



# ICFPA 2020–2021 SUSTAINABILITY PROGRESS REPORT



# TABLE OF CONTENTS

## **About the International Council of Forest and Paper Associations (ICFPA)**

### **Global Sustainability Leadership**

### **Progress on Our Commitments**

Promote Sustainable Forestry

Improve Recycling and Reclamation of Wood and Paper Fibre

Stimulate Innovation

Conserve Water

Mitigate Climate Change

**3**

**4**

**5**

**7**

**9**

**10**

**11**

**12**

Ensure an Attractive and Inclusive Workplace

Optimise Industry Products and Contribute to the Circular, Bio-Based Economy

Contributing to Society

### **Blue Sky Awards**

### **ICFPA Members**

### **Endnotes**

**13**

**14**

**16**

**17**

**19**

**19**



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

**T**he ICFPA aims to benefit global society through collaboration with industry, governments and non-governmental organisations on public policies that facilitate the manufacture of sustainable products from virgin and recycled forest-based resources that meet human needs for information, packaging, housing, hygiene, energy and other innovative products.

The ICFPA serves as a forum for global dialogue, co-ordination and co-operation among 18 pulp, paper, wood and forest fibre-based associations that encompass 28 countries. The top pulp, paper and wood producing countries around the world are represented by the ICFPA's member associations.

## ICFPA Mission

Serve 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 share information through member associations.

## Sustainable Development Goals

The ICFPA's commitments align with the objectives of the United Nations Sustainable Development Goals (SDGs) – indicating that these actions relate to 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.





# GLOBAL SUSTAINABILITY LEADERSHIP

## Global CEO Leadership Statement 2.0

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 new 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 leadership statement commits the sector to:

- Promote Sustainable Forest Management (SFM) through a.) certification of forest lands and products; b.) procuring legal and sustainable wood sources only; and c.) minimising ecosystem imbalances that may result from land management.
- Mitigate Climate Change by a.) preserving and optimising carbon sequestration in forests and products; b.) reducing greenhouse gas emissions through energy-efficient operations; and
- c.) 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 a.) risk management and prevention to diminish incidents and fatalities; and b.) 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 a.) reducing, reusing and recycling the water used in the manufacturing process, and treating and cleaning water before it is returned to the environment; and b.) practising SFM to mitigate impacts on surface and groundwater.
- Optimise Industry Products and Contribute to the Circular, Bio-Based Economy by a.) delivering products that are biodegradable and compostable; b.) working to reduce the environmental footprint of products; and c.) 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

**I**n 2020, the forest products industry confronted the challenge of a pandemic. Focused on worker safety and working to meet demand for essential products, our industry responded to the challenge by being adaptable and resilient.

Across the globe, the forest products industry worked with its governments to secure essential designations for our workforce and supply chains so that manufacturing operations could continue and so that our industry could supply items of critical need to society such as tissue and other hygienic materials and paper-based packaging. The safety of our workers remains a top priority and throughout the pandemic, the industry has continued to prioritise worker health, wellbeing and safety. The industry also responded to its local communities through in-kind and financial donations of critical need. Looking ahead, ICFPA sees an opportunity for the forest products industry to play a key role in driving economic recovery around the world.

The ICFPA Sustainability Progress Report reflects major progress achieved in previous years. While the trend for some indicators has plateaued, the overall trend is positive a reflection that the industry continues to improve in key sustainability areas. In addition to quantitative metrics that demonstrate our industry's progress towards sustainability commitments, the report includes additional qualitative case studies to provide a more robust reflection of our industry's sustainability performance and response to the COVID-19 pandemic.

## PERFORMANCE INDICATORS 2018/2019

### GHG EMISSION INTENSITY

0.543 tonnes carbon dioxide equivalent per metric tonne production

### BIOENERGY AND RENEWABLE FUEL PERCENTAGE

64.9% of on-site energy needs met by biomass and other renewable fuel sources

### TOTAL ON-SITE ENERGY INTENSITY

17.6 gigajoules lower heating value per tonne production

### SULFUR DIOXIDE EMISSIONS INTENSITY

0.46 kilograms SO<sub>2</sub> per metric tonne production

### WATER USE INTENSITY

31.6 cubic metres of process water discharge per metric tonne production

### SUSTAINABLE PROCUREMENT

52.6% of procured wood fibre is from third-party certified sustainably-managed forests

### RECORDABLE INCIDENT RATE

2.88 (number of recordable incidents per 200,000 hours / number of hours worked by all employees)

### GLOBAL RECYCLING RATE

59.1% of paper and paperboard consumed globally is used by mills to make new products

## Progress since baseline year\*

**- 21%** combined Scope 1 + Scope 2 GHG emission intensity

**+ 12** percentage points

**- 3.3%** on-site energy intensity

**- 77%** sulphur dioxide emission intensity from on-site combustion sources

**- 12.5%** process water discharge intensity

**+ 41** percentage points \*\*

**- 30%** \*\*\*

**+ 12.6** percentage points \*\*

## Progress since 2019 report

**- 2.2%** combined Scope 1 + Scope 2 GHG emission intensity

**+ 0.8** percentage points

**- 2.1%** on-site energy intensity

**- 38%** sulphur dioxide emission intensity from on-site combustion sources

**- 4.4%** process water discharge intensity

NO CHANGE

**- 4.3%**

**- 0.2** percentage points

■ significant progress  
■ stable progress

\* Baseline year is 2004/2005 unless otherwise indicated.

\*\* 2000 baseline

\*\*\* 2006/2007 baseline

Industry performance is based on the most recent available data (2018/2019). Several indicators are stable, a reflection that the industry continues to improve in key sustainability areas. Additional investments or incentives that could drive increased progress are noted in the report.



## CASE STUDY: Brazil

### Ibá's Communication Strategy Amplifies Essential Industry During Pandemic

During the COVID-19 pandemic, Ibá has reinforced dialogue with all levels of government about the essential nature of the planted tree sector, demonstrating the importance of its products and ongoing activities in the fight against COVID-19. As a result, this sector was declared essential, and was allowed to operate and supply both domestic and foreign markets.

It was an occasion to demonstrate the importance of forest-based products in people's homes, Ibá launched a multi-platform campaign to expand the awareness about the essential nature of the forest products industry and the supply chain behind forest-based products, along with the recyclability of those products and renewability of trees that are planted, harvested and replanted. Ibá also launched the #AquiPorVocê (#HereForYou), which amplified the voice of more than 60 people to spread the message that the industry was working safely and following protocols, so they could continue to provide services, and so that the entire population could protect themselves at home without shortages of essential goods. The campaign began as a social media project involving 15 industry groups and became a tidal wave with more than 50 companies involved, reaching more than six million individuals and generating 100,000 interactions.

Watch the videos at: <https://iba.org/eng/videos>



## CASE STUDY: New Zealand

### COVID-19 Protocols for New Zealand Forest Industry Operations

To ensure a healthy and safe work environment and to enable the continuation of the industry's work, the New Zealand Forest Industry Safety Council (FISC) developed guidance protocols to help businesses create a plan in conjunction with their workers to examine operations and identify risk and mitigation measures for the COVID-19 environment. Three groups of risk requiring management were identified: 1.) COVID-19 infection; 2.) pressures in the operating environment generated or amplified by the COVID-19 response (e.g. production targets, wood flow, cash flow and workforce challenges); and 3.) persistent, on-going risks arising from forestry operations (e.g. site preparation and roading, tree falling, person/machine interaction, traveling to and from work, port operations, etc.).



Using the Safetree platform, FISC partners developed a robust COVID-19 resource centre with fact sheets, workplace posters and guidance documents for New Zealand's four COVID-19 public health alert levels.

Access protocol and other COVID-19 resources at: <https://safetree.nz/resources/covid-19/>



## CASE STUDY: South Africa

### Meeting the Needs of the Vulnerable in the Paper Sector

The plight of many impoverished South Africans was exacerbated by COVID-19, the resulting lockdown, cold winter months and lack of access to water for handwashing. Among those affected were informal recycling collectors who were unable to trade during "hard lockdown".



The packaging sector joined hands to provide food vouchers for some 6,000 collectors to the combined value of R1.9 million (US\$ 124,000) from a major retail chain which were delivered to waste collectors' mobile phone numbers. Fibre Circle donated R1.2 million (US\$ 78,500) toward the project.

In July, in commemoration of Mandela Day, Fibre Circle, the producer responsibility organisation for the paper and paper packaging sector, the Paper Manufacturers Association of South Africa (PAMSA) and its recycling arm RecyclePaperZA distributed care packs to 1,500 recycling collectors. Each care pack contained a simple but innovative handwashing unit, soap, cloth masks, food vouchers, children's activity packs and blankets.





# PROMOTE SUSTAINABLE FORESTRY

**S**ustainable Forest Management (SFM) is a foundational commitment for ICFPA and its members. SFM protects one of Earth's most precious resources and a critical renewable resource for the global forest products industry. When sustainably managed, forests play a central role in climate change mitigation.

Progress toward this commitment is measured by the percent of forest-based wood fibre supplied to ICFPA members from certified, sustainably-managed forests and plantations, defined here 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 commitment<sup>1</sup> represent nearly 70 percent (299.73 million ha) of the 434.5 million hectares certified globally to FSC and/or PEFC in 2019.<sup>2</sup>

Industry associations are a driving force in advancing the SFM certification uptake by their member companies. Progress on this commitment has been stable. In 2019, 52.6 percent of procured wood fibre came from third-party certified sustainably-managed forests. This number is expected to remain stable as a result of ongoing shifts in the area of land managed by and/or for the forest products industry's commercial harvest, as well as the near-maximisation of certification of forest lands by the reporting associations.

## CASE STUDY: Chile

### Training Chilean Forest Fire Brigade

In 2020, Chilean forestry companies trained 4,500 forest fire brigade members to face the rural fire season. This season posed a greater challenge than usual, in light of the pandemic. In addition to controlling fires, the spread of COVID-19 must also be controlled. Necessary logistics were established so that all rural fire fighting personnel could work under strict COVID-19 health protocols, as defined by Chile's Health Authority.



These protocols include the permanent use of a face mask, regular temperature checks and COVID-19 testing at every shift. Additional protocols include the regular sanitisation for land and air transport, as well as food and accommodation spaces. The focus on immediate health and safety measures to protect workers from COVID-19 exposure is complemented by psychological risk and emotional management.

**+41 percentage point increase**  
**in wood fibre procured**  
**from third-party certified**  
**sustainably-managed**  
**forests since 2000**



## CASE STUDY: Australia

### Australian Forest Industry Response to Catastrophic Bushfires in 2020

As a result of the catastrophic bushfires in 2019/2020, Australian forest industries in Queensland, New South Wales (NSW), Victoria, and South Australia have been severely affected by the loss of timber-producing native forests and plantations.



Since January 2020, industry has undertaken a massive bushfire recovery harvesting operation to recover as many of the burnt trees as possible. Meanwhile, affected processing mills are managing the long-term challenges of significantly reduced volumes because of the fires.

In response, the Federal and NSW governments released \$200 million AUD in bushfire support packages focused on supporting recovery. This included programmes specifically for forest industries; supporting plantation replanting programmes, increasing storage capacity for burnt logs and processed timber and capital infrastructure grants for processing facilities.

#### Examples of such projects include:

- Allied Natural Wood Exports will build a four hectare-site for pine log storage, allowing an additional 60,000 tonnes of burnt-logs to be stored onsite.
- AKD Softwoods has a project at its Tumut mill to adopt the latest technology and equipment to ensure logs are cut more efficiently and effectively. The project will deliver an eight percent increase in timber recovery, generating more timber from the scarce log resource.
- Australian Sustainable Hardwoods will build a new manufacturing line for pine columns and beams not currently produced in Australia. The columns and beams will be used in construction on multi-story government, commercial and residential buildings.
- Kangaroo Island Plantation Timbers through the Kangaroo Island Biomass Pellet Mill and Handling Facility will create a new timber product using bushfire-affected timber.





# IMPROVE RECYCLING AND RECLAMATION OF WOOD AND PAPER FIBRE

**R**ecovered fibre is an important resource for the forest products industry and is a critical component in a circular economy. ICFPA members are committed to improving the quality and quantity of recovered fibre and advocating for increased recycling infrastructure.

Progress toward this commitment is demonstrated through the global recycling rate,<sup>3</sup> which represents the amount of recovered paper used by paper and paperboard mills as a percent of global paper and paperboard consumption. Based on FAO data,<sup>4</sup> the countries represented by ICFPA members account for more than 90 percent of global production.

**+12.6 percentage point increase in global recycling rate since 2000**

## CASE STUDY: United States

### Setting the Record Straight: Pizza Boxes Are Recyclable

There's no confusion that pizza is a favorite food in the United States – but there is a lot of confusion surrounding the recyclability of pizza boxes. Recently, the American Forest & Paper Association (AF&PA) launched a campaign to clear up that confusion. About three billion pizza boxes are used in the U.S. each year – that's about 600,000 tonnes of corrugated material that could be collected for recycling. In a membership-wide survey, AF&PA members representing 93.6 percent of the total amount of Old Corrugated Containers consumed by member companies, said they do accept corrugated pizza boxes for recycling. AF&PA encourages communities to update their residential recycling programmes to accept corrugated pizza boxes for recycling. A recent study confirmed that pizza boxes are recyclable, and that leftover grease and cheese are not an issue for the recycling process. The campaign gained significant media coverage in trade publications such as *Recycling Today*, *Fastmarkets RISI*, *Sierra Club Magazine*, as well as in food publications such as *Food & Wine*, *Pizza Marketing Quarterly* and *The Kitchn*.





# 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: European Union Cepi Energy Solutions Forum

As the pulp and paper industry strives to reach its 2030 goal and European carbon neutrality in 2050, Cepi formed the Energy Solutions Forum (ESF) to stimulate innovative market solutions. The ESF aims to accelerate the development and implementation of carbon-reducing technologies and concepts. This is done through:

- Facilitating the exchange of knowledge
- Ensuring crucial research, development and innovation topics are included in European R&D dialogues
- Facilitating the set-up of common development projects within the paper industry
- Supporting suppliers to develop the required technologies and accelerate the implementation
- Creating a stimulating environment

## CASE STUDY: Japan

### PASCO for a New Way of Life

Teleworking was a trend long before the COVID-19 pandemic further shifted workers out of their offices and into their homes, creating increased demand for portable workspaces.



As restrictions ease and students and workers re-enter shared workspaces, partitions are used to provide droplet infection prevention. Hokuetsu Corporation's specialty hardened fibre board, PASCO is an example of such product, made from recycled paper and fresh pulp. The foldable boards integrate easily with workspaces, are durable, while also being durable and light weight for convenient transport. PASCO is also being used with a transparent PET resin to produce "Smile Face," a clear partition that provides droplet protection in sales offices, factories, nail salons and classrooms.



# CONSERVE WATER

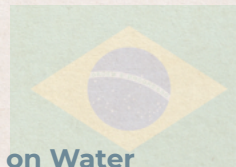
**W**ater security is a global issue and one of importance for the forest products industry. ICFPA members address water conservation through two key aspects: a.) reducing, reusing and recycling the water used in the manufacturing process and treating and cleaning water before it is returned to the environment; and b.) practising SFM to mitigate impacts on surface and ground water.

Process water is used for process purposes and then either treated on-site and discharged to a surface water or discharged to a publicly owned treatment works for treatment and discharge.

**-12.5% decrease  
in process water discharge  
intensity since 2004/2005**

## CASE STUDY: Brazil

### Performance Report on Water Management in Brazil



Brazil's planted tree industry is comprised of 9 million hectares of commercial forests and 5.9 million hectares of forest conservation. When it comes to water, the sector has been researching the relationship between this resource and its forests. Recently, Ibá has been changing the way of work into strategic and proactive approach.

The main product of that change is the Performance Report on Water Management, which aims at providing governance and transparency through the continuous monitoring of the main water management practices in the companies. The monitoring is based on 15 key performance indicators (KPIs) that cover forests, industry and the corporate environment. Many of those KPIs are aligned with the Sustainable Development Goals and the Global Forest Goals, both from United Nations.

The results show that forest management practices that balance production and water availability with increased efficiency in industry and multi-stakeholder dialogue are the backbone of water management in this sector. The report shows that 100 percent of the companies that participate in monitoring adopt practices that conserve the soil and water, such as protection of springs and prevention of erosion; and 82 percent and 52 percent of the water captured by the pulp and paper and the panel industry, respectively, return to the water bodies after treatment. The report also profiles 12 cases that give a practical overview of how the KPIs are being implemented by companies and sets straightforward commitments that reflect the attention of this industry with the shared-responsibility of this natural resource.



# MITIGATE CLIMATE CHANGE

**T**he forest products industry contributes to climate change mitigation through a four-pronged approach: preserving and optimising carbon sequestration in forests and forest-based products, reducing greenhouse gas emissions through energy-efficient operations, avoiding emissions by substituting fossil origin in several industries and using carbon-neutral biomass energy in the manufacturing process.

Progress toward this commitment is demonstrated through several metrics including:

- GHG emission intensity
- Bioenergy and renewable fuel percentage
- Total on-site energy intensity
- Sulphur dioxide emissions intensity

ICFPA members reported progress in all the categories listed above which can be largely attributed to energy efficiency improvements at facilities, increasing use of low-carbon fuels and continued use of renewable energy from carbon-neutral biomass.

**-21% decrease  
in Scope 1 and Scope 2  
GHG emission intensity  
since 2004/2005<sup>6</sup>**

## CASE STUDY: Canada

### Forest Sector Advances Post-Pandemic Economic Recovery Towards Net-Zero Carbon Future

As the Canadian forest sector works to advance solutions to support human health, it has also asserted its commitment to Canadians that the industry is poised to drive post-pandemic economic recovery and lead the way in the move to a net-zero carbon future. Following dialogue with forest companies and business leaders from across the country, FPAC has identified over 140 shovel-ready capital projects worth more than \$1.5 billion CAD in value. These projects are poised to not only prime economic activity and sustain and grow family-supporting jobs across Canada, but they will also help us accelerate a move to a lower-carbon economy while improving the sector's competitiveness. The pandemic has shone a bright light on the importance of Canada's forest sector and its ability to support human health, promote sustainability and a lower-carbon economy, and be a key driver of Canada's economic recovery. It is attention that Canada's over 230,000 forest sector workers and 600 forestry communities have embraced.

**-3.3% reduction  
in on-site energy intensity  
since 2004/2005<sup>6</sup>**

**+12 percentage point  
increase in on-site energy  
derived from biomass and  
other renewable fuels since  
2004/2005<sup>6</sup>**

**-77% decrease  
in sulfur dioxide emission  
intensity from on-site  
combustion sources  
since 2004/2005<sup>7</sup>**



# ENSURE AN ATTRACTIVE AND INCLUSIVE WORKPLACE

**K**eeping workers safe is a 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 reflects the number of recordable injuries and illnesses that occurred per 100 employees in a year.<sup>8</sup>

Globally, the forest products industry is a major economic contributor. Taking into account direct, indirect and induced employment, the formal forest sector provides an estimated 45 million jobs globally and labour income in excess of USD 580 billion per year.<sup>9</sup> In addition to keeping workers safe, ICFPA members are committed to helping workers thrive through continuing education and training to ensure that all workers maintain and gain workplace skills.

**-30% decrease  
in recordable incident rate  
since 2004/2005**

## CASE STUDY: United States

### A New Paradigm for Preventing Serious Injuries and Fatalities

As part of an ongoing effort to help members reduce serious injuries and fatalities (SIFs), the American Forest & Paper Association (AF&PA) launched a voluntary SIF prevention programme in 2019. Major elements of the programme include leadership and management commitment, employee involvement, risk identification, risk management, measuring and monitoring progress and continuous improvement. Twenty-three member companies signed up for the voluntary SIF prevention programme in 2020 and AF&PA held its fifth annual safety workshop in October 2020 with presentations from member companies and a major union representing workers in the industry. In addition, AF&PA provided continuous updates to member companies regarding health and safety guidance for the COVID-19 pandemic and held workshops to reduce the risk of COVID-19 in operating mills and workplaces.

## CASE STUDY: Chile

### Pandemic and Green Reactivation in the Forestry Sector

The Chilean forestry sector, hand-in-hand with its stakeholders, has made an extraordinary effort to comply as an essential industry, which has allowed: 1.) continued production, reaching 85 percent of capacity; 2.) low rates of COVID-19 contagion in productive tasks; and 3.) preservation of 300,000 direct and indirect jobs generated by the forestry industry.

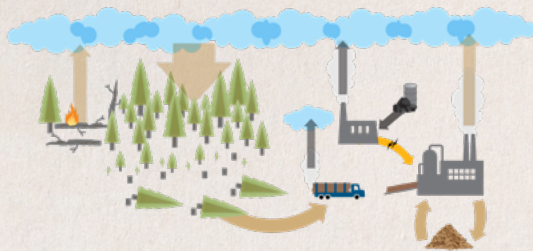


The proposed actions to achieve a green recovery are to reforest 20,000 hectares a year and to manage an additional 20,000 hectares of native forest annually. This will generate 15,000 new jobs, mainly in rural areas, while helping to achieve the carbon neutrality goals that Chile aims to attain by 2030. In the industrial sphere, the goal is to construct 10,000 high-quality wooden houses per year. This action will generate 60,000 new jobs and require training for 15,000 workers. The construction of houses will boost the development of more than 1,000 regional logging small- and medium-sized enterprises that have been severely damaged by the crisis.



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

CFPA members are committed to increasing the circular economy. There are three ways in which we do this: a.) delivering products that are recyclable, biodegradable and compostable; b.) working to reduce the environmental footprint of products; and c.) showcasing progress in a transparent manner. Progress on commitments contribute to this effort.



*see p. 15 for a summary of the biomass carbon cycle*

## CASE STUDY: European Union

### 4evergreen: Perfecting Circularity Together

4evergreen is a cross-industry alliance to foster synergies among companies promoting low-carbon and circular fibre-based packaging. The industry initiative aims to perfect the circularity of fibre-based packaging to 90 percent by 2030 by focusing on those categories that are low today and paying special attention to household, out-of-home and on-the-go packaging. 4evergreen's ambition is to drive and support the development of:

- Transparency and traceability of sustainable supply chains
- Industry-recognized guidelines for packaging design
- Optimized collection and recycling systems – and their accessibility
- Environmental credentials through scientific facts

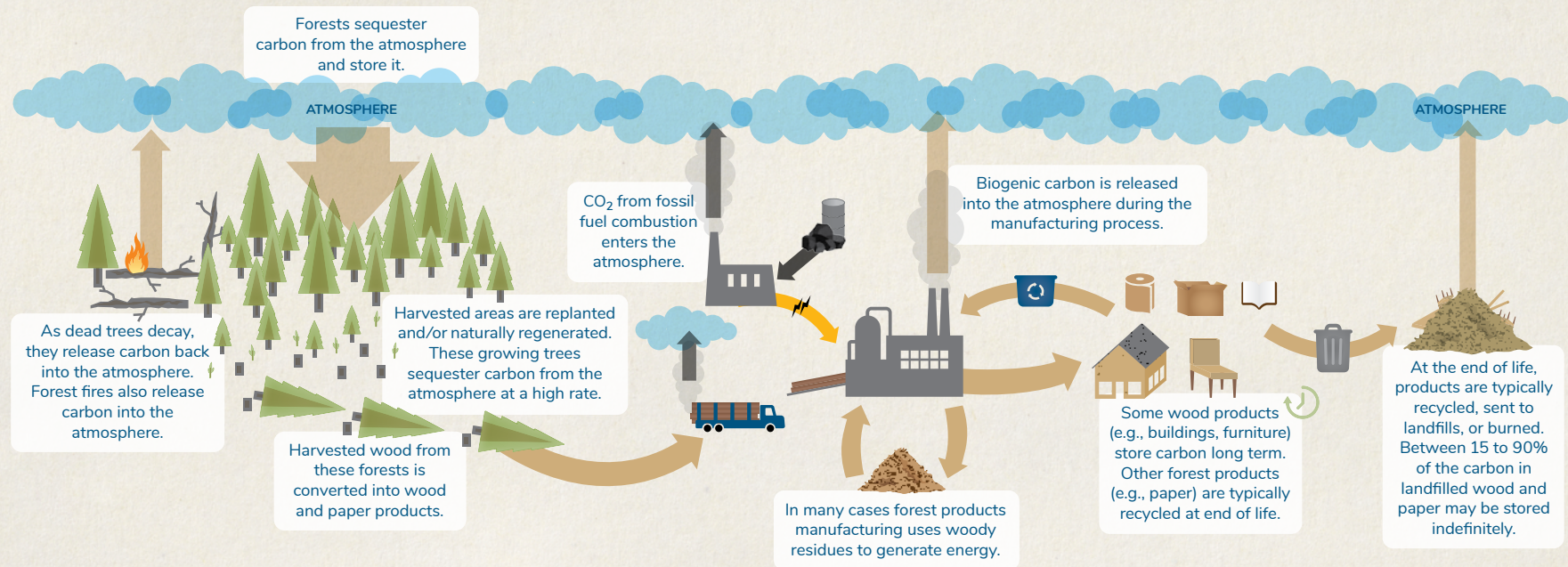
## CASE STUDY: Canada

### Forest-based Products Provide Sustainable Solutions for Critical Challenges

While the forest sector in Canada has long been known for the sustainability and quality of its products, COVID-19 brought immediate focus to the importance of being able to provide for people in a crisis, and the health benefits of sustainably sourced Canadian forest products. On September 16, 2020, FPIInnovations, a public-private partnership that leads forestry innovation efforts in Canada, announced that it successfully completed Phase 1 in the development of a single-use face mask that is 100 percent biodegradable and made from sustainably-sourced Canadian wood fibre. Canadians, like so many people around the world have been frustrated by seeing far too many blue, disposable masks littering sidewalks and roadsides. The second phase, which is expected to lead to a made-in-Canada biodegradable solution for face coverings, is underway. This Canadian innovation is a testament to the opportunity for forest-based products to be a critical solutions provider and reinforces the importance of investment in forestry research and innovation.



# BIOMASS CARBON SUMMARY



McKinley, D.C., Ryan, M.G., Birdsey, R.A., Giardina, C.P., Harmon, M.E., Heath, L.S., Houghton, R.A., Jackson, R.B., Morrison, J.F., Murray, B.C., Pataki, D.E., and Skog, K.E. 2011. A synthesis of current knowledge on forests and carbon storage in the United States. *Ecological Applications* 21:1902-1924. <https://doi.org/10.1890/10-0697.1>.

Skog, K.E. 2008. Sequestration of carbon in harvested wood products for the United States. *Forest Products Journal* 58:56-72.

Smith, J.E., Heath, L.S., Skog, K.E., and Birdsey, R.A. 2006. Methods for calculating forest ecosystem and harvested carbon, with standard estimates for forest types of the United States. General Technical Report NE-343. Newtown Square, PA: United States Department of Agriculture Forest Service, Northeastern Research Station. 216 p. <https://doi.org/10.2737/NE-GTR-343>.

Wang, X., Padgett, J.M., De la Cruz, F.B., and Barlaz, M.A. 2011. Wood biodegradation in laboratory-scale landfills. *Environmental Science & Technology* 45:6864-6871. <https://dx.doi.org/10.1021/es201241g>.

©NCASI 2021.



# CONTRIBUTING TO SOCIETY

**T**he COVID-19 pandemic reinforced the essential role that the forest products industry plays in producing essential products for safe and healthy living. Our employees maintain an essential position across the supply chain to contribute to the manufacturing of critical need supplies. Our member companies also play an essential role as major contributors to the global economy. And in times of need, our industry responds.

## CASE STUDY: Japan

### Medical Supplies for Use on the Frontlines to Combat COVID-19 Coronavirus

The Nippon Paper Group provides a wide range of products that are necessary for cleanliness and hygiene, and essential when dealing with the current pandemic. In striving for continued supply of such products, the Group is taking the utmost precautions to protect its personnel. In April 2020, the first COVID-19 wave occurred in Japan, and a state of emergency was declared nationwide. Nippon Paper Crecia Co., Ltd., a member of the Group's household paper and healthcare businesses, stepped forward offering practical help to healthcare workers during the shortage of medical supplies and provided 12,500 packages of KleenGuard A40 coveralls to the Japan Organisation of Occupational Health and Safety. In addition, they supplied 100 cases each of Crecia jumbo disinfectant wet wipes and replacements to the Tokyo Metropolitan Government.

## CASE STUDY: South Africa

### Beekeeping Project Is 'A Hive of Activity' During COVID-19

The African Honey Bee programme, a Sappi-sponsored initiative, which helps communities adjacent to forestry plantations to become beekeepers, has shown some unexpectedly encouraging results during the pandemic. Programme facilitators were struck by the incredible resilience demonstrated by the families that have been part of this beekeeping project. Collectively, since the beginning of 2020, the participating families have harvested about five tonnes of honey, earning close to R360,000, despite the national lockdown.



A survey of the Sokhulu community in KwaZulu-Natal (north of Richards Bay), where the project has been running for a few years showed that among the 100 families interviewed, all 100 families were producing honey, 85 were growing vegetables, 27 were producing eggs and 39 were producing chickens for meat. The beekeeping project is based on Sappi's overall philosophy of supporting Asset Based Community Development. Most of the beekeeping families are part of Sappi Khulisa supplier programme and are already part of the valuable forestry supply chain. By learning to harvest honey, grow vegetables and produce poultry and eggs, they are not just producing food to feed their own families, but many of them are also supplementing their income from timber by selling this produce.



# BLUE SKY AWARDS



## Blue Sky Young Researchers and Innovation Award

ICFPA launched the Blue Sky Young Researchers and Innovation Award in 2016 to recognise students, researchers and engineers who are 30 years old and younger and carrying out projects relevant to forest-based science, products using forest-based raw materials, process improvements or other innovations throughout the value chain. The award is not only focused on research and development; it is also about being innovative, inspirational and green.

The theme for the 2020-2021 Blue Sky Young Researchers and Innovation Award was “Boosting the Forest Bioeconomy: Nature-Based Solutions Toward a Lower Carbon Economy.” The winners presented their projects to industry leaders at the ICFPA’s virtual 2021 International CEO Roundtable.

## 2020-2021 INTERNATIONAL FINALISTS



**Francine Ceccon Claro** (Brazil)

### **PROJECT: Low Cost Wood-Derived Nanocellulose Wound Dressing**

Large wounds represent a serious clinical challenge and can involve high treatment costs. A prototype nanocellulose wound dressing was developed by Francine Claro in the laboratories of Embrapa Florestas and the Federal University of Paraná. This innovation can produce a new wound dressing alternative made from wood cellulose nanofibrils with characteristics similar to the commercial dressing produced with bacteria. Nanofibrillated wood cellulose membranes are less expensive than bacterial cellulose membranes, but they offer the same effectiveness. The experimental membranes showed promising potential for wound healing: they adhered well to the wound surfaces, permitted drainage of secretions, and facilitated reepithelization. No allergic reactions or inflammatory responses to the wood nanocellulose dressings were observed. Besides efficacy, the membrane developed in this study involves a simpler, faster, and cheaper manufacturing process that could reduce production costs by 99%. This low-cost innovation helps demonstrate that applications of biomaterials in the areas of biomedicine and biotechnology are environmentally, socially, and industrially significant.



**Jesús R. Rodríguez R.** (Chile)

### **PROJECT: FLEXbio, A Biodegradable and Compostable Bioplastic. Radiata Pine Sawdust Derivative**

FLEXbio technology is the first biodegradable bioplastic and compostable derived from Radiata pine sawn wood sawdust. FLEXbio proposes the use of sawdust, a wood by-product generated in large quantities by logging MSMEs that is currently discarded, piled up in company yards, with a high risk of fire and soil contamination problems towards groundwater. As a value addition technology, the thermochemical conversion is applied and utilizes lignocellulosic residues from the forestry industry, which in the presence of organic solvent, can be obtain a dark liquid with multiple reactive hydroxyl groups. The resulting bio polyol constituted of cellulose, hemicelluloses and lignin, are commonly used as precursor for obtaining bioplastics. This technology, with biodegradable and compostable characteristics, facilitate the manufacturing of sustainable products from residues from the forest industry, promotes recycling, innovation, water conservation, mitigating climate change, ensuring a safe and inclusive workplace, and optimizes the use of environmentally-friendly wood-based products.





**Udit Ringania** (United States)

**PROJECT:** Dewatering of Cellulose Nanomaterials using Ultrasound

A major goal for advancing the manufacture and application of cellulose nanomaterials (CNMs) is to tackle the high-energy requirements associated with dewatering and drying of these materials. In the present work, a novel, low cost and energy efficient method of dewatering CNMs is developed using ultrasound. Ultrasonic drying has demonstrated its applicability as a successful low heat drying method with significantly reduced drying time and energy use. The project aims to build and test both a bench-top and a pilot scale ultrasonic dewatering system to establish its feasibility and applicability for large scale dewatering of CNMs slurries while dramatically reducing the energy requirements. This innovation in an energy-efficient dewatering system will directly help achieve the UN SDGs goal of developing sustainable industrialization. The low energy uses will reduce the carbon footprint through responsible consumption of resources: a critical step in advancing the industry's sustainability goals.

## PAST INTERNATIONAL FINALISTS

### 2016-2017

**Shuji Fujisawa** (Japan)

**PROJECT:** Biocompatible Nanocellulose/ Polymer Composite Microparticles Formed by Emulsion-Templated Synthesis

**Esthevan Gasparotto** (Brazil)

**PROJECT:** Cutting-Edge Technologies for Forest Monitoring and Measurement

**Koh Sakai** (Japan)

**PROJECT:** Cellulose Nanofibres Prepared by Phosphorylation

### 2018-2019

**Elina Pääkkönen** (Finland)

**PROJECT:** How to Replace Non-Renewable Packaging Materials

**Chinmay Satam** (United States)

**PROJECT:** Multi-layer Chitin Nanofiber Cellulose Nanocrystal-Based Films for Sustainable Barrier Applications

**Martin Wierzbicki** (South Africa):

**PROJECT:** Genome-Based Biotechnology

*Learn more about the ICFPA Blue Sky Awards at: <https://www.icfpa.org/blue-sky-award/>*





# 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 A. G. (CORMA)

**Europe:** Confederation of European Paper Industries\* (Cepi)

**Japan:** Japan Paper Association (JPA)

**New Zealand:** New Zealand Forest Owners Association (NZFOA)

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

**South Korea:** Korea Paper Association (KPA)

**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

- <sup>1</sup> Survey responses were received from eight industry associations (AF&PA, Cepi, CORMA, FPAC, Ibá, JPA, NZFOA, and PAMSA), representing 25 countries.
- <sup>2</sup> UNECE/FAO, 2020. Forest Products Annual Market Review 2019-2020, United Nations Publications (ECE/TIM/SP/50). <https://unece.org/forests/publications/forest-products-annual-market-review-2019-2020>
- <sup>3</sup> The global recycling rate is derived from Fastmarkets RISI's Annual Review of Global Pulp and Paper Statistics, which provides data on recovered paper usage and trade for 175 countries worldwide. <http://www.risiinfo.com/product/annual-review-of-global-pulp-paper-statistics/>
- <sup>4</sup> UNECE/FAO, 2000. Forest Products Annual Market Review 2019-2020, United National Publications (ECE/TIM/SP/50).
- <sup>5</sup> Survey responses were received from five industry associations (AF&PA, Cepi, FPAC, Ibá, and PAMSA), representing 24 countries.
- <sup>6</sup> Survey responses were received from seven industry associations (AF&PA, Cepi, CORMA, FPAC, Ibá, JPA, and PAMSA), representing 24 countries.
- <sup>7</sup> Survey responses were received from five industry associations (AF&PA, Cepi, FPAC, JPA, and PAMSA)
- <sup>8</sup> Survey responses that met criteria for this commitment were received from five industry associations (AF&PA, Cepi, FPAC, JPA, and PAMSA), representing 22 countries.
- <sup>9</sup> Food and Agriculture Organization of the United Nations (FAO). State of the World's Forests 2020. Rome. <http://www.fao.org/3/ca8642en/CA8642EN.pdf>