A large portion of forests in the United States, Europe and other regions are owned by small private forest owners. While SFM is often practiced, third-party SFM certification can be a costly barrier and thus not commercially feasible for small-scale owners to implement.

Promote Sustainable Forest Management (SFM) through:

- Certification of forest lands and products.
- Procuring legal and sustainable wood sources only.
- Minimising ecosystem imbalances that may result from land management.

-Global CEO Leadership Statement 2.0

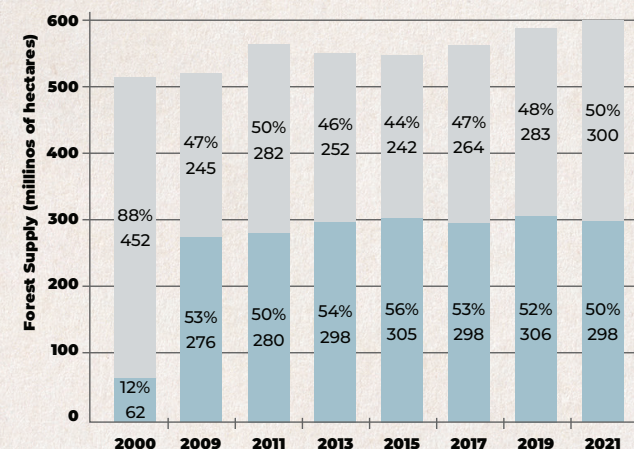


Figure 1. Total and Percent of ICFPA Member Managed Forest Supply Area Certified under FSC or PEFC



PROMOTE SUSTAINABLE FOREST MANAGEMENT (SFM)

CASE STUDY: Brazil

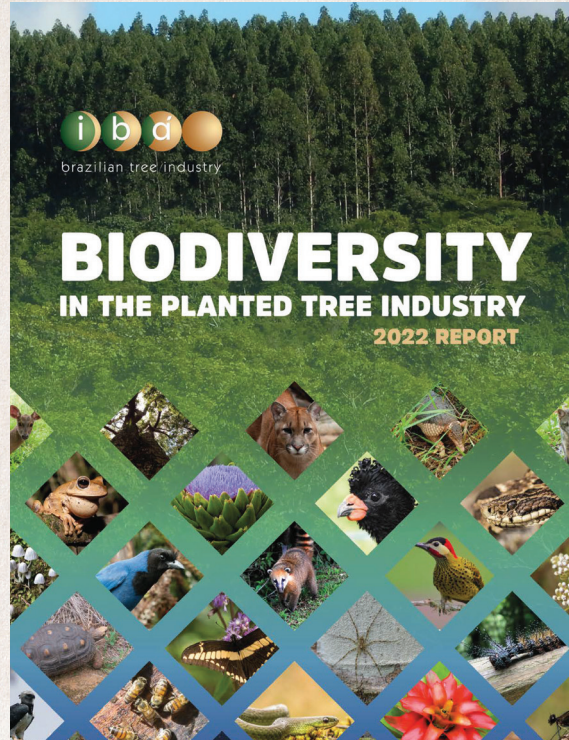


Ibá releases its 2022 report on biodiversity in the planted tree industry, highlighting records of over 8,000 flora and fauna species

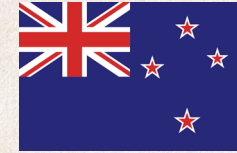
Since 2019, Brazilian Tree Industry (Ibá) has been collaborating with 23 member companies to collect a broad range of data on the biodiversity that is present in their areas. This survey covers 12 states, more than 220 municipalities, and five biomes that include the Atlantic Forest, Cerrado, Pampa, Amazon Forest, and Caatinga. Some findings are part of long-term monitoring efforts that stretch back as far as 1970, which makes this Biodiversity Report even more valuable.

Ibá's 2022 *Report on Biodiversity in Tree Industry*, highlights records of 8,310 flora and fauna species. The main groups monitored across Brazil's biomes include plants, birds, mammals, amphibians and reptiles. More than 5,450 species of plants were registered. The sector also recorded more than 335 species that are classified as endangered by ICMBio.

Besides findings about flora and fauna species data, this report also provides details about species that represent this industry, biodiversity monitoring, restoration work, ecosystem services, partnerships with local stakeholders such as beekeepers, and success stories from forest-based companies.



CASE STUDY: New Zealand



Forest Industry Plays Active Role in Kiwi Conservation

Kiwi live and thrive in plantation forests, along with many other rare and endangered birds such as the karearea (New Zealand falcon). There are 1.7 million ha of commercial forests in Aotearoa – providing an opportunity to create safer habitat for kiwi and other species.

Forestry companies play a key role in protecting kiwi habitat. One key partner is Rayonier Matariki Forests, working on the Ōmataroa Kiwi Project in collaboration with the 12,000 landowners of the Ōmataroa Rangitaiki No2 Trust. When the project was established, it was estimated there were only around 30 kiwi in the area but nearly 15 years on:

- 80 eggs have been collected from local birds as part of Operation Nest Egg, hatched and the chicks returned to the area.
- 60 chicks have been released and now there are regular sightings of kiwi.
- There are now 60 kiwi pairs estimated to be in the area.



North Island brown kiwi. Rogan Colbourne. Crown Copyright: Department of Conservation Te Papa Atawhai

Forests are crucial for mitigating our changing climate. They contain 662 billion tonnes of carbon, which is more than half the global carbon stock in soils and vegetation.

-State of the World's Forests 2022, FAO

RECOVERED FIBRE



Materials recovery facility, United States.
Credit: WestRock

Paper and paperboard are some of the most widely recycled materials in the world. Recovered fibre is an important resource for the paper manufacturing sector and is a critical component in a circular economy. Paper recycling extends fibre supply and carbon storage.

ICFPA members are committed to advancing the global recovered fibre utilisation rate, which represents the amount of recovered paper used by paper and paperboard mills as a percent of global paper and paperboard consumption. ICFPA members expect to deliver on this commitment by advocating for improvement in the quantity and quality of recovered fibre and increased recycling infrastructure.

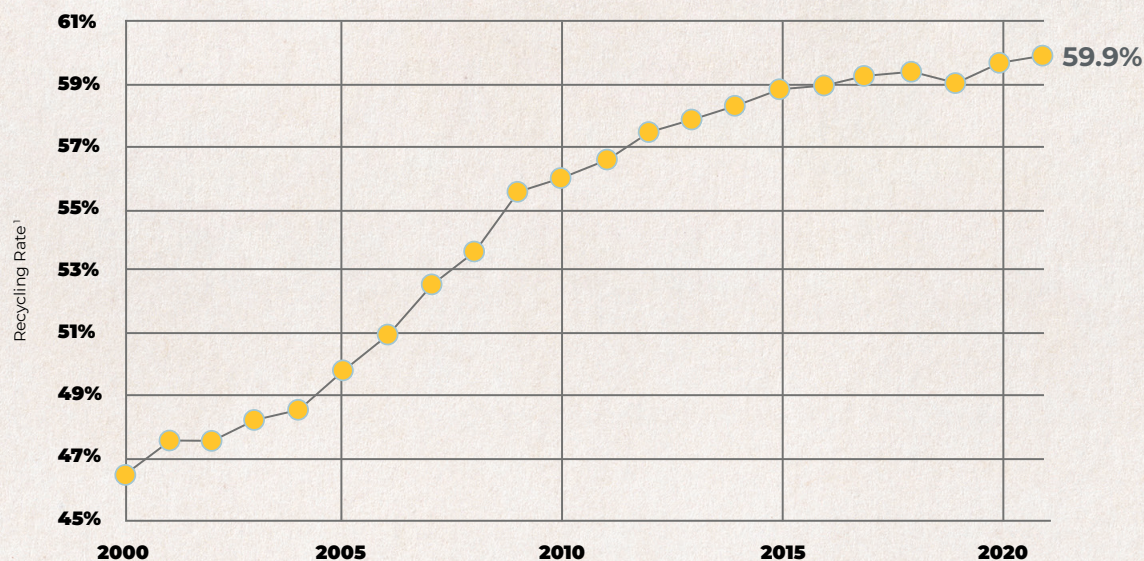
Based on FAO data, the countries represented by ICFPA members account for more than 90 percent of global production.

In 2021, the global recycling rate was 59.9 percent.^v Since 2000, the global rate has climbed and remained nearly constant in recent years. In parts of the world, like Europe and North America, recycling rates are consistently higher than the global recycling rate – 70 percent and 68 percent in 2021, respectively. It is estimated that about 22 percent of paper consumption cannot be collected or recycled.^{vi} This includes hygiene papers such as tissue. Changing consumption patterns, global supply chain disruptions and diversified applications of paper-based solutions make it challenging to further increase recycling rates.

The industry is investing billions globally to advance recycling infrastructure and tackle the next opportunity to capture more fibre from harder-to-recycle paper products. The industry is also developing innovative paper-based product solutions to help brands meet Environmental, Social and Governance (ESG) commitments as consumers continue to show strong demand for sustainable packaging.

Improve Recycling and Reclamation of Wood and Paper Fibre by advocating for improvement in the quantity and quality of recovered materials to ensure they can be made into new products.

-Global CEO Leadership Statement 2.0



1. Recycling Rate is defined as recovered paper used by paper and paperboard mills paper and paperboard production.

Figure 2. Global Recycling Rate

RECOVERED FIBRE

CASE STUDY: United States



Juno Waste Diversion Technology

Georgia-Pacific received a 2022 AF&PA Sustainability Award for Innovation for its Juno Waste Diversion Technology. Juno can recover up to 90 percent of the waste it processes that would be otherwise destined for the landfill or incineration.

The proprietary technology separates paper fibres, which are then used to make new paper products. Other recyclable materials are sorted for their markets. Food waste and leftover materials can be converted into biogas for a variety of renewable energy applications.

In its first 10 months of operation, Juno processed nearly 12,250 metric tonnes of waste in Toledo, Oregon, increasing the city's landfill diversion rate from 23 percent to 66 percent.

Juno currently generates more than 18,000 kilograms of paper fibre per day, which is mixed with old corrugated containers and used to make containerboard. Juno™ Fiber meets the criteria for safe food contact in the United States of America. Every tonne of waste processed through Juno can represent up to 1 tonne of CO₂e net reduction according to the EPA WARM model V15, which provides high-level estimates of potential greenhouse gas (GHG) emissions reductions, energy savings and economic impacts from several different waste management practices.



Juno Waste Diversion Technology

**More than half of paper
and board production worldwide is
made from recovered fibres.**

-Bureau of International Recycling, 2018 Study

CONSERVE WATER

Wetlands conservation on a forestry landscape, South Africa Credit: Mondi South Africa

Water is an asset for the forest products industry, as it is crucial both to grow forests and to supply most of its industrial processes. Therefore, sustainable water management is among ICFPA's top priorities for environmental stewardship.

Forests provide an important environmental service for society. About 75 percent of the world's accessible freshwater comes from forests.^{vii} Forests and trees are vital to global water supply, providing high quality water resources: they intercept atmospheric moisture, contribute to cloud and rain formation, reduce erosion and recharge groundwater.^{viii}

Though the forest products industry is among the largest industrial users of process water, most of the water used is treated and returned to surface waters.^{ix}

ICFPA members track performance on water conservation through water use intensity (water discharge, per unit of production). Data is reported on process water and non-contact cooling water. In the current reporting year, ICFPA members decreased water discharge intensity by 9.5 percent and water discharge intensity by 11.3 percent compared to the baseline year.

ICFPA members address water conservation through two key aspects:

- Reducing, reusing and recycling the water used in the manufacturing process and treating and cleaning water before it is returned to the environment.
- Practising sustainable forest management to mitigate impacts on surface and groundwater. Minimising ecosystem imbalances that may result from land management.

-Global CEO Leadership Statement 2.0

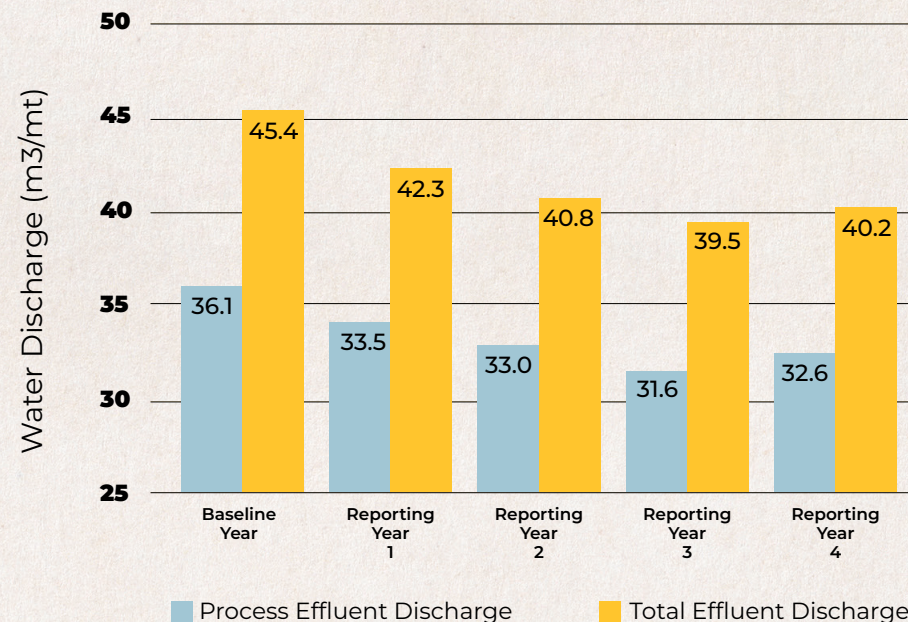


Figure 3. ICFPA Member Water Discharge Intensity



CONSERVE WATER

- **Process Water:** Water used for process purposes, and then either treated on site and discharged to a surface water or discharged to a Publicly-Owned Treatment Works (POTW) for treatment and discharge.
- **Non-Contact Cooling Water:** Water used only for cooling purposes, and then discharged to surface water either through a separate non-contact cooling water discharge or in combination with treated process water after the cooling water has bypassed the treatment plan.

CASE STUDY: South Africa

Sappi Stanger Mill saves water through process optimisation

Sappi's Stanger Mill in KwaZulu-Natal, South Africa, extracts water under licence from the Mvoti River. When the river is in low flow, the mill cannot sustain processes, forcing some plants to shut. A process modeling estimated that a significant 2,000 cubic metres of water per day was used for backwashing filters at the process water plant. The backwash water was then discharged into a nearby lake.



The mill implemented a backwash recovery project which involved sampling and testing the backwash stream for turbidity, suspended solids, as well as cations and anions. It was concluded that the backwash stream could be utilised in the process if suspended solids were removed. It was recommended that backwashed water be pumped upstream to a water clarifier, allowing suspended solids to settle.

The clarified water would overflow back to the process water plant for reuse by connecting backwash and forward wash outlet pipes from six filters to a new common header that discharges water into a sump. The system currently recovers an average 2,000 cubic metres per day, representing 11.5 percent of the mill's total water usage.



Sappi's Stanger Mill, KwaZulu-Natal, South Africa

Nearly
90% of water used in the
manufacture of forest
products is treated
and returned to the
environment.

-National Council for Air and Stream Improvement

MITIGATE CLIMATE CHANGE

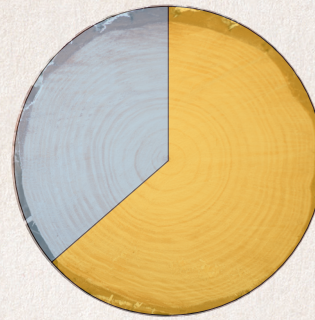
View of Glass House Mountains, Queensland, Australia. Credit: Brian Scantlebury

Forests and forest products hold vast potential to advance the circular bioeconomy and help meet global climate targets. Trees capture greenhouse gases (GHGs) from the atmosphere, which are stored in forest and forest products. In addition, the forest products industry is also taking steps to reduce GHG emissions and increase energy efficiency.

Investments in energy efficiency improvements at manufacturing facilities, increasing use of low-carbon fuels and reduction of traditional fossil fuel use has led to an overall reduction in combined Scope 1 and Scope 2 GHG emission intensity by 23.5 percent from the 2004/2005 baseline year.

The energy share of renewable fuels and carbon-neutral biomass, which includes spent pulping liquors recovered from the production of wood pulp, wood manufacturing residuals and forest residues, has increased 10.7 percentage points from the baseline year. Total on-site energy intensity (energy use per unit of production) has decreased 1.5 percent from the 2004/2005 baseline.

ICFPA members have also taken steps to reduce Sulphur dioxide emissions (SO₂). Factors such as reduction of coal, fuel oil and increased prevalence of SO₂ removal systems on boilers contributed to a 74 percent decrease in SO₂ emission intensity from on-site combustion sources, compared to the baseline year.



63.7% energy share of biomass and other renewable fuels

ICFPA members commit to help mitigate climate change by

- Preserving and optimising carbon sequestration in forests and products.
- Reducing greenhouse gas emissions through energy efficient operations.
- Using carbon-neutral biomass energy in the manufacturing process.

-Global CEO Leadership Statement 2.0

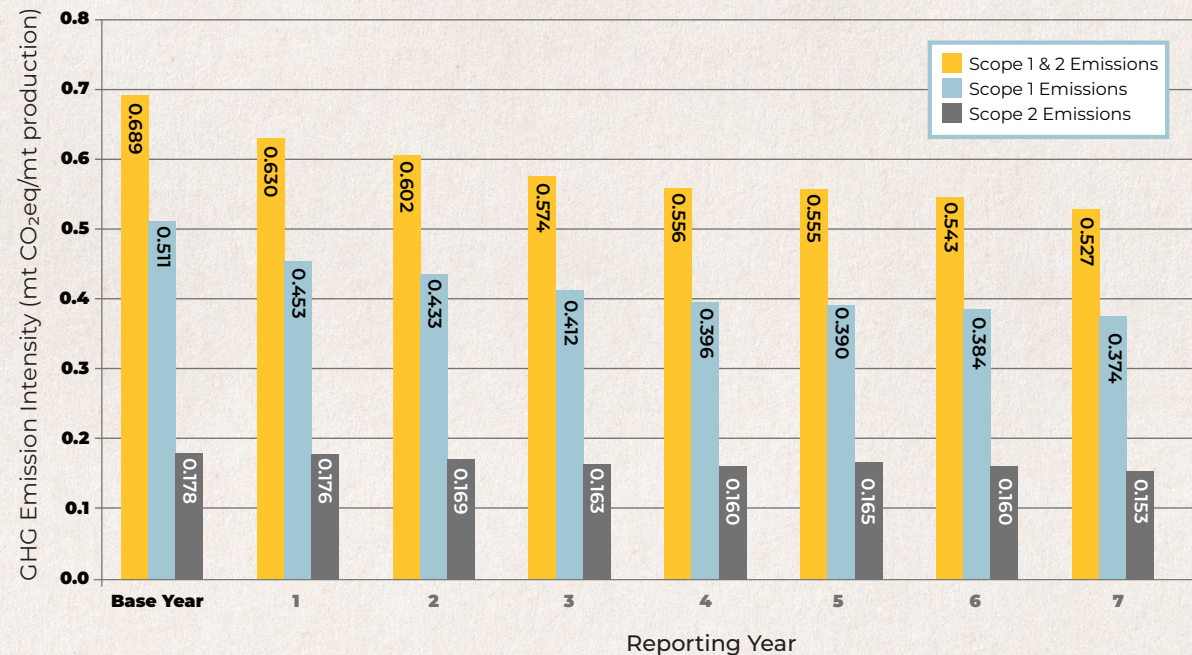


Figure 4. ICFPA Member GHG Emission Intensity



CASE STUDY: ICFPA

New Report Recommends Growth in Sustainable Forestry via Nationally Determined Approaches to Meet Climate Driven Demand for Fibre and Timber

ICFPA welcomed the launch of a new global report at the United Nations World Climate Conference (COP27) in Egypt that will help advance global forestry. “The growing role of forest products in climate change mitigation and the need for nationally determined forestry approaches to achieve net zero emissions” by Dalberg Advisors shows how the forestry sector can help the world meet ambitious climate targets.

The report was commissioned by the FAO Advisory Committee on Sustainable Forest-Based Industries (ACSFI) and the ICFPA and recommends ‘a call to action’ for countries to take a nationally-determined approach to growing the forestry economy can both increase the supply of sustainably-sourced wood products as well as reduce global emissions.



CASE STUDY: Japan

Japan Paper Association sets Long-Term Vision 2050 to achieve net zero emissions

In October 2020, the Japanese government declared that Japan would achieve carbon neutrality by 2050. Following this declaration, the Japan Paper Association (JPA) formulated Long-Term Vision 2050 in which the paper industry will reduce CO₂ emissions to net zero in its production activities. This means Japan’s paper industry must reduce 21 million tons of CO₂ by 2050 from a 2013 baseline, including the fossil energy-derived and waste-derived GHG emissions.

Within Vision 2050, JPA revised its Carbon Neutral Action Plan for 2030. JPA’s members are making efforts towards 2030 with its target of 38% CO₂ reduction from a baseline year of 2013 with a view to achieve zero emissions by 2050.

Vision 2050 sets specific actions including:

- Promoting energy efficiency with best available facilities and technology
- Increasing the utilization ratio of renewable energy
- Commercializing innovative technologies for paper manufacturing
- Actively adopting energy-related innovative technologies

ICFPA Past President Derek Nighbor, Forest Products Association of Canada (FPAC) President and CEO, was selected to serve as the ICFPA liaison to the United Nations Forum on Forests (UNFF). The UNFF and ICFPA partnership was announced at the World Forestry

Congress in South Korea. This relationship establishes ICFPA as the focal of the forest sector globally, providing a framework for the two organisations to work together to discuss and implement forest-related policies and agreements that are good for people and the planet.



Several ICFPA members are engaged in long-term commitments to reduce GHG emissions and increase energy efficiency:

- American Forest & Paper Association: *Better Practices, Better Planet 2030*
- Australia Forest Products Association: *18 by 2030*
- Confederation of European Paper Industries: *REINVEST2050*
- Confederation of European Paper Industries: *UK Paper Sector Decarbonisation Roadmap*
- Forest Products Association of Canada: *30 by 30 Climate Change Challenge*
- Japan Paper Association: *Long-Term Vision 2050 Net Zero Emissions*
- New Zealand Forest Owners Association: *Roadmap to 2050*

Wood products contribute to mitigating climate change through

1. Forming a storage pool of wood-based carbon and
2. Substituting environmentally damaging sources of material and energy such as fossil fuels.

-UNECE

ENSURE A SAFE AND INCLUSIVE WORKPLACE

Georgia-Pacific lumber facility, Warren County, Georgia, United States. Credit: Georgia-Pacific

Keeping workers safe is the top priority for the global forest products industry.

ICFPA members are striving for zero workplace injuries while taking steps to manage risk and prevent incidents and fatalities.

Progress on this commitment is demonstrated by measuring ICFPA members' recordable incident rate, which is defined as the number of recordable incidents multiplied by 200,000 hours divided by the number of hours worked by all employees. The recordable incident rate for the global forest products industry has decreased 30 percent since the baseline year.

Globally, the forest products industry is a major economic contributor.

About 33 million people – 1 percent of global employment – are estimated to work directly in the formal and informal forest sector. The sector contributed (directly, indirectly and induced) more than USD \$1.52 trillion to world gross domestic product in 2015.^x

In addition to keeping workers safe, ICFPA members are committed to helping workers thrive through continuing education and training to ensure all workers maintain and gain workplace skills.

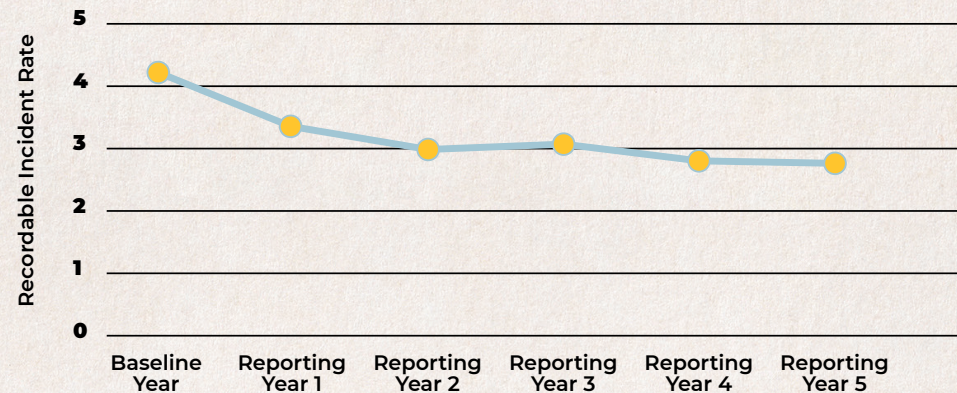


Figure 5. ICFPA Member Total Recordable Incident Rate

ENSURE A SAFE AND INCLUSIVE WORKPLACE

CASE STUDY: Chile



Construction of a new and modern multi-trade fair in Villa Mininco

In 2022, design and implementation began for a new and modern multi-trade fair for 20 local entrepreneurs in Chile's Villa Mininco, Collipulli. The project holds potential to boost economic development and improve opportunities for the local community.

The project is financed and led in partnership between CMPC, a multinational company that manufactures wood, pulp, packaging products,

papers, tissue products and personal care products, "Desafío Levantemos Chile," the Municipality of Collipulli and local community members. Villa Mininco has a forestry, agriculture indigenous and railway identity. These attributes will merge into the space with the center being built primarily of wood construction and incorporating abandoned train cars. It will be located in front of the "Plaza de Armas" and include a senior citizen center.

The work will be run by a local organisation, headed by women. Twenty-five people will be hired, all of them locals from Villa Mininco and surrounding areas.



New multi-trade fair in Villa Mininco, Collipulli, Chile

CASE STUDY: Canada



FPAC Expands Green Dream Internship Program

In 2022, the Forest Products Association of Canada (FPAC) built on the success of its Green Dream Internship Program — an initiative that provides a stipend to support 15 forest sector interns as they develop digital content that showcases their work experiences in Canada's forests and mills over the course of the Canadian summer.



Green Dream Internship Program Participants. Left to right: Emilee Gauthier, Keegan Martin, Bennett Eichinger, Samantha Shapira. Credit: FPAC.ca

In total, FPAC received more than 75 pieces of content from the group, including blogs, images and videos collected this year. The program generated several media stories with a combined reach of more than 1 million impressions – covered primarily in regional Canadian outlets. These materials were shared throughout the year to give prospective employees a sense of what it means to work within the forest sector.

OPTIMISE INDUSTRY PRODUCTS AND CONTRIBUTE TO THE CIRCULAR BIO-BASED ECONOMY

CFPA members are committed to increasing the circular economy. We demonstrate this commitment in three ways:

- Delivering products that are biodegradable and compostable.
- Working to reduce the environmental footprint of products.
- Showcasing progress in a transparent manner.

The forest products industry supply chain is inherently circular. Trees are continuously replanted to supply fibre and enhance the environment. Paper and packaging is recovered for recycling and turned into new products.

Our industry uses every part of a tree to maximise its potential and ensure nothing goes to waste. This includes use of leftover materials from the manufacturing process as renewable energy to power pulp and paper mills.

Whenever possible, our industry is making more with less. We've made significant progress to increase energy-efficiency, reduce greenhouse gas emissions and carefully manage water resources.

The forest products industry is also contributing to the circular economy through innovative product design that ensures more products are accepted for recycling. And technology improvements allow mills to utilise more recovered fibre and wood residuals.

CASE STUDY: United States



AF&PA's Design Guidance for Recyclability Helps Advance Circular Economy Goals

The American Forest & Paper Association developed the Design Guidance for Recyclability for Paper-based Packaging. With increased interest among consumer products companies to provide more recyclable packaging for their customers, this tool helps provide clarity to how packaging gets recycled in paper mills and how various non-fibre elements affect the recyclability of paper-based packaging.

Key findings of the Design Guidance include:

- **Every combination of type of packaging and non-fibre element tested is recyclable in some mills.**
- **Non-fibre elements may present a recycling “challenge” when they slow down the mill's pulping process, plug screening systems or leave residue on finished paper or paperboard.**
- **However, innovations in packaging design and materials, as well as improvements in recycling technology, can make these treatments easier to recycle.**
- **Being a “challenge” does not mean “not recyclable.”**



AF&PA's Design Guidance for Recyclability

OPTIMISE INDUSTRY PRODUCTS AND CONTRIBUTE TO THE CIRCULAR BIO-BASED ECONOMY

CASE STUDY: European Union



#GreenSource Promotes Climate Neutrality with Europe's Forest Fibre Industry

Cepi and EPIS, the European Pulp Industry Sector Association, now joined by several other European associations in the sector, launched #GreenSource. This European-wide initiative explains how the forest fibre industry can help make the EU's 2050 climate neutrality target a reality.

The data-driven initiative is centered on several key priorities:

- Proving the industry as sustainable, responsible and innovative through most accurate resources and data.
- Reinforcing that the wood fibre-based products people need every day come from responsible sources and are an integral part of circular economy.
- Emphasizing sustainable forestry as a lifeline of the industry with data on forests growth, biodiversity, sustainable forest management and certification.
- Promoting fibre-based packaging and products and the new innovations that the industry delivers for the benefit of society.

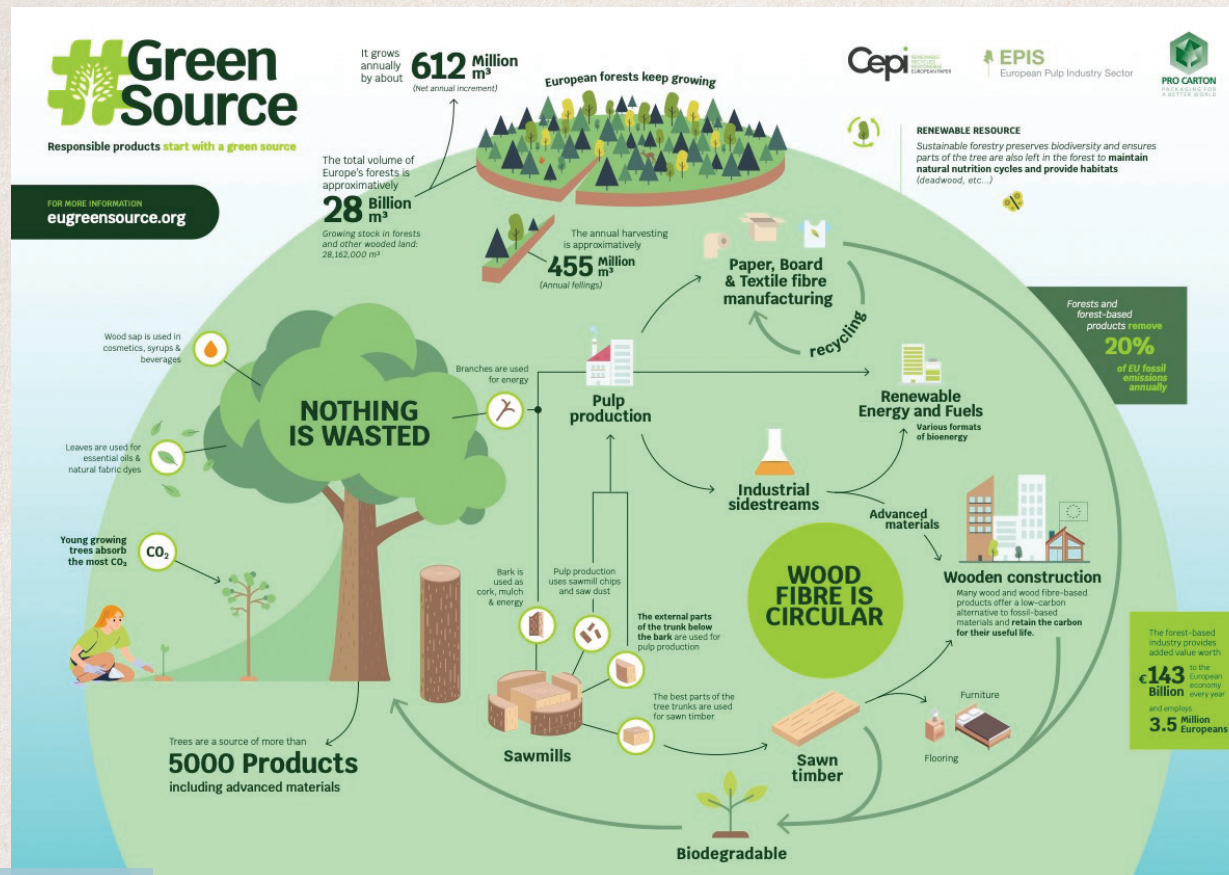
CASE STUDY: United Kingdom



Swanline Group EzeE-comm© sustainable packaging

Swanline developed a brand-new design to make returnable packaging more sustainable, by avoiding the need for tapes. The innovative, sustainable pack named EzeE-comm© is revolutionary for the e-commerce sector. It is 100% recyclable, requires no tape or glue, and can safely be returned whilst remaining tamper proof in both the outward and the return journeys.

Ordinarily it is only a taped box that can be used for both an outward and return journey but EzeE-comm's unique locking mechanisms facilitate a safe, pilfer resistant solution that is 100% recyclable without contamination from polymer-based tapes or glue. The EzeE-comm design has been adopted by prestigious UK Department Store Harrods for their e-commerce deliveries. The Confederation of Paper Industries was pleased to recognise this innovation with a Sustainable Innovation Award at the 2023 Paper Industry Gold Awards.



#GreenSource

STIMULATE INNOVATION

CFPA members are committed to innovation through investments in new technologies, improved processes and inventive products. These innovations help attract a new generation of highly skilled people to join our industry. And they advance the sustainability of the forest products industry.

CASE STUDY: Canada

Mass Timber Project Helps Canadian Government Advance Net-Zero by 2050 Goals



Value-added engineered wood products – including cross laminated timber (CLT) and glued-laminated timber (GLT) that can be used in mass timber construction – continues to grow rapidly within Canada.

Mass timber construction presents a high-value opportunity because of the role it can play in decarbonising the building sector. In addition to wood's unique carbon-storage properties, mass timber is aesthetically pleasing, cost-effective and quick to install, with application in both residential and non-residential constructions.

The Canadian government recently launched its Canada Green Buildings Strategy with a goal to achieve net-zero emissions and climate-resilient buildings sector by 2050, with an interim goal of 37 percent emissions reduction from 2005 levels by 2030. This strategy includes greening of government buildings by procuring and using low-carbon construction materials such as wood.

In 2020, Nordic Structures completed one of the first mass timber projects for a Canadian federal government building: The Site Entrance Building at the Chalk River Laboratories in Ontario, which is managed by Canadian Nuclear Laboratories (CNL).



Photo courtesy of CNL IRO NS Policy Party team © 2020 Kevin Bellinger
Mass timber project at Chalk River Laboratories, Ontario, Canada. Credit: Nordic Structures



Georgia Pacific - Innovation Institute

BLUE SKY AWARDS

CFPA launched the Blue Sky Young Researchers and Innovation Award in 2016 to recognise students, researchers and engineers who are 30 years-old and younger. They carry out projects relevant to forest-based science, products using forest-based raw materials, process improvements or other innovations throughout the value chain. The award focuses on the quality of research and development, as well as the project's innovation and industry potential.

The theme for the 2022-2023 Blue Sky Young Researchers and Innovation Award was "Building a Lower Carbon Economy with Climate Positive Forestry and Forest Products." The winners presented their projects to industry leaders at the ICFPA's 2023 International CEO Roundtable in Amsterdam, Netherlands.



Blue Sky Young Researchers
and Innovation Award

2022-2023 International Finalists



Ivana Amorim Dias (Brazil)

Brazilian Tree Industry (Ibá)

RESEARCH SUBJECT: Purification of high-value-added compounds from the soluble phase of bio-oil

There is tremendous potential for forest products to play an increased role in the circular bioeconomy. This project transforms wood waste into high value-added products through thermal decomposition of biomass (rapid pyrolysis). The resulting bio-oil holds potential applications, as well as high reactivity from its components. This project will increase efficiency for the forestry sector and allow for greater use of wood biomass. Globally, bio-oil holds great potential as a renewable product that can help meet climate targets.



Ilona Leppänen (Finland)

Confederation of European Paper Industries (Cepi)

RESEARCH SUBJECT: Capturing nano and microplastics with nanocellulose networks

According to the IUCN, at least 14 million tons of plastic end up in the ocean every year, and plastic comprises 80% of all marine debris found from surface waters to deep-sea sediments. Ilona Leppänen, together with a research group at VTT Technical Research Centre of Finland, developed a method in which a nanocellulose film can be used to detect and capture microplastics from water. The biobased film works as a selectively permeable membrane to filter nanoplastics from flowing water.

2022-2023 International Finalists



Leane Naude (South Africa)

Paper Manufacturers Association of South Africa (PAMSA)

RESEARCH SUBJECT: Developing more cost-effective purification method of lignosulphonate, an abundant and versatile alternative to fossil-based fuels

Leane Naude developed a more cost-effective purification method of lignosulphonate, an abundant and versatile alternative to fossil-based fuels. This research has resulted in a provisional international patent application, presenting opportunity to purify a low-value pulp and paper by-product into a high value-product. Lignin is an abundant organic polymer, removed from wood pulp during the papermaking process. Naude's research improves the extraction process and enables the industry to explore more ways to utilise by-products, such as lignin, to better and greener use.

Past International Finalists

2016-2017

Shuji Fujisawa (Japan)

RESEARCH SUBJECT: Biocompatible nanocellulose/polymer composite microparticles formed by emulsion-templated synthesis

Esthevan Gasparotto (Brazil)

RESEARCH SUBJECT: Cutting-edge technologies for forest monitoring and measurement

Koh Sakai (Japan)

RESEARCH SUBJECT: Cellulose nanofibres prepared by phosphorylation

2018-2019

Elina Pääkkönen (Finland)

RESEARCH SUBJECT: How to replace non-renewable packaging materials

Chinmay Satam (United States)

RESEARCH SUBJECT: Multi-layer chitin nanofiber cellulose nanocrystal-based films for sustainable barrier applications

Martin Wierzbicki (South Africa)

RESEARCH SUBJECT: Genome-based biotechnology

2020-2021

Francine Ceccon Claro (Brazil)

RESEARCH SUBJECT: Low-cost wood-derived nanocellulose wound dressing

Jesús R. Rodríguez R. (Chile)

RESEARCH SUBJECT: FLEXbio, a biodegradable and compostable bioplastic radiata pine sawdust derivative

Udita Ringania (United States)

RESEARCH SUBJECT: Dewatering of cellulose nanomaterials using ultrasound



ICFPA MEMBERS

Australia: Australian Forest Products Association (AFPA)

Brazil: Brazilian Tree Industry (Ibá)

Canada: Forest Products Association of Canada (FPAC)

Chile: Corporación Chilena de la Madera (CORMA)

Europe: Confederation of European Paper Industries (Cepi)*

Finland: Finnish Forest Industries Federation (FFIF)

France: Union Française des Industries des Cartons, Papiers et Celluloses (COPACEL)

Germany: Die Papierindustrie

Japan: Japan Paper Association (JPA)

New Zealand: New Zealand Forest Owners Association (NZFOA)

Portugal: Associação das Bioindústrias de Base Florestal (Biond)

South Africa: Paper Manufacturers Association of South Africa (PAMSA)

Spain: Spanish Association of Pulp and Paper Manufacturers (ASPAPPEL)

Sweden: Swedish Forest Industries Federation (SFIF)

United Kingdom: Confederation of Paper Industries (CPI)

United States: American Forest & Paper Association (AF&PA)

* Represents 18 members from the following countries: Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden and United Kingdom

ENDNOTES

- i. FAO, 2022. The State of the World's Forests 2022. Forest pathways for green recovery and building inclusive, resilient and sustainable economies. Rome, FAO. <https://www.fao.org/3/cb9360en/cb9360en.pdf>
- ii. Survey responses were received for seven industry associations (AF&PA, Cepi, CORMA, FPAC, JPA, NZFOA, and PASMA), representing 24 countries (see Appendix A). Note that in the absence of 2021 data for Cepi member associations, previously submitted 2019 data were used as a surrogate.
- iii. UNECE/FAO, 2022. Forest Products Annual Market Review 2021-2022, United Nations Publication (ECE/TIM/SP/54). Forest Products Annual Market Review 2021-2022 | UNECE
- iv. Ibid.
- v. RISI, 2022. Annual Review of Global Pulp and Paper Statistics.
- vi. EPRC, 2022. European Declaration on Paper Recycling 2021 – 2030. Brussels, European Paper Recycling Coalition c/o Cepi. <https://www.cepi.org/wp-content/uploads/2022/06/EPRC-22-010.pdf>
- vii. FAO. <https://www.fao.org/in-action/forest-and-water-programme/en/>
- viii. Ibid.
- ix. National Council for Air and Stream Improvement. <https://www.ncasi.org/resource/forest-products-industry-water-profiles/>
- x. FAO, 2022. The State of the World's Forests 2022. Forest pathways for green recovery and building inclusive, resilient and sustainable economies. Rome, FAO. <https://www.fao.org/3/cb9360en/cb9360en.pdf>



Bales of recycled paper

Appendix A – Countries represented by associations reporting data for ICFPA metrics

ICFPA Mission

ICFPA serves as a forum of global dialogue among national and regional industry associations and their leadership to co-operate in the development of common positions on issues of mutual interest; represent the forest, paper, wood and forest fibre-based industries with global policy organisations; and co-ordinate action and distribute information through member associations.

Country	GHG Emission Intensity	Bioenergy and Renewable Fuels Percentage	Total On-site Energy Intensity	Sulphur Dioxide Emissions Intensity	Water Use Intensity	Sustainable Procurement	Recordable Incident Rate
Austria	✓	✓	✓	✓	✓	✓	✓
Belgium	✓	✓	✓	✓	✓	✓	✓
Brazil	✓	✓	✓		✓		
Canada	✓	✓	✓	✓	✓	✓	✓
Chile	✓	✓	✓			✓	
Czech Republic	✓	✓	✓	✓	✓	✓	✓
Finland	✓	✓	✓	✓	✓	✓	✓
France	✓	✓	✓	✓	✓	✓	✓
Germany	✓	✓	✓	✓	✓	✓	✓
Hungary	✓	✓	✓	✓	✓	✓	✓
Italy	✓	✓	✓	✓	✓	✓	✓
Japan	✓	✓	✓	✓		✓	✓
The Netherlands	✓	✓	✓	✓	✓	✓	✓
New Zealand						✓	
Norway	✓	✓	✓	✓	✓	✓	✓
Poland	✓	✓	✓	✓	✓	✓	✓
Portugal	✓	✓	✓	✓	✓	✓	✓
Romania	✓	✓	✓	✓	✓	✓	✓
Slovak Republic	✓	✓	✓	✓	✓	✓	✓
Slovenia	✓	✓	✓	✓	✓	✓	✓
Spain	✓	✓	✓	✓	✓	✓	✓
South Africa	✓	✓	✓	✓	✓	✓	✓
Sweden	✓	✓	✓	✓	✓	✓	✓
United Kingdom	✓	✓	✓	✓	✓	✓	✓
United States	✓	✓	✓	✓	✓	✓	✓



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