Sinar Mas Paper (China) Investment Co., Ltd.

Go Green, Go Low-Carbon

APP China Addressing Climate Change Report

Preface

In September 2020, Chinese President Xi Jinping announced at the United Nations General Assembly that China would "scale up its Nationally Determined Contributions (NDCs), adopt more vigorous policies and measures, and hit peak carbon emissions by 2030 and attain carbon neutrality by 2060". "Carbon peak", "carbon neutrality", "green and low-carbon development" have been included in China's 14th Five-Year Plan, national and regional government work reports, and other key policies in 2021, among other keywords, and the national carbon trading market has also been o f cially launched. Those rapid moves embody China's f rm commitment to the transition towards green, low-carbon growth and have catalyzed social actions for climate change mitigation.

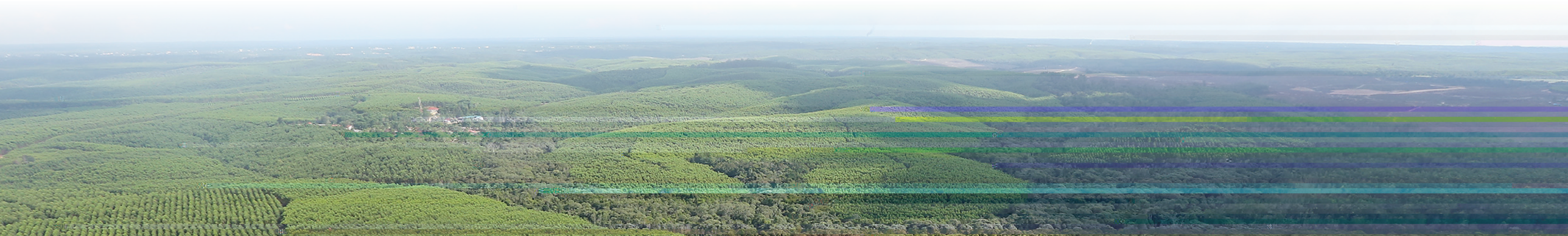
As one of the f rst eight major sectors included in the national carbon trading market, the papermaking sector has a signi f cant role to play in achieving the "carbon peak and neutrality" goals, even though in the face of a number of unprecedented challenges. Papermaking companies are thus in a position to ride the trend and plan in advance. They need to actively adjust and optimize the industrial structure and energy mix, and transform towards intelligent manufacturing and green growth, tapping opportunities while overcoming challenges.

Go green. Go low-carbon. APP China has a build-in green DNA as showcased through its "Integration of Plantation-Pulp-Paper" model. Embracing a green growth approach, we remain committed to management and practices that minimize the environmental impact of the industry chain. Against the backdrop of the "carbon peak and neutrality" goals and with profound awareness of the severity of climate change, we will adhere to our green DNA, and actively plan, explore, and deliver concrete actions towards carbon neutrality, contributing to addressing climate change in collaboration with our stakeholders.

For years, the World Economic Forum has listed climate change as one of the most pressing threats facing the world in its *Global Risks Report*. According to the Global Risks Horizon in the 2021 report, "extreme weather events" and "climate action failure" are the top two global risks by likelihood; and "infectious diseases" and "climate action failure" are the top two global risks by impact. Urgent actions are needed to e fectively mitigate and adapt to climate change.

In 2015, the *Paris Agreement* set out the goal of "holding the increase in the global average temperature to well below 2°C

The World Meteorological Organization also points out in its S*tate of the Global Climate 2020* that the global mean temperature



Forest Carbon Sinks and Forest Conservation

Seedling production

Building a modern seedling base and R&D center and focusing on the R&D and cultivation of high-quality seedling varieties

Forest certi f cation labeling

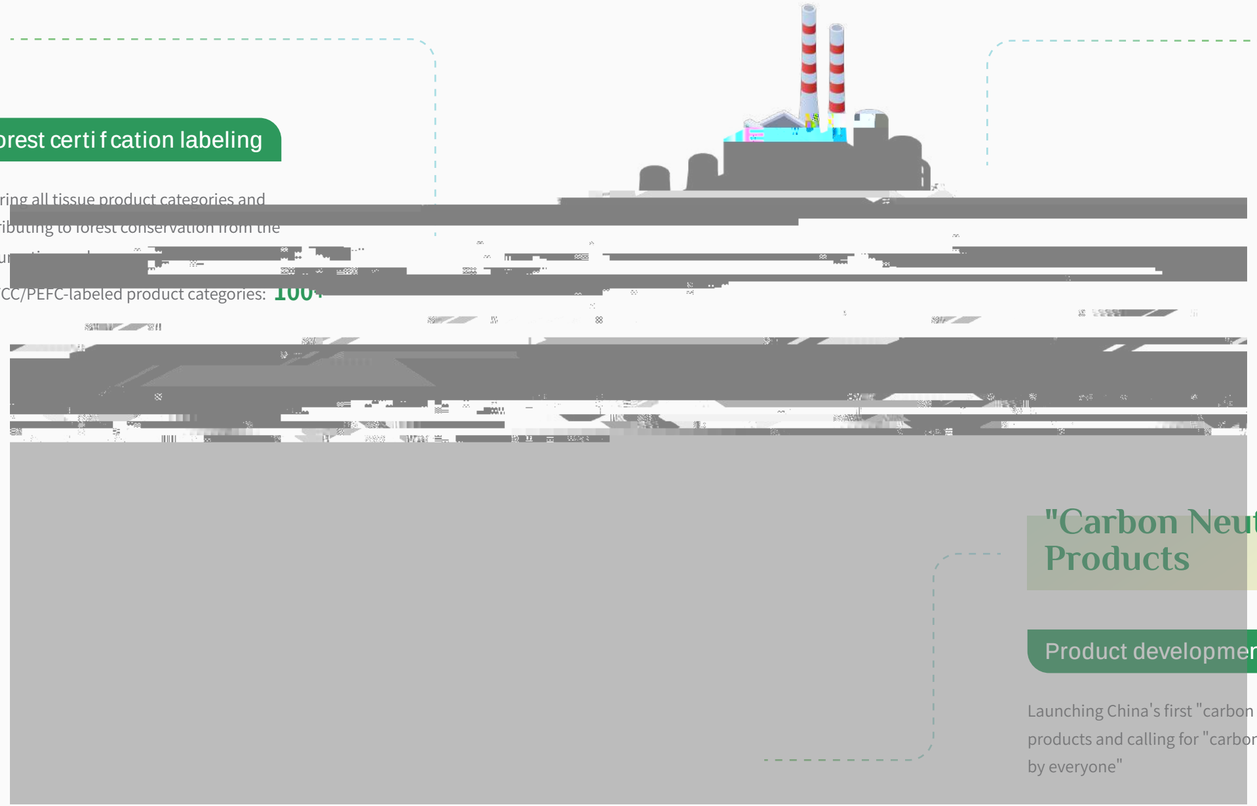
Covering all tissue product categories and contributing to forest conservation from the consu

- CFCC/PEFC-labeled product categories: **100**

Forestry

Implementing sustainable forest management

- Total carbon absorbed: **42.395** million tons
- **244,382** hectares of plantations are CFCC/PEFC-FM-certified, with a certification rate of **90.12**%



"Carbon Neutral" Products

Product development

Launching China's first "carbon neutral" tissue products and calling for "carbon reduction by everyone"

Green Mills and Energy Conservation & Carbon Reduction

Mill construction

Continuing to build green mills and use automation and intelligent technologies to boost the production efficiency and the utilization of energy and resources

Energy management

Scaling up the development and utilization of renewable and clean energy; using advanced technologies and processes to conserve energy and improve energy efficiency

- Annual solar power generation: over **25,000** MWh
- Proportion of renewable energy: **18.49** %

Forest Carbon Sinks and Forest Conservation

Absorbing carbon and releasing oxygen, retaining water, purifying air, regulating climate, conserving soil... the list of forests' ecological bene f ts goes on. As an invaluable asset for our planet, forests absorb carbon dioxide from the atmosphere and f xate it in vegetation or soil, making them the largest "carbon reservoir" in the terrestrial ecosystem, playing a signi f cant role in global climate change mitigation and adaptation actions.

Growth of Plantations

- Picking young shoots from the trees, disinfecting the buds, and placing them in a sterile environment for soilless culture
- Transplanting rooted seedlings after 9 to 12 months for seedling production

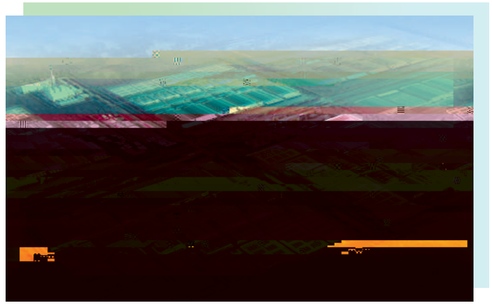
Since 1995, APP China has been investing heavily in plantations in Guangdong, Hainan, Guangxi, and Yunnan, pioneering the concept of "Integration of Plantation-Pulp-Paper" in China. By the end of 2020, APP China owned 271,100 hectares of plantations

Both increasing forest carbon sinks and maintaining their stability require

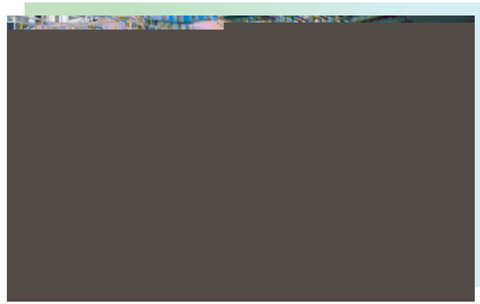
APP China Forestry has a long-standing commitment to the R&D and innovation of quality seedling varieties. In 2020, its Sustainability Team and R&D Team jointly initiated a project on the region-based deployment and management of high-productivity, high-resistance, and high-pulp-yield varieties. With several months of surveys, analyses, and measurements, the project team developed a scientific and standardized variety management system with the release of the *APP China Forestry Optimal Asexual Eucalyptus Variety Management Measures* in August 2020 and the replacement of several old varieties with new ones. The project takes into consideration both the production factors of forestry, such as resistance to wind, pest, and frost, and an in-depth research and analysis of their pulping performance parameters, as well as cooking pulp yields, conducted in close collaboration with our pulp and paper mills. The selection of seedling varieties through this process results in not only high pulp yields,

APP China was an early adopter of digital and intelligent transformation. We have nearly completed the construction and restructuring of the digital framework for Digital 1.0 and set up a connected digital management system, leading to much enhanced productivity. Digital transformation has enabled us to track the environmental indicators of production and operations in real time, further streamlining our environmental management.

For our new bases, we strive to institute a holistic intelligent process including manufacturing, service, and management and make them green and low-carbon models integrating technology, advanced manufacturing, and the circular economy. Building on advanced technologies such as 5G, cloud computing, and "Industry 4.0 + Artificial Intelligence", the Sinar Mas Rudong High-Grade Tissue Industrial Base integrates papermaking, processing, and logistics seamlessly through digitized information, modularized management, and automated manufacturing. Everything from suppliers to pulp mills, paper mills, and to customers has gone digital, leading to increased supply chain efficiency and significant reductions in energy and resource consumption.



Concept plan of the Rudong High-Grade Tissue Industrial Base



Automated papermaking workshop

Energy Conservation and Carbon Reduction Management

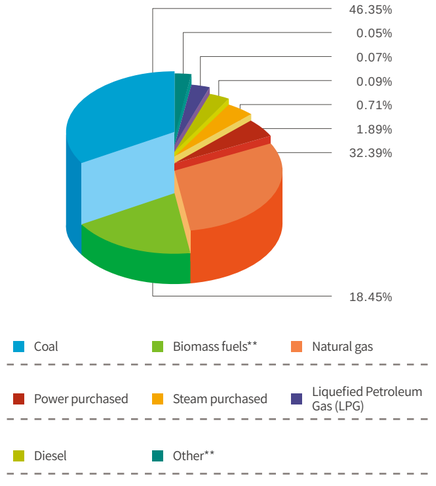
For a traditional manufacturing company, the key to achieving low-carbon green development lies in transforming its energy structure, reducing energy use, improving energy efficiency, and making technological breakthroughs.
APP China attaches great importance to energy management in the manufacturing process. Our mills continuously optimize energy management policies and systems, tap the potential for energy saving and carbon emissions reduction, and strengthen the tracking and assessment of performance targets.

Transforming the energy structure is crucial to attaining the "carbon peak and neutrality" goals. In 2020, thermal power still accounted for nearly 70% of the total power generation in China, which means that changing the fossil fuel-based power energy structure is key to reducing GHG emissions. The power generation units at our mills generally rely on coal-fired power generation, which means that replacing thermal power generation with green power will be an important focus area for us in the future.

We have installed photovoltaic power generation systems at a number of our mills. Taking advantage of its abundant rooftop space, Gold East Paper has built a large-scale photovoltaic power generation demonstration project, serving both its own power need and local power grid. The Phase-I 20-MW and Phase-II 10-MW rooftop photovoltaic power generation projects were completed and started operation in 2016 and 2017 respectively, generating over 25,000 MWh of electricity annually between 2018 and 2020. Ningbo Asia has also started the construction of its own photovoltaic power generation project.

We also plan to ramp up the use of green power at our new bases, with the Rudong Base as a pilot. We are currently designing a green power plan for the Rudong Base, powering its operations mainly with green power such as solar energy. Drawing on the results of the pilot project, we will gradually extend the application of green power to all of our mills with thermal power plants, marking a significant step towards carbon neutrality at APP China.

2020 Energy Mix*



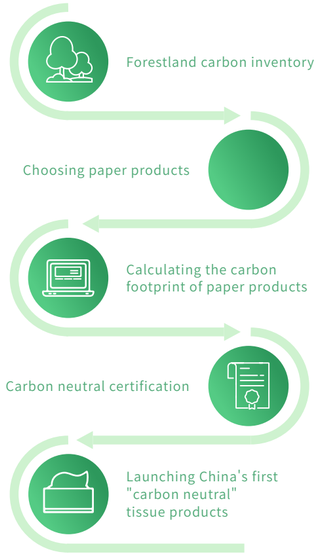
* Data are from the following APP China mills: Gold East Paper, Hainan Jinhai Pulp & Paper, Guangxi Jingui Pulp & Paper, Ningbo Asia, Gold Huasheng, Suzhou Gold Hongye, Hainan Gold Hongye, Hainan Gold Shengpu.
**Biomass fuels include black liquor (accounting for approximately 94%), wood chips, etc.; other energy sources include solar energy, gasoline, and kerosene.

In 2020, we actively implemented a number of pilot energy saving and emissions reduction equipment upgrading projects at the Group level. The magnetic levitation blowers used in the wastewater plant of Guangxi Jingui Pulp & Paper's new project saved up to 10-20% on electricity compared with the traditional multistage centrifugal blowers. We also replaced

"Carbon Neutral" Products

APP China released the Group's first collection of "carbon neutral" tissue products in May 2021, including the Three Kingdoms Series Breeze™ Primary-Color IF 3-Layer 120-Piece 24 Packs, Three Kingdoms Series Breeze™ Primary-Color HK 4-Layer 7-Piece 12 Packs, EMPORIA Boxed Facial Tissue 3-Layer 4 Boxes, Breeze™ Alcohol Base Disinfecting Wipes Family Size 40 Wipes, etc.

Ti Group Certification, a third-party agency authorized by the Certification and Accreditation Administration (CNCA), conducted a cradle-to-gate Product Carbon Footprint (PCF) assessment on APP China's tissue products through the three major stages of raw material production, raw material transportation, and manufacturing. It also issued the Product Carbon Footprint Certificate to Gold Hongye. The launch of the "carbon neutral" products is intended to further raise the awareness among consumers about the importance of carbon neutrality and encourage more people to take action to help reduce carbon emissions.



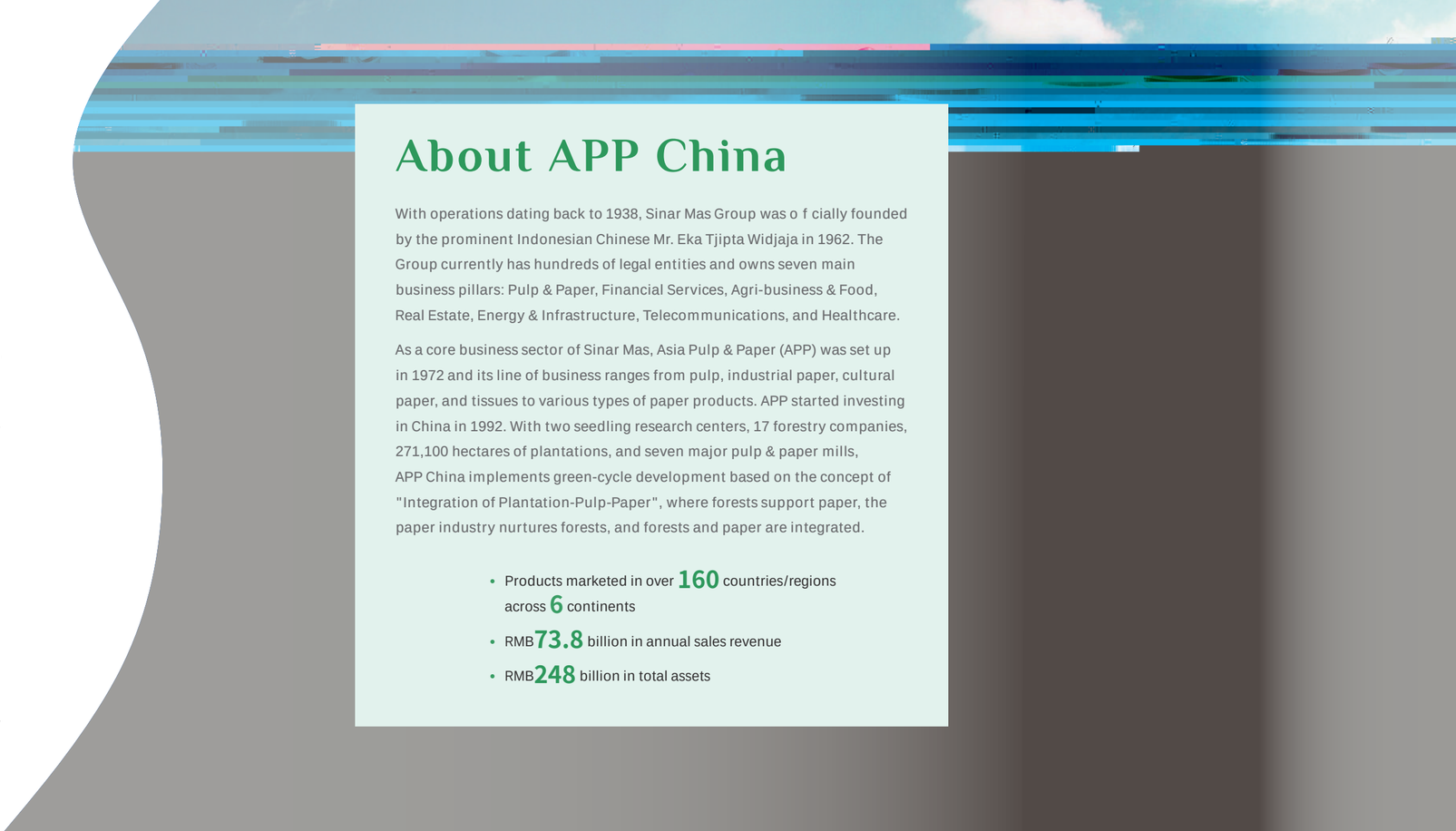
Looking Forward

As China strives for the "carbon peak and neutrality" goals, a wave of low-carbon, green transformation is set to sweep across all sectors. As an important pillar of the national economy, the papermaking industry faces huge pressures to reduce carbon emissions. While there will be a challenging journey ahead, papermaking companies are also presented with a signi f cant array of opportunities to make a di f erence and create synergies in the economic, social, environmental, climate, safety, and health f elds, among others.

Intelligence and digitization will foster new drivers of growth, making manufacturing much more e f cient, greener, and safer. This has been demonstrated by the digital transformation at APP China. In terms of energy structure transformation, there is huge room for the development of renewable energy in China. The replacement of fossil energy with renewable energy will give a major boost to the low-carbon transition of papermaking companies. Our recyclable and degradable "Paper in Place of Plastic" products will help mitigate plastic pollution and reduce the use of fossil fuels. Those products have performed well in the market, motivating us to make further innovations. As was mentioned earlier in this report, APP China has launched a number of "carbon neutral" products and is promoting the issuance of carbon neutrality-themed green bonds. The advancements of those innovative attempts have shown us the value brought about by actions to address climate change.

We are standing at a critical crossroad in history. To protect the planet, we need to act proactively with full dedication. APP China will continue to deepen practices for addressing climate change along the value chain and contribute to the realization of the "carbon peak and neutrality" goals.

Note: Unless otherwise speci fed, the APP China performance data included in this report are as of December 31, 2020.



About APP China

With operations dating back to 1938, Sinar Mas Group was o f cially founded by the prominent Indonesian Chinese Mr. Eka Tjipta Widjaja in 1962. The Group currently has hundreds of legal entities and owns seven main business pillars: Pulp & Paper, Financial Services, Agri-business & Food, Real Estate, Energy & Infrastructure, Telecommunications, and Healthcare.

As a core business sector of Sinar Mas, Asia Pulp & Paper (APP) was set up in 1972 and its line of business ranges from pulp, industrial paper, cultural paper, and tissues to various types of paper products. APP started investing in China in 1992. With two seedling research centers, 17 forestry companies, 271,100 hectares of plantations, and seven major pulp & paper mills, APP China implements green-cycle development based on the concept of "Integration of Plantation-Pulp-Paper", where forests support paper, the paper industry nurtures forests, and forests and paper are integrated.

- Products marketed in over **160** countries/regions across **6** continents
- RMB**73.8** billion in annual sales revenue
- RMB**248** billion in total assets