

2021

Taking Dreams as Maps to a Sustainable Future

APP China Sustainability/ESG Report





Green Transformation and Digital & Intelligent Transformation

Writing A New Chapter of Sustainability



Our Annual Performance Highlights

Governance and Economic



Products marketed in over **160** countries/regions across **6** continents

RMB **246.5** billion in total assets

RMB **97.3** billion in annual sales revenue

RMB **2.436** billion in R&D investment

An annual output of **15.92** million seedlings

Owning **22** forestry companies

270,911 hectares of plantations

Proportion of woodchips sourced from certified forests: **21.13** %

Proportion of wood pulp sourced from certified forests: **17.96** %

Coverage of employee anti-corruption training: **100** %

Percentage of suppliers to whom anti-corruption policies were communicated: **100** %

Environmental



Environmental investment in 2021: over RMB **1.031** billion

Cumulative environmental investment: over RMB **13.5** billion

Cumulative carbon sequestration capacity of plantations: **42.395** million tons (as of the end of 2020)

Total area of CFCC/PEFC-FM-certified plantations: **246,257** hectares, accounting for **90.9** % of total plantations

Percentage of HCV-assessed plantations: **54** %

3 subsidiaries were recognized as National Green Factories

Proportion of renewable energy: **26.65** %, up **44.12** % year on year

Solar power generation: **24,406.6** MWh

Average industrial water reuse rate: **95.74** %

Comprehensive utilization rate of non-hazardous solid waste: **99.25** %

Launched "**carbon neutral**" tissue product series

Breeze and EMPORIA products were among the first tissue products in China to obtain the **China Green Product Certification**

Social



Percentage of female employees: **23.27** %

Percentage of female employees in management: **18.62** %

Total employee training investment: over RMB **5.62** million

Total employee training hours: **753,012**

Nearly **70** positions provided for people with disabilities

Percentage of workers covered by Occupational Health and Safety Management System: **100** %

Number of emergency drills: **500+**

Average hazard correction rate: **98.87** %

Charitable giving: RMB **46.763** million

Cumulative charitable giving: close to RMB **1.2** billion

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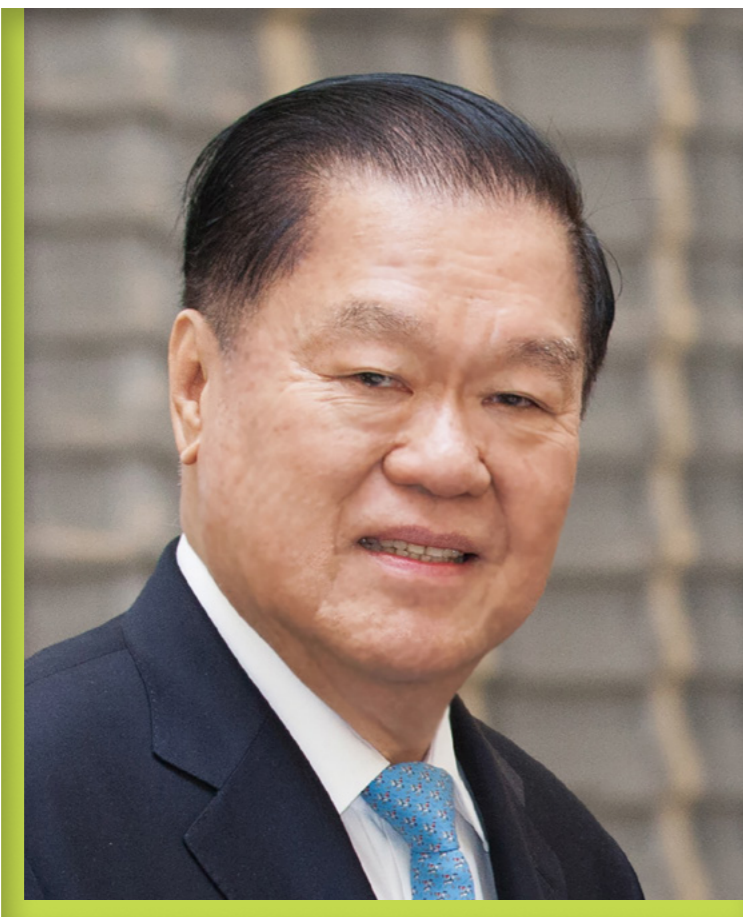
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Message from Chairman



2021 marks the first year of the 14th Five-Year Plan (the "14th FYP") in China and a time when timeframes of the "Two Centenary Goals" converge. With carbon peaking and carbon neutrality goals (the "30-60 Goals") incorporated into the national economic and social development agenda at this new stage of development, transitioning to green and low-carbon growth and pursuing sustainable development have become key imperatives for companies aiming for high-quality development. Meanwhile, the lingering COVID-19 has disrupted economies and societies, leading to an all-pervading recognition of the absolute importance of operating sustainably. It also challenges companies to do their utmost to stay resilient and environmentally and socially responsible in a post-pandemic world.

The physical impact of climate change is being increasingly felt, with extreme weather events frequently threatening productivity and livelihoods across the globe. Accelerating optimization of the industrial structure and energy mix and shifting towards a green development approach are therefore important responsibilities of today's enterprises, who are also subject to increasingly rigorous regulatory scrutiny regarding energy saving and carbon reduction following the announcement of the 30-60 Goals. However, it needs to be seen that in this unprecedented "green revolution", challenges always go hand in hand with opportunities. Ride the wave and innovate. This is the thinking behind our new "Two Transformations and One Exceptional" strategy, namely green transformation, digital and intelligent transformation, and exceptional economic performance. It provides a clear roadmap for the Company's high-quality development in the years to come.

As one of the first papermaking companies in China to introduce and implement the "Integration of Plantation-Pulp-Paper" model, we constantly seek to improve our environmental performance. In terms of forestry, we are committed to a sustainable approach, with our plantations continuing to be an effective source of carbon sequestration. In terms of production, we comply with all applicable environmental policies and regulations and hold our business operations to higher standards than national and local requirements, redoubling efforts to minimize our environmental footprint. A number of our subsidiaries, including Ningbo Asia, Gold East Paper, and Guangxi Jingui Pulp & Paper, have been recognized as National Green Factories, and Bohui Paper has been named a Green Factory in Zibo City. In terms of products, we keep investing in the R&D of recyclable and biodegradable "Zero Plastic" paper products, and our Breeze and EMPORIA are among the first green-certified tissue brands in China. As 30-60 Goals took effect for the first year in 2021, we set up the Group-level Carbon Neutral Working Group to coordinate and deploy climate-related efforts in areas such as carbon targets, energy mix shift, carbon trading, and capacity building.

Digital and intelligent transformation is another important strategic area for APP China. After years of exploration and experimentation, we have stepped into Digital 2.0, where the large volume of data accumulated at stage 1.0 will be translated into more valuable applications to inform more effective decision-making, management, and innovation. The Rudong High-Grade Tissue Industrial Base started operation in 2021, whose "Industry 4.0 + Artificial Intelligence (AI)" production model has enabled significant improvements in paper machine productivity and

overall resource efficiency. Other production bases are also rapidly becoming more automated and intelligent, which not only generates great economic benefits but also facilitates our transition to a greener growth path.

After concluding the acquisition of Shandong Bohui Paper Co., Ltd. ("Bohui Paper") in 2020, we extensively researched and had internal and external discussions on ESG-related concepts and trends that had been topics of avid domestic and international interest in recent years. In 2021, we integrated ESG into the Company's sustainability strategy framework, gearing up to obtain an objective assessment of our sustainability management and practices, including through ESG capacity building and alignment with international ESG assessment systems. We will then use such knowledge to drive better performance in key ESG areas, so as to create more value for our stakeholders.

Clear goals drive resolute actions. A pivotal year for the 14th FYP, 2022 will also be a critical year for China's paper industry as it transitions to high-quality development and collectively builds a new development pattern. It will coincidentally be the 30th year since APP entered China. As a new chapter unfolds, APP China will stay motivated to push limits and pursue excellence. We will seize the ample opportunities presented by national strategies while placing the green transformation and digital and intelligent transformation strategies front and center in company development, working together with our stakeholders to create a sustainable future for the paper industry.

黄志源

Teguh Ganda Widjaja

Chairman and President of Sinar Mas Group

About APP China

Company Profile

Sinar Mas Group was founded by the prominent Indonesian Chinese Mr. Eka Tjipta Widjaja in 1938, with investments spanning continents like Asia, North America, Europe, and Australia today. Based on years of innovation-driven development, the Group has built seven business pillars: Pulp & Paper, Financial Services, Agri-Business & Food, Real Estate, Energy & Infrastructure, Telecommunications, and Healthcare.

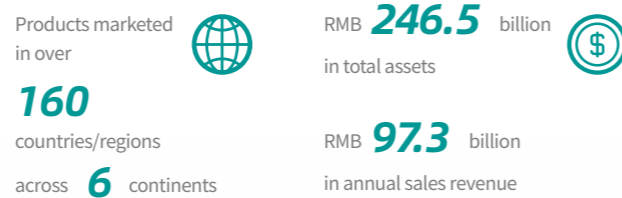
Asia Pulp & Paper Co., Ltd. (APP), a pulp and paper subsidiary of Sinar Mas Group, was founded in 1972 and has grown into a world leader in papermaking through decades of dedicated work. APP has dozens of pulp and paper companies and over one million hectares of fast-growing plantations in Indonesia, China, etc. APP's products and business spread across the globe, with businesses ranging from plantations and pulp to industrial paper, cultural paper, tissues, and various types of paper products.

APP China is short for Sinar Mas Paper (China) Investment Co., Ltd. and the group of companies under its direct investment in China. Since its entry into China in 1992, the Company has been committed to a sustainable development strategy and worked to establish a green cycle by operationalizing the "Integration of Plantation-Pulp-Paper" approach. APP China has set up multiple functional units within the Company such as Forestry Business Unit, Pulp Business Unit, Paper Business Unit, and Tissue Business Unit.

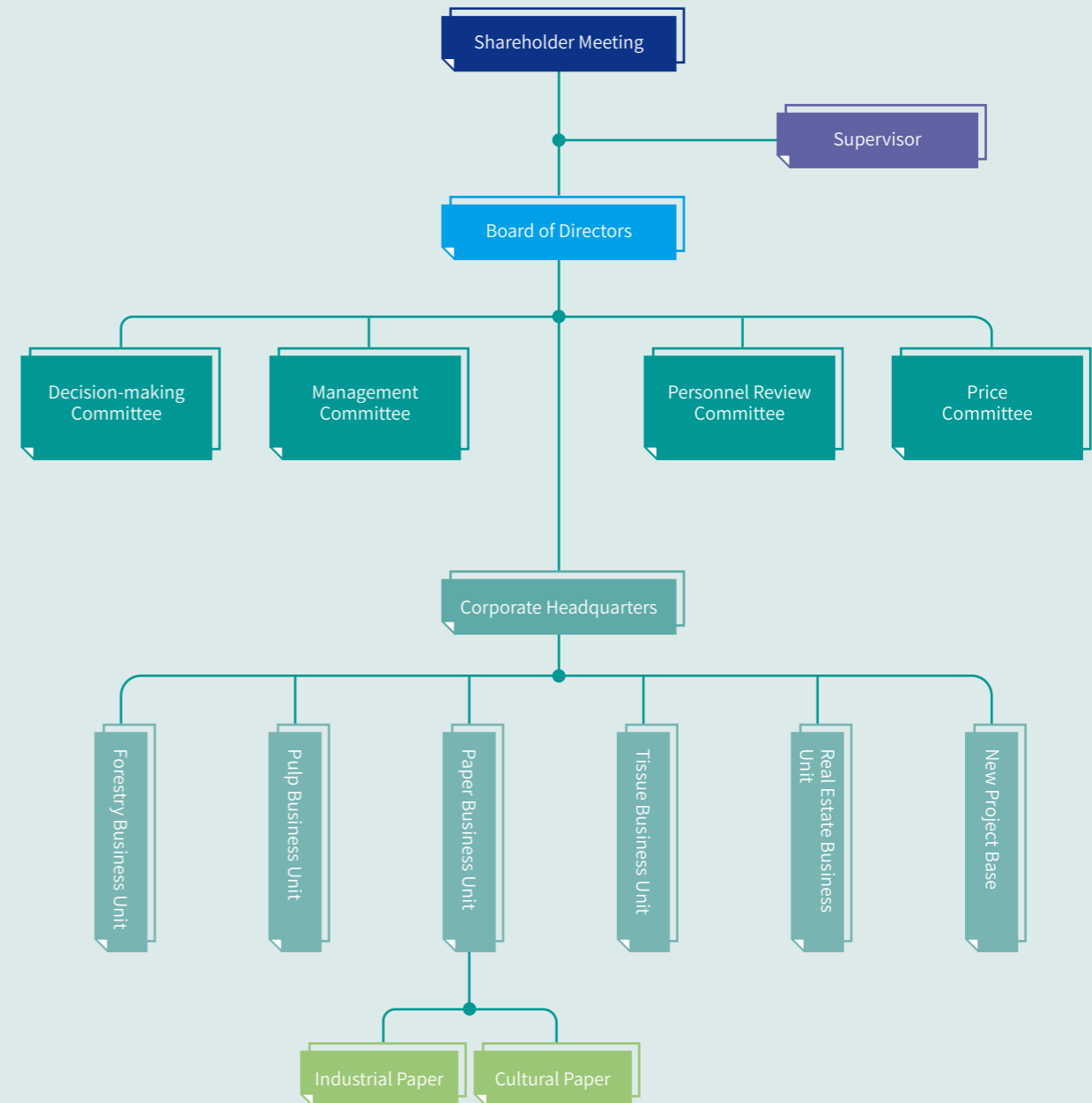
Sinar Mas Paper (China) Investment Co., Ltd. acquired a 100% equity interest in Bohui Paper in 2020. The acquisition helps optimize the scale and resource allocation of APP China while promoting the high-quality development of the Company and the wider paper industry in China.

APP China and its parent company Sinar Mas Group are also engaged in the development of sustainable urban complexes and technology parks to diversify the allocation of resources. So far, the Company has developed two large-scale urban complexes in Shanghai: the Sinar Mas Plaza and the Shanghai Arch.

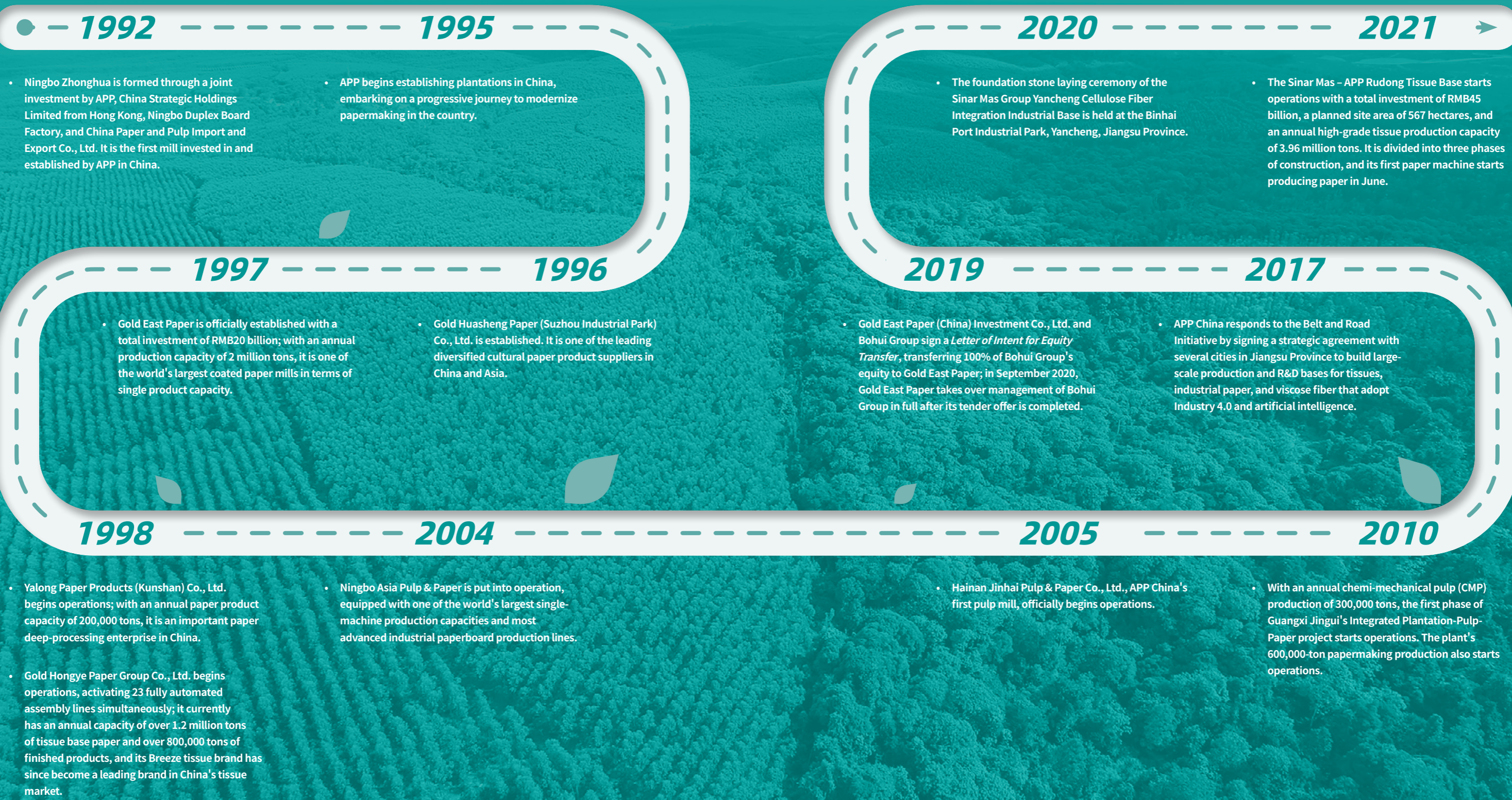
As of the end of 2021, APP China had



Organizational Chart



Milestones



Achievements and Honors

Receiver	Honors and Awards	Issuers
APP China	2021 Digital Transformation Impetus Award	The 10th Financial Summit
	2020 Outstanding Contribution to Pandemic Prevention	The 10th China Charity Festival
	2021 Responsible Enterprise	The 17th China Corporate Social Responsibility Forum
	2021 Outstanding Public Welfare Practice Award	The 4th Social Responsibility Conference
Hainan Jinhai Pulp & Paper	2020 Special Corporate Contribution Award in the 100-Day Growth Stabilization Initiative of Yangpu Economic Development Zone	CPC Yangpu Economic Development Zone Work Committee, CPC Yangpu Economic Development Zone Management Committee
	Overachiever in Hainan Province's "13th FYP" Energy Efficiency Review of Key Energy Consumers	Development and Reform Commission of Hainan Province
	Caring about Yangpu and Doing a Great Service	CPC Yangpu Economic Development Zone Work Committee, Yangpu Economic Development Zone Bureau of Social Development
	2021 Top 100 Private Enterprises in Hainan Province (No. 3)	Federation of Industry and Commerce of Hainan Province
	2021 Top 100 Enterprises in Hainan Province (No. 12), 2021 Top 35 Enterprises of Manufacturing Industry in Hainan Province (No. 4)	Hainan Enterprise Confederation, Hainan Enterprise Directors Association
	High-Tech Enterprise	Department of Science and Technology of Hainan Province, Department of Finance of Hainan Province, Hainan Provincial Tax Service of the State Taxation Administration
	2021 Top 50 Private Enterprises in Hainan Province for R&D Investment (No. 2)	Federation of Industry and Commerce of Hainan Province, Science and Technology Department of Hainan Province
	2020 Top 10 Enterprises for Tax Contributions in Zhenjiang New Area	CPC Zhenjiang New Area Work Committee, Zhenjiang New Area Management Committee
	2020 Golden Mountain Award	CPC Zhenjiang Municipal Committee, Zhenjiang Municipal People's Government
	Star Enterprise for Industrial Information Security Protection	Industry and Information Technology Department of Jiangsu
Gold East Paper	Green Corporate Development Leader in Jiangsu Province	Department of Ecology and Environment of Jiangsu Province, Federation of Industry and Commerce of Jiangsu Province
	Certificate for China Environmental Labeling (Type II)	China Environmental United Certification Center (CEC)
	Advanced Grassroots Party Organization of Jiangsu Province	CPC Jiangsu Provincial Committee
	Top 10 Enterprises in the "13th Five-Year Plan" Enterprise Case Selection in Jiangsu Paper Industry	Jiangsu Province Paper Industry Association
	Outstanding Organization Award	Jiangsu Province Paper Industry Association
	2020 Top 10 Papermaking Enterprises of China's Light Industry	China National Light Industry Council, China Paper Association
	Top 200 Enterprises of China's Light Industry	China National Light Industry Council, China Paper Association

Receiver	Honors and Awards	Issuers
Guangxi Jingui Pulp & Paper	"Cleaner Production Enterprise" of Guangxi Zhuang Autonomous Region	Industry and Information Technology Department, Development and Reform Commission, Department of Ecology and Environment of Guangxi Zhuang Autonomous Region
	2020 Outstanding Contribution Award for Utilization of Foreign Investment in Qinzhou City	Qinzhou Municipal Commerce Bureau
	2020 Top 30 National Key Papermakers for Output	China Paper Association
	Autonomous Region-Level Key Leading Enterprise of Forestry Industry	Department of Forestry of Guangxi Zhuang Autonomous Region
	Top 200 Enterprises of China's Light Industry	China National Light Industry Council
	Top 10 Papermaking Enterprises of China's Light Industry	China National Light Industry Council, China Paper Association
	Top 20 Papermaking Enterprises in China	China Pulp & Paper Industry (CPPI) Magazine
	Industry-Leading Enterprises in Guangxi (First Batch)	Industry and Information Technology Department of Guangxi Zhuang Autonomous Region
	2020 Contract Abiding and Trustworthy Enterprise of Guangxi	Administration for Market Regulation of Guangxi Zhuang Autonomous Region
	Top 100 High-Tech Enterprises in Guangxi	Guangxi High-Tech Enterprise Association, Beijing Great Wall Enterprise Institute
Ningbo Asia	National Green Factory	Ministry of Industry and Information Technology
	2020 Top 100 Innovative High-Tech Enterprises in Zhejiang Province	Zhejiang High-Tech Enterprise Association
	2020 Top 50 Tax Contributors of Ningbo's Manufacturing Industry	Ningbo Municipal People's Government
	2021 Top 10 Best Practices in Water Conservation Action in Ningbo	Ningbo Water Authority, National Office of Water Conservation
	2021 Outstanding Enterprise for Papermaking Standardization	National Technical Committee on Papermaking Industry of Standardization Administration of China
	2021 Five-Star Enterprise for Business Management Innovation and Improvement in Ningbo City	Ningbo Municipal Economic and Information Technology Bureau
	2020 Top 500 Enterprises of China's Manufacturing Industry	China Enterprise Confederation, China Enterprise Directors Association
	Ningbo Asia's <i>Industrial Paper Associated News</i> was awarded 2019-2020 Top 10 Corporate Newspapers in China's Paper Industry	National Association of Paper Industry Press
	Green Factory in Ningbo City	Ningbo Office of the Leading Group for Building a Beautiful Ningbo
	2020 Top 10 Exporters in Ningbo City	Ningbo Special Export Team
Ningbo Asia	Advanced Grassroots Party Organization	CPC Ningbo Industrial Investment Group Co., Ltd. Committee
	2020 Top 50 Enterprises of Ningbo's Manufacturing Industry	Ningbo Municipal People's Government
	2020 Top 10 Papermaking Enterprises of China's Light Industry (No. 8)	China Paper Association
	Top 200 Enterprises of China's Light Industry (No. 32)	China National Light Industry Council

Receiver	Honors and Awards	Issuers
Ningbo Asia	2021 Top 100 Competitive Enterprises of Ningbo City (No. 61), 2021 Top 100 Comprehensive Enterprises of Ningbo City (No. 32), 2021 Top 100 Manufacturing Enterprises of Ningbo City (No. 20)	Ningbo Enterprises Confederation, Ningbo Enterprise Directors Association, Ningbo Federation of Industrial Economics
	2021 Model Enterprise for Water Conservation in Zhejiang Province	Water Resources Department of Zhejiang Province and six other departments
Bohui Paper	Top 20 Paper Enterprises in China	China Pulp & Paper Industry (CPPI) Magazine
	2021 Top 10 Enterprises	Shandong Paper Association
	2021 Excellent Enterprise of Informatization and Industrialization Integration in Shandong Province	Shandong Informatization and Industrialization Integration Promotion Center
	Municipal-level Green Factory (First Batch)	Bureau of Industry and Information Technology of Zibo
	Top 10 Enterprises in the "13th Five-Year Plan" Enterprise Case Selection in Jiangsu Paper Industry	Jiangsu Province Paper Industry Association
	2020 Five-Star Enterprise of Star-Excellence, 2020 Top Sales Enterprise of Star-Excellence	Yancheng Municipal People's Government
	2020 Tax Contribution Award Over RMB100 Million, 2020 Star Enterprise (Five-Star) of Dafeng District, Yancheng City	Committee of the CPC Dafeng District and People's Government of Dafeng District, Yancheng City
	Outstanding Contribution Award of the "13th Five-Year Plan" period	Private Enterprise Chamber of Commerce of Dafeng District, Yancheng City
Gold Hongye Paper	2020 Advanced Unit for Statistical Work in Suzhou Industrial Park	Suzhou Industrial Park Office of Statistics
	2020 Outstanding Economic Contribution Award – Top 30 Tax Contributions, Top 30 Headquarters Economy	CPC Suzhou Industrial Park Work Committee, Suzhou Industrial Park Management Committee
	2020 ChnBrand Trustworthy Brand Award of Tissue Industry	Organizing Committee of the 7th China Brand Innovation and Development Forum
	2021 National Model Enterprise for Trustworthy Product and Service Quality, 2021 Stable and Qualified Products in National Quality Inspection, 2021 Top-Quality Enterprise of China's Tissue Industry, 2021 Top-Quality Brand of China's Tissue Industry, 2021 China Quality Credit Model Enterprise	China Association for Quality Inspection
	2021 Top Brand in ChnBrand C-BPI's Tissue Category	China Brand Power Index
	2021 ChnBrand Innovative Brand Award in Tissue Industry	Organizing Committee of the 8th China Industry Influence Brand Summit
	Top 10 Enterprises in the "13th Five-Year Plan" Enterprise Case Selection in Jiangsu Paper Industry	Jiangsu Province Paper Industry Association
	Shanghai Qualified Enterprise for Harmonious Labor Relations	Shanghai Municipal Human Resources and Social Security Bureau, Shanghai Federation of Trade Unions, Shanghai Enterprises Confederation, Shanghai Enterprise Directors Association, Shanghai Federation of Industry and Commerce
	FMCG 2021 (Fall) Best-Selling Premium Products	China (Shanghai) Premium Products Promotion Organizing Committee
	2021 Responsible Brand Award at the 11th Philanthropy Festival	Organizing Committee of the 11th Philanthropy Festival

Receiver	Honors and Awards	Issuers
Hainan Gold Hongye	2021 Top 100 Enterprises in Hainan Province, 2021 Top 35 Enterprises of Hainan's Manufacturing Industry	Hainan Enterprise Confederation, Hainan Enterprise Directors Association
Rudong Base	Nantong May 1st Labor Award	Nantong Federation of Trade Unions
	2021 Major Project High-Quality Construction Award of the City – Top 10 Projects for Foreign Investment Attraction	CPC Nantong Municipal Committee, Nantong Municipal People's Government
APP China Forestry	2021 Top 100 Private Enterprises in Haikou (No. 60)	Haikou Federation of Industry and Commerce
	Provincial Leading Enterprise of Forestry and Grassland Industry	Yunnan Forestry and Grassland Bureau
	Leading Enterprise in Guangdong Province	Forestry Administration of Guangdong Province

Our Strategy

"Two Transformations and One Exceptional" Strategy

In everything we do, we have always acted to serve increased social productivity, greater comprehensive national power, better livelihoods, the establishment of a low-carbon, eco-friendly, circular, economical, and sustainable green development system, and optimized social structure, reduced income inequality, and greater stability and harmony ("five serves"). Consistent with our commitment in those regards and drawing on a study of the growing trends on the global, national, and industry scales, we have formulated a new strategy at APP China built on two directions of transformation and one area of exceptional performance ("Two Transformations and One Exceptional"), namely green transformation, digital and intelligent transformation, and exceptional economic performance. With the Four-Wheel Drive as our foothold, we will make every effort in the years ahead to bring our new strategy to materialize.

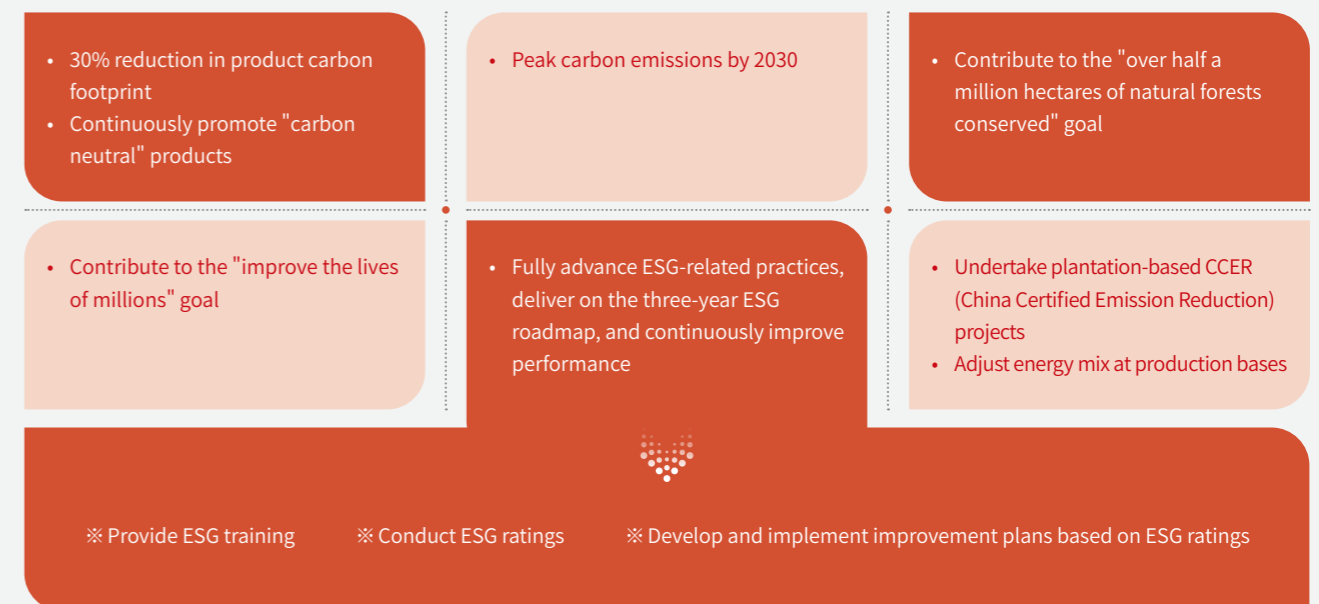


Sustainability/ESG Strategy

In 2021, APP China developed the 2030 Sustainability Strategy Framework and defined a three-year ESG roadmap under it. APP released the "Sustainability Roadmap: Vision 2030" ("SRV 2030") in 2020, specifying three major sustainability focuses for the next decade: energy saving and emission reduction, forest conservation, and community development. To APP China, the SRV 2030 has been an important guidance for developing the sustainability strategy. By incorporating ESG factors into the sustainability strategy, APP China seeks to advance management practices in the focus areas of the papermaking industry to continuously improve our sustainability performance.

APP's 2030 Sustainability Goals	Energy saving and emission reduction	Forest conservation	Community development
	30% reduction in carbon footprint	Over half a million hectares of natural forests conserved	Improve the lives of millions

APP China's 2030 Sustainability Framework



Green transformation and digital and intelligent transformation are APP China's core development strategies at present. We hope that in the three years implementing our ESG roadmap, we will gradually align the Company's overall sustainability management with international ESG assessment and management systems. In addition to a clearer self-evaluation, this will also pinpoint areas where our management can be further improved to help bring our development strategy to fruition.

Undertaking Sustainability Certification

Over the years, APP China's forest farms and mills have actively worked to obtain sustainability certifications so that the reviews and audits can drive improvement in our management systems and capabilities and lay a solid foundation for continuously improving our sustainability performance.

CFCC/PEFC-FM Certification* at APP China

No.	APP China Forestry Companies	Certificate No.
1	Hainan Jinhua Forestry Co., Ltd.	CFCC/PEFC-FM-ZTFC-000003
2	Heyuan Jinmei Science & Technology Forestry Co., Ltd.	CFCC/PEFC-FM-ZTFC-000030
3	Leizhou Jin-taiyang Science and Tech Forestry Ltd.	CFCC/PEFC-FM-ZTFC-000030
4	Yangjiang Jin-taiyang Science and Tech Forestry Ltd.	CFCC/PEFC-FM-ZTFC-000030
5	Jin-Qingyuan Timberland (Paper mill) Ltd.	CFCC/PEFC-FM-ZTFC-000007
6	Shaoguan Jin-Shaoguan First Quality Timberland (Paper mill) Ltd.	CFCC/PEFC-FM-ZTFC-000008
7	Guangxi Jin Gui Forestry Co., Ltd.	CFCC/PEFC-FM-ZTFC-000005
8	Guangxi Jin Qinzhou High-Yield Forestry Co., Ltd.	CFCC/PEFC-FM-ZTFC-000006
9	Guangxi Xing Guilin Agriculture Technology Co., Ltd.	CFCC/PEFC-FM-ZTFC-000031
10	Guangxi Jin Taiyang Forestry Co., Ltd.	CFCC/PEFC-FM-ZTFC-000031
11	Wenshan Jin Wenshan High-Yield Forestry Co., Ltd.	CFCC/PEFC-FM-ZTFC-000017
12	Simao Jin Lancang High-Yield Forestry Co., Ltd.	CFCC/PEFC-FM-ZTFC-000018

*CFCC/PEFC-FM certification refers to CFCC/PEFC Forest Management certification.

CFCC/PEFC-CoC Certification* at APP China

No.	APP China Affiliates	Certificate No.
1	Gold East Paper (Jiangsu) Co., Ltd.	SGS-CFCC/PEFC-COC-001002
2	Gold Huasheng Paper (Suzhou Industrial Park) Co., Ltd.	SGS-CFCC/PEFC-COC-001026
3	Ningbo Asia Pulp and Paper Co., Ltd.	SGS-CFCC/PEFC-COC-001031

No.	APP China Affiliates	Certificate No.
4	Hainan Jinhai Pulp & Paper Co., Ltd.	SGS-CFCC/PEFC-COC-001058
5	Gold HongYe Paper Group Co., Ltd.	BV-CFCC/PEFC-COC-12246465
6	Hainan Gold Hong Ye Paper Co., Ltd.	BV-CFCC/PEFC-COC-12246465-B
7	Gold Hongye Trading (Hong Kong) Co., Ltd.	SGS-PEFC/COC-1463
8	Guangxi Jingui Pulp & Paper Co., Ltd.	SGS-CFCC/PEFC-COC-001013
9	Shandong Bohui Paper Co., Ltd.	SGS-CFCC/PEFC-COC-001115
10	Hainan Jinhai Trading (Hong Kong) Co., Ltd.	SGS-PEFC/COC-1467
11	Gold East Trading (Hong Kong) Co., Ltd.	SGS-PEFC/COC-0249
12	Gold Shengpu Paper Products (Suzhou Industrial Park) Co., Ltd.	SGS-CFCC/PEFC-COC-001037
13	Yalong Paper Products (Kunshan) Co., Ltd.	SGS-CFCC/PEFC-COC-001059
14	Gold Huasheng Trading (Hong Kong) Co., Ltd.	SGS-PEFC/COC-1464
15	Ningbo Yajiang Trading (Hong Kong) Co., Ltd.	SGS-PEFC/COC-1465
16	Jinxin (Qingyuan) Paper Industry Pte., Ltd.	SGS-CFCC/PEFC-COC-001098

*CFCC/PEFC-CoC certification refers to CFCC/PEFC Chain of Custody certification.




2021 Main Sustainability Management System Certification at APP China

	ISO9001	ISO14001	ISO45001	ISO50001	CFCC/PEFC-CoC
Gold East Paper	Re-certificate audit	Periodic audit	Periodic audit	Periodic audit	Periodic audit
Gold Hongye Paper	Certificate renewal	Periodic audit	-	-	Periodic audit
Ningbo Asia	Re-certificate audit	Re-certificate audit	Re-certificate audit	-	Periodic audit
Hainan Jinhai Pulp & Paper	Periodic audit	Periodic audit	Periodic audit	Periodic audit	Periodic audit
Guangxi Jingui Pulp & Paper	Periodic audit	Periodic audit	Periodic audit	-	Periodic audit
Shandong Base of Bohui Paper	Periodic audit	Periodic audit	Periodic audit	Initial audit	Periodic audit
Jiangsu Base of Bohui Paper	Periodic audit	-	-	Periodic audit	-

Stakeholder Engagement

APP China uses a variety of channels to stay connected with the stakeholders, who we have divided into 10 categories. The communication channels set up by different departments allow us to understand the expectations and demands of each stakeholder group in a timely manner and actively respond by making improvements to our management and practices.

Stakeholders	Top Concerns	Engagement Channels
Employees 	Occupational health and safety Environmental compliance Corporate governance and business ethics Water management Human rights	<ul style="list-style-type: none"> Company internal magazine APP Culture Voice platform Employee representative meetings Employee communication meetings Executive mailbox MBOS proposal competition Training activities on different topics Diversified employee activities Sustainability reports WeChat Official Account
Customers and consumers 	Environmental compliance Product quality and safety Customer relationship management Sustainable forest management Climate strategy Water management Biodiversity	<ul style="list-style-type: none"> Customer visits Engagement meetings Little A Classroom Industry conferences/events Customer satisfaction surveys Customer service hotline/mail Company website Sustainability reports WeChat Official Account
Suppliers/Contractors 	Occupational health and safety Win-win cooperation Employment relations Environmental compliance Product quality and safety Water management Economic performance Customer relationship management	<ul style="list-style-type: none"> Supplier/Contractor meetings Cooperative R&D mechanism Supplier/Contractor training Regular supervision and inspection Sustainability reports
Banks 	Customer relationship management Win-win cooperation Responsible supply chain Energy management Occupational health and safety Talent training and development	<ul style="list-style-type: none"> Daily communication meetings Cooperative agreement Sustainability reports Company website
Government agencies 	Environmental compliance Product quality and safety Water management Climate strategy Energy management Air pollutant emissions	<ul style="list-style-type: none"> Government communication meetings Government inspections and field visits Information disclosure and reporting Thematic training Regular visits Awards and recognition Sustainability reports Company website

Stakeholders	Top Concerns	Engagement Channels
Community representatives 	Product quality and safety Environmental compliance Climate strategy Water management Philanthropy and common prosperity	<ul style="list-style-type: none"> Community opinion processing and feedback Community representatives' supervision and engagement Mill visits WeChat communication platform Project cooperation Charitable activities and volunteer activities Papermaking culture popularization activities
Industry associations 	Economic performance Digital and intelligent development Product quality and safety R&D and innovation Win-win cooperation Climate strategy	<ul style="list-style-type: none"> Industrial exhibitions, seminars, and thematic forums Regular visits Awards and recognition Research and cooperation Industry publications Sustainability reports
Professional institutions 	Corporate governance and business ethics Product quality and safety Environmental compliance Sustainable forest management R&D and innovation Risk and compliance management Air pollutant emissions Biodiversity	<ul style="list-style-type: none"> Industry-University-Research Cooperation Joint talent cultivation Professional exchange and on-site research activities Training activities Company website Sustainability reports
NGOs 	Waste management Water management Biodiversity R&D and innovation Environmental compliance Sustainable forest management	<ul style="list-style-type: none"> Communication on specific topics Charity projects donation and cooperation Sustainability reports Company website WeChat Official Account
Media 	Air pollutant emissions Product quality and safety Water management Climate strategy R&D and innovation Environmental compliance Energy management	<ul style="list-style-type: none"> On-site participation in events Meetings, exhibitions, forums, etc. Company website WeChat Official Account Executive interviews

The Story of Paper in China Becoming Part of Permanent Collection at NLC and CNME

The Story of Paper in China, a documentary about the development of paper industry in China, consists of footages of Gold East Paper, Ningbo Asia, Gold Hongye, Hainan Jinhai Pulp & Paper, and APP China Forestry, among other companies. It was shortlisted for the 2021 Beijing Ethnographic Film Festival and has become part of the permanent collection at both the National Library of China (NLC) and the Chinese National Museum of Ethnology (CNME).

The Story of Paper in China is the first major documentary in China about the origins and development of Chinese papermaking technology from a cultural perspective shot by a CCTV (China Central Television) team. As a corporate representative of China's paper industry, APP China displays its advanced production technologies, products, and high-performing workforce in the documentary. The film gives a realistic and vivid presentation of the century-long revival of China's modern papermaking industry.

Supporting Charitable Cause for Biodiversity

Together with a few Chinese paper artists, APP China hosted a six-week paper art exhibition entitled "Sound in the Clouds Again" at the Sinar Mas Plaza in September 2021. The works on display were made of simple white paper, but were artistically sculpted such that they breathed "life back" into 20+ bird species that had become extinct or were endangered in the last few centuries around the world. The paper used included Gold Ball

230g and 280g bag paper, both provided by APP China. The event was intended to raise public awareness of biodiversity protection. The Company also bought one artwork about an extinct bird. It will sell it for charity and donate all the proceeds to SEE Foundation's SEE Free Flying Wings program, a comprehensive ecological conservation program dedicated to protecting the most endangered waterbirds and their habitats in China.



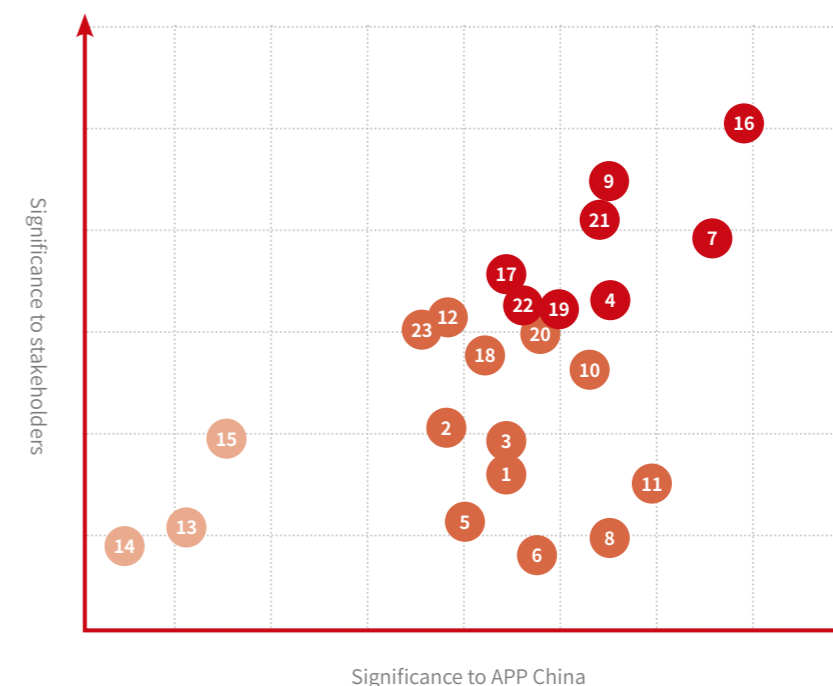
"Sound in the Clouds Again" paper artworks

Materiality Assessment

Every year, APP China conducts a materiality assessment to understand the importance of our sustainability issues to different stakeholders. After launching the APP China ESG strategy, we incorporated an ESG lens into the identification of material topics. While continuing to follow the GRI Standards, the SASB Standards for Pulp & Paper Products and Forestry Management, and the major development trends in China, we also took into account the focal issues of the forest and paper industry as outlined in mainstream ESG rating systems such as the S&P Global CSA (Corporate Sustainability Assessment). Those efforts led us to identify 23 sustainability/ESG issues that are highly relevant to APP China. A few changes have been made compared to 2020, including breaking "addressing climate

change" into "climate strategy" and "energy management" and changing "supporting philanthropy" to "philanthropy and common prosperity". Some topics have been rephrased to align with our strategic priorities.

The 2021 survey was conducted as an online questionnaire, with 1,282 valid responses collected from key stakeholders. We scored and analyzed those issues from the two dimensions of "significance to APP China" and "significance to stakeholders". We then prioritized the issues based on a combination of the scores and input from internal and external experts.



High materiality issues	Medium materiality issues	Low materiality issues
16 Environmental compliance	20 Waste management	15 Win-win cooperation
9 Occupational health and safety	10 Employment relations	13 Philanthropy and common prosperity
7 Product quality and safety	12 Human rights	14 Community relations and cultural communication
21 Water management	18 Energy management	
4 Corporate governance and business ethics	23 Biodiversity	
17 Climate strategy	11 Talent training and development	
19 Air pollutant emissions	3 R&D and innovation	
22 Sustainable forest management	2 Digital and intelligent development	
	1 Economic performance	
	8 Customer relationship management	
	5 Risk and compliance management	
	6 Responsible supply chain	

Issues	Contents in report	Internal boundaries	External boundaries		
			Customers and consumers	Suppliers	Community
Economic performance	Company Profile	●			●
	Performance in Numbers				
Digital and intelligent development	Company Profile				
	Our Strategy				
	Addressing Climate Change Through Decarbonization and Green Solutions	●	●	●	
	Accelerating Digital and Intelligent Transformation and Empowering High-Quality Development				
R&D and innovation	Information Security Management				
	Addressing Climate Change Through Decarbonization and Green Solutions				
	Accelerating Digital and Intelligent Transformation and Empowering High-Quality Development	●	●	●	●
Corporate governance and business ethics	Evolving with the Times: Providing Paper Solutions for Society				
	About APP China				
	Business Integrity and Ethics	●	●	●	●
Risk and compliance management	Supply Chain Management				
	Risk Management	●	●	●	●
Responsible supply chain	Business Integrity and Ethics	●	●	●	●
	Performance in Numbers				
	Our Strategy				
	Addressing Climate Change Through Decarbonization and Green Solutions	●	●	●	●
Product quality and safety	Supply Chain Management				
	Performance in Numbers				
	Evolving with the Times: Providing Paper Solutions for Society	●	●	●	
Customer relationship management	Product Responsibility	●	●		
	Customer Relationship Management				
Occupational health and safety	Product Responsibility	●			
	Customer Relationship Management				
Employment relations	Safety and Health	●		●	●
	Performance in Numbers				
Talent training and development	Passing on Corporate Culture and Moving Forward with Employees	●			
	Performance in Numbers				
	Passing on Corporate Culture and Moving Forward with Employees	●			
Human rights	Performance in Numbers				
	Passing on Corporate Culture and Moving Forward with Employees	●		●	●

Issues	Contents in report	Internal boundaries	External boundaries		
			Customers and consumers	Suppliers	Community
Human rights	Safety and Health				
	Supply Chain Management				
	Community Engagement	●		●	●
	Charity and Philanthropy				
Philanthropy and common prosperity	Performance in Numbers				
	Charity and Philanthropy	●			●
Community relations and cultural communication	Performance in Numbers				
	Charity and Philanthropy	●			●
Win-win cooperation	Community Engagement	●			
	Charity and Philanthropy				
Environmental compliance	Stakeholder Engagement				
	Evolving with the Times: Providing Paper Solutions for Society	●	●	●	●
	Forest Resources Management				
Climate strategy	Cleaner Production Management	●		●	●
	Performance in Numbers				
	Our Strategy				
	Addressing Climate Change Through Decarbonization and Green Solutions	●	●	●	●
Energy management	Accelerating Digital and Intelligent Transformation and Empowering High-Quality Development				
	Cleaner Production Management				
	Performance in Numbers				
	Our Strategy				
Air pollutant emissions	Addressing Climate Change Through Decarbonization and Green Solutions	●	●	●	●
	Accelerating Digital and Intelligent Transformation and Empowering High-Quality Development				
Waste management	Cleaner Production Management	●			●
	Performance in Numbers				
Water management	Cleaner Production Management	●			●
	Performance in Numbers				
Sustainable forest management	Our Strategy				
	Addressing Climate Change Through Decarbonization and Green Solutions	●	●	●	●
	Forest Resources Management				
Biodiversity	Our Strategy				
	Forest Resources Management	●	●	●	●

In a Time of Change

The world is undergoing profound changes: scientists have been sounding the alarm on global warming while climate change continues to worsen and threaten our livelihoods; digital technologies are creating an economic upheaval and becoming a strategic key to industry leadership; technological innovation continues to play a bigger role in the achievement of sustainable development around the globe, and industries are competing to stay proactive in the changing landscape of innovation. Such instability and uncertainty have been further fueled by the COVID-19 pandemic that is increasingly becoming part of life. It thus remains highly critical for today's enterprises to carefully consider the transformation they need to go through to be optimally positioned to adapt and respond to such changes.

As a backbone of the national economy, the manufacturing industry is also facing huge challenges in this time of change. Its high-quality and sustainable development will depend to a large extent on how well it can turn those challenges into opportunities. As the 14th FYP period unfolds, China has made revitalizing the manufacturing industry, especially advanced manufacturing, a top priority in the establishment of a new development pattern. China has set out a list of goals and tasks centered around the high-quality development of the manufacturing industry to guide companies in their transformation and upgrading efforts.

As a pulp and paper company with a global vision and a foothold in China, APP China maintains an unwavering commitment to sustainability, acts to support national development strategies, and actively works towards a low-carbon transition based on the "Integration of Plantation-Pulp-Paper" green cycle model; seeks digital and intelligent upgrading of the entire industry chain to empower value creation; explores opportunities of innovation and green product solutions; strengthens corporate culture, fosters strong solidarity between employees and the Company, and gives employees vast room to grow, thrive, and realize their career aspirations. We will continuously fulfill our social responsibilities as a major industry player, getting behind the wheel and heading in the right direction amidst this tidal wave of change. We will stand in solidarity with our stakeholders and with the wider papermaking industry in China and move forward to a beautiful future.

Addressing Climate Change Through Decarbonization and Green Solutions

Highlight of the Year

"Carbon Neutral" Products Stimulating Low-Carbon Consumption

The transition to a green and low-carbon lifestyle is an important pillar and driver for achieving the 30-60 Goals. APP China pays close attention to GHG emissions throughout the product lifecycle and strives to provide consumers with a broader selection of green and low-carbon products. In May 2021, APP China released the Group's first "carbon-neutral" tissue series to raise awareness of the importance of carbon neutrality and encourage public engagement in decarbonization actions.

The first collection of "carbon neutral" tissue products includes 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 Shanghai Co., Ltd., 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. In August 2021, numerous product series of various specifications from Gold Hongye such as toilet paper, facial tissues, napkins, paper handkerchiefs, and wipes under brands like Breeze™ and EMPORIA™ were granted the China Green Product Certification by an accredited third-party organization. They are among the first tissue products to be green certified in the Chinese market.

The "carbon neutral" products have been possible because of APP China's rapid progress in carbon emissions

management. Back in November 2019, we started the perform carbon sink accounting project in our plantations, and from it we have gained a full grasp of the combined carbon sink of all 270,000+ hectares of our plantations. At the same time, we have been continuously driving down our energy use and carbon emissions by adopting advanced processes, technologies, and equipment whilst undertaking initiatives designed to improve energy efficiency and optimize the energy mix. Going forward, we will further explore our "carbon neutral" potential to extend the concept to more product series under all three categories of tissues, industrial paper, and cultural paper, and we will join hands with more business partners and consumers to build a green and low-carbon future.



Some of APP China's "carbon neutral" products

Managing Climate-Related Risks and Opportunities



Scan the QR code to read the APP China Addressing Climate Change Report

Climate change is a major challenge facing all humanity today. For the papermaking industry, the low-carbon transition is both a necessary step for meeting challenges of the times and a historical opportunity for companies to refresh their core competencies. Our long-standing commitment to the "Integration of Plantation-Pulp-Paper" model has built "green" into our DNA; in alignment with the national 30-60 Goals, we proactively explore climate action strategies to advance the Company-wide green and low-carbon transition at a strategic level and continuously build stronger climate change mitigation and adaptation capabilities while exploring green development opportunities to do our part to help realize carbon neutrality.

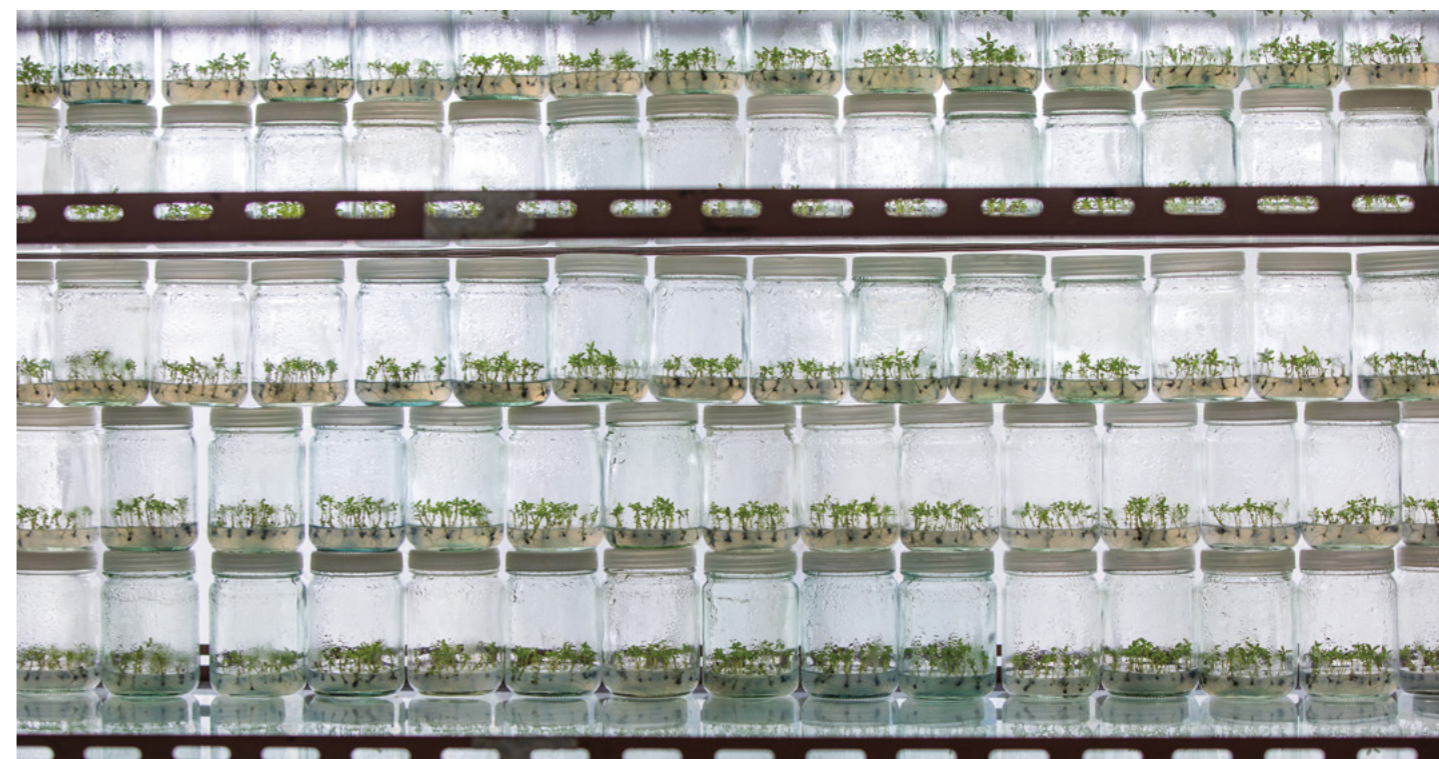
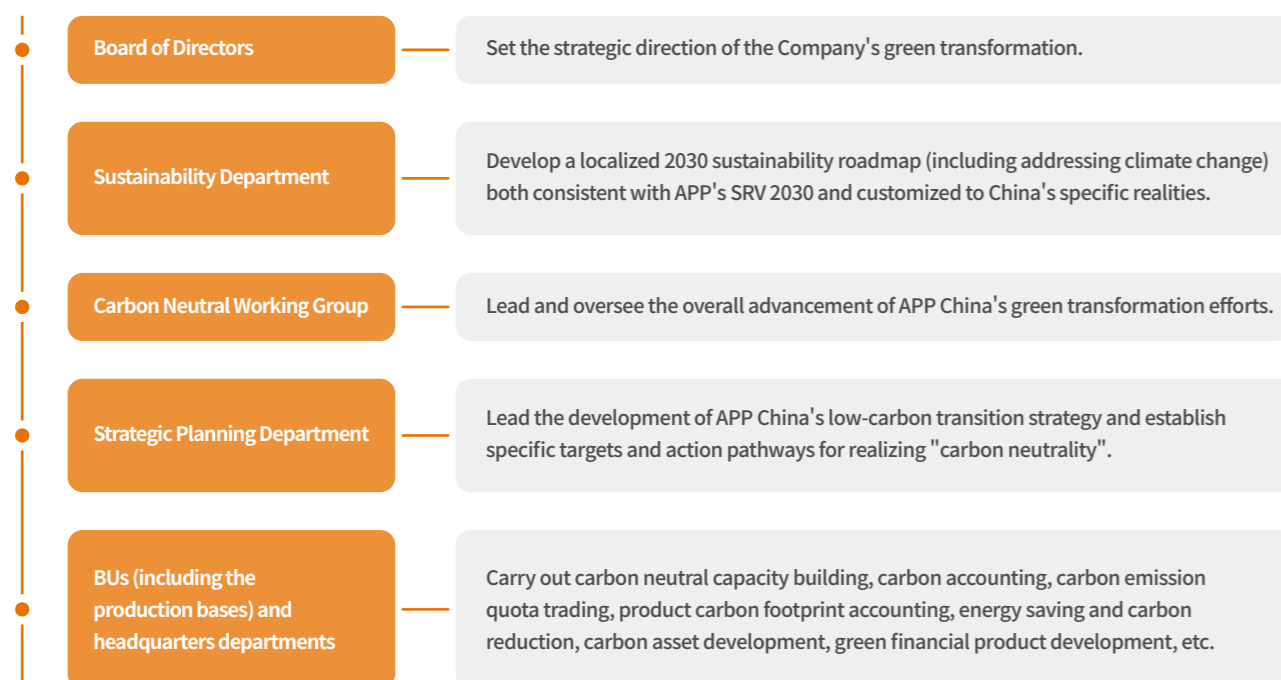
APP China's Board of Directors and management team place a strong emphasis on climate-related risks and opportunities and make it a top priority in our green transformation strategy to realize the "carbon neutrality" goal. We strive to make meaningful contributions to reaching peak carbon emissions and carbon neutrality in many and varied ways, as reflected in the following efforts: we identified and assessed the challenges and potential impacts of climate-related factors on our production and operations and formulated low-carbon transition strategies based on our business development plan; leveraged our plantations, which are part of our "green DNA", and optimized our energy mix; strengthened carbon emissions management capabilities and intensified efforts to develop low-carbon products.

◆ Governance System for Addressing Climate Change

In 2021, APP China's Board of Directors led a systematic planning process to deploy green transformation efforts. A Carbon Neutral Working Group was set up that spanned our Paper BU, Tissue BU, Forestry BU, and all the headquarters departments, each assigning

a team leader and several members. The team assessed the core modules of climate-related work and plans to work out the "carbon neutral" strategic roadmap plan by 2022.

APP China's Governance System for Addressing Climate Change



APP China Forestry's carbon sink is based on cell and tissue culture of seedlings and science- and technology-based forest management

◆ Risk and Opportunity Management Actions

As China strives towards the 30-60 Goals, the construction of a national "1+N" policy system has been gathering pace. In May 2021, the Central Committee of the Communist Party of China and the State Council issued the *Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy*, constituting the "1" overarching policy. The "N" policies that include industry- and sector-specific implementation plans, along with a set of supporting plans, are expected to be released in the near future. Meanwhile, China has been evolving its carbon pricing mechanism to provide a market-based incentive for companies to lower their energy use and carbon emissions. It is thus foreseeable that, companies will face more stringent constraints on energy consumption and GHG emissions and carbon compliance costs will continue to rise for key emitters. What needs to be seen is that the goal of limiting global warming to 1.5 °C should not be perceived by enterprises as a pressure to

passively respond. Instead, all enterprises are obliged to take the initiative to contribute to the global sustainability agenda. This is a precious opportunity to bring real benefits to our future generations. We believe that new opportunities will come along as we work towards such a future.

As well as implementing climate change mitigation actions, adapting to climate change is also important for APP China. We have more than 270,000 hectares of plantations in China, and their growth has every relevance to the climate. Frequent extreme weather events such as high temperatures, typhoons, and heavy rainfall continue to inflict varying degrees of damage on forests. In addition, our production bases are primarily located in coastal areas, which exposes them to weather-related risks like flooding, typhoons, and sea level rise in the medium to long term. For all those reasons and more, implementing effective climate change adaptation initiatives is also an area we need to pay more attention to in the future.

We have launched a series of climate-related initiatives so far and are actively exploring opportunities that may arise from our green and low-carbon transformation. Drawing on the Company's "carbon neutral" strategic roadmap, we will continuously optimize our climate-related indicators and targets and formulate specific implementation plans towards the achievement of the targets.

• **Conserving and Utilizing Forestry Resources**

By the end of 2021, APP China's plantations totaled an area of 270,911 hectares, with 90.9% certified to CFCC/PEFC. Continuous certification helps us closely monitor and manage the sustainability risks in our plantations and enhance their carbon sequestration capacity. In recent years, we are placing a growing focus on forest carbon sink and have completed an accounting of the cumulative carbon sink of our plantations as of the end of 2020. In 2021, APP China Forestry took our carbon sink efforts to the next level. The company conducted exhaustive research on national and local policies on carbon trading, carbon sinks, and carbon inclusion before communicating them at all of our forest areas through study sessions and discussions. It went on to formulate proposals for several carbon sink projects, making full preparation for undertaking plantation-based CCER projects in the future.

In the meantime, APP China Forestry continued developing new seedling strains resistant to wind, frost, drought, or insect pests to increase the resilience of our plantations to climate change and other changes in the natural environment. Since August 2020, APP China Forestry has been working with Hainan Jinhai Pulp & Paper and the Eucalyptus Center to conduct research related to the pulp cooking performance of different eucalyptus varieties, completing a series of pulp yield tests on new strains in 2021. They intend to use such research to find ways to improve pulp production quality so that forest resources can be more efficiently utilized.

• **Strengthening Energy Management**

APP China continues to invest in environmental protection and constantly strives towards an optimal energy mix by adopting advanced low-carbon technologies, implementing energy-efficiency retrofits of technologies and processes, increasing the proportion of renewable energy, and improving management processes. In 2021, we further expanded the uptake of low-carbon technologies and equipment at our mills, including and the application of magnetic levitation fans, lithium bromide absorption chillers, the multi-effect evaporation technology, magnetic levitation vacuum pumps, and lithium bromide absorption heat pumps, among others, which stands to considerably reduce carbon emissions. Under the Group's guidance, our mills also started to initiate or expand rooftop photovoltaic (PV) projects while increasing the ratio of biomass in fuel procurement and consumption, thereby continuously increasing the proportion of renewable energy in our

overall energy mix. Rudong Base is currently exploring the application of offshore wind power and coastal mudflats PV power, among other types of clean energy.

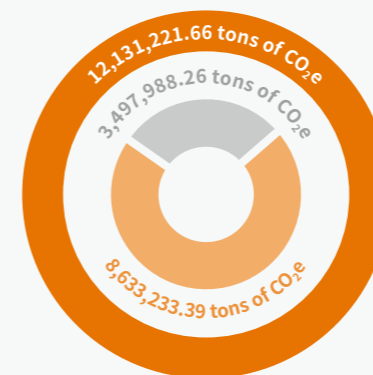
We also continued to pursue digital development. Starting from the planning stage, Rudong Base had put digital development at a predominant position. It is currently building a suite of smart projects to be the Group's benchmark. At the same time, our mills have entered stage 2.0 on the digital transition journey. Real-time data tracking and monitoring at this stage empowers us to perform accurate energy and resource management, which has led to notable reductions in the use of electricity and water, paper loss ratio, and unplanned equipment downtime. For more details, please refer to the "Accelerating Digital and Intelligent Transformation and Empowering High-Quality Development" section.

• **Carbon Emissions Monitoring and Carbon Quota Management**

We continue to evolve our carbon emissions monitoring, reporting, and verification management mechanism to enhance comprehensive carbon emissions management. Our mills carry out an ongoing elemental carbon measurement program, independently testing the calorific value of energy used and the carbon content per unit of calorific value, to increase the accuracy of the carbon emissions data. Our Paper BU coordinates and manages its mills' participation in carbon trading and has formed specific working groups, such as the Policy Group, the Energy Saving and Emission Reduction Group, the Biomass Fuel Group, and the Carbon Neutral Certification Group, to reinforce carbon management capabilities.

In recent years, we have been working to unify the carbon quota management of all the APP China mills included in the national emissions trading scheme (EST) at the Group level. In the Company's MBOS proposal competition, our employees presented a multitude of practical improvement plans around energy saving and carbon reduction after studiously researching the topic. Several improvement project teams have been formed at the mills, tasked with exploring room for reducing energy use and carbon emissions and finding ways to deliver on both carbon reduction and carbon profits. Guangxi Jingui Pulp & Paper has developed assessment targets and an incentive mechanism specially for quota surplus, linking quota surplus with the performance review of relevant departmental heads while establishing incentives for meeting the targets. In 2021, APP China fulfilled all of its carbon emissions compliance obligations in the first compliance cycle (2019-2020) of the national EST.

GHG emissions by the eight mills within the scope of reporting in 2020*



● Total emissions ● Scope 1 ● Scope 2

* As of the completion of this report, the GHG emissions data of most mills for the year 2021 were still being calculated, so the emissions disclosed in this report are for the year before, i.e., January 1, 2020 to December 31, 2020. The scope of data covers Gold East Paper, Ningbo Asia, Guangxi Jingui Pulp & Paper, Hainan Jinhai Pulp & Paper, Hainan Gold Hongye, Hainan Gold Shengpu, Shandong Base of Bohui Paper, and Jiangsu Base of Bohui Paper. As to the other mills, Rudong Base became officially operational in the second half of 2021; Gold Huasheng and Suzhou Gold Hongye were shut down in April 2022. The GHG emissions data for those mills are not included in the scope of this report therefore not disclosed as most of them are no longer available. The carbon accounting at Ningbo Asia was performed in accordance with the ISO 14064-1:2018, while other mills used the *Greenhouse Gas Emissions Accounting Methodology and Reporting Guidelines for Paper and Paper Product Manufacturers (for Trial Implementation)* issued by the National Development and Reform Commission and the *Corporate Greenhouse Gas Emissions Accounting Methodology and Reporting Guidelines for Power Generation Facilities* issued by the Ministry of Ecology and Environment.

• **Developing Green Products and Advocating Green Consumption**

We have made considerable investment in developing and promoting environmentally friendly products. The release of high-bulk products, ultrahigh-bulk products, biodegradable and recyclable products, etc. has generated positive environmental impacts like reduced consumption of resources and plastic. Meanwhile, APP China mills have been undertaking CFCC/PEFC Chain of Custody certification for years to ensure reliable raw material sourcing. We launched a "carbon neutral" tissue series in 2021 and plan to embed this concept into more product categories in the future to help direct people towards green consumption and a low-carbon lifestyle.

- Six Gold Hongye products obtained the **Carbon Footprint** certificate in May 2021
- Gold Hongye's products were **among the first in the industry to obtain the Green Product Certification** in September 2021

We are currently working with financial institutions to explore opportunities to develop green bonds focused on "carbon neutrality". We hope to leverage the Group's ability to allocate green resources to provide financial support for green projects that contribute to carbon reductions and facilitate a green and low-carbon transition in industrial structure, energy mix, and lifestyle.

Accelerating Digital and Intelligent Transformation and Empowering High-Quality Development

Highlight of the Year

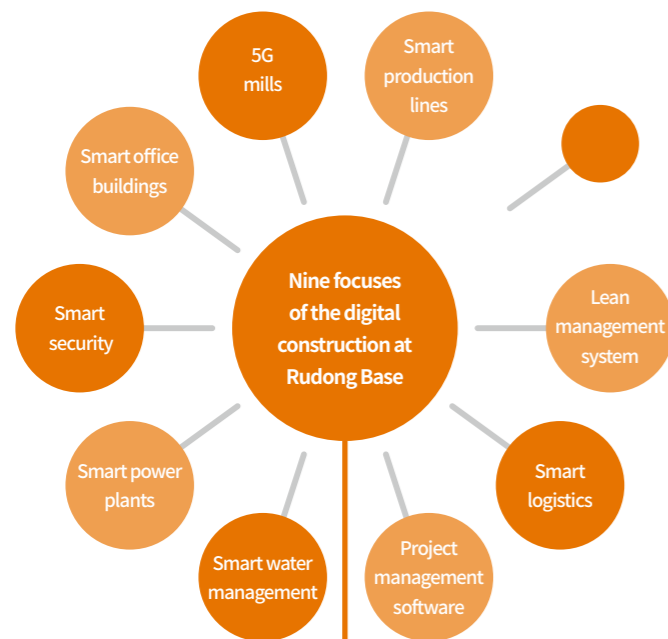
A Closer Look at the Sinar Mas Rudong High-Grade Tissue Industrial Base

After the No. 1 production line of the High-Grade Tissue Industrial Base of Sinar Mas Gold Hongye (Nantong) Co., Ltd. ("Rudong Base" for short) started operation in June 2021, eight paper machines were turning out paper products by the end of the year at a total capacity of 240,000 tons. Capacity is expected to reach 780,000 tons when phase I construction is completed in 2022. With a total planned area of 8,500 *mu*, Rudong Base has been built following an investment made by Gold Hongye Paper Group Co., Ltd. at the Yangkou Port. Divided into three phases of construction,

the Base has a total annual design capacity of 3.96 million tons of high-grade tissues and will be mainly used for producing tissue products such as Breeze, VIRJOY, and EMPORIA.

The project adopts an "Industry 4.0 + AI" production model and strives to become a world-leading smart and eco-friendly paper production base. The adoption of various digital technologies like big data, 5G, and cloud computing, combined with advanced smart equipment and system software, systematically integrates of all stages of production from papermaking

and processing to logistics. This enables an operating model where smart manufacturing, smart services, and smart management are closely knitted together. It thus realizes "data-based information, modular management, and automated production" and a fully digitalized supply chain that goes from suppliers to pulp and paper mills and all the way to the end customers. All of those serve to remarkably enhance the overall efficiency of the supply chain while keeping the consumption of energy and resources at much lower levels.



- Strengthen the maturation and application of software, equipment, process optimization, management changes, and massive data so that they can be turned into new capabilities.
- Continuously update smart production equipment and use industrial and logistics robots at scale.
- Establish an expert knowledge base, perform online monitoring of key data such as the operating status of equipment, fault diagnosis, and product quality, provide swift solutions, and gradually realize automated monitoring.
- Harness the data analysis capabilities of 5G and AI to make smart diagnosis of such indicators as energy consumption, water consumption, and raw material consumption.

Building Smart Logistics at Rudong Base

As a key component of Rudong Base construction, the purpose of developing smart logistics is to create an end-to-end integrated supply chain and enable information flows across all stages from suppliers to production and to customers. Rudong Base made further automation and intelligence upgrades of its logistics system in 2021 and will achieve 5G coverage in 2022.

Rudong Base balances smart and green considerations in its development. One example is the design of the logistical traffic flow. It has been designed to avoid overlapping or detour, which ensures the storage and transportation system operates efficiently. The Base also takes advantage of frequency converters to save energy and reduce carbon emissions.

Key technologies in logistics

Smart logistics equipment system, production process control system, smart data analysis and monitoring system, centralized control center

New equipment in logistics

Unmanned weighbridge, mobile handling robots – packaging material AGVs (automated guided vehicles), base paper RGVs (rail guided vehicles), base paper RFID (radio frequency identification) technology, automated warehouses for finished products, AI+3D vision depalletizing robots



Automated sizing line



Fully automated sealing and palletizing assembly line

"Restructuring" Effect of Digitalization

The ever-advancing digital technologies are driving rapid economic change. The 14th FYP calls for "accelerating digitized development and building a digital China", shifting China's digital transformation and digital construction into higher gear. As most traditional manufacturing enterprises undergo varying degrees of digital transformation, China's manufacturing industry is entering an era of "smart manufacturing" driven by digital technologies and technological innovation.

As a pulp and paper company with a global presence and a rich portfolio of paper products, APP China has been making a smart and digital shift in our operating model. We have incorporated digital transformation and technological innovation into the Group's Four-Wheel Drive strategy and made digital and intelligent transformation one of the Group's two objectives of strategic transformation. In the longer term, we look to restructure four areas of business, namely business processes, customer experience, product structure and services, and business model, as we pivot to fully leverage the digital economy.

During Digital 1.0, APP China has moved a large amount of business online and broken the barriers between business departments. In this process, we accumulated a large body of data covering the various modules of sales, production, operations, logistics, finance, customer management, etc. and realized standardized, systematic, and visualized management. In 2021, we started to gradually phase into Digital 2.0 period, where we are to turn the business data collected in the previous stage into more valuable applications to inform better management decisions; we will also accelerate the application of big data and AI to achieve more breakthroughs in smart manufacturing, user demand analysis and response, etc.

Upgraded the customer relationship management (CRM) platform to fully digitalize order information management, with customer self-help ordering rate topping

80 %

Advanced the management of the various scenarios such as procurement, access control weighbridge, inspection, and settlement, realizing integrated automation of over

300 scenarios

The acquisition, tracking, and timely management of real-time data led to significant energy savings and consumption reductions at the mills:

Water use reduced by

8.8 %

Guangxi Jingui Pulp & Paper statistics from July to October 2021



External power consumption reduced by

25 %

Hainan Jinhai Pulp & Paper statistics from 2019 to 2021



Ratio efficiency of paper loss optimization increased by

40 %

Ningbo Asia statistics from June 2020 to October 2021



• Unmanned Weighbridge System

In May 2021, nine unmanned intelligent weighbridges at Guangxi Jingui Pulp & Paper became fully operational. The system, underpinned by a number of cutting-edge technologies such as AI and big data, enables quick and accurate weighing of vehicles without human assistance. It automatically detects vehicles with abnormal tare weight to prevent fraud or cheating while performing fully automated collection, identification, and control of the weighing readings. Since the system was put into use, the accuracy rate of weighing has remained at 100%; the average weighing time has been halved from an average of 4 minutes per vehicle when manual handling was used, and so has the number of operators needed, which has gone down from 4 to 2, saving 50% in manpower needed.

• A Fully Automated Modern Stereoscopic Warehouse

In December 2021, the fully automated modern stereoscopic warehouse of Guangxi Jingui Pulp & Paper was officially put into operation. It is a new generation of stereoscopic warehouse that utilizes high-level aisle stacker technology. The warehouse has a floor space of 24,000 square meters and is over 30 meters tall, allowing for a storage space utilization rate of over four times

that of ordinary warehouses. Moreover, the adoption of the Warehouse Control System (WCS) and the Warehouse Management System (WMS) has made possible the automated and unmanned movement of inventory into and out of the warehouse, further digitalizing logistics while improving the overall efficiency, safety, and accuracy of warehousing.



Guangxi Jingui Pulp & Paper's automated stereoscopic warehouse

• Bohui Paper Making a Comprehensive Digital Move

Bohui Paper launched Digital 1.0 project in May 2021 in pursuit of accurate management based on digital and preliminarily intelligent operations. The main objective of the project is to integrate the end-to-end business processes to form a closed-loop system spanning master data management, full-lifecycle quality management from raw materials to finished products, warehousing and logistics management, implementation and integration of research achievements, employee recruitment and development, etc. The project will officially begin operation in 2022.

• Integrating Data Chain to Improve Productivity

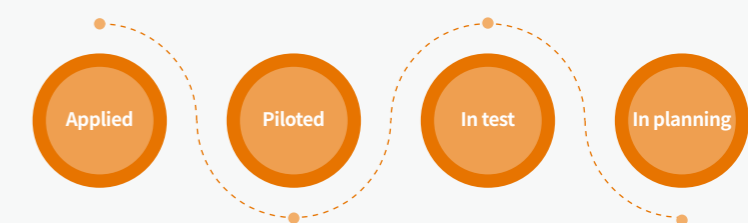
Hainan Jinhai Pulp & Paper has established an evolving production execution management system and a logistics management system to fully connect the data of all processes from the receiving of raw materials to the shipment of finished products, which has greatly boosted the productivity while reducing energy consumption. The company's data collection system can be connected to the production management system so that the key energy consumption parameters of each system and process can be integrated to enable real-time tracking of energy consumption in the production process. Additionally, improvements made to the system monitoring allow managers to stay updated on the operating status of important mechanical and electrical equipment at the mill to ensure workplace safety.



• Developing Smart Forestry

In keeping with the Group's digital and intelligent transformation strategy, APP China Forestry continues to make progress in automated and smart forestry. For one thing, the company accelerated mechanized operations, applying them to multiple forestry processes such as planting, fertilization, weeding, and timber collection; it also expanded the use of drones throughout the forestry lifecycle to continuously leverage their role in protecting forest resources and promoting their rational use.

Some of APP China Forestry's applications of drone technology



- Outlining and calculating the area of various types of plantations
- Pre-planting chemical weeding*
• Disease and insect pest control
• Plantation patrols
• Fire prevention and disaster relief
• Evidence collection for illegal logging
- Accurate measurement of tree height
• Calculation of forest stock volume in combination with growth models
- Measuring soil moisture content**
• Monitoring the growth health index of eucalyptus
• Disease and insect pest monitoring
• Classification of surface features

* Pre-planting chemical weeding: Chemical weed removal before planting.
** Soil moisture content: The amount of water present in the soil.

• Gold East Paper Receiving AAA-Level Standard Implementation Certification for Integration of Informationalization and Industrialization Management System

The integration of informationalization and industrialization is an important means of breaking through the bottlenecks facing Chinese companies in advancing digital transformation and an effective way to promote industrial restructuring and upgrading. By virtue of its "on-time order delivery management capability", Gold East Paper passed the Standard Implementation Certification for Integration of Informationalization and Industrialization Management System (AAA-Level). "On-time order delivery management" refers to the implementation of digital and integrated management throughout all processes from

order placement, raw material input, make-to-order production, quality control, and warehouse management to logistics and transportation. Using the system allows the business processes to be better integrated, enables more efficient allocation of resources, and guarantees timely delivery of orders. The AAA-level (process level) is currently the highest certification level for the integration of informationalization and industrialization management system. Gold East Paper is the first paper company in China to pass this level of certification.

• Promoting Forest Security with Digital Apps

Preventing forest fires and illegal forest activities such as illegal logging and deforestation is an important part of protecting forest resources, and human patrols are often undermined by challenges like steep and difficult trails in the woods, bad transportation, low efficiency, and limited protection capacity. In 2021, APP China Forestry, employing technological means like drones and video surveillance, was able to become aware of and activate timely response to a number of forest fires and incidents of illegal logging, thereby saving forest resources from potential damage.

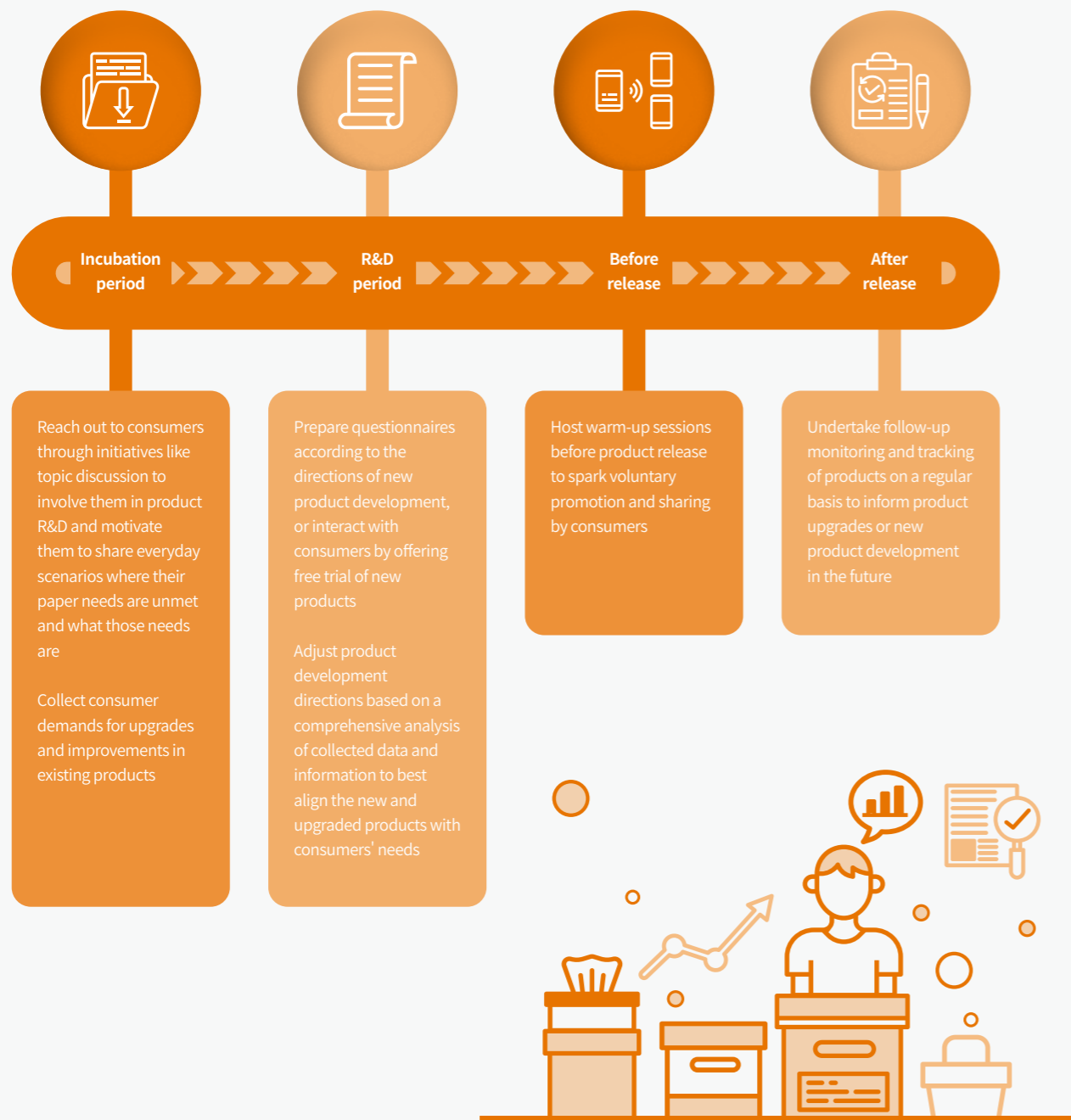


Using SCRM to "Customize" High-Quality Products for Consumers

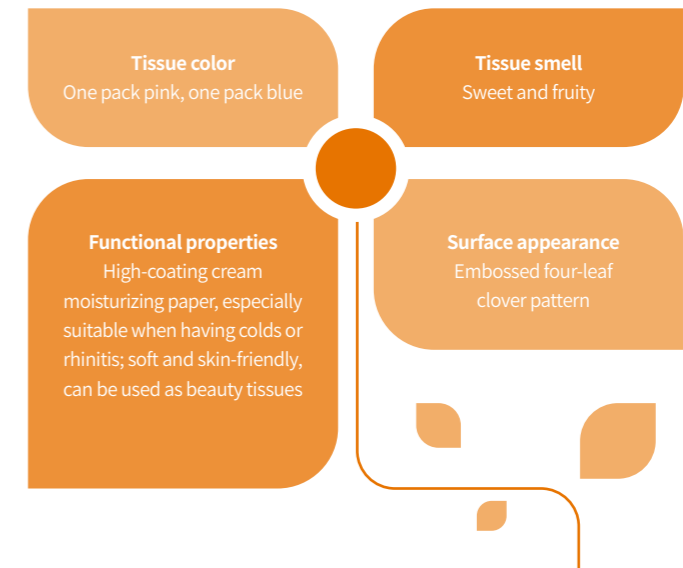
Gold Hongye Paper has set up the Social Customer Relationship Management (SCRM) platform on its online shopping app Breeze Picks. Inside the SCRM consumer review model, consumers are also the brand's followers, listeners, advisors, and co-creators.

Based on the SCRM platform, Gold Hongye Paper released the Breeze Young Two-Color Dazzling Tissue in 2021, a hit product that was so popular among young consumers that it ran out of stock at one point during pre-sale.

SCRM Review Process



When the Breeze Young Two-Color Dazzling Tissue was still in the creative direction research phase, Gold Hongye Paper received over **50,000** consumer inputs. Those inputs provided meaningful insights into young people's greatest concerns in respect of a product's visual, tactile, olfactory, and entertainment attributes, among others. This helped the company identify the four highlights of the new "hit" product:



Breeze Young Two-Color Dazzling Tissue

Evolving with the Times: Providing Paper Solutions for Society

Highlight of the Year

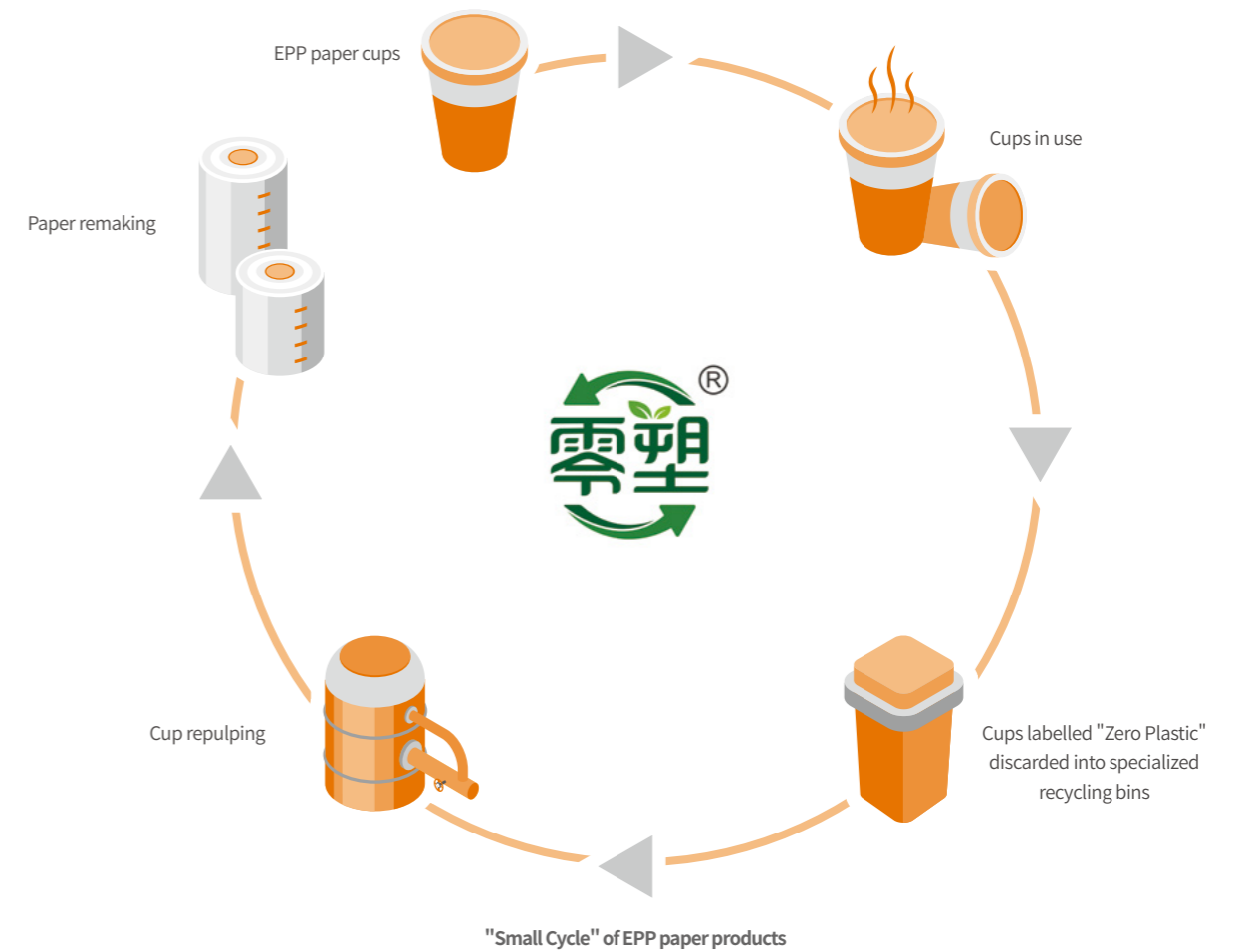
Bringing "Zero Plastic" Cups into Millions of Homes

The National Development and Reform Commission and the Ministry of Ecology and Environment jointly issued the *Opinions on Further Strengthening the Control of Plastic Pollution* in January 2020. It imposed a total ban on non-degradable single-use plastic straws in the catering industry nationwide by the end of 2020 and mandated a decrease of 30% in the consumption intensity of non-degradable disposable plastic tableware in the food takeaway sector in cities above the prefecture level by 2025. The introduction of the new "plastic

restriction order" fueled a strong push for exploring plastic reduction or substitution solutions across many sectors. It is in this context that a "green revolution" in the packaging sector kicked into full swing.

In 2020, Ningbo Asia developed and introduced the "Zero Plastic" cup paper (EPP paper) that is 100% free of plastic. Applying a coating of food-grade eco-friendly polymers to the paper during manufacturing gave its surface good barrier and heat-sealing properties such that it could be used to make paper

cups, paper bowls, food containers, soup buckets, and other food and beverage packages without the need to also apply PE lamination. Packaging products made of EPP paper are fluorescent-free, recyclable, 100% industrially degradable, repulpable, and compostable. Safe and environmentally friendly, such products are perfectly aligned with the megatrends for recyclable and green packaging materials.



"Small Cycle" of EPP paper products

In May 2021, APP China's EPP paper was granted the DIN CERTCO by the third-party testing and certification service provider TÜV Rheinland Group and received the European Bioplastics Association Industrial Composting certificate. Our "Zero Plastic" series were now granted all relevant domestic and international certifications after passing such tests as compostability and

degradability testing, eco-toxicity testing, PFCs POPs testing, and SML (T) (total specific migration limits) testing.

To promote the unification of industry standards for EPP paper and finished cups, Ningbo Asia actively participated in the development of the group standard for *Water-Based Coated Cups (Water-Based Coated Cup Paper Included)*. The

standard was officially released by China Paper Association in December 2021. It is China's first standard for water-based coated paper products and includes the first set of rules for the recyclability of water-based coated paper products. Its release gave a major push to regulated efforts by papermaking companies to make environmentally friendly products.

Why Aren't Traditional Paper Cups Environmentally Friendly?



Paper cups on the market are usually made of PE-laminated paper. While laminating base paper with a layer of PE can separate the paper from water thus saving it from being wetted or soaked, it has obvious drawbacks:

- » It is extremely difficult to separate the PE coating from paper cups, making them hardly recyclable, so they will end up in landfills or incinerators as waste.
- » PE coating is non-biodegradable, so paper cups carelessly dumped will add to plastic pollution.

How Can EPP Paper Contribute to a Low-Carbon Life?

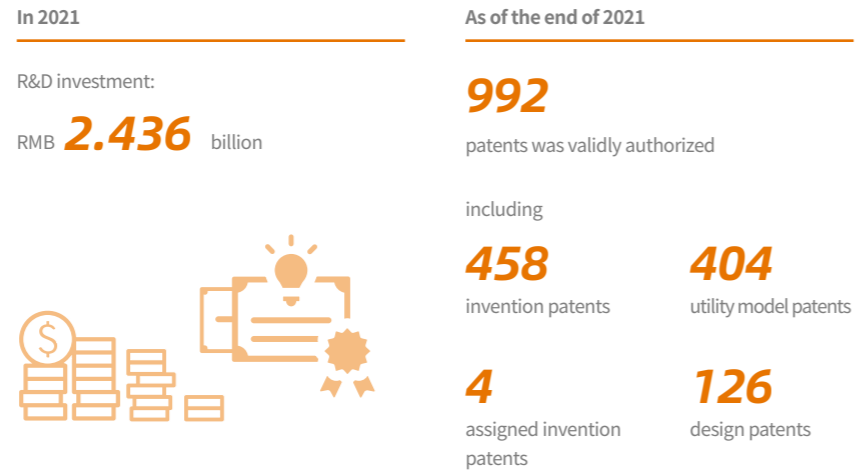


- » **If recycled:** Can be recycled 6 times after entering the waste paper recycling system, with at least 0.9 tons of high-quality paper fiber recycled per ton of EPP paper.
- » **If not recycled:** Can be almost completely degraded within 8 weeks; can be completely degraded within 106 days when mixed with compost, ending up as good as ordinary soil.



R&D and Innovation Management

Science and technology are the greatest productivity booster. APP China highly values R&D and innovation and fosters a strong atmosphere of technology and innovation inside the Company by constantly improving the R&D management system and increasing investment and support in R&D. In 2021, the R&D investment of all units within the scope of reporting totaled RMB2.436 billion; a total of 103 patents were filed, including 33 invention patents, 55 utility model patents, and 15 design patents. As of the end of 2021, we had 176 patents in the process of application.



Scientific and technical personnel are the driver and source of a company's innovation. In 2021, APP China revised the *Intellectual Property Management Measures* and the *Operating Rules for Patent Management*, further optimizing our IP management process and increasing the rewards for patents to stimulate increased employee participation in R&D, innovation, and patent application.

At the same time, APP China maintains close collaboration with external partners in exploring cutting-edge fields that promise potential for innovation to find more feasible pathways to promoting the high-quality development of the papermaking industry.

In September 2021, APP entered into a strategic partnership with SK Geo Centric, a world-renowned chemical company, to engage in cooperative endeavors in developing paper-based packaging materials and jointly contribute to creating an ecosystem of eco-friendly packaging materials.

APP China Forestry has partnered with Guangdong Eco-Engineering Polytechnic to build a doctoral workstation and partnered with the Research Institute of Tropical Forestry of the Chinese Academy of Forestry to build a science and technology demonstration base. They are to share resources in terms of technical teams and talent training and establish close cooperation in the R&D and innovation of seedling strains, the implementation of research findings, and the research on the environmental impact of plantations so as to realize "mutually beneficial college-enterprise cooperation".

Bohui Paper collaborated with Tianjin University of Science and Technology and the Institute of Chemical Industry of Forest Products of the Chinese Academy of Forestry respectively to research and develop new technologies in chemi-mechanical pulping. Once applied, the new technologies will help improve product quality while considerably increasing the utilization rate of wood raw materials and reducing energy and resource consumption in the production process.

Product R&D and Innovation

APP China maintains an unwavering commitment to providing high-quality products to meet people's growing demands for paper products. As sustainability becomes an increasing global focus, green and healthy have become important labels for sustainable paper products. For this reason, APP China invests heavily in exploring the possibilities of resource conservation and recycling in product design and R&D while continuously optimizing and enriching its product offerings, working to offer customers and consumers paper products that are green, safe, and of high quality.

◆ Making Environmentally Friendly and Healthy Products

APP China's Industrial Paper BU and Cultural Paper BU have been investing to develop and optimize their high-bulk and ultrahigh-bulk paper product series in recent years to harness the growing popularity of lightweight paper products. By redesigning the formula and processes, Guangxi Jingui Pulp & Paper reduced the average unit pulp consumption between June and December

2021 by 49kg compared with May in the development of JGCU, a single-sided ultrahigh-bulk coated food-grade board. Our BUs also take people's health needs into full account and continue to deliver quality products that give our consumers peace of mind and an exceptional experience with paper.

◆ Eco-Friendly High-Grade Pure-Quality Paper

With a focus on health, environmental friendliness, and eye protection, Gold East Paper has developed an eco-friendly high-grade pure-quality paper. It features natural-white shades that help relieve visual fatigue, and its production process is free from fluorescent whitening agents (FWAs). While adjusting the paper uniformity, the company managed

to reduce the use of chemical additives. The paper also boasts a high pulp yield. With a natural and soft color and excellent uniformity, the paper has been very well received by our customers and used for printing party- and government-related books and important documents.



The eco-friendly high-grade pure-quality paper is used for printing important documents

Yunfan White Cardboard

In 2021, Bohui Paper launched the Yunfan white cardboard, a cost-effective new product. It is made of 100% pure wood pulp and uses the company's self-made natural-color chemi-mechanical pulp as the primary source of fiber, thereby scaling back the use of bleaching chemicals in the production process while reducing COD concentrations in wastewater discharge; it also has such added benefits as a higher pulp yield and maximized fiber strength while maintaining the same bulk, which give it a good quality.

The Yunfan natural-white cardboard has a higher bulk with a smoother, finer, and cleaner surface than traditional white cardboard products with a gray background. It also has great printability, which reduces printer downtime and scrap. Reductions are also achieved in paper grammage, paper loss, ink use, and varnish use, leading to much higher resource efficiency. All of those attributes have made the new product widely popular on the market.

Antibacterial Kitchen Paper Towel

Given that kitchens allow microorganisms to easily breed, Gold Hongye Paper developed an antibacterial kitchen paper towel. Besides basic properties like oil and water absorbency, the paper towel also contains a blue antibacterial factor, whose unique molecular structure enables it to do multiple

damages to the cell wall and cell membrane of bacteria, thus inhibiting their growth and reproduction. Tests conducted by an accredited third-party testing organization indicate that the paper towel kills over 99% of staphylococcus aureus and is harmless to the human body.



Innovative "Paper in Place of Plastic" Products

While the modern pulp and paper industry centered around the "Integration of Plantation-Pulp-Paper" model has gradually formed a green and sustainable "big cycle", the "Zero Plastic" papermaking process consisting of production, consumption, recycling, and repulping can form a "small cycle" that can save a lot of wood. The idea of "Paper in Place of Plastic" presents an opportunity for the pulp and paper

industry to work together in shaping the ecological landscape of our planet while also pinpointing important areas of future commitments.

In addition to EPP paper, APP China has also launched an array of paper-based packaging products in recent years that align with the sustainable development trend, such as "Zero Plastic" oil-proof food-grade

board (OPB), antibacterial fresh produce wrapping paper (OPBs), straw base paper (WXS), lamination-free kraft paper, and base paper. All the paper cups, paper bags, lunch boxes, etc. made from our "Zero Plastic" paper series are capable of being recycled, repulped, and re-papered or composted for degradation, providing the pulp and paper industry with another pathway to carbon neutrality and carbon reduction.

Exploring Lamination-Free Products to Reduce the Use of Plastic



- Excellent color reproductivity and printability.
- Smaller strength than uncoated paper and usually treated with a back lamination to enhance strength-related properties such as bursting and tearing resistance; yet laminating kraft paper requires the use of plastic particles.



- Greater strength but lower smoothness due to lack of front coating; printability outperformed by coated paper.

Kraft paper handbags available on the market are mainly divided into coated and uncoated ones. How can we improve the surface performance and printability of uncoated kraft paper while maintaining its strength so that it has zero plastic and broad applicability? This is the question that guided Gold East Paper to develop the plan for food packaging (uncoated) kraft paper. Through steps like process optimization and

adjustment, formula adjustment, and paper machine and equipment optimization, the company successfully developed plastic-free uncoated kraft paper. Today, the product has been widely used in a variety of food packaging solutions such as stand-up pouches for solid food, food packaging paper bags, take-out packaging paper bags, tray pads, handbags, tote bags, and bread bags.

Driven by a focus on plastic reduction, Hainan Jinhai Pulp & Paper developed eco-friendly uncoated white kraft paper and lamination-free silicone-coated base paper in 2021.

Eco-friendly uncoated white kraft paper: Restructured and upgraded existing equipment and processes, used chemical pulp as the primary raw material, and applied paper surface finishing by super calenders after surface sizing to give the product a strong processing performance and great printability; it is a biodegradable and eco-friendly product mainly used for file bags, handbags, and shopping bags.

Lamination-free silicone-coated base paper: The structure of the finished product is mainly formed by virgin wood pulp fibers and natural calcium carbonate, making it biodegradable; its excellent smoothness allows for direct silicon coating on the surface without the need for PE particle lamination.

Passing on Corporate Culture and Moving Forward with Employees

Highlight of the Year

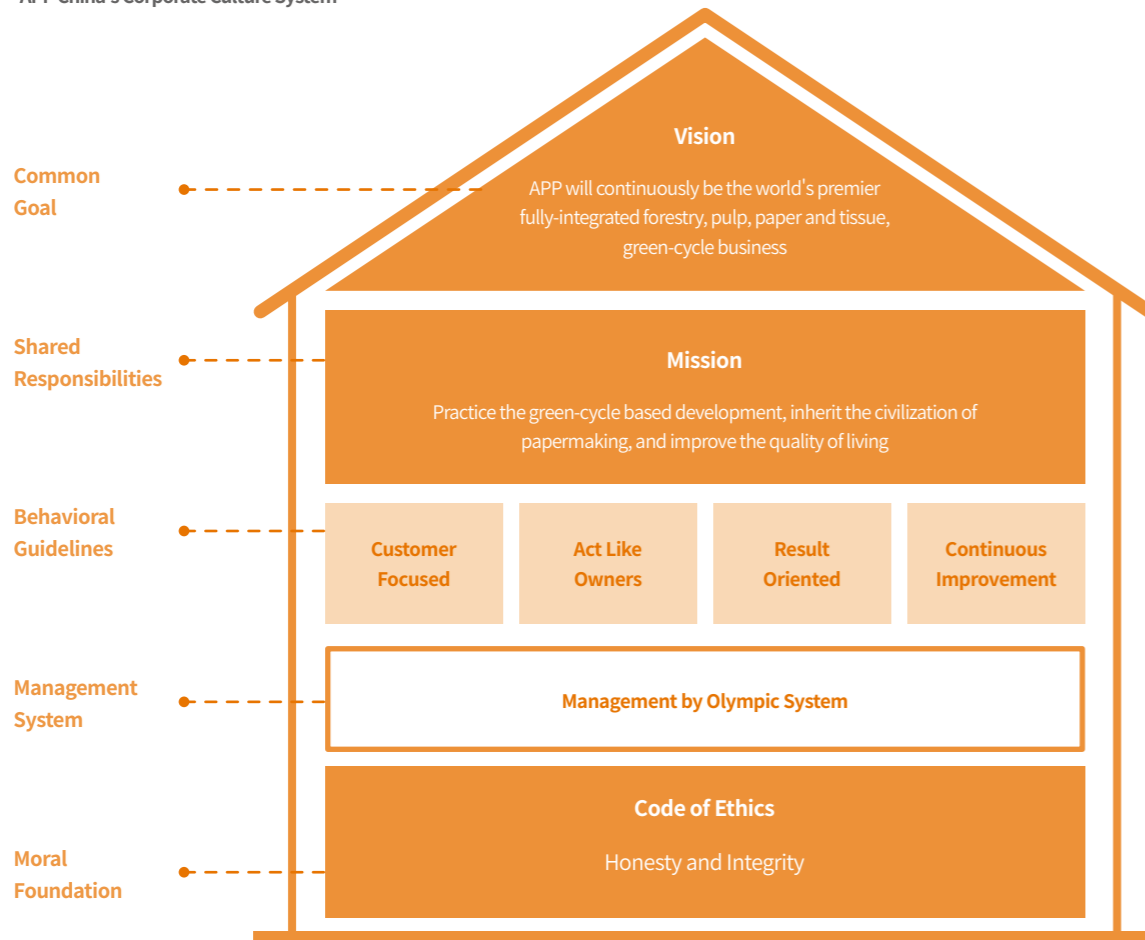
Corporate Culture Driving Change and Creating Unity

We use corporate culture to guide the Company's development and endorse benchmarking and a go-getter spirit among employees to prompt individual growth, drive initiative and creativity, and align team efforts towards a common goal. In 2016, we systematically consolidated our unique MBOS (Management by Olympic System), code of integrity and ethics, core values, vision, and mission into our corporate culture

system. This was the inception of the grand journey of APP China's corporate culture. In the past five years, we have made our corporate culture "publicized, imprinted, embraced, and applied" through initiatives like awareness campaigns and the Culture Ambassador Contest, taking it from stage 1.0 to 2.0. As we pivoted to build Corporate Culture 2.0 in 2021, we put "people" and "innovation" at the core and advanced

the organizational transformation through initiatives like Managers as Cultural Navigators, demonstration of Culture Ambassadors/Hard-Worker Models, the construction of big cultural teams, strategic change communication, the digitalization of cultural platforms, and new APP cultural creations.

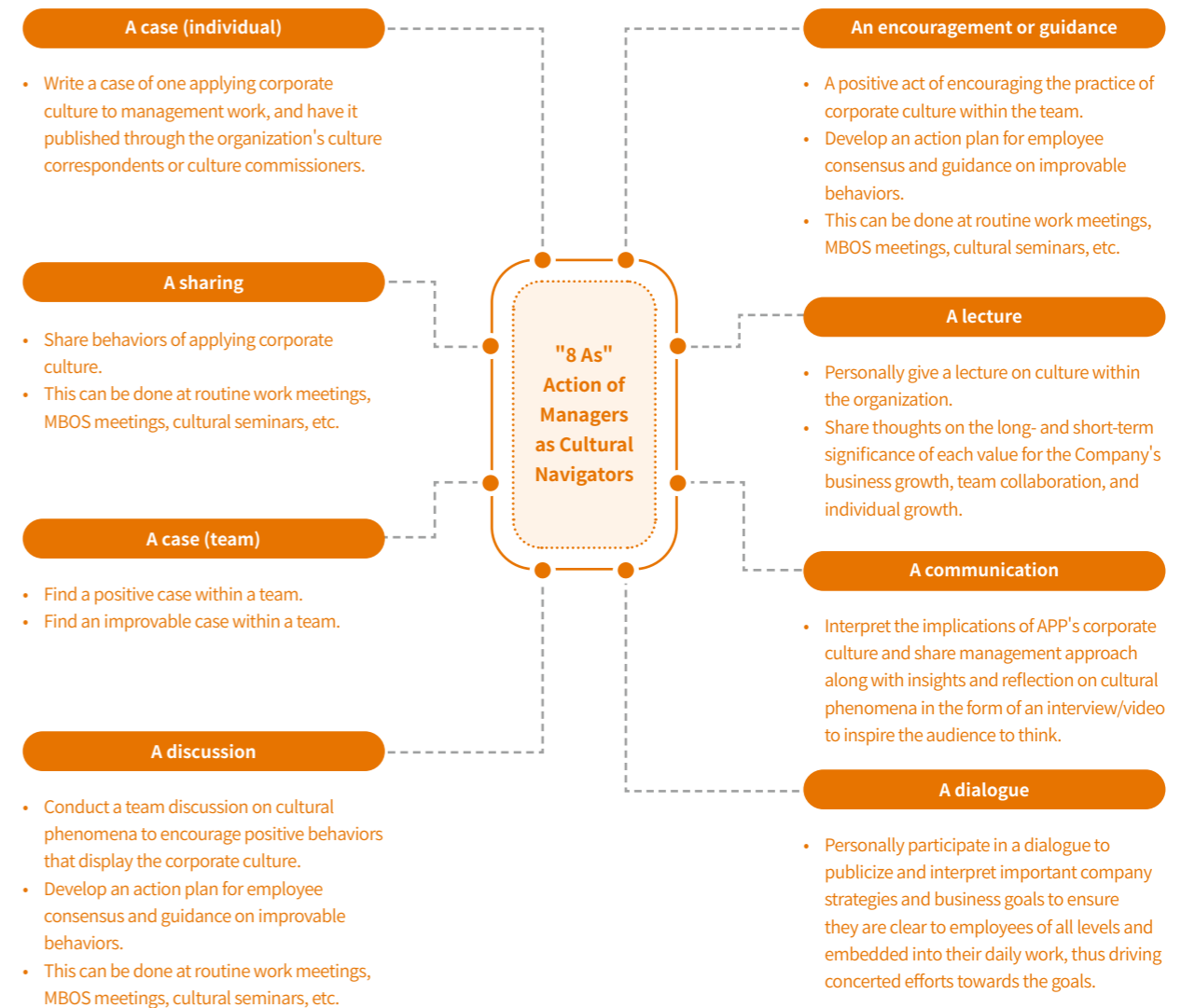
APP China's Corporate Culture System



◆ Managers as Cultural Navigators

Managers play a central role in shaping corporate culture and are the greatest catalyst driving cultural change. In 2021, we held a series of Managers as Cultural Navigators initiatives in 2021 and formed the "8 As" action guidelines. We also hosted a multitude of meaningful activities such as the Cultural Workshop for Managers,

cultural interviews for managers, learning experience essay contest, and the Iron Army Spirit examination. Those activities helped the managers tie in their management and business practices with the corporate culture in a systematic way, thus enabling them to solve work problems at the root and become the true navigators of our culture.





In 2021, some 600 managers participated in Cultural Workshop for Managers, where they had heated discussions on culture and management, culture and business, and other related topics.



Cultural Workshop for Managers

◆ Finding the Role Models Around You

In 2021, the Chairman and President of Sinar Mas Group, Mr. Teguh Ganda Widjaja, put forward the Four-Wheel Drive strategy with "people and innovation" at the core. This further reinforced APP China's resolve on pursuing high-quality development and going digital. With corporate culture as the compass, all APP people continue to demonstrate solidarity and resilience. In this process, we have witnessed a wave of exceptional workers stand out and shine.

In 2021, a pivotal year for building Corporate Culture 2.0 at APP China, we hosted another biennial Culture Ambassador Contest. As

part of a regular business, the event looks to find model workers from among ordinary employees and promote their exemplary character. The contest sets awards in the six areas of "Customer First", "Entrepreneurship – Technology Entrepreneurship", "Result Orientation", "Continuous Improvement – Innovation and Breakthrough", "Integrity", and "Leading by Example". Over 30,000 employees across the Group went through rounds of selection such as team recommendation, departmental selection, management review, and Group leadership team appraisal, and 28 culture ambassadors and nominees were picked out in the end.



Annual award ceremony of the Culture Ambassador Contest

◆ Establishing Corporate Culture Platforms

In 2021, we launched APP Culture Voice, an innovative, WeChat for Business-based mobile platform for corporate culture education and employee communication. As a digital way to engage all employees in collectively shaping the corporate culture, APP Culture Voice consists of six content modules such as knowledge acquisition,

communication and sharing, and interest-based interaction, with the latest relevant news reports updated throughout the year. The platform is not only an innovation of APP Corporate Culture 2.0 construction but also an important facilitator of internal communication and learning among employees.



◆ MBOS: Pushing People Forward

MBOS is the key driver behind the Group's Four-Wheel Drive strategy and the most important aspect of our corporate culture. In the spirit of MBOS, APP China's BUs carried out an array of activities such as Improvement Proposal Competition, MBOS Competition, MBOS Conference, and regular achievement sharing sessions.

Those activities allowed employees to share outstanding experiences and cases and internalize MBOS ideas to be a shared ethos while motivating them to see possibilities of innovation in the smallest detail and contribute ideas to help move the organization forward.

Annual MBOS Proposal Competition

Consistent with the ethos of our 2021 All-Hands Innovation Year that "everyone is innovative and everything can be innovated", Hainan Gold Hongye and Hainan Gold Shengpu held an annual proposal competition in December 2021. The atmosphere was euphoric and the proposals highly varied and creative. After a comprehensive review by the judges, 18 proposals stood out, covering such topics as power saving improvement and equipment improvement. They offered extremely valuable suggestions on how to further improve the company's production and operations in the future.

MBOS Competition for Management Trainees

To test the 2020 class of management trainees on the knowledge and skills they had been taught, Ningbo Asia hosted the annual MBOS Competition in June 2021, where departmental heads and mentors sat down with the trainees in sharing and communication sessions. The trainees had been actively involved in the rich variety of activities hosted by the company during the past year of training and education. They had kept on growing and shining in their own roles, with some recognized as stars of their posts and some selected as corporate culture ambassadors. In the MBOS competition, the trainees shared their growth and gains at work and offered suggestions on business development and thoughts about their own career development, among other things.

Talent Training and Development

Human resources are the most valuable asset for any organization. APP China incorporates talent development into the Group's Four-Wheel Drive strategy and continues to strengthen the career pathing initiatives to help employees move forward. We offer customized professional training to continuously grow our employees' comprehensive skills and competitiveness and help them reach their full potential and career goals as the Company goes through a period of transformation. In compliance with relevant national laws and regulations such as the *Labor Law*, the *Labor Contract Law*, and the *Civil Code of the People's Republic of China*, we are committed to offering equal pay for equal work, engaging in lawful employment, continuously optimizing the employee benefits plan, and giving voice to employee concerns to fully protect their rights and interests.

◆ Human Capital Management

We have devised an evolving talent development strategy aligned with our transformation needs and keep improving our talent development and management mechanism, including by regularly assessing the workforce structure, identifying potential talent loss risks, and building a comprehensive talent pool. In terms of employee performance appraisal, we adopt a mix of measurements such as KPI, OKR, and 360-degree reviews and comprehensively measure employee performance in the short, medium, and long term. As regards performance incentives, we have combined our Company-wide performance-based bonus system with a number of schemes specially designed for key positions and high-potential employees, such as the Talent Retention Plan, the

Successor Plan, and the Talent Retention Special Fund. In a planned fashion, we have rolled out the plans in relevant departments and subsidiaries to optimize our incentive system whilst putting employees on well-designed career paths so that we can retain and bring out the best in our top talent. In 2021, APP China conducted an assessment and tracking of employees in key positions and high-potential employees before devising corresponding succession plans, which led us to form the Individual Development Plans (IDPs). The IDPs are intended to fully upskill the middle and senior executive teams and ensure a high caliber of talent at all levels.

In 2021, Hainan Jinhai Pulp & Paper, Guangxi Jingui Pulp & Paper, Rudong Base, Gold

East Paper, Ningbo Asia, and APP China Forestry all implemented an internal job rotation program to help employees identify the career choices that best suited their competencies and interests. A total of 2,341 positions were opened up throughout the year, with 45% filled by internal hires and transfers.

Internal hire and transfer rate:

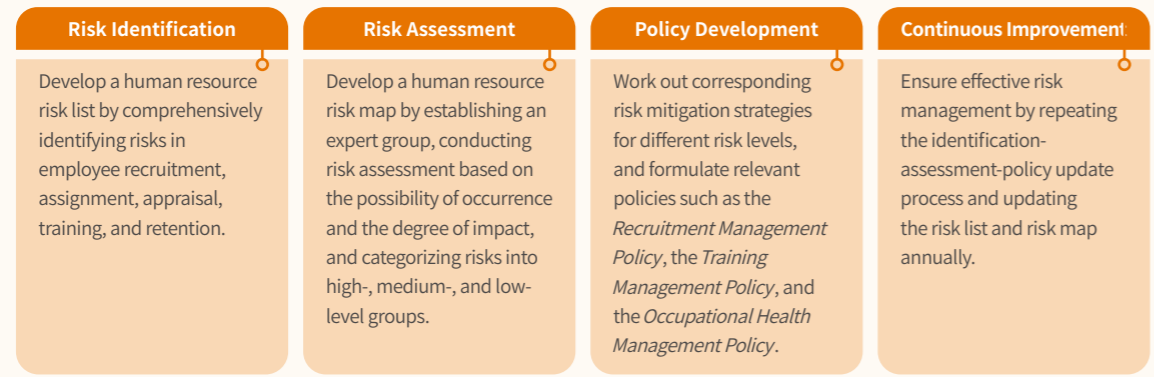
45 %



◆ Implement Human Capital Risk Analyses

In accordance with the *Labor Law*, the *Labor Contract Law*, the *Basic Standard for Enterprise Internal Control*, the *Supporting Guidelines for Enterprise Internal Control* and other laws and regulations, and with reference to the framework of the *Guidelines for Comprehensive Risk Management of Central*

Enterprises, Bohui Paper has established and continues to improve the human capital risk analyses mechanism. It ensures the continuous optimization of the human resource management of the Company from four dimensions: risk identification, risk assessment, policy development and continuous improvement.



◆ Establishing Co-Ops and Internship Bases

While exploring the co-op approach, Gold East Paper has developed the "internship + employment" model that not only broadens students' career choices but also promotes integration between university and corporate resources and helps build a strong talent pipeline. In 2021, Gold East Paper set up the Zhenjiang Youth Internship Base and the Jiangsu Jiaotong College Internship Base. The company also entered into a partnership with a number of colleges located in Zhenjiang, including Zhenjiang Vocational Technical College, Jiangsu

Jiaotong College, and Jiangsu Aviation Technical College, while actively exploring opportunities to set up co-ops with colleges in other cities and provinces. In April 2021, Gold East Paper set up an internship base for international students in cooperation with Nanjing Forestry University, and the two sides are to engage in further cooperation and exploration in industry-college-academia partnerships and the cultivation of internationally oriented talent. In 2021, Gold East Paper brought in a total of 97 interns from 20 colleges and universities across the country.

◆ Talent Development

We give priority to building a high-performing workforce. We offer a systematic suite of training programs tailored to the varied career development needs of employees at all levels and in different lines of business. We also plan to build a digital academy in the future, working to deepen cooperation with external institutions and experts to fast-track talent cultivation and ensure a continuing supply of qualified employees for achieving our digital and intelligent transformation and green transformation goals.

We have been expanding the management trainee program across the Group in recent years to build a strong talent pool. Our mills have all developed a detailed training plan and a dedicated training system for management trainees. We also have a mentorship program where senior employees are matched with trainees to help them learn about their jobs and adapt to the new environment. All the trainees would go through three stages of training, namely on-the-job training, general

knowledge training, and hands-on project training. The management trainee training camp, offering both online and in-person classes, combines theoretical learning with hands-on practice and internal training with training delivered by external instructors, giving the trainees a wonderful start in their professional careers.

APP Learning and Development Center began to offer special training programs within the Group in 2020. For example, in 2021, it organized the Leapfrog Plan – Executive Leadership Development Program, the Looking to the Future – 2021 APP Case Competition, and the Coaching and Guidance Techniques Workshop. To continuously improve the core skill base of employees in professional and technical functions, APP China mills continue to offer professional skills training for employees in manufacturing jobs and role-based competency model assessment and certification while creating incentives to stimulate employee participation in professional title evaluation.



Gold East Paper Management Trainee Training Camp

Key 2021 Training Programs at APP Learning and Development Center

Leapfrog Plan – Executive Leadership Development Program

This is a leadership training program designed for the management team of the APP China Paper BU. The program, in both online and in-person formats, uses training workshops, staged reviews, mid-term testing, online exercises, and 360 assessments, among other methods, to enhance the participants' management thinking and leadership skills and create a strong and

well-coordinated management team. Two sessions were hosted in 2021, covering nearly 50 managers and recording an average of 30 in-person learning hours and 48 online learning hours per person. The sessions looked at over 200 real-scenario business topics and generated more than 500 study and growth journals.

Training on the Application of Coaching and Guidance Techniques

In 2021, the Learning and Development Center hosted four Coaching and Guidance Techniques Workshops. Each included a two-day workshop, 30-day after-class coaching, and post-training follow-up meetings. Over 120 middle and senior managers from the headquarters

and mills participated in the training. They gained better hands-on coaching skills besides a deeper theoretical knowledge, which helped them become better coaching-style managers. During the training, the participants produced 120+ practice articles.

Looking to the Future – 2021 APP Case Competition

Around 70 employees from APP China Headquarters and mills participated in the second "Looking to the Future" Case Competition. The event aimed to hone the participants' case development skills, sharpen their insights and reflective thinking, and help them build

mental models to integrate business innovation with strategic transformation. Two two-day sessions were hosted that included in-person workshops and on-site live classes, producing 64 cases and one copy of *Collection of Top 20 Cases* and training 20 case experts.

New Apprenticeship Training Class

To further improve the skills and competencies of the technical personnel, Hainan Gold Hongye and Hainan Gold Shengpu initiated the New Apprenticeship training program in 2021 in response to the national call. The courses mainly focused on three areas of development, namely generic skills, professional skills, and operational skills; the teaching plans were developed to match the companies' real needs and help employees apply theoretical knowledge to specific tasks in real work settings. This model allowed school teachers to go to the mills and learn firsthand the pain points and needs in the real industrial production process so that they could help address them by effecting change in education. Meanwhile, by learning about the latest developments in academia through communication with the schools, the company was empowered to train talent equipped with both an in-depth knowledge and a practical knowhow.



Hainan Gold Hongye and Hainan Gold Shengpu held the New Apprenticeship training class

Employee Communication and Care

We have established multiple employee communication channels. We use formal talks, satisfaction surveys, etc. to give voice to our employees' opinions and concerns and encourage proactive employee input on the Company's policy and strategy development. In 2021, Guangxi Jingui Pulp & Paper conducted a company-wide satisfaction survey to fully understand employees' concerns in 11 dimensions. The participation rate was 98.7%, and the

overall satisfaction rate was 81.64%. The company will then develop an analysis report based on the survey results to identify areas of improvement and make changes accordingly.

We make contributions to the five social insurances and the housing fund for our employees as required by law and continue to optimize our compensation and benefits plan. Our mills provide a rich assortment

of perks and benefits befitting their own conditions such as meal allowances, high temperature allowances, commercial insurances, employee dormitories, prenatal care leave, elder care leave for only children, and scholarships for employees' children. Employees can also enjoy an array of fun activities on a regular basis such as sports games, group birthday parties, and reading sharing sessions, which bring them closer together and greatly boost team morale.

Providing Dormitories for Married-Couple Employees

Based on a survey of married-couple employees, Ningbo Asia renovated some of its bachelors' dormitories in 2021 to suit their accommodation needs. This move made their lives exceedingly convenient and was greatly welcomed by the employees. As of the end of 2021, 19 couples had moved into the dormitories.

Outreach Activities for Interns

Rudong Base had its first group of production management interns in 2021, who were involved in the production process of some Breeze products. Before the Mid-Autumn Festival, the Base hosted the "Let Breeze into Interns' Homes" event, sending those products to the interns' homes, along with thank-you and greeting cards carefully prepared for their parents.

Increasing Employee Leaves

In November 2021, the 32nd session of the 13th Standing Committee of the National People's Congress of Zhejiang Province passed a proposal to revise the *Regulations of Zhejiang Province on Population and Family Planning*. One of the revisions was the addition of parental leave and elder care leave for only children. Ningbo Asia closely followed policy changes relevant to its employees and arranged for studies of the latest implementation rules. It plans to officially institute the new policy in the first half of 2022 to allow eligible employees to enjoy the new leaves and benefits they are entitled to.

Gold East Paper began to provide prenatal care leave for pregnant employees who were in their third trimester and for whom going into work were becoming too demanding, while paying them 80% of the standard salary. This move enabled the employees to make life and work arrangements with greater peace of mind.



Gold East Paper organized reading sharing sessions



Employee Mountain Climbing Competition

Environmental:

Fostering a Beautiful and Clean Nature

Based on the "Integration of Plantation-Pulp-Paper" model, we lay a solid foundation for the Company's green transformation through a variety of initiatives such as sustainable forest management, energy mix optimization, and energy saving and emission reduction technology upgrades.

Forest Resources Management 52

Cleaner Production Management 58



Forest Resources Management

With sustainability at the heart of its management approach, APP China Forestry works to deliver balanced social, economic, and ecological benefits through scientific management of modern artificial timber forests. In 2021, APP China Forestry released the third edition of the *APP China Forestry Vision, Mission, and Policies*, incorporating topics like smart forestry transformation, a mandate to observe all requirements of the

Forest Certification in China – Forest Management (GB/T 28951-2021), and increasing forest carbon sink. The goal is to align its forestry management efforts with the evolving national, local, and industry policies and the Group's development requirements.

The business units of APP China Forestry make a point of staying updated on the latest environment-related national, local, and industry regulations and

requirements. They developed an *Evaluation Form on Environmental Management System Compliance* to conduct self-inspections on compliance with relevant laws and regulations. All seven forest areas performed forest resources monitoring in 2021 as to the environmental impact of forestry activities, forest health, natural disasters, forest fires, biodiversity, etc., based on which they drafted a monitoring plan for 2022.

Continuously Strengthening Internal and External Audits

In 2021, 12 forestry companies under APP China Forestry carried out the CFCC/PEFC-FM forestry certification, and six went through the ISO14001 Environmental Management System certification process. By continuously strengthening internal and external audits, they completed a comprehensive review of the current sustainability management system in terms of compliance, legality, appropriateness, and effectiveness. The sustainability team of APP China Forestry organized internal audits, where the forest areas and departments worked together to identify problems and gaps that existed and took timely measures to address them. As regards external audits, a third-party auditing organization audited every aspect of the forest areas' operations in accordance with the *Forest Certification in China – Forest Management* (GB/T 28951-2021), including internal document audit and field operation on-site audit. The auditors acknowledged APP China Forestry's progress and offered suggestions for future improvement. APP China Forestry built those suggestions into its overall work plans, laying a solid foundation for the sustainable development and management of forests.



The recommended national standard *Forest Certification in China – Forest Management* (revised version, GB/T 28951-2021) attributed to the National Forest Sustainable Management and Forest Certification Standardization Technical Committee was officially released in May 2021 and took effect on December 1, 2021. APP China Forestry engaged the sustainability team of each company in an in-depth study session where the new standard was interpreted and communicated. It also developed training materials that used real-life forestry operations to help employees clearly see the differences between the old and the new standards while getting prepared for the new version of CFCC/PEFC-FM forest certification in 2022.



External experts conducted an audit for the CFCC/PEFC forest certification

Total area of CFCC/PEFC-FM-certified plantations:

246,257.2 hectares



Percentage of CFCC/PEFC-FM-certified raw wood materials supplied by our plantations to APP China's pulp mills:

100 %



Percentage of CFCC/PEFC-FM-certified plantations:

90.9 %



Percentage of ISO14001-certified plantations:

67 %



Forestry Risk Management

The primary risks associated with forest management include fire, wind, frost, diseases and pests, etc. The area affected by fires in 2021 exceeded 2020 by 7,208 *mu*; the area lost due to typhoon and wind damage in 2021 was 28,176 *mu* higher than that in 2020; the area lost due to frost was 110,216 *mu* higher. APP China Forestry has established emergency response procedures for disasters, specifying the response measures for the various types of disasters. In case of a disaster, a response plan will be immediately activated to provide disaster relief and insurance claims will be filed to minimize the losses.

The intensifying climate change has been fueling extreme weather events, thus causing increasing disturbances to forest management. In response, APP China Forestry has redoubled efforts in recent years in the R&D of different seedling strains resistant to wind, flooding, frost, diseases and pests, etc., plus high-yielding varieties. By starting mitigation at the seedling production stage, the company takes a proactive approach to guarding against potential risks while realizing efficient utilization of forest resources.



APP China Forestry's Key Measures for Mitigating Forestry Risks

Forest fire prevention

- Worked closely with local governments to advocate fire safety awareness in villages around our forest areas and established an effective fire control mechanism with the villages characterized by supervision by the government, prevention by the company, and active participation of community members.
- Organized forest fire safety education sessions and fire drills at regular intervals to continuously strengthen employees' fire safety awareness and preparedness for forest fires.
- Built proper fire lines: cut 2- to 3-meter-wide fine lines in large contiguous forest areas and forest areas near farmland, dry land, villages, temples and other areas of greater fire risk to create a combustible-free space.
- Purchased forest insurance.

Wind damage response

- Strengthened research and experiment on wind-resistant eucalyptus varieties.
- Avoided planting during typhoon seasons to ensure the survival rate of sprout forests.
- Enhanced the forests' wind resistance by increasing plant density and implementing deep planting in affected areas.
- Pruned in advance upon early warnings of incoming typhoons to mitigate wind damage, and activated response plans right after to implement relief efforts within the first 72 hours.
- Purchased forest insurance.

Frost protection

- Strengthened research and experiment on frost-resistant eucalyptus strains.
- Established a frost monitoring and early warning system, followed weather forecasts, and strengthened communication with local weather bureaus to ensure timely response to frost damage.
- Improved the trees' resilience against frost by checking and strengthening the stabilization of the roots in soil, conducting proper pruning, applying antifreeze and anti-frost controls to the soil, wrapping tress with burlap, increasing nurturing and fertilizing, etc., after receiving weather alerts.
- Purchased forest insurance.

Disease and pest control

- Strengthened the cultivation of high-quality seedling strains resistant to diseases and pests.
- Strictly implemented planting and protection techniques and forest monitoring to ensure scientific, effective, and targeted control.
- Regulated the ecological environment to create an environment conducive to the survival of plants and predators of pests to prevent diseases and pests.
- Maintained hybrid strains and tree species.
- Developed a monthly disease and pest control calendar to enable early prevention and mitigation at the front lines.
- Purchased forest insurance.

High Conservation Value Monitoring

High conservation value (HCV) forests are forests that are important because of their high environmental, social, economic, biodiversity, or landscape values. Management activities in HCV forests shall maintain or enhance the attributes which define such forests, and their protection shall always be a consideration in any decision-making process. The value of HCV forests mainly lies in six areas, namely biodiversity, landscape-level ecosystems and ecosystem mosaics, ecosystems and habitats, basic ecosystem services, necessities of local communities, and cultural significance. Over the years, APP China Forestry has closely monitored the existence of HCV in our plantations, with regulations and SOPs in place for its identification, monitoring, and protection, which helps ensure effective management is implemented whenever HCV is detected.

As of the end of 2021, 54% of our plantations had completed an HCV assessment. The protected species *Alsephenia spinulosa* was found in our Lancang and Hainan plantations. Our staff have marked those areas, created buffer zones, and conducted proper monitoring and documentation in subsequent patrols.

Biodiversity Protection

Forests are home to many species, and their ecosystems play an important role in the global ecosystem. In the *Global Assessment Report on Biodiversity and Ecosystem Services* released in 2019, the UN Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) suggests that 1 million species already face extinction, many within decades, as a result of human actions. Protecting biodiversity has become one of the most pressing issues of our time. The UN Biodiversity Conference (CBD COP 15) (Part 1) took place in Kunming, Yunnan Province, China in October 2021. It was the first UN global conference themed "Ecological Civilization" and marked a new start in global biodiversity conservation.

With a long-standing commitment to protecting biodiversity, APP China complies with all applicable national laws and regulations, such as the *Forest Law*, the *Environmental Protection Law*, and the *Wildlife Conservation Law*, and has formulated a number of internal policies



Conducted ecological survey and monitoring

such as the *Wildlife (RTE Species* Included) Protection Regulations* and the *Measures for the Administration of Biodiversity Conservation and Monitoring*. On a more specific level, our efforts include performing ecological and environmental impact monitoring and HCV monitoring and conducting biodiversity research, among others. In 2021, APP China Forestry incorporated relevant parameters such as biodiversity conservation and the maintenance of ecosystem stability into its annual environmental indicator system and started to assess the performance on a weekly, monthly, and quarterly basis. It also joined hands with a number of colleges, universities, and research institutes, such as Guangxi Academy of Sciences, Hainan University, and Guangdong Eco-Engineering Polytechnic, in carrying out projects on ecological monitoring, plant diversity monitoring, etc. Our forest areas also conducted monitoring of core ecological factors of the eucalyptus forests such as biodiversity, soil, water quality, and growth to provide detailed data that could translate into better forestry management and practices.

*RTE Species: A collective term for rare, threatened, and endangered species.



Conducted ecological survey and monitoring with researchers

APP China Forestry's Key Biodiversity Conservation Measures

Forestland selection stage	<ul style="list-style-type: none"> Only commercial forestland defined by the government is accepted.
Afforestation planning stage	<ul style="list-style-type: none"> Conduct biodiversity monitoring and communicate with local forestry bureaus, forestry stations, and village committees to learn whether any protected wildlife is ever detected in the forestland; any wildlife detected is clearly marked on the planning map and documented, with noticeable signs placed on site for identification and protection.
Before operations	<ul style="list-style-type: none"> Train contractors and operational workers in wildlife protection and fire safety during production activities. Prohibit contractors and workers from using fire for production in the forestland, such as burning vegetated land or performing controlled burns.
During forestry activities	<ul style="list-style-type: none"> Prohibit contractors and workers from hunting or trading wild animals, indiscreetly gathering or digging protected wild plants, or destroying the habitats of wild animals.
During daily patrols	<ul style="list-style-type: none"> Increase awareness of animal and plant protection. Initiate timely protective measures for any protected plants or animals detected.
Ecological monitoring	<ul style="list-style-type: none"> Engage in long-term cooperation with independent third parties in carrying out ecological monitoring of plantations and strengthen protective measures or modify forestry practices in accordance with the monitoring results they provide every year.

Cleaner Production Management

Cleaner production is an important means of reducing resource input, environmental damage, and the generation of pollution and carbon emissions while enhancing the overall efficiency. It also drives a greener production approach and a

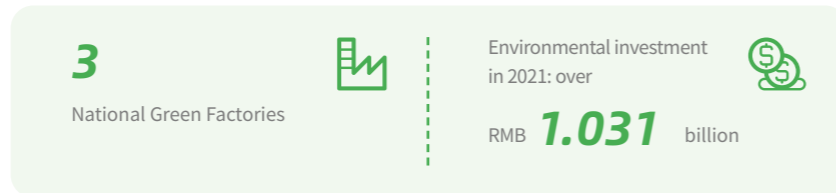
comprehensive transition to greener economic and social development. APP China puts cleaner production at the core of our manufacturing approach and, consistent with the requirements for building green factories, continuously optimizes environmental

management systems and explores the potential for energy savings and emission reduction while increasing the uptake of advanced green production technologies, processes, and equipment to ensure continued progress in our environmental performance.

Environmental Management

APP China mills have all established an evolving environmental management system based on the ISO14001:2015, continuing to enhance environmental management in terms of energy, water, air pollution, waste, etc. and strive towards modern industrial operations characterized by low consumption, eco-friendliness, and high efficiency. Ningbo Asia, Gold East Paper, and Guangxi Jingui Pulp & Paper have been recognized as National Green Factories, and Bohui Paper was among the first to be named a Green Factory in Zibo City in 2021.

In 2021, our mills set up several interdepartmental improvement project teams tasked with exploiting the potential for energy savings and emission reduction throughout all stages of production. Guangxi Jingui Pulp & Paper collected 35 proposals from its plants for the improvement of equipment effectiveness, of which 25 have been implemented as planned, leading to over RMB4.5 million in economic benefits.



Strengthening Cleaner Production Audits

Following the objectives and requirements of cleaner production for "energy savings, emission and waste reduction, and efficiency enhancement", Guangxi Jingui Pulp & Paper invested in implementing upgrades in the production technologies and processes, resource utilization methods, etc., making notable inroads in cleaner production. Since initiating cleaner production audits in 2019, the company has implemented 11 cleaner production schemes, achieving approximately RMB83.634 million in economic benefits with a total investment of approximately RMB30.862 million.

From November 2020 to December 2021, Shandong Base of Bohui Paper conducted an extensive cleaner production

audit campaign, which covered all of its production units and ancillary facilities. The Company was already a global leader in cleaner production before the audit, which helped the Company further optimize its cleaner production organizational structure as well as policies, and formulate work plans and targets for cleaner production for the next step. After collecting suggestions from employees, consulting auditors, and learning from the on-site guidance of industry experts, the Company has put forward 13 cleaner production projects, which are expected to help the Company further reduce electricity and raw material consumption, and discharge less wastewater and exhaust gas once implemented.

Our mills have developed policies and systems around issues such as environmental risk factor identification and assessment, hazard source identification and assessment, environmental hazards, and environmental emergency response plans, thereby incorporating environmental risk and opportunity assessments into day-to-day environmental management. We have also created a set of targeted initiatives for improving environmental performance while hosting environmental emergency drills to continuously build stronger preparedness and response capacities. In 2021, Bohui Paper compiled a risk assessment report on environmental emergencies, which offered insights into its environmental risk profile and the appropriate measures for preventing and controlling environmental risks and responding to emergencies. Guangxi Jingui Pulp & Paper started a departmental self-assessment and self-correction initiative targeting the identified environmental risks, which led to the resolution of a series of environmental risks and hazards. In 2021, there were zero major environmental accidents at APP China mills.

The ever-stricter national environmental regulations entail an ongoing commitment by enterprises to staying up to date, constantly improving environmental management, and turning plans into actions. In 2021, APP China mills participated in a number of internal and external training and communication events centered on varied topics such as standardized management of hazardous waste, self-monitoring and management of sources of pollution, air pollution prevention and control, energy saving and carbon reduction, and carbon trading capacity building. Guangxi Jingui Pulp & Paper scheduled a Policy Interpretation and Response training program focused on the series of environmental policies already in force in 2021 and to be enforced in 2022; Hainan Jinhai Pulp & Paper organized a number of training sessions on environmental regulations to enhance employees' environmental awareness and response to environmental risks.

◆ Building Green Logistics

With a commitment to advancing the green transformation of the whole industry chain, APP China continuously optimizes the modes of transportation, increases container shipping efficiency, builds green ports, and recycles packaging materials to achieve robust and balanced economic and environmental benefits.

⋮ Building Green Ports

The shore power project at Hainan Jinhai Pulp & Paper's exclusive terminal was successfully commissioned for the first time in April 2021, making Hainan Yangpu the first port where ships plugged in on a shore power system. The project would pave the way for realizing zero fuel consumption, zero emissions, and zero noises at berth, thereby notably reducing GHG and pollutant emissions for ships at berth.

The terminal is installed with 13 sets of shore power that supply electricity to all 14 berths. The project adopts advanced intelligent shore power supply technologies, such as one-click start and undisturbed grid-connected technology. It also uses four-quadrant power converters, which offer greater reliability and much higher chances of successful grid connection than

traditional two-quadrant converters. The system can thus fulfill the power demands of moored ships without the use of wave filters.



The shore power project at Hainan Jinhai Pulp & Paper's exclusive terminal was successfully commissioned for the first time

⋮ Exploring New Green Logistics Pattern: Ocean-rail Intermodal Transportation

In 2021, Bohui Paper collaborated with Yantai Port and Shandong Port Shipping Group on green logistics solutions featuring low cost, high efficiency, and low loss. In November, 50 40-foot containers of wood chips, which were used to be shipped in bulk, departed from Yantai Port on the "Yantai-Huantai" Express via ocean-rail intermodal transportation, marking the official launch of the Yantai-Zibo two-way logistics channel combined with ports, shipping, railway, and land ports. In comparison with

traditional rail and road transportation, the ocean-rail intermodal transportation model can realize the integrated management of traffic safety, cargo management, efficiency improvement, resource saving, and environmental protection. In the future, the Company will continuously mobilize resources and innovate on green, digital, and intelligent logistics solutions to realize value innovation across the whole supply chain.



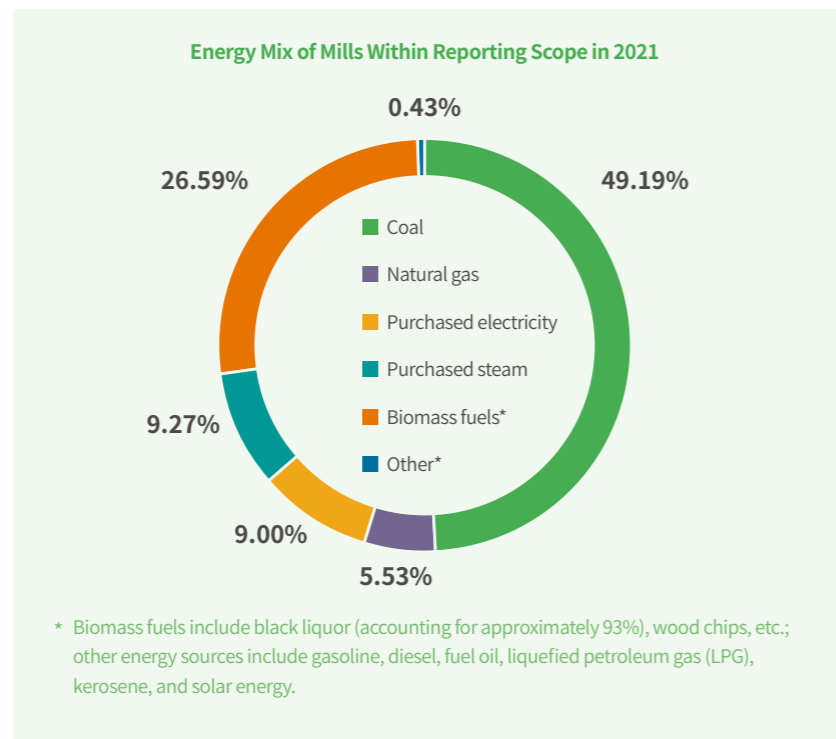
"Yantai-Huantai" Express via ocean-rail intermodal transportation departing from Yantai Port

Energy Management

Solar power generation: **24,406.6** MWh

Proportion of renewable energy: **26.65** %, up **44.12** % from 2020

Energy mix transition plays a key role in realizing the 30-60 Goals. APP China continues to strengthen energy management and gradually advances the green transition by exploring the potential for energy savings and carbon reduction and increasing the use of clean energy. The year 2022 will see APP China commence implementing the 30-60 Goals strategy and further identify future directions for internal decarbonization efforts.



◆ Establishing an Energy Saving and Carbon Reduction Management Mechanism

In 2021, APP China bolstered the management of energy and carbon emissions related issues at the Group level, setting up a top-down management system and mechanism directly headed by the Board of Directors, with clear roles

and responsibilities assigned to each headquarters department and BU. Over the past few years, our mills have each established a dedicated energy management committee to push for solid progress in their energy saving and carbon reduction

efforts. Moving forward, we will continuously optimize the energy and carbon emissions management mechanism in alignment with the 30-60 Goals strategy.

- Guangxi Jingui Pulp & Paper has set up an energy saving and emission reduction management committee led by the general manager to coordinate the formulation of the company's energy management strategies, energy consumption targets, and implementation plans, the statistics, accounting, and analysis of data on carbon emissions, energy consumption, etc., the assessment and planning of energy efficiency projects, and the adoption of energy saving technologies, among other efforts.
- Bohui Paper has formed an energy efficiency leading group headed by the general manager and formulated the *Energy Efficiency Management Rules*, laying down requirements in respect of formalized accountability, energy measurement, energy statistics management, and the management of electricity, steam, oil, and water consumption, among other metrics, to advance energy saving and emission reduction efforts; its *Energy Saving Target Evaluation Scheme* links the achievement of energy efficiency targets with employees' base salary and bonuses, thus creating a positive incentive instrument that boosts energy savings and emission reduction.
- Rudong Base has established an energy management committee led by the general manager and relevant executive heads to coordinate energy management efforts. The committee combines daily calculation of energy consumption with monthly reviews to gain informed and timely insights into the potential for energy savings and consumption reduction, thus maximizing energy efficiency.

◆ Exploring Potential for Energy Savings and Carbon Reduction

In 2021, APP China began stepping up efforts to advance energy saving and carbon reduction programs at the Group level, implementing a variety of energy efficiency upgrades at our mills. They included process optimization, equipment renovation, broader uptake of low-carbon technologies, etc., leading to significant energy savings. After a successful pilot in 2020, magnetic levitation fans and the lithium bromide absorption refrigeration technology have been adopted at more APP China mills, with the former standing to save at least 5,929,872 kWh of electricity every year and the latter approximately 22,517 tons of standard coal

every year. Compared with the traditional liquid ring vacuum pump system, turbine vacuum pumps do not need to be liquid-sealed, nor do they require a liquid-cooling circulation system. With higher efficiency and fewer machines needed, they deliver remarkable energy saving benefits. After being applied at Rudong Base in 2021, the technology reduced its energy consumption by 25% compared with liquid ring vacuum pumps. In addition, Hainan Gold Hongye plans to bring in the magnetic levitation double-connected turbine technology, which promises great potential for energy savings.

Energy savings from energy efficiency retrofits implemented in 2021

Guangxi Jingui Pulp & Paper	Ningbo Asia
24,439 tons of standard coal/year	75,000 tons of standard coal/year
Hainan Jinhai Pulp & Paper	Gold East Paper
9,568 tons of standard coal/year	20,000 tons of standard coal/year
Hainan Gold Hongye and Hainan Gold Shengpu	Thanks to more energy efficiency initiatives, the actual energy consumption of Rudong Base was
1,944 tons of standard coal/year	25 % less than the projected amount in the energy technology evaluation conducted at the design phase

◆ Ningbo Asia No. 3 Unit Connected to Grid for Power Generation

Ningbo Asia No. 3 Unit was connected to the grid starting to generate power in February 2021. This indicated that Ningbo Asia had officially completed the energy-saving retrofit of its incinerator desuperheating and depressurization station, which was one of its comprehensive energy-saving and efficiency improvement projects. At the retrofitted station, the No. 3 Unit replaced the desuperheating and decompression devices, and extraction back-pressure steam turbines were used for heat supply and power generation. This maximized the utilization of the heat energy of high-grade steam, thus realizing tiered, and more reasonable energy use and notably reducing energy waste, saving over 75,000 tons of standard coal per year.

◆ Increasing Use of Clean Energy

Proportion of biomass fuels:

26.59 %,

up

44.11 %

from 2020



Shifting away from the energy mix dominated by fossil fuels is the key to reducing GHG emissions and realizing the Carbon Neutrality goals. Our commitment in this regard is reflected in our ongoing efforts to reduce the use of coal and increase the use of clean energy, which will continue far into the future.

Harnessing its premium rooftop resources, Gold East Paper completed the Phase I 20-MW and Phase II 10-MW rooftop PV power generation projects in 2016 and 2017 respectively, and its Phase III 20-MW project currently under way is expected to be put into operation by the end of 2022 upon completion. Meanwhile, Hainan Jinhai Pulp & Paper and Ningbo Asia have both been

planning their own PV power generation projects, while other mills have completed a measurement of available PV areas.

Active efforts at APP China mills to push for increased use of biomass fuels in 2021 effectively ramped up their proportion in our energy mix. At Hainan Jinhai Pulp & Paper, biomass fuels such as black liquor, bark, and woodchips accounted for 59.9% of the energy mix. Ningbo Asia has been experimenting with the use of fuels derived from non-hazardous industrial solid waste for power generation. APP China will continue to increase the use of biomass fuels in 2021 and plans to start using those from our own plantations.

Water Management

Average industrial water reuse rate:

95.74 %



Addressing water shortages and realizing sustainable water use are important aspects of building an ecological civilization. China has intensified efforts in recent years to promote agricultural, industrial, and urban water conservation and continues to strengthen water management. The Ministry of Water Resources issued the *Guidance on the Establishment and Optimization of Water Conservation Systems and Policies* in December 2021, underlining the strategic significance of water conservation and pledging to use measures like tightening water use constraints and improving capacity for intensive and economical water use to promote the implementation of water conservation practices on all fronts.

APP China mills work diligently to optimize their water management mechanisms. We have set up several water conservation improvement project teams, continuing to improve water use efficiency by scaling up water reuse, conducting water-saving technology upgrades, recycling rainwater, etc. The average industrial water reuse rate of APP China mills within the scope of reporting was 95.74% in 2021.

- Gold East Paper set the goals of reducing water consumption by 2% every year to 6.5 tons of water used per ton of paper produced and increasing the reclaimed water reuse rate to 50% through continuous explorations. In October 2021, the company entered into a water rights trading agreement with the neighboring mill Zhenjiang Chi Mei Chemical Co., Ltd. to offer it 3 million cubic meters of water rights trading volume every year during the agreement period.

- Through measures like water use management, technology and equipment upgrades, and industry benchmarking management of water consumption indicators, Ningbo Asia developed industry-leading water-saving practices and was named a "2021 Provincial Water-Saving Benchmark of Zhejiang". Its water-saving initiatives in 2021 could save 8.774 million tons of water per year, equivalent to RMB13.16 million in economic benefits. Its outstanding water-saving performance is estimated to translate into RMB5.4 million in water cost savings between 2022 and 2024.

- Guangxi Jingui Pulp & Paper's alkali recovery plant managed to keep its seal water flowing without being discharged by using independent seal water return pipes etc., recycling around 2,000 cubic meters of seal water per day and generating RMB2.6 million in annual economic benefits; to realize 100% seal water recycling and reuse across the mill, the company organized a study tour to demonstrate to the various departments how the alkali recovery plant recycled and reused seal water. As of the end of 2021, 11 plants had completed a seal water reuse retrofit, increasing the mill's total recycled seal water to about 4,000 cubic meters per day, attaining a 70% reuse rate.

- Rudong Base attached great importance to the reuse of white water and used white water in the papermaking process to wash and dilute the pulp stream, clean paper machines, etc., which reduced both the use of clear water and the total effluent volume. The consumption of clear water per ton of finished products was estimated to be eight cubic meters, which complied with the national water quota for the paper industry.

"Three Wastes" Management

For manufacturing enterprises to realize greener production and circular economy, the comprehensive management of the "three wastes" is essential. In compliance with national laws and regulations such as the *Law on the Prevention and Control of Water Pollution*, the *Law on the Prevention and Control of Atmospheric Pollution*, the *Law on the Prevention and Control of Environment Pollution Caused by Solid Wastes*, the *Law on the Prevention and Control of Soil Pollution*, and the *Hazardous Chemicals Safety Management Regulations*, APP China works to drive continuous progress in "three wastes" treatment by applying "reduction at the source, control through the process, and end-of-pipe treatment".

In the treatment of wastewater and air pollution, APP China mills follow the principle of "scientific pollution treatment and compliant emissions". We closely monitor and voluntarily disclose the various pollutant indicators and periodically have them audited by accredited third parties. We also undertake a series of wastewater infrastructure retrofits such as wastewater treatment system optimization and wastewater treatment capacity enhancement to improve the overall performance. We are thus able to keep the concentration and volume of wastewater and air pollutant emissions at far lower levels than the permitted limits while maintaining high pulp and paper yields. Thanks to its outstanding emissions compliance performance, Guangxi Jingui Pulp & Paper received approximately RMB1.127 million in environmental tax cuts in 2021.

Indicators	Unit	2021	2020	2019
Wastewater discharge per ton of paper produced (National standard* limit: 20 tons)	tons	5.88	6.20	6.37
Wastewater discharge per ton of pulp produced (National standard limit for pulp companies: 50 tons; national standard limit for pulp & paper companies: 40 tons)	tons	12.46	12.50	11.62
COD emissions per ton of paper produced (National standard limit: 1.6kg)	kg	0.24	0.22	0.29
COD emissions per ton of pulp produced (National standard limit for pulp companies: 5kg; national standard limit for pulp & paper companies: 3.6kg)	kg	0.86	0.85	0.63

*Discharge Standard of Water Pollutants for Pulp and Paper Industry (GB3544-2008)

Guangxi Jingui Pulp & Paper's pollutant emissions in 2021

Wastewater/ Exhaust gases	Indicators	Permitted limit (tons)	Emissions in 2021 (tons)	Proportion (emissions in 2021/permitted limit)
Wastewater	COD	2,024	817.43	40.4%
	Ammonia nitrogen	58	10.26	17.7%
	Total nitrogen	262.8	42.24	16.1%
Exhaust gases	SO ₂	1,086	185.8	17.1%
	NO _x	902	612.48	67.9%
	Soot	270.6	74.59	27.6%

Comprehensive utilization rate of non-hazardous solid waste



99.25 %

As to solid waste, our mills have established management procedures for non-hazardous industrial solid waste and hazardous waste. The non-hazardous industrial solid waste generated during the manufacturing process includes fly ash, slag, sludge, lime sludge, gypsum, woodchips, slurry, etc., which the mills recycle and comprehensively utilize by selling to external parties for reuse or through internal reuse, among other methods. Hazardous waste includes heavy metal waste, waste chemicals, radioactive waste, waste mineral oils, waste paints, organic resin wastes, waste lamps, etc., which the mills commission qualified third parties to dispose of in a legal and compliant manner. In 2021, the comprehensive utilization rate of non-hazardous solid waste at APP China mills within the scope of reporting reached 99.25%.

Cumulative use of biogas surpassed



6,550,000 cubic meters,

generating economic benefits over



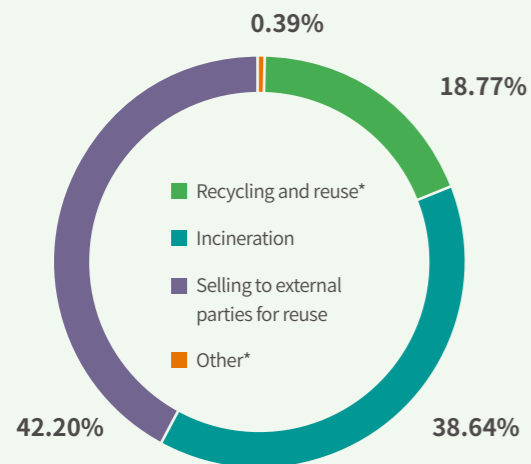
RMB **3.1** million

Promoting Comprehensive Utilization of Wastewater Sludge

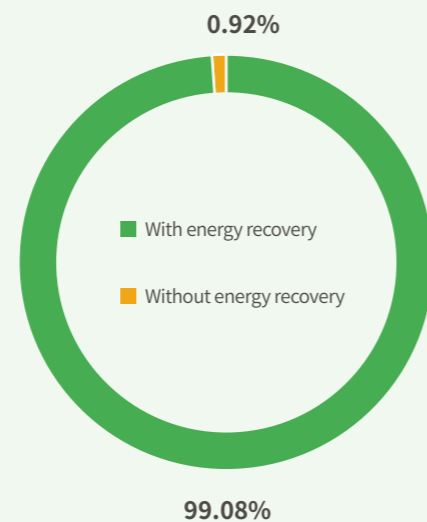
Ningbo Asia has two bubbling fluidized bed (BFB) incinerators with a design sludge processing capacity of 1,600 tons/day. They mainly burn wastewater sludge, blended with raw coal and biomass fuels at a certain ratio to maintain stable combustion. The biogas produced during wastewater treatment is also transferred to the incinerators for combustion, which reduces the amount of raw coal and biomass fuels used. The company also supports local community by assisting to incinerate the wastewater sludge produced by other companies in the neighborhood, generating considerable social benefits.

In 2021, the company incinerated 335,921 tons of sludge, including 17,250 tons of sludge produced by external companies, and burned 805,318 cubic meters of biogas produced during wastewater treatment, equivalent to saving 572 tons of standard coal. From 2018 to the end of 2021, the company cumulatively burned 6.55 million cubic meters of biogas, generating over RMB3.1 million in total economic benefits. Its chemi-mechanical pulp (CMP) project with an annual production capacity of 300,000 tons was put into operation in the second half of 2021, and the biogas generated therein started to be transferred to the sludge incinerators in December 2021 for co-firing. This is expected to double the amount of biogas use in the future.

Methods of Non-hazardous Solid Waste Disposal at Mills Within Reporting Scope in 2021



Energy Recovery from Solid Waste Incineration



* "Recycling and reuse" refers to the recycling and reuse of waste through direct processing by APP China mills or through special cooperation with third-party agencies, such as making by-products from waste. Other disposal methods are mainly comprised of centralized treatment by local sanitation departments.



Social:

Creating a Harmonious Happy Life

We are committed to "giving back to society what society has given us" and continue to intensify efforts in safety and health, product responsibility, customer relationship management, community engagement, and charity and philanthropy, among other areas, doing our part as a corporate citizen to promote social progress.

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Charity and Philanthropy	78



Safety and Health

Workplace safety is about protecting people's lives and should always remain a top business priority. The revised *Law of the People's Republic of China on Work Safety* came into force in September 2021. It underlines the establishment of a company-wide work safety accountability system and the prevention and resolution of major safety risks at the source; it also legally requires employers to establish a dual prevention mechanism consisting of

risk classification and control and hazard detection and elimination and to advance workplace safety standardization. All of those requirements are intended to further formalize employers' accountability for work safety.

APP China abides by all applicable national laws and regulations on safety, health, and environment. In line with the ISO45001 Occupational Health

and Safety Management System and the requirements for workplace safety standardization, we continue to improve workplace safety management and put safety first at all times to ensure a safe workplace. Meanwhile, we highly prioritize the prevention and control of occupational diseases, amplifying efforts to create a safe and healthful work environment.

Building a Safety Management System

Consistent with the "safety first, prevention-centered, and comprehensive management" safety approach, APP China has established a unified and Group-wide Safety, Health, and Environment (SHE) management system that covers all workers, facilities, and worksites. This system, together with the SHE corporate standard management system and the emergency management system, among others, serves to drive effective safety accountability across the Group and continual improvement in our safety management.

APP China set targets for seven key performance indicators (KPIs) in 2021 based on our SHE performance in 2020. The KPIs we selected included occupational fatalities, lost-time injuries per million hours worked, injury severity rate, number of fire accidents, workers with occupational diseases, number of safety training hours per employee, and number of administrative penalties imposed by government. The BUs and mills then broke those targets down into specific work indicators and objectives. We also instituted a regional joint prevention and mutual inspection program and a cross-mill SHE MBOS competition platform to stimulate mutual supervision and benchmarking and drive timely remediation of the problems identified in workplace safety management.

In 2021, the Group amended the notice and rectification procedures for abnormal SHE events. Changes included adding a special reporting line that moves from the mills' general managers to BU CEOs and to the shareholders and devising an APP-SHE meeting plan scheduling monthly meetings, random subject-matter meetings, and end-of-year review meetings to further standardize our SHE meeting system, strengthen the research, analysis, and review of SHE management status, and promote SHE communication among different mills. To further systematize the Group's SHE efforts, we have formed the interdepartmental improvement project team for "Hazard Detection and Elimination System" digitalization to build unified systems and processes at the Group level. As we work to further systematize and digitalize key modules such as accident management, risk control, hazardous work approval, and safety education and training, we will progressively move all those operations online and extend such efforts across the Group.

Key modules of the SHE Hazard Detection and Elimination Platform



APP China mills have all set up a Safety Management Committee led by the general managers and formulated a set of policies and systems, including workplace safety rules and regulations, job-specific operational safety rules, and the workplace safety reward and punishment system, among others. Our efforts also went into enhancing existing systems such as the safety standardization system, hazard detection system, risk management and control system, and all-staff performance review system. We have progressively built out a long-standing safety management mechanism that keeps us disciplined, evolving, and improving.

Pushing Forward Workplace Safety Standardization

Ningbo Asia formulated the *Implementation Plan for Workplace Safety Standardization* and facilitated its implementation using the dynamic PDCA (Plan-Do-Check-Act) cycle; formulated a set of highly executable safety management policies, such as the *Hazardous Operations Safety Management Measures*, *Workplace Safety Accountability*, *Hazard Detection and Elimination*, the *Company Comprehensive Emergency Plan*, and the *Standard Operating Procedure for Confined Spaces*, to further standardize workplace safety management; conducted a thorough inspection and rectification of the safety measure management at the worksites. In March 2021, Ningbo Asia was certified to second-level standardization of the *Standard for Work Safety Standardization of Papermaking Enterprises*, indicating that the company now has the highest work safety rating of A.

In April 2021, the review panel of the China Waterborne Transport Research Institute of the Ministry of Transport of the People's Republic of China carried out an on-site Grade-1 work safety standardization review of Gold East Paper's terminal. The evaluation was carried out in accordance with the *Implementation Rules for Work Safety Standardization Evaluation of Terminal General Cargo Operators*. The new edition of the evaluation included 188 specific rules under 16 major subjects, a 30%+ increase in content. Based on a thorough, careful, and strict assessment of terminal safety parameters such as safety systems, safety measures, hazard detection and elimination, and emergency response, the panel gave a total score of 920 (out of 1,000) and granted Gold East Paper's terminal the certification for Grade-1 work safety standardization.



Gold East Paper's terminal passed the Grade-1 work safety standardization review

Safety Risk Management

To deliver on our safety commitments, APP China Headquarters regularly interprets and communicates safety-related laws, regulations, and policies to the mills to help them turn relevant requirements into procedures and systems that best suit their conditions. The mills have established policies and processes around hazard identification and risk assessment, safety risk classification and control, safety education and training, major accident handling, work-related accident management, etc., making an all-out effort to prevent workplace accidents and minimize the impact they may bring.

◆ Providing Safety Education and Raising Safety Awareness

APP China has in place a mandatory three-level pre-job safety training program and an annual refresher to ensure our employees remain apprised of their working environment and all the safety hazards present therein to stay safe on their jobs. Our mills work to foster a regular and deeply embedded awareness around workplace safety through a rich

array of educational activities, including meetings, training, performance reviews, contests, and major accident warning sessions, combined with themed activities like the Workplace Safety Month and the Fire Safety Awareness Month. In 2021, 450,918 hours of safety training were collectively recorded at all the mills within the scope of reporting.

Safety training hours:

450,918



◆ Prioritizing Risk Identification and Strengthening Risk Governance

APP China continues to optimize the hazard detection and elimination system anchored in risk identification and control. We thoroughly examine and address workplace safety risks and hazards every year based on an ongoing process to identify and assess the sources of hazards and apply hazard detection, tracking, and correction procedures, thereby tying our safety efforts into a closed loop. Some of our mills, including Hainan Jinhai Pulp & Paper, Hainan Gold Hongye, and Hainan Gold Shengpu, have formulated the *Implementation Plan for Workplace Safety Risk Classification and Management*. Drawing on a comprehensive identification and assessment, they implement differentiated and standardized safety risk management as suited to the risk level and severity. Our mills employ a

variety of hazard inspections, as varied as day-to-day supervision and inspections, targeted inspections, holiday inspections, shift inspections, workshop inspections, department head-led inspections, cross inspections, etc. The average hazard correction rate was 98.87% in 2021.

In addition, emergency drills are held every year at each mill simulating different scenarios such as fires, car and forklift accidents, chemical spills, steam explosions, typhoons, and floods. APP China Headquarters would also arrange for the mills to study and evaluate each other's practices to strengthen the emergency preparedness and response of employees. In 2021, a total of 521 emergency drills were conducted at our mills within the scope of reporting.

Average safety hazard correction rate:

98.87 %



Number of emergency drills:

521



◆ Eliminating Safety Hazards

Safety hazards could be very trivial, so the elimination and prevention of safety hazards need a strong safety awareness and sense of responsibility for all employees. In order to motivate the employees to take initiative, and effectively implement the on-site inspection system, Shandong Base of Bohui Paper launched the Project Screwdriver, promoting improvement with proposal contests, and encouraging employees to identify minor anomalies during on-site inspections and use handy tools such as a screwdriver to deal with the hazards in a timely manner before their escalation. From June to August 2021, the Shandong Base effectively identified and rectified 291 safety hazards, and a total of 291 employees were commended.



Hainan Gold Hongye carried out a major safety inspection

◆ Contractor Safety Management

The high mobility of contractors and the great variations in their safety awareness and operational standards are among the uncertainties that make them a stakeholder group with considerable safety risks. The safety management of contractors thus becomes a business imperative. Moreover, as APP China took on a growing number of new projects, the Company issued the *Notice on Strengthening Contractor Management* to formalize related accountability. The Company has included contractors into the Group's SHE management system,

holding them to the same safety standards as our own employees. In 2021, APP China Headquarters set out detailed requirements regulating contractor management at our mills, which cover ten areas including qualification review, the signing of safety management agreements, the establishment of a contractor directory, safety training and notice, contractor meetings, safety inspections and hazard elimination, safety performance review, accident reporting, etc.

◆ Major Contractor Safety Inspection

Guangxi Jingui Pulp & Paper carried out a major contractor safety inspection in August 2021 to further strengthen contractor safety management, formalize safety accountability, and eliminate contractors' exposure to safety hazards. Twenty-eight contractors were thoroughly inspected as to workplace safety accountability mechanism, hazard detection and elimination, risk identification and control, education and training, and operating procedures, among other aspects. In the end, 27 problems were identified and no major hazards were found. The company prompted relevant contractors to take immediate corrective measures, with 22 problems fully addressed by the end of 2021. During the inspection, the company's leaders underscored the importance of workplace safety for the contractors' management teams and called on all the workers to stay careful at work and make every effort to help ensure a safe workplace.



Occupational Health Management

We are committed to keeping our workers safe and make a point of preventing, controlling, and eliminating occupational hazards at the source. In compliance with the *Law of the People's Republic of China on Prevention and Control of Occupational Diseases*, the Company implements a management system consisting of "oversight by headquarters, accountability by facilities, and management at different levels". APP China Headquarters has instituted the *Code of Occupational Health Surveillance Management*, and each mill has an Occupational Health and Safety Committee, along with a set of management measures for protecting against occupational diseases. Those procedures are the basis on which we carry out systematic safety work ranging from occupational hazard prevention and health checks to workplace management and occupational health education and training to effectively protect our workers' health and related rights and interests.

◆ Safeguarding Occupational Health

Every mill has an Occupational Health Management Department that regularly monitors occupational hazards in the workplace every year such as noise, dust, and high temperature, and such monitoring also covers our contractors' workplace. We provide all employees, new and current, with occupational health training, plus regular training sessions on occupational hazard prevention offered throughout the year to those exposed to hazards on their jobs, while putting up warning signs where hazards exist. We provide employees with personal protective equipment that meets the requirements of the *Provision Standard for Personal Protective Equipment* and continue to intensify inspections to ensure

its proper use. We also maintain medical surveillance files for our employees, providing health checks before, during, and after deployment and shifting those with occupational contraindications to another job. In 2021, there were zero incidents of occupational diseases at APP China.

From April 26 to May 1, 2021, our mills hosted the *Law of the People's Republic of China on Prevention and Control of Occupational Diseases Awareness Week*, engaging employees in training, lectures, online quizzes, videos about typical cases of occupational diseases, posters about occupational health, etc. to further increase their health awareness at work.



Guangxi Jingui Pulp & Paper provided lectures on chronic disease prevention and treatment for employees

◆ Caring for Employee Wellbeing

As COVID-19 continues to linger, measures to prevent and contain its spread have become a part of our daily routine. They include, for example, office disinfection, temperature screening, information registration for business travelers and visitors, distribution of protective supplies such as masks, alcohol, and hand sanitizers to employees, and mass nucleic acid testing among employees. Those measures are intended to

safeguard employee health and hygiene and ensure a safe workplace. Red Cross rescue training was also offered at Ningbo Asia and Rudong Base to give employees the skills needed for responding to emergencies and enable them to save themselves and their colleagues and prevent and avoid hazards so as to ensure adequate emergency response capacity across different business functions within the Company.

◆ Red Cross First Aid Training

In September 2021, Ningbo Asia invited experts from the Red Cross Emergency Rescue Center of Beilun District to give a two-day first aid training session to its employees. They learned, and mastered, different kinds of care techniques such as how to perform CPR (cardiopulmonary resuscitation) and the Heimlich Maneuver, how to use an AED (automated external defibrillator), how to administer first aid for traumas, and how to treat common emergencies and accidental injuries. This fostered an increased safety awareness in the workplace and better prepared the employees for accidental injuries and unexpected disasters. In the end, 26 trainees obtained the Red Cross First Aid Certification after passing the written test and professional skills test.



Red Cross First Aid training was offered at Rudong Base

Product Responsibility

APP China mills hold the quality of raw materials to the standards set by the ISO9001:2015 Quality Management System and authoritative testing protocols. We also implement a quality management mechanism that runs through the entire product lifecycle

from manufacturing and processing to finished products and their testing and warehousing. To make high-quality products would take constant polishing and optimization. We make targeted improvements to our product quality based on careful analyses of customer

complaints. We also actively carry out independent quality inspections while building a stronger quality awareness among employees and encouraging them to be a significant part of our quality improvement efforts.

◆ Pulp Quality Improvement Initiative

In 2021, APP China set up several improvement project teams dedicated to pulp quality management, continuously exploring ways to improve our products. Under the "Stabilizing Group's Pulp Quality and Reducing Internal Marketing Customer Complaints" initiative, we regularly conducted joint analyses with the Group's pulp and paper mills on pulp-related customer complaints. We examined the causes from multiple angles, such as pulp quality, testing methods, and business activities, based on which we proposed a series of improvement actions. By improving the equipment, processes, and equipment parameters, Ningbo Asia and Guangxi Jingui Pulp & Paper achieved notable progress not only in the quality of chemi-mechanical pulp but in energy and water savings as well.

◆ Continuous Product Quality Improvement

Bohui Paper has formulated its own quality management system based on the national GB/T 19001-2016 quality management system standards, and established control procedures covering raw material inspection, finished product inspection and testing, and finished product storage and transportation. The Company regularly carries out internal self-inspection of product quality, and the relevant improvement in accordance with the inspection results. In 2021, Jiangsu Base of Bohui Paper started the construction of the new Technology Center and the R&D Laboratory, and carried out a number of quality improvement projects, which effectively improved product quality with a 98.8% product A Grade rate, increased by 1.3% compared with that of 2020.

Customer Relationship Management

"Customer First" is one of the core aspects of APP China's "behavior guidelines" within the corporate culture system. Driven by an unwavering commitment to serving customer needs, we constantly strive to provide products and services that our customers are happy with. Our BUs have all set up a professional and efficient customer service team. We continue to optimize the customer complaint handling procedure and strengthen customer communication to ensure the delivery of exceptional pre-sales, sales, and after-sales services.

In 2021, we continued to carry out a diverse array of customer engagement activities, such as production and sales meetings, customer visits and exchanges, exhibitions, customer satisfaction surveys, and the "Little A Classroom", to fully understand our customers' expectations and demands. We also incorporated considerations of issues such as customer satisfaction improvement and customer complaint rate reduction into the MBOS Proposal Competition and set up several project improvement teams to implement interdepartmental improvements.

APP China maintains a customer satisfaction survey system in all three fields of industrial paper, cultural paper, and tissues. Every year, we conduct online surveys, field visits, and correspondence surveys to understand what our customers think of our products and services in respect of product quality, sales service, logistics service, technical service, and brand image, among other dimensions. We then use the survey results to inform improvement plans to ensure customer concerns are effectively addressed.

Since its introduction in 2018, the "Little A Classroom" has been very

popular among our customers. In 2021, we hosted 25 sessions of the "Little A Classroom" with over 600 participants. The event enables our customers to learn about the latest industry trends and the latest APP China products and provides a platform for our manufacturing, technical R&D, and customer service teams to have in-depth communication with them to help address the problems they encounter in production. As we continue to hold the "Little A Classroom" in the future, we will offer more customized content designed around the specific needs of our customers.



Award ceremony of the Ningbo Asia MBOS Proposal Competition

Community Engagement

APP China cares deeply about community engagement and works to foster supportive and trusting connections with community residents. Our mills and forest farms maintain a regular dialogue with surrounding communities, welcome their supervision, and act swiftly to verify or address the problems they raise.

Enhancing Community Engagement and Protecting Community Rights

APP China Forestry instituted the *Administrative Measures for Community Engagement* in 2016, setting out a mechanism for engaging with local communities, especially ethnic minority groups. Our forest farms have each set up an engagement mechanism working group assuming responsibility for devising community engagement plans and staying in touch with local villagers through visits, notices, and exchange meetings; conducting thorough communication with community members before undertaking forestry operations to ensure no major negative impact is caused by harvesting and transportation, plantations survey, or other related activities; monitoring and evaluating the engagement mechanism in a timely manner. The forest farms carried out a biennial social impact survey in the fourth quarter of 2020, which they compiled into a summary report in 2021 to inform future work.



Forest farm staff communicated with local residents on topics such as village road transportation and afforestation

On a random basis, APP China mills host an Open Mill Day inviting neighboring communities, schools, and media to come in for a guided tour. Ningbo Asia's Green Paper Culture Center opened to the public in April 2021. During the summer vacation, the company held a variety of education activities on paper culture for students to give them a glimpse into the history of paper and papermaking as well as APP China's course and model of development. The students also had an opportunity to participate in the hand-papermaking process to make paper by their own hands. As of the end of 2021, the Green Paper Culture Center had hosted 84 visits totaling over 900 visitors.



Students were experiencing hand-papermaking at the Green Paper Culture Center

Live Broadcast of Breeze Production Base

In March 2021, our Gold Hongye Breeze Livestream Team went to APP China's forest farm and production bases in Hainan, using cameras to capture and present the entire papermaking journey from sapling to finished tissue products, in a bid to find new ways to engage and interact with the consumers. The live broadcast went on for two days, drawing over 300,000 viewers. Live footages of three bases, namely the forest farm, the pulp mill, and the processing mill in Hainan, allowed consumers to see the scale of the Breeze production base and the modern papermaking technologies that underpinned the high quality of our products.



Live interview at the production base

Charity and Philanthropy

"Blood is thicker than water, and the ethnic Chinese and overseas Chinese are always the ones who care the most about the people of their motherland." This has been one of the guiding principles followed by the Chairman and President of Sinar Mas Group, Mr. Teguh Ganda Widjaja, over the years of doing business in China. Under his leadership, APP China has been committed to the principle of "giving back to society what society has given us" and actively

involved in charitable causes while pursuing economic growth. APP China has built up a four-pronged CSR system consisting of national public emergencies, culture, sports, and education, community development, and rural revitalization, integrating CSR deeply into our corporate culture. As of the end of 2021, APP China had donated close to RMB1.2 billion in charitable giving in China.

Cumulative charitable giving: close to
RMB **1.2** billion



Foundation: A Deep Commitment to Sustainable Philanthropy

Guided by its mission to "support the development of philanthropy in China, help the frail, the needy, the elderly, and the young, and build a harmonious society", the Huang Yicong Foundation (hereinafter referred to as "the Foundation") has devised the SPIC (Sustainable, Participation, Innovation, and Care) development strategy. In 2021, the Foundation implemented 24 programs designed to promote equity in education, support youth development, assist research advancement, etc., with a total donation of around RMB46.763 million.

With a long-standing commitment to education, the Foundation has developed a diverse range of influential programs spreading across different regions over the years. The Foundation extended its focus to the medical field in 2021 and will work with hospitals and medical experts to help defray the medical expenses for patients from remote areas and use digital means to improve the public's healthcare knowledge. In general, the Foundation will continue to follow the healthy and virtuous cycle that has been formed while exploring more long-term and solid charitable practices.

Number of projects carried out by the Foundation:

24



Charitable giving:

RMB **46.763** million



Scan the QR code to see more of the Foundation's practices

Tomoroe Career Class

The Foundation has been funding Tomoroe Education's Tomoroe Career Class program since 2018. The program aims to instruct high school students, especially those in remote areas, in the different career options available in today's society to better prepare them for college and life after graduation. As of the end of 2021, the program had offered 124 hours of career lectures to 14,310 students in seven schools, sharing information on a broad range of vocations such as economic researchers, journalists, lawyers, doctors, writers, architects, captains, and hypnotists.

In 2020, the Foundation supported Tomoroe Education in launching the Guide to Choosing a Major program. The program covered over 60 colleges and universities and over 70 majors and invited 78 volunteers to give sharing sessions to young students, serving around 50,000 participants. Students

who participated in Tomoroe's Career Class had a good run in the "Tomoroe Class" essay contest hosted by Tomoroe Education. Of all the 451 students who participated in the contest between 2019 and 2021, 45 received an award.



Interaction in a Tomoroe Career Class

Smart Classroom

To help under-resourced rural schools reap the benefits of the digital era and give rural students access to better educational resources, the Foundation funded the introduction of Beijing No. 4 High School (BHSF)'s Smart Classroom into Yicong Middle School in Luoxi Town, Quanzhou, Fujian Province. First started in September 2021, the project has been rolled out in 23 classes in the first and second grades of junior high school and the first grade of senior high school. It equips every teacher and student with a learning tablet and every Smart Classroom teacher with a teaching advisor appointed by BHSF who keeps track of their lectures and offers one-on-one coaching to help them quickly get comfortable using the new platform. The project also offers Smart Classroom demonstration classes, research classes, and exchange classes every week.

The Smart Classroom has greatly enhanced the digital literacy of the teachers and students. It has also drawn visits from other schools, who have been so impressed that they have also decided to bring it in. In the future, the Foundation will regularly engage with BHSF to address problems identified in the teaching and learning process and constantly optimize the project model to give more students access to quality educational resources.



Smart Classroom at Yicong Middle School

APP China's Charity Journey: Public Emergencies

At APP China, we have a dedicated CSR emergency response mechanism. Our move to digital in the past few years has brought about continuous optimization in our collaboration system, which enables our mills to quickly mobilize resources and logistics to provide relief to the affected areas when disasters occur. We have been an active part of the response and relief efforts in public emergencies such as the COVID-19 pandemic and natural disasters, continuing to fulfill our duties as a responsible corporate citizen.

Aiding Front Lines of Disaster Relief

In July 2021, Henan Province was hit by extreme rainfall, which caused massive flooding in Zhengzhou, Xinxiang, Weihui, and some other cities. Responding to the call of the Shanghai Federation of Returned Overseas Chinese for disaster relief, APP China promptly donated RMB1.0 million worth of supplies through the Shanghai Overseas Chinese Foundation to affected areas in Henan Province, including tissues, disinfecting wipes, sanitary napkins, and other daily necessities, to help ensure people's basic needs could be met. We were the first overseas Chinese company to make a donation to help victims of this flooding in Henan Province.

Following the Shanxi flooding in October 2021, Gold Hongye Paper immediately gathered RMB600,000 worth of tissues and hygiene products and donated them to the affected areas through the China Soong Ching Ling Foundation to help local people get back on their feet soon. When Yangzhou faced a fresh outbreak of COVID-19 in August 2021, Gold Hongye Paper donated RMB1.4 million worth of tissues and hygiene products.



We donated supplies to disaster areas in Henan Province

APP China's Charity Journey: Culture, Sports, and Education

Since entering China in 1992, APP China has been actively involved in promoting the cultural and sports development in China. In 2008, we donated RMB100 million to support the construction of the Water Cube, an Olympic venue in Beijing, making us the first overseas Chinese company to make such donations; donated RMB15 million in 2010 in support of the construction of the China Pavilion at the Expo Shanghai 2010; donated RMB20 million in 2018 to Rangtang County, Aba Prefecture, Sichuan Province to fund the construction of the Juenang Cultural Center; and donated RMB20 million in 2021 to support the construction of the Overseas Chinese Ice-Snow Museum, the first Beijing Winter Olympics themed museum.

Contributing to Beijing Winter Olympic Games

Initiated in May 2020, the Overseas Chinese Ice-Snow Museum, which is located in Chongli District, Zhangjiakou City, Hebei Province, started a soft opening in early October 2021. As one of the key cultural heritages of the 2022 Beijing Winter Olympic Games, the museum is not only the largest ice and snow-themed museum in China and one with the largest collection of works, but also the first museum in China themed around ice and snow and the Winter Olympics. It is also an important base for promoting ice and snow sports and conducting research on ice and snow culture. APP China made a donation to the construction of the museum, which is another important endeavor to support sports and cultural development in China.



Night view of the Overseas Chinese Ice-Snow Museum

Number of students currently enrolled in the Dream Plan:



236

Since its inception in 2018, the Dream Plan program has set up joint classes with Guangxi Vocational and Technical Institute of Industry and the Mechatronics major of Nantong Vocational University and offered pulp-making and papermaking courses collaboratively with the College of Light Chemical Engineering and Food of Guangxi University and Zhejiang University of Science and Technology. The program enrolls aspiring students from remote areas, offering a full tuition and accommodation fee waiver and a partial remission of the living and transportation expenses. APP China also provides employment opportunities for the students upon graduation.

At our new site in Zibo, Shandong Province, which was added for the 4th Dream Plan in 2021, we engaged Qilu University of Technology to be part of our professional training program. This year's focus was on middle schools in remote rural areas, with a total of 86 students newly enrolled. As of the end of 2021, 236 students were enrolled in the Dream Plan; by September 2021, 42 students had secured formal employment and another 42 were taking an internship.



Opening Ceremony of the 2021 APP Class at Dream Plan Zibo Site

APP China's Charity Journey: Community Development

During day-to-day operations, our BUs maintain an active dialogue with the communities we operate in. We seek to understand the specific needs of local residents and do our utmost to support the elderly and the vulnerable and help strengthen community development.

- » Ningbo Asia has been hosting the Harmonious Community program every year since 2011. The company held 17 events throughout 2021, supporting communities in multiple ways such as caring for elderly people who lived alone and visiting the firefighting brigades; holding chess and Go competitions for primary schools in the neighborhood; donating books to nearby kindergartens; hosting activities to celebrate traditional festivals such as the Lantern Festival, Dragon Boat Festival, and Mid-Autumn Festival in the surrounding communities, etc., fostering a meaningful and harmonious connection with local communities.
- » Since establishing a presence in Yangpu Economic Development Zone, Hainan Jinhai Pulp & Paper has financially assisted elderly people and poor households in surrounding communities on holidays while allocating funding to improve local cultural and sports facilities and donating needed supplies for hosting all kinds of activities like basketball, volleyball, and chess games and competitions. In 2021, the company made a total donation of RMB123,600 to aid elderly people and poor households in the neighborhood.



Ningbo Asia celebrated the Lantern Festival with local community residents

APP China's Charity Journey: Rural Revitalization

Rural revitalization and common prosperity are two developmental imperatives during the 14th FYP period. By investing to expand our network of services and promote innovation-driven growth, we strive to boost local economy and employment and help create an environment that rewards hard work, promotes equal opportunity, and affords everyone a chance to realize their dreams. We also actively assist in poverty alleviation and offer help to those in need, doing our part to promote social stability and common prosperity.

- » In September 2021, Ningbo Beilun Charity Federation launched the Beilun District "Common Prosperity and Happy Homeland" Charity Fund, which received its first donations from 21 companies, including RMB600,000 from Ningbo Asia.



Launching Ceremony of the "Common Prosperity and Happy Homeland" Charity Fund

- » In 2021, Hainan Jinhai Pulp & Paper and APP China Tissue BU donated RMB500,000 and RMB30,000 worth of tissue products respectively to five remote villages in Hainan Province in support of local rural revitalization, poverty alleviation, and relief efforts. Over the years, Hainan Jinhai Pulp & Paper has assisted Hainan Province in improving local education and environmental protection through the Hainan APP Student Aid and Environmental Protection Foundation, cumulatively donating over RMB46 million.



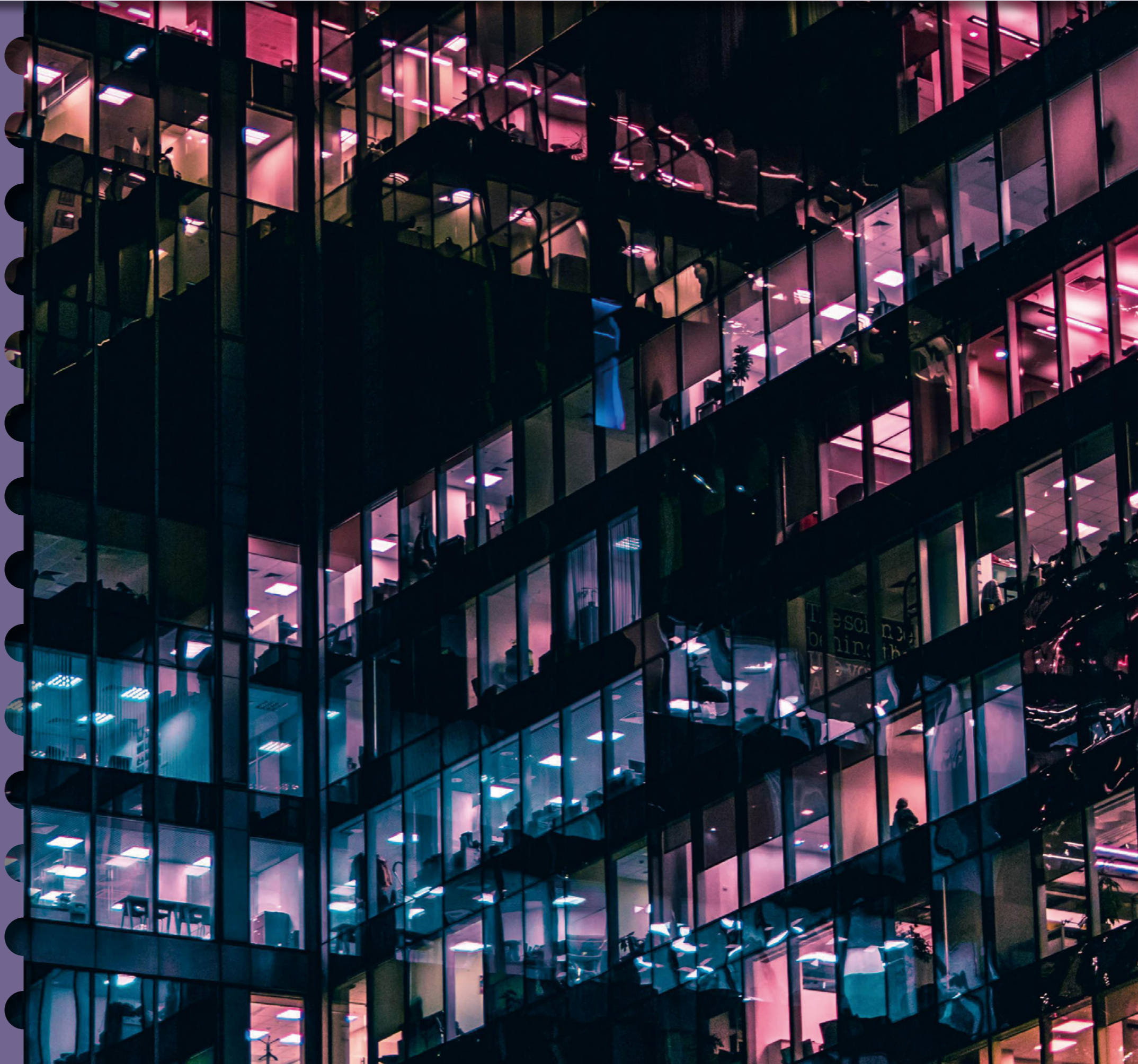
Hainan Jinhai Pulp & Paper made monetary and in-kind donations

Governance:

Committed to Doing Business with Integrity

We continue to improve the governance system and the effectiveness of our governance while advancing comprehensive risk management, operational compliance, business ethics, supply chain management, and information security management to provide a solid foundation for sound and robust business growth.

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Risk Management

APP China has established the "Three Lines of Defense for Internal Control" management system to continuously strengthen risk identification and management and lay the groundwork for maintaining stable and sustained operations. As part of our digitalization agenda, we launched an online audit dashboard in 2021. It keeps our audit management personnel updated on the progress of ongoing audits and the implementation of remedial measures. This helps minimize our

operational risks by ensuring that all the risks identified during audits are fully addressed. In 2021, our BUs completed a total of 24 internal audits, undertaking over 700 productivity enhancement and rectification initiatives and instituting and/or amending seven procedural documents in light of the identified problems.

In the future, we will use the big data generated during Digital 2.0 to empower better risk identification and analysis on

issues such as abnormal transactions, fraud, and lack of workflows and systems in sales, procurement, production, logistics, and other business processes and strengthen audits of our digitalization projects and automation projects. This will help us navigate potential risks as we press ahead with our strategic transformation.

APP China's Three Lines of Defense for Internal Control

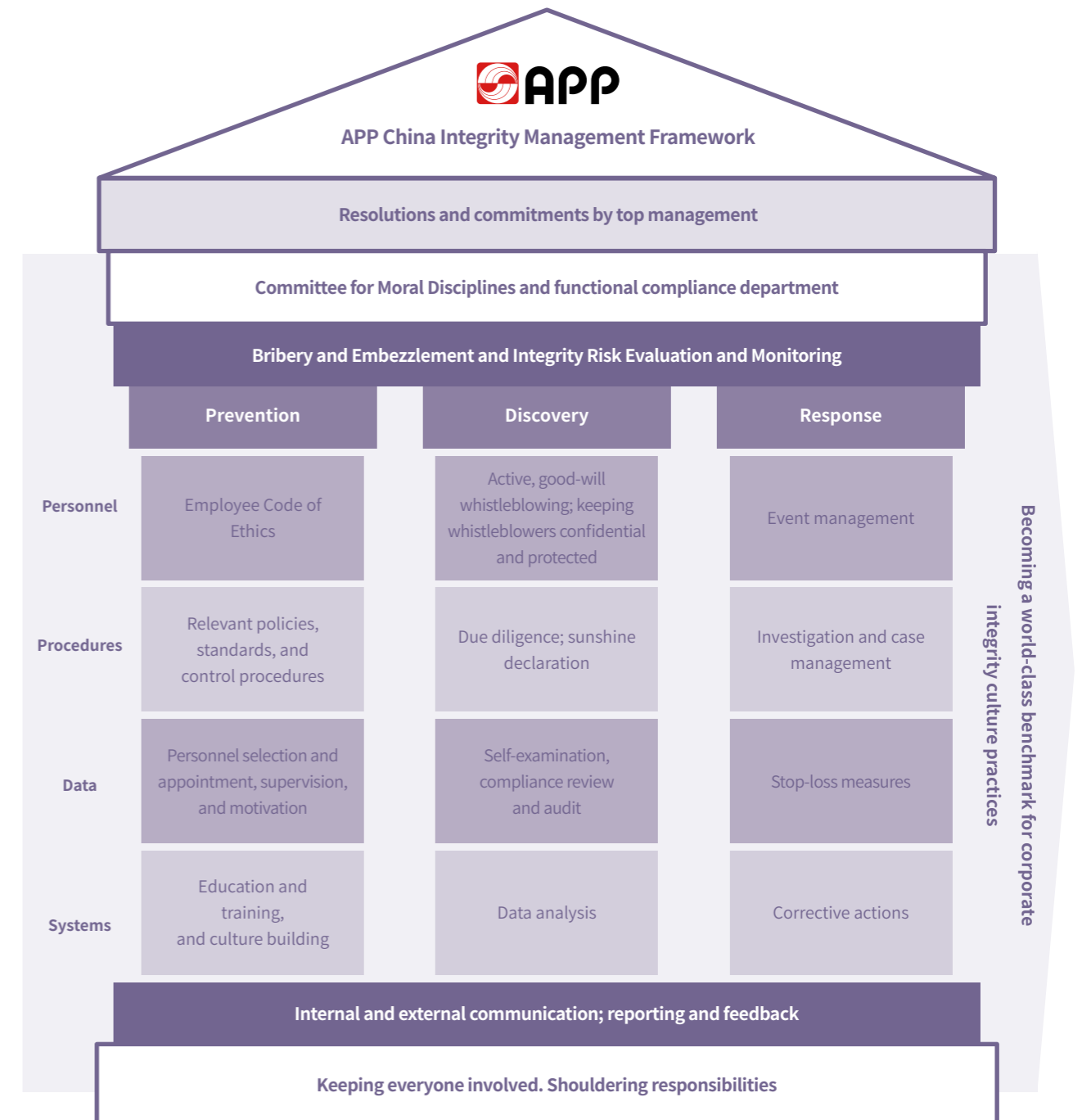


Business Integrity and Ethics

APP China is committed to the set of moral values built on the cornerstones of "Integrity and Commitment" and conducts business in compliance with all applicable national laws and

regulations. We have instituted a set of rules and policies, such as the *Business Code of Integrity and Ethics*, and a Company-wide integrity management framework while continuing to

augment efforts in internal controls and compliance to constantly evolve our culture of integrity and compliance.



Integrity and Compliance Management

We embed integrity and compliance at all levels of the Company and have an independent CRI Department tasked with integrity and compliance responsibilities. The CRI Department collaborates with other departments to plan, supervise, and implement specific measures, thus constituting a compliance management mechanism with clear roles and responsibilities and effective governance, which helps us continuously advance management and practices in integrity and compliance. We have developed the *Employee Code of Ethics* setting out requirements for employee conduct in their daily work.

APP China implements and constantly communicates the *Encouraging Reports of Fraud Within the Group and the Reward Plan* to the employees, suppliers, and business partners. We do so to demonstrate our zero-tolerance stance on fraudulent behavior and support for the reporting of violations in the workplace. We encourage all stakeholders, including our employees, to report, in good faith, any improper conduct occurring within the organization and provide a number of whistleblowing channels including an email address (GRW@app.com.cn), a 24/7 reporting hotline (021-22839763), etc. Such improper conduct may include, but is not limited to, corruption, fraud, commercial bribery, sexual harassment, abuse of power, conflict of interest, and theft.

We also have an interdepartmental whistleblowing mechanism, where staff of the CRI Department register the filed reports in a timely manner, assess their validity, and refer them to the appropriate departments for subsequent investigation based on the nature of the reported matters. Reports involving fraudulent behavior are subject to a formal and focused investigation carried out by the CRI Department. Necessary sanctions on relevant employees and departments are then implemented pursuant to company policy, followed by improvements made in our work process after an investigation is concluded. Incidents involving illegal conduct are escalated to external authorities, subjecting the offenders to legal proceedings.

The CRI Department has a due diligence function. It assists the Group and the business departments in setting up a supplier and customer risk assessment system; pushes and works with business departments to carry out background checks and risk assessments on suppliers and customers; monitors business partners' performance in operational sustainability and integrity, social responsibility, and compliance management, among other areas, and takes active measures to prevent risks. We also make a point of publicizing our compliance principles and approach and drive continuous progress in our network of suppliers and customers through engagement with our business partners on multiple fronts to foster effective and robust partnerships.

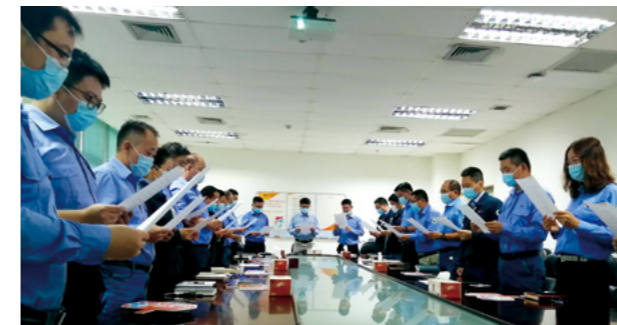
APP China actively engages employees in integrity and compliance training and activities to cultivate an increased understanding and awareness and weave the culture of compliance deeply into every aspect of our business. We require all new employees to complete a module on integrity, compliance, and business ethics during induction and provide special compliance training for particular lines of business, including procurement, real estate, and project implementation, and key departments. We also hold the Group-wide Sunshine Integrity Month every year, which lasts four weeks and uses an array of learning activities to ensure our employees uphold ethical conduct in their day-to-day activities in line with our values and code of integrity.

In 2021, our Sunshine Integrity Month lasted from October to November. It was themed "Upholding Highest Standards of Business Ethics and Incorporating Compliance Management and Risk Management". The event included a rich variety of cultural and educational activities such as integrity pledge, seminars, case studies, online declaration of conflicts of interest, prize quizzes, and integrity awareness tests, along with short videos and examples to help employees better understand the causes of fraud and further reinforce their risk and integrity awareness. During this year's event, some 25,000 employees signed the pledge of integrity online and over 2,000 copies of the APP China integrity policy brochure were distributed to suppliers.

In 2021, we continued to engage in the advocacy of ethical standards among all employees as set out in such documents as the *APP China Employee Code of Ethics and Integrity* and the *Provisions for Prohibition of Gifts and Hospitality*. Such advocacy efforts have been established as long-standing and important commitments as we continue to advance a culture of integrity within the Company.



2021 Sunshine Integrity Month events



Employees took the Integrity Pledge



Employees at an Integrity Month event

Building a Culture of Integrity and Compliance

Some **25,000**

employees signed the pledge of integrity



2,000+

copies of the APP China integrity policy brochure were distributed to suppliers



Sticking to the Red Line of Integrity

During the Sunshine Integrity Month event, Bohui Paper took the oath of integrity, reiterated its firm stance on business ethics, emphasized the harm of corruption, fraud, and other violations, and called on all employees to attach great importance to integrity and compliance. Bohui Paper also encouraged employees to make self-disclosure and take the initiative to report their own violations, enhancing the employees' recognition of the company's integrity and compliance values.



Employees participating in integrity education

Supply Chain Management

APP China places a high premium on supply chain responsibility management and continues to improve the supplier management mechanism to reduce supply chain risks while ensuring that our suppliers fulfill their responsibilities. During Digital 1.0, we have set up an initial supplier management system which is connected with external

information inquiry platforms for basic information collection. We completed a preliminary construction of the supplier performance evaluation model in 2021 and are set to further digitalize our procurement system and undertake the Digital and Intelligent Procurement 2.0 Project at stage Digital 2.0. With a commitment to responsible sourcing, we take steps to incorporate

sustainability into procurement management and work to ensure our suppliers adhere to responsible business practices by evaluating their performance against a set of criteria including business ethics, labor rights, occupational safety, environmental protection, etc.

In 2021, APP China procured approximately 2.387 million tons of certified woodchips and approximately 1.243 million tons of PEFC-certified wood pulp, accounting for 21.13% and 17.96% of total woodchips and wood pulp procurements respectively.

Proportion of Woodchips Sourced from Certified Forests (%)



Proportion of Wood Pulp Sourced from Certified Forests (%)



Supplier approval

Suppliers are categorized as low-, medium-, and high-risk based on a risk assessment that looks into their financial status, credit profile, legal risk, reputational risk, and supply capacity, among other areas. They are also assessed on third-party certifications in health, safety, environment, etc.

Timber suppliers undergo a mandatory due diligence process, which, through procedures such as information collection, risk assessment, and risk mitigation, ensures that the sources of our raw materials are legal, compliant, and traceable.

Suppliers are required to sign the *Sinar Mas Supplier/ Partner Pledge on Business Compliance and Integrity* and the *Corporate Social Responsibility Statement and Pledge*.

Supplier communication and evaluation

Suppliers are subject to ongoing risk monitoring, and due diligence assessments are reviewed at random intervals.

An effective supplier communication mechanism is set up to quickly resolve quality issues related to raw materials and guarantee consistent supplies of quality raw materials.

Suppliers are classified based on their respective category and evaluation results, and those who fail to meet our requirements for a long time will be removed from our supplier list.

APP China's Requirements for Pulp and Wood Fiber Suppliers

- Suppliers are required to maintain valid records to demonstrate the origin of the source of raw materials (e.g., plantation), and to be able to demonstrate in general how the suppliers of wood fiber obtained their raw materials.
- Suppliers and their upstream suppliers must comply with the laws and regulations of the countries in which they operate, including laws and regulations on environmental protection.
- Suppliers shall guarantee that all wood chips come from plantation forests.
- Suppliers shall take proactive actions to improve their own sustainability management mechanisms, including strengthening the procurement of raw materials from plantation forests.
- Suppliers shall comply with the Responsible Fiber Procurement & Processing Policy (RFPPP) of APP China's pulp and paper businesses, guaranteeing to provide:

- only timber that has been properly inspected and certified as legally sourced and traced through the chain of custody;
- no timber harvested in violation of tradition and civil rights;
- protection of HCV through appropriate forest management activities in source forests of timber where HCV forests are identified;
- only waste and wood residues that comply with national regulations and are not on the list of regulated species of the International Union for Conservation of Nature (IUCN) and the Convention on International Trade in Endangered species of Wild Fauna and Flora (CITES) Appendix I;
- no genetically modified trees for reforestation unless it is assessed as in compliance with best-practice standards; and
- timber harvested in compliance with the Fundamental Conventions of the International Labour Organization (ILO).

Information Security Management

Information security is a major pillar of digital transformation. APP China's move to digital is underpinned by a heightened focus on information security risk prevention and control and the construction of an information security management system. We have an Information Security Committee and hold semiannual or provisional meetings to review information security issues that the management is most concerned about to provide our executive leadership team with needed recommendations for formulating or improving relevant policies. We have also instituted a Company-wide information security management system consistent with the ISO27001 since 2021 to facilitate efforts to identify information security and network risks, swiftly respond to the variety of information security early warnings, and enhance information security management. The system encompasses information asset management, network security management, access control security, and many other areas and is updated every year as planned.

In addition, we implement programs in batches that target key areas such as class-based data protection and network security to progressively strengthen the information protection system and our response to information security risks. Since Gold Hongye Paper is also engaged in B2C e-commerce business, it will undergo the grade 3 certification process of the graded national data security protection for e-commerce systems every year starting from 2022.

We provide new employees with information security awareness training during orientation and

conduct Company-wide awareness campaigns every year, using avenues like articles and videos, exams, posters, and extortion email tests to embed an awareness of information security across the entire organization. We held the Information Security Week themed "Raising Security Awareness and Promoting Digital Development" in November 2021. Through online learning on WeChat for Business and online games, we enhanced employees' knowledge about data protection, prevention against ransomware virus, etc. and cultivated an increased awareness of information security.



Performance in Numbers

Governance and Economic

Economic performance

Indicator	Unit	2021	2020	2019
Total assets	RMB100 million	2,465	2,480	1,914
Total taxes paid	RMB100 million	47	35	30
Sales revenue	RMB100 million	973	738	651
Total profit	RMB100 million	84	73	48
Net profit	RMB100 million	64	62	39

APP China sources of pulp procurement*

Region	2021	2020	2019
China	39.89%	43.25%	43.8%
Other Asian regions	33.49%	28.69%	26.6%
North America	12.88%	18.49%	25.7%
South America	5.64%	4.23%	1.1%
Europe	7.96%	5.01%	2.8%
Oceania	0.14%	0.32%	-

* The change in the proportion of different locations mainly resulted from the quality and market price of pulp.

Materials

Indicator	Unit	2021	2020	2019
Total amount of woodchips purchased	10,000 tons	1,129.64	874.50	963.15
Amount of certified woodchips*	10,000 tons	238.69	235.67	186.95
Proportion of certified woodchips	%	21.13	26.95	19.41
Total amount of wood pulp purchased	10,000 tons	692.10	626.41	564.94
Amount of certified wood pulp*	10,000 tons	124.30	151.60	111.88
Proportion of certified wood pulp	%	17.96	24.20	19.80
Total amount of waste paper purchased	10,000 tons	52.82	10.39	19.81

* CFCC/PEFC certified and FSC certified.

Anti-corruption

Indicator	Unit	2021	2020	2019
Number of governance agency members reached by anti-corruption policies and procedures	person	14	15	13
Percentage of governance agency members reached by anti-corruption policies and procedures	%	100	100	100
Number of governance agency members receiving anti-corruption training	person	14	15	13
Percentage of governance agency members receiving anti-corruption training	%	100	100	100
Number of senior-level managers receiving anti-corruption training	person	183	160	188
Percentage of senior-level managers receiving anti-corruption training	%	100	100	100
Number of middle-level managers receiving anti-corruption training	person	1,627	1,917	1,548
Percentage of middle-level managers receiving anti-corruption training	%	100	100	79.02
Number of line-level employees receiving anti-corruption training	person	16,676	15,363	15,804
Percentage of line-level employees receiving anti-corruption training	%	100	100	94.28
Number of incidents of termination or non-renewal of contracts with suppliers due to corruption	person	12	-	-

* APP China requests all the suppliers to sign an anti-corruption statement. We also promote our integrity and compliance culture and policies to suppliers. The percentage of suppliers that APP China's anti-corruption policies have been communicated to is 100%.

Environmental

Energy

Indicator	Unit	2021*	2020	2019
Coal	ton	3,622,348.26	4,692,593.29	4,999,054.08
Gasoline	ton	408.27	382.15	464.35
Diesel	ton	3,522.56	4,721.00	10,306.70
Fuel oil	ton	1,146.27	0.00	846.51
Natural gas	10,000 cubic meters	22,797.08	186,805.47	21,396.76
LPG	ton	7,179.45	3,072.64	10,985.74
Kerosene	ton	0.65	0.44	0.96
Power purchased	10,000 kWh	376,627.71	111,190.99	133,309.85
Steam purchased	GJ	12,106,028.74	1,502,787.00	1,490,357.25
Black liquor from pulp	ton	2,796,688.29	2,760,861.37	2,735,798.96
Biomass fuels	ton	387,104.53	331,960.35	295,426.22
Solar power generation	10,000 kWh	2,440.66	2,514.60	2,604.05

* Not including the data of Rudong Base.

Water resources and wastewater*

Indicator	Unit	2021	2020	2019
Total water withdrawal**	ton	125,567,722.20	120,215,643	125,397,098
Total wastewater discharge***	ton	101,907,671.22	89,726,593	88,160,320
Wastewater discharge per ton of paper produced	ton	5.88	6.20	6.37
Wastewater discharge per ton of pulp produced	ton	12.46	12.50	11.62
COD emissions per ton of paper produced	kg	0.24	0.22	0.29
COD emissions per ton of pulp produced	kg	0.86	0.85	0.63

* Not including data from APP China Headquarters and Rudong Base. Not including data from APP China Forestry except for the indicator of total water withdrawal.

** 98.53% came from surface water, 1.45% from third-party facilities, and 0.03% from underground water.

*** In 2021, there were zero incidents of major water body pollution at APP China.

Mill*	Annual average discharge concentration* (mg/L)				
	COD	NH3-N	Total Phosphorous (TS)	Total Nitrogen(TN)	Suspended Solids
Gold East Paper	44.20	0.94	0.18	2.50	11
Hainan Jinhai Pulp & Paper	65.5	0.61	0.013	4.10	17.43
Ningbo Asia	32.66	0.39	0.12	2.20	12
Guangxi Jingui Pulp & Paper	57.28	0.72	0.043	2.91	5.50
Shandong Base of Bohui Paper	24.5	0.874	0.027	6.37	/
Jiangsu Base of Bohui Paper	34.61	1.75	0.11	5.37	/

*Wastewater discharged by Hainan Gold Hongye and Hainan Gold Shengpu was treated by Hainan Jinhai Pulp & Paper. The annual pollutant discharge concentration of each mill is lower than the limit set in the *Discharge Standard of Water Pollutants for Pulp and Paper Industry* (GB3544-2008).

Water reuse

Mill	Amount of reused water (tons)		
	2021	2020	2019
Gold East Paper	658,752,000	594,104,400	573,048,504
Hainan Jinhai Pulp & Paper	985,949,728	1,022,668,368	981,208,947
Ningbo Asia	230,884,979	234,576,459	269,558,416
Guangxi Jingui Pulp & Paper	340,441,483	311,807,317	596,060,424
Hainan Gold Hongye	68,373,110	69,750,625	67,569,742
Hainan Gold Shengpu	60,042,237	59,399,375	61,526,999

Air pollutant emissions*

Indicator	Unit	2021	2020	2019
Total SO ₂ emissions	ton	550.15	404.50	697.80
Total NO _x emissions	ton	3,995.42	4,145.61	5,362.75
Total soot emissions	ton	292.95	305.06	429.06
Total VOCs emissions	ton	0.14	/	/

* Not including the data of APP China Forestry and Rudong Base.

Mill	Exhaust gas emissions (tons)			
	SO ₂	NO _x	Soot	Volatile Organic Compounds (VOCs)
Gold East Paper	128.15	308.75	22.67	0
Hainan Jinhai Pulp & Paper*	88	2,403	167	0
Ningbo Asia	147.7	577.8	15.8	0
Guangxi Jingui Pulp & Paper	185.8	612.48	74.59	0
Bohui Paper	0.50	93.39	12.89	0.14

* The data of Hainan Jinhai Pulp & Paper include those of Hainan Gold Hongye and Hainan Gold Shengpu.

Waste*

Indicator	Unit	2021	2020	2019
General waste generated	ton	1,933,954.95	1,772,130.11	1,592,579.39
General waste disposed of	ton	2,017,693.61	1,914,695.06	1,592,473.46
Recycling and reuse	ton	378,796.61	717,315.56	513,583.54
Onsite	ton	109,014	-	-
Offsite	ton	269,782.61	-	-
Incineration	ton	779,631.70	485,644.50	446,418.20
with energy recovery	ton	772,455.80	-	-
without energy recovery	ton	7,175.90	-	-
Selling to external parties for reuse	ton	851,379.42	705,781.84	564,674.86
Centralized treatment by local sanitation departments	ton	6,570	5,293	5,653
Hazardous waste generated	ton	2,096.41	759.77	883.84
Hazardous waste disposed of	ton	2,098.16	844.36	1,003.65

* Not including the data of APP China Forestry and Rudong Base.

Environmental investment

Indicator	Unit	2021	2020	2019
Environmental investment	RMB10,000	103,069.13	73,084.31	87,457.18

Environmental compliance

Indicator	Unit	2021	2020	2019
Environmental fines	RMB	0	0	90,000

Social

Employment*

Indicator	Unit	2021	2020	2019
Employees directly and indirectly employed	person	19,428	19,027	20,460
Employees directly employed	person	18,486	17,455	18,909
Male employees directly employed	person	14,184	12,926	14,003
Female employees directly employed	person	4,302	4,529	4,906
Employees with ethnic minority background	person	927	-	-
Employees from Mainland China	person	18,352	-	-
Employees from Hong Kong, Macao and Taiwan	person	94	-	-
Employees from abroad	person	40	-	-
Employees with disabilities	person	69	-	-
Employees indirectly employed	person	942	1,572	1,551
Male employees indirectly employed	person	770	1,102	1,107
Female employees indirectly employed	person	172	470	444
New employees	person	4,848	1,507	1,773
New male employees	person	3,742	1,165	1,256
New female employees	person	1,106	342	517
Employee turnover	person	2,514	1,962	2,796
Male employees who voluntarily resigned	person	1,545	911	1,274
Female employees who voluntarily resigned	person	320	366	645
Male employees who involuntarily resigned	person	433	479	544
Female employees who involuntarily resigned	person	92	151	265
Male employees who retired	person	30	10	9

Indicator	Unit	2021	2020	2019
Female employees who retired	person	94	45	59

* The employment data are within the reporting scope.

Employee turnover rate

Indicator	Unit	2021	2020	2019
Employee turnover rate	%	11.97	10.10	12.88
Male employee turnover rate	%	12.40	9.77	11.54
Female employee turnover rate	%	10.52	11.04	16.48
Turnover rate of employees aged 30 and below	%	21.07	-	-
Turnover rate of employees aged between 31 and 50	%	8.34	-	-
Turnover rate of employees aged 51 and above	%	16.56	-	-

Employee retention after maternity/paternity leave

Indicator	Unit	2021	2020	2019
Female employees who took maternity leave	person	124	239	373
Female employees who returned to work after maternity leave	person	114	212	340
Female employees who resigned after maternity leave	person	6	20	31
Male employees who took paternity leave	person	338	437	447
Male employees who returned to work after paternity leave	person	323	418	425
Male employees who resigned after paternity leave	person	5	5	20

Employee composition by level

Indicator	Unit	2021	2020	2019
Percentage of senior-level managers	%	0.99	1	1
Percentage of middle-level managers	%	8.80	11	10
Percentage of line-level employees	%	90.21	88	89

Employee composition by gender

Indicator	Unit	2021	2020	2019
Percentage of female employees	%	23.27	25.95	25.97
Number of female employees in management	person	337	571	573
Percentage of female employees in management	%	18.62	27.29	26.69

Employee composition by age

Indicator	Unit	2021	2020	2019
Percentage of employees aged 30 and below	%	20.12	14.13	16.33
Percentage of employees aged between 31 and 50	%	70.93	81.05	79.27
Percentage of employees aged 51 and above	%	8.94	4.82	4.40

Employee training

Indicator	Unit	2021	2020	2019
Total training investment	RMB10,000	562.16	391.81	475.42
Total employee training hours	hour	753,012	619,287	762,701
Number of employees who participated in company-paid diploma programs	person	35	11	35
Total investment in company-paid diploma programs for employees	RMB10,000	2.55	3.30	11.20
Average training hours for senior-level managers	hour	37.99	11.23	29.53
Average training hours for middle-level managers	hour	31.62	17.54	46.03
Average training hours for line-level employees	hour	41.65	35.34	39.79

Occupational health and safety*

Indicator	Unit	2021	2020	2019
Employee safety training hours	hour	450,918.00	300,011.50	333,033.00
Total investment in protective gears	RMB10,000	922.51	634.58	578.74
Lost hours per million working hours	hour	2,234.87	924.79	854.70
Work-related injuries of employees	person-time	44	45	51
Number of work-related fatalities of employees	person	0	0	0
Work-related injuries of contractors	person-time	5	3	3

* Not including the data of Rudong Base.

Indirect economic impact

Indicator	Unit	2021	2020	2019
Employee volunteer hours*	hour	16,532	15,544	18,618
Donations	RMB10,000	4,676	14,879	3,197

* The 2020 data of donations has been corrected. The data disclosed before did not include a donation to an education foundation of a domestic university.

Assurance Statement



Independent Verification Statement

To the management and stakeholders of APP China,

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch (hereinafter referred to as "TÜV SÜD") has been engaged by Sinar Mas Paper (China) Investment Co., Ltd. and the group of companies under its direct investment in China (herein referred to as "APP China" or "the Company") to perform an independent third-party verification on APP China Sustainability Report 2021 (hereinafter referred to as "the Report"). During this verification, TÜV SÜD's verification team strictly abided by the contract signed with APP China and provided verification regarding the Report in accordance with the provisions agreed by both parties and within the authorized scope stipulated in the contract.

This Independent Verification Statement is based on the data and information collected by APP China and provided to TÜV SÜD. The scope of verification is limited to the given information. APP China shall be held accountable for authenticity and completeness of the provided data and information.

Scope of Verification

Time frame of this verification:

- The Report contains the data disclosed by APP China during the reporting period from January 1st, 2021 to December 31st, 2021, including economic, environmental and social information and data, methods for management of substantial issues, actions/measures and the Company's sustainability performance during the reporting period.

Physical boundary of this verification:

- The verification took sampling way to carry out the on-site work, the physical scope of the selected location is detailed as follows:

Verification Location	Name of each plant	Physical boundary
	APP China Headquarters	65F, Sinar Mas Plaza, No.501 East Daming Road, Hongkou District, Shanghai, China
Gold East Paper (Jiangsu) Co., Ltd.	No.8 Xingang East Road, Dagang, Zhenjiang City, Jiangsu Province, China	
Ningbo Asia Pulp & Paper Co., Ltd.	No.88 Hongyuan Road, Qingzhi Industrial Zone, Xiaogang, Beilun, Ningbo, Zhejiang, China	
Guangxi Jingui Pulp & Paper Co., Ltd.	Qinzhou Technology Development Zone, Qinzhou City, Guangxi Autonomous Region, China	
Gold Hongye Paper Group Co., Ltd.	Not in the scope of this verification sample	
Shandong Bohui Paper Co., Ltd.	Not in the scope of this verification sample	
Gold Hongye Paper (Nantong) Co., Ltd.	No.1 Lingang Dadao, Changsha Town, Rudong County, Nantong City, Jiangsu Province, China	
Hainan Gold Hongye Paper Co., Ltd.	D12 District, Yangpu free trade port Zone, Haikou City, Hainan Province, China	
Hainan Jinhai Pulp & Paper Co., Ltd.		
Hainan Gold Shengpu Paper Co., Ltd.		
APP China Forestry Business - Wenshan Sub-BU	Wenshan Forestry, Yunnan Province	
APP China Forestry Business - Lancang Sub-BU	Lancang Forestry, Yunnan Province	
APP China Forestry Business - other Sub-BU	Not in the scope of this verification sample	

Scope of data and information for the verification:

- The scope of verification is limited to the data and information of APP China and Plants/Production sites under its operational control covered by the Report.

The following information and data are beyond the scope of this verification:

TUV SUD Certification and Testing
(China) Co., Ltd. Shanghai Branch
No.151 Heng Tong Road,
Shanghai 200070

Page 1 of 4
Tel: +86 21-61410737
Fax: +86 21-61408600
Web: <http://www.tuvsud.cn>



- Any information and contents beyond the reporting period of this Report; and
- The Data and information of APP China's suppliers, partners and other third parties; and
- The financial data and information disclosed in this Report that have been audited by an independent third party are not verified again herein.

Limitations

- The verification process is conducted in the above scope and place. Sampling and verification are adopted for the data and information in the Report by TÜV SÜD, and only the stakeholders within the organization are interviewed; and
- The Company's standpoint, opinions, forward-looking statements and predictive information as well as the historical data and information on and before January 1st, 2021 are beyond the scope of this verification.

Basis for the Verification

This verification process was conducted by TÜV SÜD's expert team with extensive experience in the economic, social, environmental and other relevant areas and drew the conclusions thereof. The verification referred to the following standards:

- AA1000AS v3, Type 2 Engagement and High Level of Assurance
- TÜV SÜD Procedure of Verification on Sustainability Report

In order to perform adequate verification in accordance with the contract and provide reasonable verification for the conclusions, the verification team conducted the following activities:

- Preliminary investigation of the relevant information before the verification;
- Confirmation of the presence of the topics with high level of materiality and performance in the Report;
- On-site review of all supporting documents, data and other information provided by APP China; tracing and verification of key performance information;
- Special interview with the representative of APP China's management; interviews with the employees related to collection, compilation and reporting of the disclosed information; and
- Other procedures deemed necessary by the verification team.

Verification Conclusions

According to the verification, we believe the Report prepared by APP China adheres to the requirement of AA1000AS v3. The verification team has drawn the following conclusions on this Report:

Inclusivity	APP China has fully identified the internal and external stakeholders of the organization, such as employees, customers and consumers, suppliers/contractors, banks, government agencies, community representatives, industry associations, professional bodies, NGOs, media, etc., and has established a stakeholder communication mechanism to regularly collect the real demands of stakeholders.
Materiality	APP China has established a prioritization process for material topics, identified sustainability topics that are highly relevant to our industry and prioritized the topics, disclosed strategies, management actions and performance data in the company's sustainability management and operations process, and the report content is substantive overall, with room for improvement in the material topics of individual topics.
Responsiveness	APP China has clearly disclosed the management methods and performance of major issues in the areas of environmental compliance, occupational health and safety, product quality and safety, water management, corporate



	governance and business ethics, climate strategy, and air pollutant emissions, and has established various stakeholder communication mechanisms to fully respond to stakeholders' demands and expectations.
Impact	APP China has built a 2030 sustainable development strategy framework and defined a three-year roadmap for ESG under this framework; in addition, it has built a "three lines of internal control" management system and continuously strengthened risk identification and management to build a solid foundation for sound and sustainable operation.

After verification on a sample basis, we believe that the following data disclosed in the report for the year 2021 are true and reliable for use by interested parties:

Environmental	Social	Economic
<ul style="list-style-type: none"> Energy consumption data Resource consumption data: <ul style="list-style-type: none"> Total water withdrawal Total amount of recycled water Pollutant and waste emission data: <ul style="list-style-type: none"> Atmospheric pollutant emissions(SO₂、NO_x、soot、VOCs) Waste generation and disposal (general waste and hazardous waste) Wastewater discharge (total wastewater discharge, wastewater discharge per unit product, COD discharge per unit product) Energy-saving transformation effectiveness data Environmental protection investment Environmental protection compliance (penalty situation) 	<ul style="list-style-type: none"> Employees: <ul style="list-style-type: none"> Employment Status Employee turnover rate Employee retention after maternity/paternity leave Percentage of employees at each level Employee gender ratio Proportion of employees by age group Occupational Health and Safety: <ul style="list-style-type: none"> Employee safety training time Amount of investment in protective equipment Number of hours lost per million working hours Number of work-related injuries to employees Number of work-related employee fatalities Number of work-related injuries to contractors Incidence of occupational diseases Number of emergency drills conducted Average safety hazard correction rate Training and career development: <ul style="list-style-type: none"> Total cost of employee training Total employee training time Training time per employee at all levels Social contribution (amount of public welfare investment) 	<ul style="list-style-type: none"> Economic Performance: <ul style="list-style-type: none"> Total assets Total taxes and fees paid Operating income Total profit Net profit Pulp procurement source distribution Material indicators: <ul style="list-style-type: none"> Total amount of wood chips purchased and their certification Total amount of wood pulp purchased and its certification Raw waste paper purchases Anti-corruption status (communication of policies and procedures, training, termination of cooperation due to corruption) R&D investment Number of patents applied for



Recommendations on Continuous Improvement

- It is recommended that the company systematically conducts energy management and greenhouse gas (GHG) inventory, and that the GHG reporting cycle is aligned with this Report, and that GHG emission data is tracked and managed to disclose trends in GHG emission values/intensity to stakeholders.

Statement on Independence and Verification Capability

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Since 1866, TÜV SÜD has remained committed to its purpose of enabling progress by protecting people, the environment and assets from technology-related risks. Today, TÜV SÜD is present in over 1,000 locations worldwide with its headquarters in Munich, Germany. TÜV SÜD has been committed to sustainable development and actively promotes environmental protection related projects. Over the years, TÜV SÜD has been actively expanding its performance in energy management, renewable resources, and electric automobiles, etc., helping its customers meet sustainable development needs. TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch is one of TÜV SÜD 's global branches and has an expert team whose members have professional background and rich industrial experiences. TÜV SÜD and APP China are two entities independent of each other and both TÜV SÜD and APP China and their branches or stakeholders have no conflict of interest. No member of the verification team has business relationship with the Company. The verification is completely neutral. All the data and information in the Report are provided by APP China. TÜV SÜD has not been involved in preparation and drafting of the Report, except for the verification itself and issuance of the verification statement.

Signature:

On Behalf of TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Zhu Wenjun
 TÜV SÜD Sustainability Authorized Signatory Office
 Oct 18, 2022
 Shanghai, China



Note: In case of any inconsistency or discrepancy, the simplified Chinese version of this verification statement shall prevail, while the English translation is used for reference only.

GRI Content Index

GRI Standards	Disclosure	Page numbers/ Reasons for omission	External Assurance
General Disclosures			
Organizational Profile			
	102-1 Name of the organization	4; 108	✓
	102-2 Activities, brands, products, and services	4	✓
	102-3 Location of the headquarter	6-7; back cover	✓
	102-4 Location of operations	4; 6-7	✓
	102-5 Ownership and legal form	4	✓
	102-6 Markets served	4	✓
	102-7 Scale of the organization	4; 6-7; 92; 96-97	✓
	102-8 Information on employees and other workers	96-97	✓
	102-9 Supply chain	90-92	✓
	102-10 Significant changes to the organization and its supply chain	4-7; inside back cover	✓
	102-11 Precautionary principle or approach	46; 54-55; 72-75; 86-91	✓
	102-12 External initiatives	14-18	✓
	102-13 Membership of associations	8-11	✓
Strategy			
	102-14 Statement from senior decision-maker	2-3	✓
	102-15 Key impacts, risks, and opportunities	2-3; 12-13; 19-21	✓
Ethics and Integrity			
	102-16 Values, principles, standards, and norms of behavior	4; 42-45; 86-90	✓
	102-17 Mechanisms for advice and concerns about ethics	88-89	✓
Governance			
	102-18 Governance structure	5	✓
Stakeholder Engagement			
	102-40 List of stakeholder groups	16-17	✓
	102-41 Collective bargaining agreements	46; 49	✓
	102-42 Identifying and selecting stakeholders	16-17	✓
	102-43 Approach to stakeholder engagement	16-21	✓
	102-44 Key topics and concerns raised	16-21	✓
Reporting Practice			
	102-45 Entities included in the consolidated financial statements	Inside back cover	✓
	102-46 Defining report content and topic boundaries	19-21; inside back cover	✓
	102-47 List of material topics	19-21	✓
	102-48 Restatements of information	98	✓
	102-49 Changes in reporting	Inside back cover	✓
	102-50 Reporting period	Inside back cover	✓
	102-51 Date of most recent report	Inside back cover	✓
	102-52 Reporting cycle	Inside back cover	✓
	102-53 Contact point for questions regarding the report	Inside back cover	✓

GRI 102: General disclosures 2016

GRI Standards	Disclosure	Page numbers/ Reasons for omission	External Assurance
General Disclosures			
GRI 102: General disclosures 2016	102-54 Claims of reporting in accordance with the GRI Standards	Inside back cover	✓
	102-55 GRI content index	103-106	✓
	102-56 External assurance	99-102	✓
Material Topics			
Economic Performance			
GRI 103: Management approach 2016		4; 12	✓
GRI 201: Economic performance 2016	201-1 Direct economic value generated and distributed	4; 92	✓
Indirect Economic Impacts			
GRI 103: Management approach 2016		4; 12-13; 24-27; 30-35; 78	✓
GRI 203: Indirect economic impacts 2016	203-2 Significant indirect economic impacts	23; 28-29; 36-41; 78-83	✓
Procurement Practices			
GRI 103: Management approach 2016		90	✓
GRI 204: Procurement practices 2016	204-1 Proportion of spending on local suppliers	90-91; 92	✓
Anti-corruption			
GRI 103: Management approach 2016		86-88; 90	✓
GRI 205: Anti-corruption 2016	205-2 Communication and training about anti-corruption policies and procedures	86-89; 93	✓
Materials			
GRI 103: Management approach 2016		90	✓
GRI 301: Materials 2016	301-1 Materials used by weight or volume	92	✓
	301-2 Recycled input materials used	92	✓
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GRI 103: Management approach 2016		12-13; 24-27; 58-64	✓
GRI 302: Energy 2016	302-1 Energy consumption within the organization	93	✓
	302-4 Reduction of energy consumption	63-64	✓
Water and Effluents			
GRI 103: Management approach 2016		12-13; 58; 64-65	✓
GRI 303: Water and effluents 2018	303-1 Interactions with water as a shared resource	64-65	✓
	303-2 Management of water discharge-related impacts	64-66	✓
	303-3 Water withdrawal	94	✓
	303-4 Water discharge	94	✓
	303-5 Water consumption	94	✓
Biodiversity			
GRI 103: Management approach 2016		12-13; 52	✓
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	56-57	✓
	304-2 Significant impacts of activities, products, and services on biodiversity	56-57	✓

GRI Standards	Disclosure	Page numbers/ Reasons for omission	External Assurance
Material Topics			
Emissions			
GRI 103: Management approach 2016		12-13; 24-27; 58; 62-67	✓
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	27	✓
	305-2 Energy indirect (Scope 2) GHG emissions	27	✓
	305-5 Reduction of GHG emissions	26	✓
	305-7 Nitrogen oxides (NO _x), sulfur oxides (SO _x), and other significant air emissions	95	✓
Waste			
GRI 103: Management approach 2016		12-13; 58; 65-67	✓
GRI 306: Waste 2020	306-1 Water generation and significant waste-related impacts	65-67	✓
	306-2 Management of significant waste-related impacts	65-67	✓
	306-3 Waste generated	95	✓
	306-4 Waste diverted from disposal	95	✓
	306-5 Waste directed to disposal	95	✓
Environmental Compliance			
GRI 103: Management approach 2016		12-13; 58-61	✓
GRI 307: Environmental compliance 2016	307-1 Non-compliance with environmental laws and regulations	96	✓
Supplier Environmental Assessment			
GRI 103: Management approach 2016		90	✓
GRI 308: Supplier environmental assessment 2016	308-1 New suppliers that were screened using environmental criteria	90	✓
	308-2 Negative environmental impacts in the supply chain and actions taken	90	✓
Employment			
GRI 103: Management approach 2016		46-47	✓
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	96-97	✓
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	49	✓
	401-3 Parental leave	49; 97	✓
Occupational Health and Safety			
GRI 103: Management approach 2016		70-74	✓
GRI 403: Occupational health and safety 2018	403-1 Occupational health and safety management system	70-71; 74-75	✓
	403-2 Hazard identification, risk assessment, and incident investigation	72-73	✓
	403-3 Occupational health services	74-75	✓
	403-4 Worker participation, consultation, and communication on occupational health and safety	70-75	✓
	403-5 Worker training on occupational health and safety	72-75; 98	✓
	403-6 Promotion of worker health	74-75	✓
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	70-75	✓
	403-8 Workers covered by an occupational health and safety management system	70-75	✓
	403-9 Work-related injuries	98	✓

GRI Standards	Disclosure	Page numbers/ Reasons for omission	External Assurance
Material Topics			
Training and Education			
GRI 103: Management approach 2016		46-48	✓
GRI 404: Training and education 2016	404-1 Average hours of training per year per employee	98	✓
	404-2 Programs for upgrading employee skills and transition assistance programs	43-44; 47-48; 98	✓
Diversity and Equal Opportunity			
GRI 103: Management approach 2016		46	✓
GRI 405: Diversity and equal opportunity 2016	405-1 Diversity of governance bodies and employees	97-98	✓
Non-discrimination			
GRI 103: Management approach 2016		46; 90	✓
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	No such incidents occurred	✓
Child Labor			
GRI 103: Management approach 2016		46; 90	✓
GRI 408: Child labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	90	✓
Forced or Compulsory Labor			
GRI 103: Management approach 2016		46; 90	✓
GRI 409: Forced or compulsory labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	90	✓
Local Communities			
GRI 103: Management approach 2016		77-78	✓
GRI 413: Local communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	54-56; 77-83	✓
	413-2 Operations with significant actual and potential negative impacts on local communities	54-56; 77	✓
Supplier Social Assessment			
GRI 103: Management approach 2016		90	✓
GRI 414: Supplier social assessment 2016	414-1 New suppliers that were screened using social criteria	90	✓
	414-2 Negative social impacts in the supply chain and actions taken	88; 90	✓
Customer Health and Safety			
GRI 103: Management approach 2016		23; 36-39; 75-76	✓
GRI 416: Customer health and safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	23; 36-37; 39-41; 75-76	✓
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	No such incidents occurred	✓
Marketing and Labeling			
GRI 103: Management approach 2016		27	✓
GRI 417: Marketing and labeling 2016	417-1 Requirements for product and service information and labeling	14-15; 27	✓

UN Global Compact Ten Principles Index

No.	Principle	Page Numbers
Human Rights		
Principle 1	Businesses should support and respect the protection of internationally proclaimed human rights	42; 46-49; 72-74; 76-83; 88; 90
Principle 2	Make sure that they are not complicit in human rights abuses	42; 46-49; 72-74; 77; 88; 90
Labor		
Principle 3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	46-49
Principle 4	The elimination of all forms of forced and compulsory labor	46; 90
Principle 5	The effective abolition of child labor	46; 90
Principle 6	The elimination of discrimination in respect of employment and occupation	46
Environment		
Principle 7	Businesses should support a precautionary approach to environmental challenges	24-27; 30-41; 52-67
Principle 8	Undertake initiatives to promote greater environmental responsibility	23; 36-41; 52-67
Principle 9	Encourage the development and diffusion of environmentally friendly technologies	28-41; 58-67
Anti-corruption		
Principle 10	Businesses should work against corruption in all its forms, including extortion and bribery	86-90

TCFD Index

TCFD Recommended Disclosures	Page Numbers
Governance: Disclose the organization's governance around climate-related risks and opportunities.	
a. Describe the board's oversight of climate-related risks and opportunities.	24-27
b. Describe management's role in assessing and managing climate-related risks and opportunities.	24
Strategy: Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	
a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	25-41
b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	12-13; 24-41
	12-13
c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2° C or lower scenario.	APP China activated the green transformation strategy in 2021 and plans to complete a baseline data accounting. We will go on to develop targets, measures, and pathways for emission reduction. We will be using tools such as climate scenario analysis to inform strategy formation.
Risk Management: Disclose how the organization identifies, assesses, and manages climate-related risks.	
a. Describe the organization's processes for identifying and assessing climate-related risks.	24
b. Describe the organization's processes for managing climate-related risks.	24
c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	24-27
Metrics and Targets: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	
	13
a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	APP China regularly studies national policies and regulations and industry trends to identify risks and opportunities that could impact the Company's future development. Going forward, we will tie climate-related evaluation indicators more closely to the risk management indicators used by our business and operations departments.
b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	25-27
	13; 25-27
c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	The APP Global Sustainability Strategy pledges to reduce carbon footprint by 30% by 2030. APP China undertakes to formulate a localized green transformation strategy, along with related targets, that aligns with the global commitment while also responding to the national 30-60 Goals in China. The strategy is currently being developed.

About this Report

This is the 15th Sustainability Report issued by Sinar Mas Paper (China) Investment Co., Ltd. and the group of companies under its direct investment in China (herein referred to as APP China). The report is released in both Chinese and English. The English report is translated from the Chinese report. If there is any discrepancy between the two reports, the Chinese version shall prevail.

Reporting Boundary and Scope

The time span of this report is from January 1, 2021 to December 31, 2021. Our last Sustainability Report was published in November 2021. Data in "Company Profile", "Economic Performance", "APP China sources of pulp procurement" and "Materials" relate to Sinar Mas Paper (China) Investment Co., Ltd. and the group of companies under its direct investment in China. Cases and other data in the report are collected from APP China Headquarters, nine pulp & paper mills, and APP China Forestry Business Unit, unless otherwise stated.

- APP China Headquarters
- Gold East Paper (Jiangsu) Co., Ltd. (Gold East Paper)
- Hainan Jinhai Pulp & Paper Co., Ltd. (Hainan Jinhai Pulp & Paper)
- Guangxi Jingui Pulp & Paper Co., Ltd. (Guangxi Jingui Pulp & Paper)
- Ningbo Asia Pulp & Paper Co., Ltd. (Ningbo Asia)
- Shandong Bohui Paper Co., Ltd. (Bohui Paper)
- Gold Hongye Paper Group Co., Ltd. (Gold Hongye Paper)
- Gold Hongye Paper (Nantong) Co., Ltd. (Rudong Base)
- Hainan Gold Hongye Paper Co., Ltd. (Hainan Gold Hongye)
- Hainan Gold Shengpu Paper Co., Ltd. (Hainan Gold Shengpu)
- APP China Forestry Business Unit (APP China Forestry, including Forestry Business Headquarters, Hainan, Guangxi, and Guangdong BUs, and Lancang, Wenshan, Ganzhou and Henan Sub-BUs)

Gold Huasheng (Suzhou Industrial Park) Co., Ltd. was shut down in April 2022, so relevant information is no longer available. Gold Hongye Paper Group Co., Ltd. shut down most operations in its Suzhou production base in April 2022, making all data except for R&D data unavailable. For more specific information on the scope of data, please refer to the "Performance in Numbers" section.

Reporting Framework

The report has been prepared in accordance with the core option of the GRI Standards (2020) issued by the Global Sustainability Standards Board (GSSB). Additionally, the report refers to the Global Compact Ten Principles, the TCFD recommendations issued by Task Force on Climate-Related Financial Disclosures (TCFD), the Pulp & Paper Products standard and the Forest Management standard issued by the Sustainability Accounting Standards Board (SASB), the S&P Global Corporate Sustainability Assessment (CSA), and papermaking industry clean production and emissions standards.

Content and Indicator Selection

This report was prepared in accordance with the GRI principles of materiality, stakeholder inclusiveness, sustainability context, and completeness, etc. At the preliminary stage, our work group conducted policy analysis, industry issues analysis, the core issues and indicators benchmark of ESG mainstream information disclosure frameworks and rating systems, stakeholder surveys, and field visits to our headquarters and pulp & paper mills to collect the management approaches, specific practices and performance indicators on sustainability/ESG issues most relevant to APP China.

Report Assurance

APP China commissioned Technischer Überwachungs-Verein (TÜV) to assess the reliability, objectivity, and transparency of this report. Please refer to the Assurance Statement for further details.

Contact Us

We sincerely welcome readers' comments and suggestions regarding this report and our work. Readers can contact us by email: csr@app.com.cn.



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