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2018 Celebrating the Past Embracing the Future
APP China Sustainability Report
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Message from Chairman

In 2018, China celebrated the 40th anniversary of its reform and opening-up. Those four decades has been a period of staggering achievements and economic growth for China that is unparalleled worldwide. China has become the world’s largest manufacturer of paper products, transitioning from being an ancient paper manufacturer to a strong paper manufacturing powerhouse. We feel both happy and proud to have been a participant in and contributor to this grand journey.

As China crossed the threshold into a new era, its economy has been transitioning from a phase of rapid growth to one of high-quality development. Companies are playing an increasingly significant role in this process. Our "Integration of Plantation-Pulp-Paper" model has inherently transformed the backward traditional papermaking sector in China that was small in scale, highly polluting and energy-inefficient, and cost-ineffective. We have developed expertise in pulp, industrial paper, cultural paper, household paper, and paper products, with our products sold in over 160 countries/regions worldwide. Standing at a new historic start, we are set to adopt a forward-looking perspective in scrutinizing the development within ourselves and of the industry and the wider society and further contribute to achieving the triple bottom lines of economic, environmental, and social benefits.

Innovation is a pivotal driver of sustainable development. The popularization and application of emerging technologies such as big data and artificial intelligence has triggered a new round of technological upgrading in the manufacturing sector. We actively pursue a path of corporate management innovations underpinned by emerging technologies. While realizing "intelligent facilities, digitized management, and automated processes" on all fronts, we will work to boost integrated development of the industry by unifying its upstream, midstream, and downstream segments. This will give a radical boost to our productivity and deliver transparency across each and every operations stage, thereby further improving the quality of our products and services.

Innovative management approaches lead to higher efficiency, while product R&D and innovation fosters high-quality development of the papermaking industry as a whole. In this regard, we develop specialty and personalized products to cater to the diversified needs of our customers and consumers while embedding sustainability deeply into our R&D management and considering our products’ environmental and health-related impacts throughout their life cycle. Continuous breakthroughs in state-of-the-art technologies have led to reductions in our raw material consumption and less energy and water use during the manufacturing process. Our Foopak Bio Natura™ Cup that debuted at the first China International Import Expo (CIIE) provided a brand-new idea for food packaging solution in China. Innovation opens up broad prospects; diligence and hard work produce solid and substantial progress. R&D, seedling planting, forest protection, manufacturing, finance, administration, logistics, sales ... the unrelenting and concerted efforts of our employees in the various lines of work are at the heart of a bigger, stronger, richer, and enduring APP. We greatly value the work of all our employees and do our best to provide them with a rich selection of resources to help them grow and thrive at the workplace and achieve a worthy career.

Also bearing in mind our responsibilities for the environment and the community, we continuously intensify efforts in environmental management. While keeping our emissions far below the national emissions limits, we take "zero emissions" as our next target. We maintain sound communication with the community and respond to community concerns in a timely manner. Leveraging our strengths, we have launched talent cultivation programs and educational campaigns on paper culture and stayed actively involved in social welfare undertakings.

Listening to the voice of the times, we are fully aware that the future holds numerous challenges as well as infinite possibilities. In response, we have started building a brand-new industrial layout to integrate ourselves into the Belt and Road Initiative (BRI) construction and the megatrend of global interconnection with an open mind. We will keep pushing our limits, help bring industry development to new heights, and contribute to a better life and greater shared value for our stakeholders through concrete actions.

Teguh Ganda Wijaya
Chairman and President of Sinar Mas Group
About APP China

Company Profile

Founded by the prominent Indonesian Chinese Mr. Eka Tjipta Widjaja in 1962, Sinar Mas Group currently has hundreds of legal entities and owns seven main business pillars: Pulp & Paper, Financial Services, Agri-Business & Food, Real Estate, Energy & Infrastructure, Telecommunications, and Healthcare.

As a core business sector of Sinar Mas, Asia Pulp & Paper (APP) was set up in 1972 and its line of business ranges from pulp, industrial paper, cultural paper, and household paper to various types of paper products. APP started investing in China in 1992. With the establishment of two seedling research centers, 18 large forestry companies, 280,000 hectares of plantations, and seven major pulp & paper mills, APP China implements green-cycle development based on the concept of “Integration of Plantation-Pulp-Paper”, where forests support paper, the paper industry nurtures forests, and forests and paper are integrated.

As of the end of 2018:

- Products marketed in more than 160 countries/regions across 6 continents
- Over 11 million tons of annual capacity
- RMB 172.6 billion in total assets
- RMB 59 billion in annual sales revenue
- 27,822 full-time employees

Milestones

- 1992: Ningbo Zhonghe was formed through joint investment by APP of Sinar Mas, Zhonghe Investment Co., Ltd. (now Ningbo Zhonghe Board Factory), and China Paper and Pulp Import and Export Co., Ltd., and in the first mill invested in and set up by APP in China.
- 1996: Gold East Paper was officially established and is today one of the world's largest coated paper mills in terms of single-product capacity. In the same year, Yueling Paper Products (Ningbo) Co., Ltd. was officially put into production and is now one of the most important paper product-free processing companies in China.
- 1998: Starah Gold Mingui started operation. Its Donna™ Tissue (Tidehawk) has become a leading brand in China’s tissue paper market. In the same year, APP China headquarters was established in Shanghai.
- 2004: Ningbo Asia Pulp & Paper, equipped with one of the world’s largest single-machine production capacities and most advanced industrial paperboard production lines, was put into operation.
- 2005: Hainan Jinhai Pulp & Paper, APP China’s first pulp mill, was officially put into operation.
- 2010: With an annual chemo- mechanical pulp (CMP) production of 2.8 million tons, the first phase of orange single “Integration of Plantation-Pulp-Paper” project started operations, and its 600,000-ton papermaking production line had a grand opening.
- 2012: APP announced the Sustainability Roadmaps Vision 2025, placing social resources conservation at the center of its business strategy.
- 2013: APP published the Forest Conservation Policy (FCP), imposing a moratorium on all natural forest clearance across its supply chains. For forests that are of high conservation value and high carbon stock, APP would take targeted protective measures based on assessment results.
- 2014: APP launched plans to make full use of existing plant buildings for rooftop photovoltaic (PV) power generation with an overall capacity of over 200MW.
- 2015: APP China moved its headquarters to Shanghai DICIB, and in the same year became a global partner of the China Pavilion on the Milan Expo 2015.
- 2017: APP China planned to develop large-scale production and R&D bases by adopting Industry 4.0, artificial intelligence, and other technologies.

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Joining Forces and Pursuing Culture-led Development

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Our Value Chain

Inputs

- Industrial layout
  - Operating two large nurseries with an annual output of nearly 90 million seedlings
  - Owning 18 forestry companies and 280,065.12 hectares of plantations
  - Owning seven major pulp & paper mills
  - Formulating Industry 4.0 Roadmap to promote intelligent development

- R&D investment
  - Committing RMB1.974 billion in R&D investment
  - Filing 115 patent applications

- Human resources management
  - 27,923 full-time employees
  - Investing RMB5.23 million in employee training
  - Corporate culture building
  - Corporate University construction

- Sustainable manufacturing
  - Investing RMB640.84 million in environmental protection
  - 90.93% of plantations certified by CFCC/PEFC
  - 100% of plantations supplied to pulp mills certified by CFCC/PEFC
  - High conservation value (HCV) assessment carried out on 148,240.6 hectares of plantations

- Communication and engagement
  - Customer communication and engagement
  - Supplier responsibility requirements
  - Community communication and engagement
  - External cooperation and communication
  - Making a total external donation of RMB26.1 million
  - Employee volunteer time totaling 31,018 hours

Outputs

- Financial performance
  - RMB172.6 billion in total assets
  - RMB59 billion in sales revenue
  - RMB8.3 billion in total profit

- Products and technologies
  - Products marketed in more than 160 countries/regions across 6 continents
  - Over 11 million tons in annual production
  - Several affiliates recognized as "High-tech Enterprise"
  - Introducing and continuously innovating environmental technologies and products

- Employee development
  - Corporate University launching quality online and offline training modes
  - 717,135 hours of employee training
  - A growing number of employees becoming internal trainers
  - Female employees taking up 27.38% of total workforce

- Sustainability footprint
  - Water reuse rate 95.36%
  - 12.68 tons of waste water discharge per ton of pulp produced, and 0.94 kg of COD emission per ton of pulp produced
  - 6.79 tons of waste water discharge per ton of paper produced and 0.23 kg of COD emission per ton of paper produced
  - Promoting sustainable consumption
  - Launching waste paper recycling program to promote dissemination of green and environmental concepts

- Win-win development
  - Providing value-added services for more customers
  - Greater commitment fulfillment on the part of suppliers
  - Sound community relationship
  - Involvement in discussions on forward-looking topics and contributing to industry standard setting
  - Implementing a number of programs and activities in areas like education, poverty alleviation, and environmental protection
Joining Forces and Pursuing Culture-led Development

Corporate culture is the soul of a company. Starting from zero, APP has constantly grown its business volume to become an industry leader worldwide. Central to this development process are APP people, who are optimistic and perseverant fighters instilled with an ownership spirit that propels them to work hard and work smart. Integrity, diligence, solidarity, perseverance, vision… those fine values embedded in our DNA have facilitated the major transformations at APP.

Success favors those who boldly forge ahead. APP’s path to excellence has been decked with a collective of outstanding fighters. Embedding APP’s cultural values into every aspect of their work, they remain fully committed and contribute to the attainment of the corporate vision through solid and persistent efforts.

In 2018, we hosted the company-wide Cultural Ambassadors’ Contest themed “Carrying Forward Fighting Spirit and Striving to Be Cultural Ambassadors” at APP China. After eight months and rounds of selection at the unit, business division, and Group level, 17 employees were chosen to be “Cultural Ambassadors” at last. True and lively personal stories that involved laughter or tears were shared by the contestants, inspiring all APP people to practice the cultural values at work in a professional, passionate, and dedicated manner.

Fostering a Lively Corporate Culture

At APP China, we are committed to fostering a culture of perseverance and integrity and embedding the DNA of “cultural leadership” into every stage of our development. To ensure that our cultural values were actively upheld in the day-to-day work, we carried out a series of company-wide promotional events in 2018, including compiling theme briefings and organizing the Cultural Ambassadors’ Contest, the Customer Focus values seminar, the Sunshine Integrity Month, and a variety of cultural training, to continuously deepen the employees’ understanding of our corporate culture.

Fighters Who March Alongside the Company

President Teguh Ganda Wijaya and Cultural Ambassadors

APP will continuously be the world’s premier, fully-integrated green-cycle plantation, pulp and paper conglomerate.
Distinctive MBOS

As MBOS activities get intensively implemented on different levels within the company, MBOS has become the most distinctive part of APP’s corporate culture and the key to maintaining our competitive edge. The specific methods and tools under MBOS constantly evolve and develop in response to changes in the competitive landscape and technological development to unconsciously drive our sustainable development.

Aspirations
- Be risk- and innovation-conscious, and set world-level goals with a challenger and perfectionist mindset.

Methodology
- Continuously drive process improvement to enhance performance through all kinds of indicator contexts, improvement initiatives, and communication and sharing sessions in conjunction with breakthrough innovations.

Internal Competition
- Incorporate MBOS activities into the work of every department, every level, and every individual employee; maximize organizational resources efficiency by means of incentive system, overall coordination, and systematic progression to support the realization of organizational goals.

Path to Realization

Set overall development goals based on corporate vision and break them down into key performance indicators (KPIs) for different organizational levels against world-class performance standards.

Three Guidelines of MBOS and Path to Realization

Determine the gap between the actual and projected KPIs and strive for innovation breakthroughs and continuous performance improvement by means of indicator contexts, achievement, sharing sessions and so on, utilizing all kinds of scientific, systematic, and advanced management approaches and tools.

Inspire employees’ willingness and ability to participate in MBOS through a combination of individual review and incentivizing and organizational coordination. The primary methods for realizing the goal include monthly performance reward, personal performance objective (PPO) review, indicator contest, and skill development activities (SDAs).

Talents Gathered at MBOS from All Over the World

The APP Global MBOS Conference (in short, the Global Conference) has taken place on 14 occasions since first convened in Indonesia in 1998. It is a compact embodiment of the unique Management by Olympic System (MBOS) at APP and provides a platform for outstanding managers and line-level employees to showcase their achievements. The 14th Global Conference was held in October 2018 at Gold Huasheng. Taking with themselves the top-of-the-range practices and concrete achievements in their respective fields, outstanding APP representatives from all over the world came together and staged a successful annual MBOS event themed “Emulate, Learn From, Catch Up With, Helping, and Surpass Each Other”.

Outstanding employees from Hainan Jinhai Pulp & Paper, Ningbo Asia, and Gold East Paper shared their hands-on experience on issues such as integrating management and business development and facilitating business development by culture.

As MBOS activities get intensively implemented on different levels within the company, MBOS has become the most distinctive part of APP’s corporate culture and the key to maintaining our competitive edge. The specific methods and tools under MBOS constantly evolve and develop in response to changes in the competitive landscape and technological development to unconsciously drive our sustainable development.

When reporting the achievements of every APP China employees, we consider the situation in the operation with “Higher, Faster, Stronger” by “Emulating, Learning From, Catching Up With, Helping, and Surpassing Each Other”.

The Management by Olympic System (MBOS) is one of the core elements constituting APP China’s corporate culture. It is a powerful management system originally devised by APP to drive the attainment of the corporate vision and a systematic management platform built by consolidating a variety of concepts, methods, and tools for improving an organization’s operations and management. The system encourages employees to live the Olympic motto of ‘Higher, Faster, Stronger’ by ‘Emulating, Learning From, Catching Up With, Helping, and Surpassing Each Other’.

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APP China

About APP China

Our Value Chain

Messages from Chairman
Companies in the new era are faced with opportunities and challenges alike. New opportunities for companies to maintain sound and sustained development lie in the pursuit of openness, sharing, and innovation. Armed with a global perspective, we initiated transformation and upgrading, supporting the advancement of Industry 4.0 and contributing to a better life by offering quality products and services. In active response to the Belt and Road Initiative, we have remained boldly innovative and explored new ways to achieve coordinated development of the industry. We embed sustainability into the company’s entire product design and R&D process and have achieved continuous breakthroughs in developing environment-friendly technologies and products and driving industry-wide high-quality development. We actively endorse sustainable product labeling with a view to increasing consumer awareness of sustainable consumption and promoting the sustainable management of forests.

"Socialism with Chinese characteristics has crossed the threshold into a new era, and so has China’s economic development. This is fundamentally characterized by the transitioning of China’s economy from a phase of rapid growth to a stage of high-quality development. Promoting high-quality development is a request for maintaining sustained and sound economic growth."

"Promoting high-quality economic development requires placing priority on driving the transformation and upgrading of industrial structure and supporting the real economy in becoming more real, growing stronger, and doing better."

"High-quality development is development that reflects the new vision for development and where our focus changes from 'Is there enough?' to 'Is it good enough?'

— President Xi Jinping
The Belt and Road Initiative opens the door wider for China to connect with the rest of the world and presents companies with unprecedented opportunities. In this context, staying open and inclusive will allow companies to evolve in step with the times towards a bright future. In the new era, APP China will embrace globalization, deepen industrial layout, and implement transformation and upgrading as it strives to further boost industrial and social development.

Exploring Win-win Through Integration

The Sinolink-APP Belt and Road Asset-backed Special Program, of which APP China was the original owner, passed the review of the Shanghai Stock Exchange on March 2, 2018. With an issue size of RMB5.5 billion, it was the first Belt and Road Asset-Backed Securities (ABS) product in China.

It is our hope that through this financial innovation program we would be able to mobilize the ample resources of countries along the Belt and Road and leverage our complementary strengths to extend our cooperation in both depth and scope. The program places the main business in countries along the Belt and Road. Raw materials, trims, and packaging materials are sourced from those countries before being transported to paper mills in China for fine processing and again sold to those countries. Our Belt and Road Science and Technology (S&T) Industrial Base/High-grade Household Paper program based in Rudong County of Nantong, Jiangsu will play a key role in the ABS program.

2018 also saw us sign the Development Financing Cooperation Agreement with Hainan Branch and Xiamen Branch of China Development Bank (CDB) and China Hainan Rubber Industry Group Co., Ltd. Through the partnership, we hoped to utilize the “Go Out” investment and financing cooperation platform established by CDB to strengthen cooperation with China Hainan Rubber in terms of rubber plantation and processing, mergers and acquisitions (M&A) in industry chain subjects, and areas beyond rubber and jointly ramp up the implementation of “Go Out” projects.

In fact, we have become a participant of the BRI as far back as October 2013. In the presence of President Xi Jinping, we launched the first Belt and Road Southeast Asia and BRICS project, i.e., construction of the largest pulp mill in Indonesia with a capacity of 3 million tons funded by CDB. Today, the project has become a signature program for promoting the cooperation between China and Indonesia.

The Future is Now, Unfolding a New Chapter

Refining Industrial Layout

APP started investing in China in the 1990s. With heavy investment in provinces like Jiangsu, Hainan, Guangxi, and Zhejiang, APP China currently has a combined annual pulp & paper capacity of 11 million tons and markets its products in over 160 countries/regions, effecting positive impact on Belt and Road construction.

Standing at the threshold of the new era, we have undertaken in-depth financial innovation and cross-sectoral innovation in light of the Belt and Road Initiative and moved beyond existing industrial models to create opportunities to support the development of multiple stakeholders. At the same time, we further deepened our industrial layout. With Jiangsu as the main base, we implemented centralized management of paper product manufacturing and processing, explored and pioneered more advanced technologies, and continuously pushed ourselves to provide high-quality and diversified products for consumers in China and beyond.

We will build a large intelligent household paper base equipped with both R&D and manufacturing capabilities in Jiangsu and start implementing transformation and upgrading of existing projects to explore more business opportunities and satisfy diversified market demands; we will also step up the construction of new projects in Qinzhou (Guangxi Zhuang Autonomous Region), Ningbo (Zhejiang Province), and Yangpu (Hainan Province) to further contribute to economic growth and to ensuring high-quality supply.
As an important way of zonning for regional economic development and industrial restructuring and upgrading, industrial parks carry such important missions as concentrating innovation resources, cultivating emerging industries, and promoting urbanization. In pursuit of innovation, openness, and win-win, we are working to strengthen external cooperation and consolidate premium resources. By building the China-Indonesia Belt and Road Dual Industrial Parks, we will work together to create key future-proof projects that will promote regional economic development and drive deep industrial integration.

Leading Industry Development

We firmly support China’s open-up policy for increasing imports and continuously deepen our commitment to “Serving China”. The CIIE made a grand debut in Shanghai on November 5, 2018. As an exhibitor, we displayed our full range of forest, pulp, industrial paper, cultural paper, and household paper products, including our world-leading environment-friendly papermaking technologies and products, such as the Trutone technology and Foopak Bio Natura™ Cup.

We hope to bring new perspectives and insights to inform the development of China’s papermaking industry through the sharing and communication of advanced environmental concepts, technologies, and products, thus further embedding sustainability into the entire industry chain. During the Expo, we signed seven importation contracts of intent with major importers from Zhejiang and Zhuhai, among other places.

Promoting Regional Development

As an important way of zonning for regional economic development and industrial restructuring and upgrading, industrial parks carry such important missions as concentrating innovation resources, cultivating emerging industries, and promoting urbanization. In pursuit of innovation, openness, and win-win, we are working to strengthen external cooperation and consolidate premium resources. By building the China-Indonesia Belt and Road Dual Industrial Parks, we will work together to create key future-proof projects that will promote regional economic development and drive deep industrial integration.

Building Science and Technology Park in Indonesia

We plan to build a science and technology park in Indonesia in partnership with Jiangsu Government, Suzhou Municipal Government, and Suzhou Industrial Park. The project will give full play to each participant’s strengths in resources, capital, talent, and park management and push forward the cross-border cooperation between China and Indonesia.

Facilitating Modernized Office Through Technological Means

The APP office paper products displayed at the CIIE had been produced using the world-leading Trutone technology that is also unique to APP. Paper thus produced is ink-saving thanks to its rather even formation, faster ink absorption, and mottle-free printing performance. It is also characterized by optimal stiffness and a smooth finish for jam-free printing and greater brightness that guarantees cleaner prints.
From "Manufacturing" to "Intelligent Manufacturing"

In recent years, Guangxi Jingui Pulp & Paper has been actively acting on APP China Industry 4.0 deployment, stepping up application of artificial intelligence and building platforms such as "Internet+ Intelligent Production Management". It has been striving for the short-term goal of "automated equipment, integrated management, and nimble services" and the long-term goal of "intelligent services, intelligent manufacturing, and intelligent mills" by means of automating equipment, redesigning processes, building integrated big data platforms, etc., making active explorations in promoting the transformation and upgrading of the manufacturing sector.

There are over 6,000 mobile paper rolls and half-made paper stacks at Guangxi Jingui Pulp & Paper workshops, with only two to three workers stationed at each stage of manufacturing. At the automated transfer workshop, the operators can accurately locate the needed bundle of paper from among 70,000 tons of paper in the warehouse. This is made possible by the smartest brain at Guangxi Jingui Pulp & Paper—the "Internet+ Intelligent Production Management Platform", which has fully automated whole-process product tracking and quality control from order taking to the manufacturing of half-made and ready-made products. As a result, the productivity has been doubled at the stage of paper roll packaging alone.

As regards the construction of business information system, Guangxi Jingui Pulp & Paper has been independently developing the automation office system since 2007. Through continuous addition of new business models and the use of new information technologies, it has been gradually evolved into the company’s integrated management information system. The system now includes a range of modules such as human resources management, asset management, logistics management, vehicle dispatch, WeChat platform, and supplier management, successfully applying Internet+ to the company’s business system and ensuring higher efficiency.

For its years of intelligence-focused development, Guangxi Jingui Pulp & Paper was among the first to be named "Demonstration Enterprises of Guangxi Intelligent Mills" in 2018 by the Bureau of Industry and Information Technology of Guangxi Zhuang Autonomous Region.

Besides Guangxi Jingui Pulp & Paper, other APP China mills have also been carrying out extensive intelligent construction and exploration with a view to realizing automated, data-based, visualized, systematic, and standardized corporate management. Since the concept of Industry 4.0 was first proposed in 2015, we have embarked on systematic research and exploration of intelligent manufacturing. Aware that Industry 4.0 cannot be realized at once, we are set to push towards its early materialization with an unyielding passion and conviction.

The Industry 4.0 Target

As intelligent manufacturing undergoes rapid development the world over, it has impacted industry development and division of labor in profound ways. Accelerating the development of intelligent manufacturing and Industry 4.0 is a necessary step in nurturing new drivers of economic growth and of great strategic significance for creating new competitive edges for China’s manufacturing sector. When it comes to the pulp & paper sector, intelligent manufacturing would radically enhance its resource integration capability and productivity given the multitude of value chain stages and complexity of manufacturing processes involved.

APP China has formulated the Industry 4.0 Roadmap that gears the company towards intelligent manufacturing, with automation renovation as the current priority. By utilizing big data management model and scientific management approach, it focuses on improving the overall automation level and gradually driving the linkage and integration between the information system of the various operations stages, hence fully digitizing the entire process from suppliers to pulp mills and paper mills and to customers to enhance the overall efficiency. Meanwhile, APP China will utilize the opportunity for building new papermaking bases to make comprehensive planning for the construction of smart factories consistent with Industry 4.0 principles.

Gradually Materializing Intelligent Projects

Drawing on the company’s real-time database platform and manufacturing execution management system, APP China has been gradually pushing forward the trilogy for digitized and intelligent production data. It helps improve the operations efficiency and product quality control while reducing material and energy consumption and emissions, and thereby enhance the company’s capacity for sustainable development. At present, "real-time visibility and automated statistics" has been brought to bear.

We started piloting Internet of Things (IoT) and data cloud technology in our mills in 2018. We run 24/7 wireless collection and data cloud technology in our mills in the whole chain. We started piloting Internet of Things (IoT) and data cloud technology in our mills in 2018. We run 24/7 wireless collection and data cloud technology in our mills in the whole chain.

Intelligent Logistics Development

In 2018, we used the intelligent warehouse management system in our import warehouses for early warning, tracing, and feedback before, during, and after an event, successfully raising the FIFO (first in, first out) rate of import orders to 98.5%. The system conducts analysis of stock, customer requirements, and orders by intelligent means, automatically generating information such as report forms, customer requirement analysis, and logistics reports, as well as alerts about order abnormalities and overstock and tracing delivery abnormalities.

We will continue to deepen IT-based development to realize visualized management of the whole logistics process and, by utilizing such technological means as autonomous driving, automatic warehousing, IoT, and big data, achieve automated management and operations at the logistics bases to further enhance the logistics efficiency.
Plastics is causing ever more severe environmental problems as its global consumption continues to rise. United Nations Environment Programme estimates that by 2050, oceans will contain more plastic than fish by weight and 99% of seabirds will have ingested plastic. Reducing plastic production and consumption has become a matter of great urgency. Redesigning plastic packaging, recycling and reusing plastics, changing the ingredients of raw materials, and using alternatives to plastic ... a growing number of companies and individuals are getting involved in plastic reduction efforts, and we are one of them.

APP Foopak Bio Natura™ Cup made its debut at the CIIE 2018. Free of optical brighteners and 100% biodegradable, it has been specially designed for containing beverages and food. Compared with its peers, Foopak Bio Natura™ Cup meets higher standards on measures of biodegradability, air tightness, and cold and heat resistance and can replace non-biodegradable, disposable paper cups in large amounts. The waterborne membrane inside of Foopak™ is plastic-free and can degrade completely in 12 weeks before being used for composting. The product was named “Sustainability Product of the Year” by the Business Intelligence Group (BIG) Sustainability Awards Program 2018. It is a new attempt by APP for addressing problems like resource scarcity and environmental pollution in the papermaking sector and will provide a brand-new environmental solution for China’s food packaging sector.

R&D innovation is central to APP China’s development and plays a key role in boosting the growth of the sector as a whole. While meeting social and market demands, we continuously move beyond current technological standards and enable technological advances. We incorporate environmental considerations from the very beginning of our product design process and strive to make our products more environmentally friendly through continued explorations to contribute to a better life.

Laying Solid Foundation for Innovation

In the papermaking sector, R&D innovations can not only help set products apart in the enormous market and lead to greater financial gains but also significantly boost high-quality development of the industry at large and mitigate social and environmental problems. This is why we continue to expand investment in this regard, bolster cultivation and incentivization of technical personnel, and actively engage in exploring cutting-edge industry issues, fueling constant technology and product innovations.

Independent Innovation Capacity Winning External Recognition

Ningbo Asia Pulp & Paper was recognized as a “High-tech Enterprise” in January 2018 by the Ministry of Science and Technology of the People’s Republic of China. This is one of the highest honors for tech enterprises in China and has extremely stringent requirements for application. The title represented national-level recognition for Ningbo Asia in terms of core independent intellectual property rights, technological development personnel, and high-tech products and its status as a leading enterprise in China or beyond in those regards. Moreover, the company’s application for “R&D Center for Provincial-level High-tech Enterprises for Industrial Packaging Paper in Asia’s Pulp & Paper Sector” has been recognized by the Science Technology Department of Zhejiang Province. It thus stood out from over 9,000 high-tech enterprises across the province to be ranked among the top 100 in terms of innovation capacity and became one of the demonstration enterprises in Beilun District for independent innovation and transformation and upgrading.

Participating in Industry Standard Setting

The GB/T 37074-2018 Technical Requirements of Ultraviolet Excitation Fluorescent Anti-counterfeiting Fiber jointly developed by Ningbo Asia and Beijing Tomo-Sapience Light Technology Co., Ltd. was officially launched in December, 2018. Anti-counterfeiting fiber technology is one of the core cardboard anti-counterfeiting technologies, for which a uniform set of measurement standards had been lacking in China. The launch of the national standards has not only standardized the technical requirements for anti-counterfeiting color fiber paper but also shed light on the future course of anti-counterfeiting technologies in the papermaking sector.
Reducing Environmental Footprint of Products

During product R&D and design, while ensuring product quality, we are always thinking about ways to minimize material consumption and the negative environmental impacts of our manufacturing process. At the same time, we try our best to limit the environmental pollution of our products after use, all in an effort to improve the environmental friendliness of our paper products throughout their life cycle.

Hainan Jinhai Pulp & Paper: Developing Filler Pretreatment Technology

Paper mainly consists of fibers and ash. Fibers come from trees and other plants, and ash is mainly composed of calcium carbonate. Paper that contains more ash uses fewer wood materials to produce and is less costly. Meanwhile, the cohesion between fibers is what gives paper strength. Given that fibers and calcium carbonate do not cohere, a higher proportion of ash would lead to poorer paper strength than is needed by use scenarios. The filler pretreatment technology developed by Hainan Jinhai Pulp & Paper reduces the impact of fillers on paper strength mainly by pretreating calcium carbonate with chemicals, thus enhancing the proportion of ash without compromising paper quality. At present, the technology has been fully developed and put to steady use in manufacturing, raising the proportion of ash by 1%~2% and lowering that of Needle Beached Kraft Pulp (NBKP) by 2%, thereby reducing the use of wood.

Gold East Paper: Making Breakthroughs in Key Green Papermaking Technologies

In 2016, The Gold East Paper “Development and Industrialization of Key Green Papermaking Technologies” project was approved as a key R&D plan project of Zhejiang. The program benefited from three forward-looking technological breakthroughs made by Gold East Paper that led to reductions in the use of raw materials, generating an annual profit of RMB9.87 million.

Developed a highly efficient fluorescent brightener carrier that helped reduce the annual use of efficient fluorescent by 1,440 tons as a result of markedly enhanced brightening efficiency.

Innovatively applied bio-enzymes to pulp pretreatment during pulp making, reducing energy consumption by 20 kWh/t of pulp.

Developed the filler modification technology that helped raise the proportion of ash in coated paper, potentially reducing the annual use of fresh pulp by 300~500 tons.

Gold Huasheng: Making High-performance, Environment-friendly Blackening Microcapsules

The core technology for making blackening carboneless copy paper lies in the preparation of microcapsules. The primary raw material currently used in China for microcapsules, however, is a renewable petroleum compound. Gold Huasheng set up the microcapsule research team and, together with the suppliers, pioneered the development of the eco-friendly solvent oil-based "environment-friendly microcapsules" in China. The team did not stop there but further improved the performance of the microcapsules after their successful application to introduce the second generation. With guaranteed quality, the second-generation microcapsules allow for a 10% decrease in use, further reducing dependence on chemical raw materials such as dyes and wall materials.

Intensifying R&D on Lightweight Products

APP China has carried out intensive R&D of high-bulk products in the field of cultural paper and industrial paper to make them lighter while maintaining the same thickness, thus significantly reducing the use of raw materials.

Hainan Jinhai Pulp & Paper developed the ultrahigh-bulk coated paper in 2018, which features 17.6% higher thickness at the same basic unit weight. Compared with regular double-sided coated paper of the same thickness, this paper uses 15% fewer raw materials and has been very well received in the market.

Providing Pure and Natural Household Paper for Consumers

The Breeze™ Tissue (Qingfeng) under Suzhou Gold Hongye has always been committed to log quality monitoring from the source and 100% natural virgin pulp manufacturing. Its Pure-wood Series tissue paper has won wide attention from the industry and consumers alike. It is a type of household tissue paper produced with pulp that has been prepared without bleaching. It has obtained an array of authoritative food-grade certifications from the FDA (United States), LFGB (Germany), AP (European Union), and many other agencies and is safe for contact with hands and mouths.
Managing Product Impacts on Health

At a time of higher-quality consumption, a growing number of consumers are paying more attention than ever to product health and safety when making purchase decisions. Our research team at APP China gives top priority to health and safety during product development and upgrading. We continuously improve our raw material formula to provide a more reassuring and safer range of products for our customers and consumers.

### Environment-friendly BPA-free Thermal Products

Cashier receipts and lotteries are some of the everyday items printed on thermal paper. The raw materials for making thermal products contain Bisphenol A (BPA). With medically demonstrated negative impacts on the human body, BPA has been banned in some countries/regions. Although there is currently no such ban in China, Gold Huasheng has been committed to developing BPA-free products.

By sorting through a large volume of basic data, conducting thousands of experiments, and utilizing new types of combination filler, the team has successfully developed a BPA-free, environmentally friendly thermal product. While a bit more costly than regular products that contain BPA, it is also healthier and more environmentally friendly. The commercial marketing of the product officially began at the end of 2018.

### Substituting Formaldehyde-Releasing Preservatives (FRPs)

By adding cream chemicals to the surface of paper, we can enhance the amount of water it contains, improve how it feels to the hand, and produce household paper that is delicate and skin-friendly. Preservatives initially used in cream chemicals were formaldehyde releasers, whereby a small amount of formaldehyde was released over a long period of time to produce preservation effects.

Drawing on numerous discussions and experiments, Suzhou Gold Hongye successfully substituted FRPs for a safer component without altering the primary ingredients and functionality of the chemicals. The optimized formula has been applied to a range of EMPORIA™ products.

Meeting Consumers’ Needs for Paper

As the living standards continue to rise, people have increasingly higher requirements for household paper products and are showing a growing interest in high-quality and differentiated products. To meet consumers’ diversified needs for household paper and deliver a healthy, comfortable, clean, and convenient user experience, we continue to develop and enrich our line of functional products consistent with the various life scenarios and incorporate more human-oriented considerations in our product packaging design process.

- **Substituting Formaldehyde-Releasing Preservatives (FRPs)**
  - Suzhou Gold Hongye has developed and launched the Touchcare functional tissue series based on a number of patented technologies. The product contains moisturizing factors and vitamin E and can wipe away bacteria, hydrate the skin, and be used repeatedly on the skin for an allergy-free, smooth experience, helping get rid of red noses.

- **Environment-friendly BPA-free Thermal Products**
  - Many people suffer from skin allergies, which can be worsened by colds or during allergy seasons.

- **Meeting Consumers’ Needs for Paper**
  - Profuse sweat after workout or hot summer walks can cause stickiness and even embarrassing body odor in public spaces.

- **Breeze™ Cooling Wipes**
  - Enriched with cooling factors and natural mint extracts, the Breeze™ Cooling Wipes give a cooling and soothing effect. The product uses large, ultra-thick non-woven fabric and is thick, strong, and absorbent. It can easily cleanse sweat and stickiness with just one wipe and help people get rid of body odor.

- **Breeze™ Glass Cleansing Wipes**
  - Fog, moisture, fingerprints, handprints, filth, oil... they can all make mirror surfaces such as eyeglasses, cellphones, computers, and television screens foggy and dirty. Moreover, invisible bacteria stuck on screen surfaces can get into contact with our skin from time to time. Regular tissues or lens cleaning wipes cannot effectively cleanse eyeglasses or screen surfaces and may even result in damages.

- **Breeze™ Glass Cleansing Wipes**
  - Breeze™ Glass Cleansing Wipes can effectively cleanse the ashes, fingerprints, oil, and filth from mirror surfaces. With the addition of instant quick-drying formula, the product enables quick, stainless, and damage-free cleanse of lenses or screens and removes 99.9% of bacteria. The wipes are individually wrapped and handy for use on the go.
Championing and Promoting Sustainable Consumption

Forest certification has been widely recognized by the international society and national governments as a tool for promoting sustainable forest management and market access of forest products through market mechanisms. It mainly consists of Forest Management (FM) certification and Chain of Custody (CoC) certification. The Forest Management certification certifies whether a forest management agency implements sustainable forest management by examining and evaluating its forest management activities. The certification looks at a range of issues including acting in accordance with laws and regulations, protection of the rights of local communities and workers, cultivation and utilization of forest resources, preservation of biodiversity, environmental impacts, and forest monitoring, among others. The Chain of Custody certification examines and evaluates the entire chain of custody of forest products manufacturing and sales companies to certify the legitimacy and traceability of the raw materials for forest products, covering all stages from sourcing, processing, manufacturing, transportation, storage, and sales to end consumers.

Based on more than a decade’s efforts, China Forest Certification Council (CFCC) and the Programme for the Endorsement of Forest Certification (PEFC), the world’s leading forest certification system, reached mutual recognition in 2014. This helps make China’s forest products more globally competitive and is highly instrumental in enhancing the capacity of China’s forestry sector for sustainable development.

As a strong facilitator of the mutual recognition efforts, APP China has been actively engaged in conducting forest certification for years to continuously improve sustainable FM and CoC management, with a number of affiliates obtaining the CFCC/PEFC certification. We are also among the first in the industry to promote forest certification labeling to provide consumers with reliable reference information for choosing sustainable paper products, make forest certification more widely known and understood, and involve stakeholders in efforts to promote sustainable consumption.

Conducting Forest Certification

APP China actively performs forest certification and continuously improves management at the review and evaluation stage to lay a solid foundation for promoting forest management and responsible manufacturing. As of the end of 2018, a total of 254,660.01 hectares, or 90.93%, of APP China plantations had obtained CFCC/PEFC FM certification, with 100% of the plantations supplied to pulp mills CFCC/PEFC-certified; 16 affiliated pulp mills and trade companies had obtained the PEFC CoC certification, which guaranteed that all their raw materials were sourced from sustainably managed forests.

Promoting Sustainable Consumption

Over time, the concept of sustainability has been deeply embedded in every aspect of our work and life. Being at the lower end of the supply chain, consumers’ support and requirements for sustainable consumption will substantially improve companies’ overall supply chain performance. Sustainable consumption has been listed as an important sustainability issue in the UN SDGs and a number of national policies in China as well.

Since 2015, APP China has been promoting CFCC/PEFC labeling on household paper, copy paper, and other series paper products through the provision of custom-made products for customers. Under the guidance of the National Forestry and Prairie Science and Technology Development Center, we further progressed our efforts in 2018. Our high-end household paper brand VirJoy™ and famous Breeze™ brand are some of the first brands among their equivalents in China to start carrying the joint certification label.

By doing so, we hope to increase consumers’ awareness of products’ environmental and social footprint and help them discern forest products made from sustainably managed forests so as to influence their purchase decisions and promote sustainable forest management.

Our CFCC/PEFC labeling work will continue and gradually normalize in the future. At the same time, we call for more companies to pay attention to sustainable product labeling in a concerted effort to facilitate the development of the industry chain in a virtuous circle and make greater contributions to forest preservation.
Promoting economic growth, social development, and environmental protection in a coordinated way is the key to realizing sustainable development and an important guarantee for building a business that lasts. We care about customers' real needs and fully implement the customer-focused service approach as reflected in taking innovative measures such as formulating the “All-hands Marketing” strategy and designing new customer service models. We incorporate green development into our brand value and operations and do our utmost to become a major force in the construction of an ecological civilization and the dissemination of green concepts. We adhere to human-centricity, promoting worker rights protection among our suppliers, respecting and caring for our employees, and providing them with ample resources to support their career development and a platform for showcasing their talent. Meanwhile, we leverage our resource strengths to support community development within our abilities and share the fruits of our development with the community.

“Independent innovation is an urgent requirement and key pillar for promoting high-quality development and the replacement of growth drivers. We must create the condition and atmosphere and mobilize the creative initiative of all parties to allow everyone with a desire for innovation to focus thereon and the creative initiative to be fully unleashed.”

“Green development is a critical element of modernizing an economy; it is also a fundamental solution to pollution.”

“We should stick to the practice of putting people first, and strive to build a happy society that is inclusive and benefits all.”

— President Xi Jinping
Quality Products and Services

APP China firmly applies a customer-focused philosophy and endeavors to build a community of shared interests and shared success with customers. We put ourselves in our customers’ shoes and strive to satisfy their demands on all fronts through the provision of quality products and prompt and excellent services. Meanwhile, we listen to their voices actively and continue to improve our services by conducting satisfaction surveys, strengthening management of customer complaints, organizing engagement activities, etc. to deliver consistent value creation for our customers.

Creating a Pleasant and Convenient Service Experience

The Breeze™ brand under Suzhou Gold Hongye fully upgraded its strategic partnership with JD Supermarket in 2018, planning to implement innovations in product content, sales model, logistics and transportation, and all the other areas to deliver high-grade, diversified household paper products and a more convenient shopping experience to consumers. Breeze™ would also offer integrated online-offline shopping advice and experience that were informed and made more targeted by big data application. Breeze™ would further optimize the supply chain layout together with JD to continue to improve its efficiency and shorten the transportation time. Data-based management and forecasts would be applied regarding sales needs and goods allocation to enable more convenient product delivery.

Building a Service Brand

While satisfying customers’ needs, APP China holds itself to a set of high standards that exceed their expectations. We believe that companies can always find new pain points when thinking from a customer’s perspective and realize that “sales” is not for any particular position alone.

APP China officially launched the “All-hands Marketing” strategy in 2018. Under the strategy, all the departments including R&D, manufacturing, finance, administration, logistics, etc. uniformly put customer service at the center of what they do, thus forming a complete chain of value creation for customers. Whenever a customer runs into trouble while using our products, whether about product quality, usage, or facilities, we bring together all relevant departments such as IT, manufacturing, and customer service to jointly work out the solutions.

“All-hands Marketing” has further facilitated our communication with the customers and deepened our understanding of customer needs, which would inform our efforts for future improvement. The marketing strategy has also fueled our employees’ work initiative and improved their perceptive capacity for the market and customers.

Commitment to Craftsmanship and Quality

Providing customers with high-quality products is a relentless commitment at APP China. We have established a complete quality management system based on the ISO 9001 standard, putting in place strict quality control guidelines for all stages of the product life cycle from raw material examination to finished products. We embed craftsmanship in our products through meticulous management of each production stage.

APP China mills continuously examine and optimize product quality management. Gold East Paper conducts regular internal self-examinations and produces reports at each manufacturing stage from manufacturing and storage and transportation to sales so as to detect and resolve problems in a timely fashion. Hainan Gold Hongye held the Quality Awareness Enhancement Event, raising employees’ awareness of quality management through awareness training, banner publicity, independent examination of base paper, and other methods.

Implementing Total Quality Management

Gold East Paper actively implements Total Quality Management (TQM). Every department and individual employee involved in the production and operations processes is obligated to take up the responsibility for quality safety, thus fostering a quality-oriented culture where “everyone cares about product quality and everyone shoulders quality obligations”.

The company reviews quality performance with tools such as the TQM Team and Group Assessment Measures; the Outstanding Quality Managers, Appraisal Measures has been drawn up to regularly select and award outstanding quality managers; the Post-based Responsibility System for Quality has been set up specifying the quality-related obligations of each post as well as punishment for violators. Additionally, the company actively hosts events such as skills competition and indicates competition to encourage employees to be the benchmarks for quality.

APP Industrial Paper Supporting Takeaway Packaging

Shanghai Municipal Bureau of Quality and Technical Supervision initiated and led formulation of the Association Standards for Online Catering Takeaway Packaging in Shanghai in 2018, proposing an interim scheme for substituting petroleum-based packaging materials for paper-based materials. The APP Industrial Paper Business Unit entered its downstream packaging partners in the takeaway food packaging material test offered by Shanghai Municipal Bureau of Quality and Technical Supervision. A majority of the paper materials that passed the test belonged to APP China. At the same time, the Online Food Delivery Supply Chain Association, whose members included online food delivery platforms, disposable food container manufacturers, catering companies, industry associations, testing agencies, etc., published the Reassurance Directory for takeaway containers. The paper materials used by over half of the eight manufacturers listed in the directory came from APP China.
Listening to Voice of Customers

We highly value the feedback and opinions of our customers. We have established a variety of communication mechanisms that allow our customers to contact us about any issue related to our products and services, including service hotline, customer relationship management system, cellphone system, mail, fax, and more.

APP China mills have all set up a satisfaction evaluation system that supports face-to-face interaction, online surveys, telephone conversations, and other forms of communication. Every year, they conduct a satisfaction survey to collect customer comments and opinions on a full range of issues including product quality, services, logistics, brand image, etc. to inform plans for future improvement.

The mills continuously intensify customer complaint management and have enabled closed-loop management by setting up a standardized handling process that consists of investigation and determination, analysis and evaluation, and improvement measures. They also make a point of ensuring timely and effective response to and handling of customer complaints. In 2018, the mills systematically sorted their customer complaint data and improved customer satisfaction through concrete actions such as intensifying examination and improvement of each business stage and setting up dedicated improvement programs.

Going Out, Inviting In — Gaining a Thorough Understanding of Customer Needs

Acting on the “Customer-focused and Quality-first” mindset, Hainan Gold Hongye visits its customers, dealers, and downstream factory customers to gain a timely knowledge of the market and customer needs. Meanwhile, on a regular basis, the company hosts production and marketing communication meetings among its dealers every year. Customers and domestic sales teams are invited to the meetings to offer analysis on each and every existing problem. This is followed by promptly-made improvement plans and progress tracking measures, effectively improving the complaint handling efficiency.

As new paper brands keep springing up, an increasing number of customers hope to learn about the quality and features of APP China’s products in depth. In response, APP China Cultural Paper Business Unit launched a brand-new interactive program in 2018 — the “Little A Classroom in China”. The program consists of industry news sharing, product introduction, technological communication, and strategic thinking and is designed to provide customers with more targeted value-added services. In three months and a half, the “Little A Classroom” was organized on nearly 20 occasions in cities like Hangzhou, Beijing, Xiamen, and Dongguan, involving the participation of over 200 customers.

Over the years, APP China has organized a variety of customer engagement activities, such as Return Banquets, VIP customer communication sessions, and product promotions. At those events, the company has been more than willing to enlighten the participants on market and technological development and share status quo and trend analysis of the pulp & paper sector. The launch of the “Little A Classroom” has made our sharing and communication more concentrated and normalized.

In the future, the “Little A Classroom” will continue to deliver shared value and growth with the customers in an attentive, meticulous, and sincere manner.
Sustainable Manufacturing Process

Sustainability is embedded throughout APP China’s “Integration of Plantation-Pulp-Paper” operations model. From plantation to the various stages of pulp and paper making, we are tightly tied to the nature and the community. It is only by respecting the community’s rights to development, fully incorporating environmental considerations into forest management and the manufacturing process and sticking to the bottom line of safe production that robust and sustained development can be truly achieved.

Sustainable Forest Management

“Scientific, ecological, and legal forestry” is the fundamental forest management approach that APP China adopts. While acting in accordance with the APP Forest Conservation Policy, we have also drawn up a series of forestry policies including Sustainable Management Policy, Society and Labor Policy, and Environmental Policy to bring our operations up to higher standards than required by national laws and regulations, continuously improving standardized operations throughout the forestry process and ensuring coordinated development between forest management and the environment and society.

The CFCC/PEFC forest certification carried out annually is an important event that drives APP China to continuously improve its forest management. We use the opinions and advice of the expert panel to inform timely adjustment and improvement of the current management systems and measures and provide our employees with review training on a regular basis to continuously reinforce guidance on sustainable forestry.

Promoting R&D Communication and Cooperation

Scientific research plays an important role in growing seedlings and forestry. We have made a significant investment in building a modern R&D center. We conduct relentless exploration and research on cultivating quality breeding lines and take an active part in exchange sessions, seminars, visits, and other events on industry technological innovations to continuously improve our capabilities of scientific forestry.

High Conservation Value Management and Eco-preservation

High Conservation Value (HCV) forests refer to forest areas with one or more particular attributes, primarily regarding the six areas of biodiversity, landscape-level ecosystems and ecosystem mosaics, ecosystems and habitats, basic ecosystem services, necessities of local communities, and cultural significance. APP China devised the High Conservation Value Management Measures to conduct step-by-step assessment and monitoring of the HCV of its plantations and neighboring areas and developed measures to protect HCV forests. As of the end of 2018, on-site HCV assessment and appraisal had been carried out on our plantations in Guangxi, Guangdong, and Hainan, bringing the overall evaluation rate to 52.95%.

We systematically sorted through national and industry-specific environmental policies, laws, and regulations. We examined our current practices against specific requirements and drew up corresponding management systems and improvement measures. APP China forestry formulated long-term monitoring plans in line with the eco-environment of eucalyptus to implement comprehensive monitoring and analysis of understory plant diversity, microbial diversity in soil, soil fertility, and other aspects by means of field investigation and lab analysis. The forest area also drew up the Biodiversity Protection and Monitoring Management Measures as guidance for recording, monitoring, and protecting rare, threatened, and endangered wild plants and animals potentially present in the forest.

Joining Forces and Pursuing Culture-led Development

Message from Chairman

APP...
Green Production

Continuously Intensifying Environmental Management

The Chinese government imposes increasingly heightened regulatory requirements on environmental protection. Opinions on Comprehensively Strengthening Eco-environmental Protection and Resolutely Fighting against Environmental Pollution and the Three-Year Plan on Defending the Blue Sky issued by the State Council of the People’s Republic of China and the Opinions on Further Strengthening Regulations on Eco-environmental Protection released by the Ministry of Ecology and Environment of the People’s Republic of China are some of the policies released in 2018, raising higher requirements for companies’ management and practice regarding the construction of a green industry chain and comprehensive implementation of clean manufacturing transformation, among other aspects.

All APP China pulp & paper mills operate in line with the principle of “environment-friendly pulp making and given papermaking”. With handsome environmental investments and stringent process control measures, we ensure the manufacturing of our pulp and paper products meets and well exceeds the national environmental protection standards and continuously reduce the negative environmental impacts of our operations. In 2018, our environmental investments totaled RMB40.84 million.

The mills have devised environmental management approaches and measures based on ISO 14001, which are regularly optimized in light of the production and operations, for example, by adding energy saving and emission reduction facilities, improving technologies and techniques, and unlocking energy saving and emission reduction potential. Guangxi Jingui Pulp & Paper revised the Contingency Plan for Environmental Emergencies and carried out emergency evacuation drills against environmental risk points. Environmental hazard examination and correction is also conducted regularly throughout the mills. Hainan Jinhai Pulp & Paper formulated environmental review and reward policies to enhance employees’ sense of responsibility and initiative for getting environmentally involved and foster an awareness that everyone is a supervisor and promoter of environmental protection.

At the same time, APP China mills maintain an active environmental dialogue with the community as an important way to continuously improve their environmental performance and engage the community in the shared cause of environmental protection with an open mind. Back in 2015, Ningbo Asia set up the voluntary environmental supervisors’ team comprising community residents. Upon receiving offsite reports, the supervisors can inspect the mills anytime to help address detected environmental issues. They can also establish close contact with the mills through irregularly held face-to-face meetings, WeChat groups, etc.

From Pollution Discharge Fee to Environmental Protection Tax

“The change from pollution discharge fee to environmental protection tax has boosted companies’ initiative in improving their technological processes, further enhanced their environmental awareness, and geared them towards greener and more ecological development,” said the head of Accounting Department at Guangxi Jingui Pulp & Paper as he took over the very first environmental protection tax receipt issued in Qinzhou Port District.

The Environmental Protection Tax Law of the People’s Republic of China took effect on January 1, 2018. The taxable pollutants include air and water pollutants, solid waste, and noise. The company has since actively communicated with the taxation, environmental protection, finance, and other departments and entered employees in training on taxation policies and hands-on practices to fully brace itself for when the levying of taxes starts.

Water Resources Protection

For the pulp & paper sector, water is used throughout the manufacturing process. APP China considers the protection of water resources to be a top priority in its environmental management efforts. We use a world-leading waste water treatment system and continuously improve the waste water treatment technologies to minimize the amount of chemicals used during manufacturing and ensure our waste water discharge performance far exceeds the national standards. Meanwhile, we strive to reduce the use of water through measures such as conducting water balance test, adopting the reclaimed water reusing system, modifying facilities and equipment, and optimizing processes.

We continued to maintain a sound record of waste water discharge in 2018, with the water reuse rate reaching 95.96%.

Water-saving Enterprise

Gold Huasheng has implemented source control measures since 2013, undertaking respective control over machine pollution discharge concentration and volume of water discharge. Progress towards the targets is tracked and evaluated every week to prompt timely improvement actions to address cases of excess pollution discharge at the source. The stringent supervision and management have resulted in a continual decrease in the company’s waste water discharge per ton of paper produced and kept COD emissions well below the national standard limit.

Commitment to Water-saving Actions

Guangxi Jingui Pulp & Paper become one of the two enterprises in Qinzhou to be named “Water-saving Enterprise of Qinzhou” in 2018. The company continues to increase investment in building water-saving facilities and organize various kinds of water-saving modification initiatives as it steadily works towards the title of “Autonomous Region-level Water-saving Enterprise”.

Water-saving measures in 2018

- Introducing sand leach system to remove condensate water impurities and enhance the efficiency of condensate water alkaline-recycling
- Increasing the amount of reused white water from paper machine rooms in pulping workshops, thus reducing the use of clean water

Water-saving achievements in 2018

- Total water withdrawal decreased by 117,630 tons from 2017
- Water consumption per ton of pulp produced decreased from 6.34 tons in 2017 to 5.44 tons in 2018
- Water consumption per ton of paper produced decreased from 7.49 tons in 2017 to 6.26 tons in 2018

Further Enhancing Waste Water Discharge Performance with Continuous Tracking and Improving

To effectively reduce waste water discharge, Gold Huasheng has implemented source control measures since 2013, undertaking respective control over machine pollution discharge concentration and volume of water discharge. Progress towards the targets is tracked and evaluated every week to prompt timely improvement actions to address cases of excess pollution discharge at the source. The stringent supervision and management have resulted in a continual decrease in the company’s waste water discharge per ton of paper produced and kept COD emissions well below the national standard limit.
Energy and Combating Climate Change

APP China responds actively to national policies on climate change. All the affiliated mills have calculated their own greenhouse gas emissions, with a number of them passing relevant government review. We are also actively involved in carbon trading training to lay a solid foundation for entry into the national carbon trading system.

We view carbon trading as an opportunity to promote energy saving and consumption reduction and change the energy mix. Functioning of the market mechanisms will drive improvement in the energy management of more companies. We continue to reduce the consumption of nonrenewable resources through measures like implementing energy-saving technological modification programs, innovating resource utilization, and increasing the amount of clean energy used.

Compared with 2017, the share of coal in our total energy consumption dropped by 8.77% in 2018, while that of natural gas grew by 9.53%.

In terms of renewable resources, the Gold East Paper Phase II 10MW rooftop photovoltaic power station was completed in November 2017 and started generating power in January 2018. Phase I and Phase II combined to generate 27,990 MWh of solar PV electricity in a year.

Contributing to Defending the Blue Sky

Air pollution is directly linked to human health. Stepping up the improvement of air quality is a compelling obligation for manufacturing companies. Guangxi Jingui Pulp & Paper, Ningbo Asia, Gold East Paper, and Hainan Jinhai Pulp & Paper actively implemented ultra-low fuel gas emissions renovation, a crucial effort in defending the blue sky. When completed, the renovation will help reduce the emission of annual smoke dust by 197 tons, sulfur dioxide by 227 tons, and nitrogen oxides by 2,627 tons.

As of the end of 2018, the renovation had been completed at Guangxi Jingui Pulp & Paper and Ningbo Asia, and it is planned for completion at Gold East Paper and Hainan Jinhai Pulp & Paper in 2019.

Overachieving Energy-saving Targets

In August 2018, the Office of Hainan Steering Group for Climate Change, Energy Conservation, and Emissions Reduction conducted appraisal and review of major energy-consuming entities on their progress towards energy-saving targets and implementation of energy-saving measures. Hainan Jinhai Pulp & Paper was appraised as an overachiever and publically praised on the provincial level for raising its energy consumption performance to international standards.

The company continued to intensify its energy-saving efforts in 2018. Energy efficiency was markedly improved through measures such as raising the vapor generation ratio of alkali recycling alkali recycling boilers, improving the efficiency of the multi-fuel boilers, multipurpose utilization of waste biomass, and optimizing operations and management of the machine set. This led to a reduction of 60 tons on average in the daily consumption of standard coal, equivalent to 21,900 tons in annual savings.

Promoting Use of Clean Energy

Methane is emitted during the treatment of wastewater. An excellent form of clean energy, the calorific value of methane at 1 cubic meter is equivalent to that of 1 kg of standard coal. How to transport methane to the power plant to replace coal was an important question to consider as Ningbo mill attempted to modify its processes in 2018. Drawing on repeated discussions, the company independently designed the gas transmission pipeline while having a number of electromechanical devices as installed such as induced draft fan (IDF), configuration cabinet, and frequency transformer, thus enabling the said transportation. The program helped save 3,360 tons in annual coal consumption and reduced annual costs by RMB 51 million.

Providing Shore-side Power Services for Ships at Berth

The growing cargo handling capacity of ports has led to an increasing number of ships at berth and consequently a surge in air pollutants for burning fuels at berth. Gold East Paper actively answered to national and local calls for port enterprises to accelerate the construction of shore-side power facilities and had the Gold East Pier Shore Power project filed in June 2017. The company worked for over 300 days and successfully designed a high and low voltage hybrid frequency conversion shore-side power system in 2018 that could power ships of any power utilization mode, thus eliminating air pollution emissions for ships at berth.

Strengthening Waste Management

Circular economy is an important means of properly handling waste. “Reduce, Reuse, and Recycle” is highly conducive to decreasing the harmful effects of economic activities on the environment. APP China mills have formulated the Solid Waste Management Procedures clearly specifying the types and disposal methods of waste.

Waste generated during manufacturing usually includes woodchips, small wood chunks, pulp residuals, waste pulp boards, sludge cakes, green mud, white mud, coal ash, etc. Over time, we have come up with a rich selection of circular economy models for waste management based on the “Reduce, Reuse, and Recycle” approach.

In terms of reducing, Hainan Jinhai Pulp & Paper managed to reduce the production of green mud by 41,055 tons in 2018 compared with 2017 thanks to optimized manufacturing technologies and processes.

In terms of reusing, Gold East Paper and Ningbo Asia replaced calcium carbonate with sludge cakes generated at the water waste treatment plant for boiler flue gas desulfurization; Guangxi Jingui Pulp & Paper and Gold East Paper practiced cross-plant recycling and reuse of pallets, which led to wood savings and cost reductions.

Hainan Jinhai Pulp & Paper sent green mud, fly ash, and bottom ash to cement plants, where green mud was used as a raw material regulator and fly ash and bottom ash were used as construction materials.
Production Safety

Production safety relates to workers’ physical safety and the smooth running of the production process and is one of the main pillars of a company’s sustainable development. APP China continuously improves its safety management and is committed to creating a zero-accident production environment. Besides continual efforts to optimize safety management systems and institutions, we conducted thorough hidden hazard screening and elimination as well as safety drills. In 2018, the lost hours per million working hours at APP China further decreased and the hazard correction rate of all the mills stood above 98%, reaching 100% at Ningbo Asia, Ningbo Zhonghua, and Guangxi Jingui Pulp & Paper; we conducted 327 safety drills.

At the same time, we continued to drive a greater awareness of safe production among all our employees through a rich variety of activities such as knowledge screenings and elimination as well as safety drills. In 2018, the lost hours per million working hours at APP China further decreased and the hazard correction rate of all the mills stood above 98%, reaching 100% at Ningbo Asia, Ningbo Zhonghua, and Guangxi Jingui Pulp & Paper; we conducted 327 safety drills.

Contractor safety management is also an important part of our production safety efforts. As we outsource more work from our mills, safety risks resulting from ‘unsafe human behaviors’ have increased as well. This is why we have been intensifying contractor safety management over the last few years. Contractor safety meetings are held regularly at each mill to ensure reinforced safety training among contractors, especially new contractors, and educate participants on national laws and regulations, company policies, safe operating standards, accidents, and other contents; we implemented effective safety management and supervision by signing the Safety Liability Agreement with our contractors, laying down specific punishment measures, and conducting regular safety inspections, among other methods.

Promoting Second-degree Production Safety Standardization Among Paper Manufacturers

In 2018, our Ningbo mill initiated efforts to build itself into a second-degree production safety standardization company to further improve safety management and build a stronger foundation for sustainable development. The company revised and/or newly formulated over 50 systems and standards, making major optimizations regarding issues such as hidden safety hazard screening and handling, re-identification and classified management of hazard sources, safety inspections, contractor safety management procedures and evaluation. The company fulfilled all the production safety targets in 2018.

<table>
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<th>Years</th>
<th>Injuries per Thousand People (%)</th>
<th>Serious Injuries (%)</th>
<th>Lost Time per Million Working Hours (%)</th>
<th>Hazard Correction Rate (%)</th>
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</table>

Responsible Procurement

The procurements at APP China mainly include key raw materials such as chemical preparations, woodchips, wood pulp, waste paper, and starch, energy sources such as coal, electricity, and natural gas, and projects such as technological services and equipment manufacturing. We embed sustainability fully into our procurement processes and actively push our suppliers to perform their responsibilities. We continuously optimize our supplier management policies and systems and regularly educate our suppliers about our procurement policies and requirements to make sure that they understand our sustainability philosophy and work to improve their own sustainability management during our cooperation.

Procurement Management

Our Supplier Relationship Management (SRM) platform became officially operational. The platform has enabled whole-life-cycle online procurement management and further standardized the operations of both parties and guarantees greater promptness and accuracy of business progression. Meanwhile, we have included more sustainability-related elements and requirements in our supplier selection and retention systems to push our suppliers to give weight to and actively perform their social responsibility. In 2018, there were zero incidents of supplier contract termination due to major negative social impact.

Strengthening Social Responsibility Requirements in Supplier Access Procedures

For registration, we require suppliers to provide information on technological and quality management, health, safety, and environmental protection besides their operations and financial status.

We sign the CSR Statement and Commitment Form with our suppliers without exception, requiring them to make commitments in areas such as complying with business ethics, respecting human rights, protecting environment and intellectual property rights, and producing positive impact on the community.

We encourage our suppliers to obtain certifications for the ISO 9001 Quality Management System, the ISO 14001 Environmental Management System, the OHSAS 18001 Occupational Health and Safety Management System, and the SA8000 Social Accountability Certification and to adopt the Green Product Management System as endorsed by APP China mills.

Introducing Supplier Risk Evaluation Mechanism

We have embedded a supplier risk evaluation mechanism in our SRM platform, ranking risks as low, medium, and high, which are assigned automatically by the system once relevant information is keyed in. We would start a manual risk determination procedure for high-risk suppliers to decide whether to work with them or not.
Adding Social Responsibility-related Terms in Contract

We have included terms concerning the environment and human rights in our supplier contract. They include complying with the highest environmental protection regulations laid down in national and local policies and with occupational safety and health regulations specified by the International Labor Organization and in national and local policies, eliminating forced labor of any kind, prohibiting discrimination in employment and the workplace, and endorsing and respecting the United Nations Universal Declaration of Human Rights.

Creating Supplier Blacklist System

We have created a supplier blacklist system, blacklisting suppliers who act in violation of the company’s relevant requirements and ending all engagements with them.

Responsible Sourcing

We seek to actively communicate with our pulp suppliers, encouraging them to obtain pulp certification as well as forest certification for their supplies, and prioritize procurement of certified pulp. As of 2018, we had 31 pulp suppliers from around the globe, and certified pulp accounted for 14.23% of our total pulp procurement.

To ensure compliance of the raw materials, we require suppliers to sign a statement committing to noncontroversial sourcing, timely access to raw material information for their customers, and permission for customers or designated third parties to examine their supply chain to prevent controversial raw materials from entering our supply chain.

Promoting Metal Content Testing Among Pulp Suppliers

The safety of food packaging paper has become an issue of great concern as it gets widely used today. Pulp contains metals such as copper, iron, and manganese, and they pose quality and safety threats at a certain concentration. In 2018, we urged a supplier from Chile to send their pulp samples for metal content testing at an authoritative third-party agency, thereby guaranteeing the safety of our procurement. We also managed to raise our suppliers’ concern for the safety of food-grade product raw materials. By obtaining the certification, our suppliers also won over more opportunities for their products to be consistently used.

Development with Employees

Viewing employees as the most important asset underpinning a company’s path to excellence, APP China is committed to creating broad prospects for the employees and foster their growth with the company. We provide well-developed career paths to help our employees unleash their potential. We respect our employees’ rights and interests and take actions to safeguard their health and safety. We care about our employees’ personal wellness and organize a rich variety of support activities to make them feel at home.

Enriching Career Development Resources

Building APP Corporate University

Online training is an important part of APP Corporate University. In May 2018, we officially kicked off the development and construction of the APP online learning management platform, allowing our employees to access high-quality training in a more flexible and independent way. The platform provides a number of study sections such as management, professional skills, corporate culture, case study, and MBOS and hundreds of courses that are continually renewed and enriched.

APP Corporate University also provides a variety of offline training to meet the diversified needs of employees of different levels and roles for competency building. In December 2018, APP Corporate University entered a team of senior executives in the benchmarking training at Huawei, where they took courses like Core Values, Change Management, and Human Resources Value Chain Management. APP Corporate University plans to offer themed training in 2019 designed for managers, supervisors, high-performance employees, and other groups.

Role-based Technical Competency Model Certification

We have been implementing Group-wide role-based technical competency models since 2016. They cover a number of departments such as manufacturing, engineering, technology, and energy, facilitating the matching between our employees and the competencies consistent with their roles and boosting their continuous growth at work.

In 2018, APP China mills conducted technical competency model certification. A total of 1,660 employees from Ningbo Asia and Ningbo Zhonghua participated, with 167 obtaining the “Advanced Technical Expert” certification and 69 obtaining the “Technical Expert” certification.
Cultivating Internal Trainers

We place great importance on the cultivation of internal trainers. For one thing, training courses developed by internal personnel are more targeted and flexible, and thereby more effective. For the other, encouraging employees to participate in preparing and giving the lectures is a great way to fully stimulate their initiative and creativity.

At the headquarters, we invited senior external trainers to offer training on Classroom Presentation and Lecturing Techniques to employees aspiring to become classroom presentation specialists. At the headquarters, we invited senior external trainers to offer training on Classroom Presentation and Lecturing Techniques to employees aspiring to become classroom presentation specialists. Giving the lectures is a great way to fully stimulate their initiative and creativity.

We place great importance on the cultivation of internal trainers, markedly improving the participants’ presentation skills. Suzhou Gold Hongye conducted the “Cheer for Us” Teachers’ Day event, selecting and awarding outstanding internal trainers, hosting exchange and sharing sessions on talent cultivation, and encouraging more employees to participate in this initiative.

Ningbo Asia and Ningbo Zhonghua: Organizing Management Trainee Training Camp

To help fresh graduates better adjust to life in the workplace and master hands-on work skills, Ningbo Asia and Ningbo Zhonghua jointly organized a two-month management trainee training camp. Besides centralized face-to-face training and rotational training, there was also a rotational internship MBOS contest. The trainees were invited to the employees’ seminars so they could share their ideas, views, and suggestions in terms of employee training, career planning, company development and management, etc. The information was then fed back to relevant departments as an important reference for making improvement.

Suzhou Gold Hongye: Organizing Employee Training Camp

Suzhou Gold Hongye organized training camps specially designed for the Human Resources Department, the Accounting Department, and the Supply Chain and Logistics Department respectively. The lessons were given by senior departmental supervisors, outstanding experts, and external trainers. Focus areas in daily management and operational procedures were sorted and taught in the form of specialized training and team building, and the employees were encouraged to exchange ideas about the key issues in their day-to-day work. Nearly 200 employees took an active part in the specialized training camp.

Safeguarding Employees’ Rights and Interests

APP China strictly abides by the Labor Law of the People’s Republic of China, the Labor Contract Law of the People’s Republic of China, the Provisions on Collective Contracts, the Special Provisions on Labor Protection of Female Employees, and other national laws and regulations. The company is committed to diversity and non-discrimination in hiring and prohibits the use of child and forced labor. It ensures equal pay for equal work and provides competitive remuneration that is regularly optimized and adjusted in line with the company’s status of operations and the market rates.

We pay for the various types of social insurance including pension insurance, unemployment insurance, medical insurance, work-related injury insurance, and maternity insurance, and housing funds for all our employees across the country as required by law. We buy commercial insurance for our employees and offer perks such as high-temperature subsidies and physical exams.

We respect our employees’ right to freedom of association and collective bargaining. In 2018, 100% of the employees from Ningbo Asia, Ningbo Zhonghua, Gold Huasheng, Suzhou Gold Hongye, and Gold East Paper were covered by a collective bargaining agreement. We host employees’ communication meetings on a regular basis to learn about the difficulties they encounter in life and work as well as their suggestions or views as regards company management. We use their feedback to inform implementation plans or improvement measures in relevant departments and publicly display the work progress to all our employees.

Caring for Employees

Physical and mental health and a harmonious family are the premise of committed, happy workers. We make a point of fostering work-life balance for our employees and help improve their physical well-being through competition by organizing team sports events such as sports meets and tug-of-war contests, we host a rich variety of culture and entertainment activities and send wishes to our employees on festivals such as the Lantern Festival and the Dragon Boat Festival; we regularly have the family Open Day to allow our employees’ families to learn about their work environment at close range and foster greater understanding and tolerance at home.
The primary causes of occupational diseases in the pulp & paper sector are noise, dust, and high temperature. Adhering to the human-centric approach, we have established a comprehensive occupational health and safety management system. We take measures to guarantee the health and safety of our employees. They include increasing investment in protective gears, monitoring risk and hazard factors for occupational diseases, mitigating potential safety hazards, providing health and safety training as well as occupational medical exams before, during, and after employment.

Supporting the Education of Employees’ Children

Children’s education is a family’s top concern. To assist employees in this matter, Ningbo Zhonghua, Ningbo Asia, Hainan Jinhai Pulp & Paper, Gold East Paper, and other APP China affiliates have all set up a scholarship/grant system dedicated to employees’ children. Scholarships/grants are given to children who demonstrate excellence in both conduct and academic studies, achieve outstanding grades in science, technology, and art, and come from financially stressed families to encourage them to be fully devoted in school.

Raising Awareness of Occupational Diseases

To protect employees from occupational diseases, Hainan Jinhai Pulp & Paper joined hands with Yanggu Safety Supervision Bureau, Yanggu Labor Union, Yanggu Center for Disease Control and Prevention, Yanggu Social Insurance Administration, and other units in May 2018 to implement awareness raising campaigns. The campaigns were designed to vividly educate all employees on the Law of the People’s Republic of China on the Prevention and Control of Occupational Diseases and share knowledge of occupational disease prevention and control through consulting, prize quizzes, and videos. The campaigns enriched the employees’ knowledge of occupational disease prevention and control and ways to protect themselves at work.

Harmonious and Better Communities

Participating in public welfare causes and giving back to society are the responsibilities bestowed upon every corporate citizen. Fully applying its expertise as a pulp & paper company, APP China continuously organizes professional educational activities for the general public to facilitate the inheritance of papermaking culture and instill new life in the papermaking industry. We organized a variety of programs and events and engaged in public welfare causes in environmental protection, education, poverty alleviation, and other areas. We encouraged and supported our employees in participating in charitable activities to contribute to the construction of better communities.

Carrying Forward Papermaking Essence

Cultivating Papermaking Talents

APP China launched the “Dream Plan” educational assistance program in 2018. The program funds academically outstanding students in remote, impoverished areas and is designed to cultivate pulp & paper talents in partnership with professional colleges. It is a three-year program where all tuition and accommodation fees are paid by APP China, supplemented with monthly living allowances and job opportunities provided upon graduation.

Under the “Dream Plan”, two APP classes have been set up in China. One class features the Electrical Automation major of Guangxi Vocational & Technical Institute of Industry, with pulp & paper related classes taught jointly with the College of Light Chemical Engineering and Food of Guangxi University, the other class features the Mechatronics major of Nantong Vocational University, with pulp & paper related classes taught jointly with the Zhejiang University of Science & Technology. Regularly, the students are sent by the school on study tour to APP China mills and participate in on-the-job practice. The two classes currently contain 45 students and are running smoothly.

In the future, the “Dream Plan” will be brought to places like Guangxi, Guizhou, and Yunnan to provide training opportunities for more impoverished students.
Offering Educational Classes on Papermaking

APP China mills have designed a number of educational classes on papermaking centered around paper culture, and they have been well received in society. By taking part in those activities, an increasing number of students have gained a renewed understanding of the modern papermaking industry in China and the environmentally friendly practices adopted therein.

Ningbo Asia has developed a series of creative classes such as papermaking, papermaking with petals, pulp handicraft, and pulp drawings and hosted 18 practice classes on papermaking in a number of schools in Ningbo. As the base for middle school and primary school quality education in Suzhou, Gold Huasheng is a long-standing organizer of cultural paper experience station events. The experience station received 119 batches of students in 2018, totaling 2,189 person-times. On the World Environment Day, Guangxi Jingui Pulp & Paper gave a lecture on traditional and modern papermaking technologies to students from Qinzhou Port Economic and Technological Development Zone No.5 Primary School and encouraged them to develop habits of saving paper and protecting the environment in their day-to-day life.
Community Outreach Events

Supporting Education

The High-school Scholarship program (also called Yicong Scholarship) is jointly established by APP China and the Huang Yicong Charitable Foundation. The program has been undertaken in seven high schools in Guangxi and Gansu since 2011, offering scholarships to 355 students.

In 2018, the scholarship-winning senior high students, 58 in total, achieved good grades in the college entrance examination, with 53 enrolled by 985 or 211 universities, including nine by Tsinghua University, ten by Peking University, two by Fudan University, and two by Shanghai Jiao Tong University.

To equip students with a broader horizon and stronger capabilities, the Huang Yicong Charitable Foundation has been organizing the Yicong Capability Building Summer Camp by Shanghai Jiao Tong University. Participation of the general public is indispensable to public welfare undertakings. APP China endorses "public welfare by all" and strives to realize such a vision by organizing a rich variety of engagement activities.

Endorsing Public Welfare by All

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Public Welfare Community Photography Exhibition

The Huang Yicong Charitable Foundation started to work with nonprofit organizations in 2016 to jointly host normalized public welfare photography exhibitions. This is done in the hope to accentuate the vitality of vulnerable, grassroots figures by photographic means to rally wider social support for public welfare causes.

In 2018, the Foundation worked actively to boost public participation. In partnership with Sanlitin Street of Shanghai Pudong New Area and Wujiachang Street of Kangxi District, the Foundation hosted the "Harmonious Charity Home" public-welfare community photography contest and community photography exhibition. A total of 169 photographs were submitted, with 38 standing out and selected in the end. It was a lively event that involved the active participation of community residents.

Supporting Volunteer Teaching in Rural Areas

In August 2018, Hainan Jinsha Pulp & Paper funded the "Yangpu Warming Villages" university student volunteers’ team in offering volunteer teaching in rural areas. The team combined classic classes, such as mathematics, Chinese Language and Literature, English, and natural science, with feature classes such as music, PE, arts, calligraphy, handcraft, psychology, safety, and sanitation. They made the lectures entertaining, lively, innovative, and very popular with the kids.

Since the volunteer teaching first started in 2010, Hainan Jinsha Pulp & Paper has offered strong support to the team every year to help improve the education in rural areas.

Warming Activity at the Laba Festival

January 24, 2018 was the traditional Chinese Laba Festival. Ningbo Asia and Dongsheng Community jointly organized the "Sending Warmth on Laba" event. Company volunteers gave out freshly cooked Laba congee to neighboring residents. There were over 90 seniors living alone in Dongsheng Community, and considering their limited mobility, the volunteers sent the congee to their doors and helped them put up couplets to make them feel the festive happiness.

Endorsement of "Public Welfare by All"

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"Walking with Light" Charity Walk

In partnership with the Shanghai Magnolia Plaza, the Huang Yicong Charitable Foundation invited APP China employees and their families to take part in the "Walking with Light" charity walk. For every kilometer that the volunteers finished, the Foundation matched with RMB10. All of the donations went to the Alzheimer’s program at the Shanghai Jian’ai Charity Development Center to help people with cognitive impairment.

After the walk, the Jian’ai Charity Development Center hosted the "Getting to Know Cognitive Diseases" lecture for the volunteers to help them gain an in-depth knowledge of cognitive impairment and the right ways to help those affected. At the lecture, they also learned how to help elderly people take early-stage cognitive impairment seriously and stay open for intervention.

Breeze™ Family Series Products Supporting Charity Run

As the partnership brand, Breeze™ supported the United Overseas Bank (UOB) "Benevolence Charity Run/Walk" event organized by the China Business Network (CBN) in July 2018. The event raised nearly RMB420,000 in charity fund by means of sports, donations, and charity bazaar and involved the participation of 17,000 person-times. The donations were intended to support the education of impoverished children.

Encouraging Volunteer Services

We have established a volunteer management mechanism and work to continuously improve it. We encourage our employees to participate in volunteer services to provide assistance for people in need. In 2018, APP China conducted a variety of volunteer activities, with employeesclocking 31,014 hours of volunteer time in total.

Everyone is a Volunteer

Gold East Paper independently developed the volunteer management system, digitizing the entire process from volunteer enrollment to information feedback. The company has drawn up a series of incentivizing measures; for example, at the year-end commendatory meeting, it awarded departments and individual employees that had been actively involved in volunteer activities. The culture of volunteerism has been well broadcast thanks to sound management and implementation of the incentivizing mechanisms.

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Waste paper recycling not only can help reduce logging of old-growth forests and curtail greenhouse gas and pollutant emissions but accords with the attribute of paper for being naturally recyclable as well. With the mission of implementing a green cycle, we partnered with the third-party nonprofit organization Green Initiatives and launched the waste paper recycling program "Paperback" in 2018, intending to lead a wider dissemination of the idea of waste paper recycling and correct garbage sorting knowledge. APP China Ningbo Asia is in charge of remanufacturing the waste paper recycled from the program.

We have placed 19 waste paper recycling bins at APP China headquarters and hosted a number of promotional events and awareness campaigns. At the "Paperback" program launch, experts from Green Initiatives explained in detail to nearly 100 APP employees how to distinguish between recyclable and non-recyclable paper to help them sort waste paper more accurately. At the Changning District Garbage Sorting Volunteers Team Founding Ceremony/the first Got Sorting Talent launch event, the head of the "Paperback" program gave a detailed presentation on its implementation and demonstrated the low-carbon environmental protection concepts that we endorsed.

As of the end of 2018, three enterprises and two schools had taken part in the program, sending 4.47 tons of recycled waste paper to Ningbo Asia for remanufacturing. In the future, we will mobilize the participation of more enterprises, schools, and other external stakeholders in the "Paperback" program and engage more people in waste-paper recycling efforts, contributing to a beautiful China.
Sustainability Management

Building a Culture of Compliance

Integrity Management

"Integrity and Commitment" is the cornerstone of APP corporate culture system and is fundamental for maintaining the company’s core competitive advantages. We officially introduced the APP China Integrity Management Framework in 2018. We will use the framework as the guidance as we provide thorough anti-corruption training for employees at all position levels, perform risk assessment and due diligence on our projects and business partners, implement corrective measures against non-compliance risks, and follow up the improvement actions of relevant business departments.

We have optimized the supplier and customer risk evaluation and compliance procedures to make them more objective, systematic, and standardized. On the customer front, we have intensified basic information collection to better manage conflicts of interest and fraud risks. On the supplier front, we have established a standardized evaluation procedure consisting of three risk control lines of quality, compliance, and audit. We perform an independent due diligence investigation regarding suppliers evaluated as high-risk.

We have also set up a monitoring system control center at Hainan Jinhai Pulp & Paper and optimized the monitoring system in our offices in places like Tianjin, Beijing, and Shanghai. This facilitates the real-time safety monitoring of each operations stage and management of daily work at our mills and offices and prevents non-compliances from happening.

Enhancing Integrity and Compliance Awareness

We ensure that all the employees are instructed in our anti-corruption policies through regular internal emails, the Integrity Monthly, face-to-face lectures, Q&A on APP Corporate University and APP WeChat Account, and other methods.

In the first Integrity Month, we organized a series of educational activities including group discussions, guest lectures, and case sharing sessions. 549 director-level employees participated in physical classes, around 6,000 employees watched the lectures online, and 8,546 employees participated in the online integrity test. Additionally, 177 suppliers took part in our integrity awareness raising training and signed the integrity commitment form.

We publicize the reporting and rewarding measures through multiple channels, encouraging our employees and the wider society to report unethical conducts. Our ethics reporting channel allows both APP employees and external personnel to file reports via email (GRW@app.com.cn) or hotline (021-22839763) on conducts like malpractice, corruption, theft, fraud, counterfeiting, commercial bribery, and conflict of interest.

Sustainability Strategy and Management

In 2012, APP announced the Sustainability Roadmap Vision 2020, laying down specific sustainability targets in ten key areas, namely climate change, emissions, solid waste, reforestation, water management, conservation & biodiversity, fiber sourcing, employee welfare, community empowerment, and human rights & indigenous people. At present, most of the targets have been achieved or are making steady progress.

APP China actively promotes and deepens practices under the sustainability strategy and will further clarify sustainability planning based on the sustainability targets beyond 2020 currently being developed.

Strategic Areas and Action Directions for APP China Sustainability

<table>
<thead>
<tr>
<th>Strategic Areas</th>
<th>Action Directions</th>
<th>United Nations Sustainable Development Goals (SDGs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable forest management</td>
<td>• Forest certification</td>
<td>• Forest conservation policy</td>
</tr>
<tr>
<td></td>
<td>• Forest and local community and government</td>
<td>• Forest and local community and government</td>
</tr>
<tr>
<td>Responsible supply chain</td>
<td>• Supplier code of conduct and responsibility requirements</td>
<td>• Supplier code of conduct and responsibility</td>
</tr>
<tr>
<td></td>
<td>• Relationship with partners and NGOs</td>
<td>• Supplier code of conduct and responsibility</td>
</tr>
<tr>
<td>Responsible manufacturing</td>
<td>• Occupational health and safety</td>
<td>• Occupational health and safety</td>
</tr>
<tr>
<td></td>
<td>• Energy saving and emission reduction</td>
<td>• Energy saving and emission reduction</td>
</tr>
<tr>
<td></td>
<td>• Carbon credits/carbon neutrality</td>
<td>• Carbon credits/carbon neutrality</td>
</tr>
<tr>
<td>Sustainable consumption</td>
<td>• Sustainability education for consumers and customers</td>
<td>• Sustainability education for consumers and customers</td>
</tr>
<tr>
<td></td>
<td>• Green, high-quality products</td>
<td>• Green, high-quality products</td>
</tr>
<tr>
<td></td>
<td>• Cooperation with government and media relations</td>
<td>• Cooperation with government and media relations</td>
</tr>
<tr>
<td>Recycling and reuse</td>
<td>• Waste materials, water, and energy generated during manufacturing</td>
<td>• Waste materials, water, and energy generated</td>
</tr>
<tr>
<td></td>
<td>• Recycling and reuse of finished products after consumption</td>
<td>• Recycling and reuse of finished products after</td>
</tr>
<tr>
<td></td>
<td>• Treatment of unrecycled waste paper and materials</td>
<td>• Treatment of unrecycled waste paper and materials</td>
</tr>
</tbody>
</table>
CFCC/PEFC FM Certification at APP China

<table>
<thead>
<tr>
<th>No.</th>
<th>APP China Forestry Companies</th>
<th>Certified areas (hectares)</th>
<th>CFCC/PEFC FM Certificate No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heyuan Jinmei Science &amp; Technology Forestry Co., Ltd.</td>
<td>3,066.63</td>
<td>CFCC/PEFC-FM-ZTFC-000030</td>
</tr>
<tr>
<td>2</td>
<td>Leizhou Jin-Taoyang Science and Tech Forestry Ltd.</td>
<td>746.97</td>
<td>CFCC/PEFC-FM-ZTFC-000030</td>
</tr>
<tr>
<td>3</td>
<td>Yangjiang Jin-Taoyang Science and Tech Forestry Ltd.</td>
<td>2,456.91</td>
<td>CFCC/PEFC-FM-ZTFC-000030</td>
</tr>
<tr>
<td>4</td>
<td>Guangxi Jin Gui Forestry Co., Ltd.</td>
<td>42,873.90</td>
<td>CFCC/PEFC-FM-ZTFC-000005</td>
</tr>
<tr>
<td>5</td>
<td>Hainan Jinhua Forestry Co., Ltd.</td>
<td>68,583.00</td>
<td>CFCC/PEFC-FM-ZTFC-000003</td>
</tr>
<tr>
<td>6</td>
<td>Simao Jin Lancel High-Yield Forestry Co., Ltd.</td>
<td>42,612.60</td>
<td>CFCC/PEFC-FM-ZTFC-000018</td>
</tr>
<tr>
<td>7</td>
<td>Guangxi Jin Qizhou High-Yield Forestry Co., Ltd.</td>
<td>44,076.10</td>
<td>CFCC/PEFC-FM-ZTFC-000006</td>
</tr>
<tr>
<td>8</td>
<td>Jin-Qingyuan Timberland (Paper Mill) Ltd.</td>
<td>11,072.00</td>
<td>CFCC/PEFC-FM-ZTFC-000007</td>
</tr>
<tr>
<td>9</td>
<td>Jin Shangzou First Quality Timberland (Paper Mill Ltd.)</td>
<td>14,240.00</td>
<td>CFCC/PEFC-FM-ZTFC-000008</td>
</tr>
<tr>
<td>10</td>
<td>Wenshan Jin Wenshan High-Yield Forestry Co., Ltd.</td>
<td>19,642.50</td>
<td>CFCC/PEFC-FM-ZTFC-000017</td>
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<tr>
<td>11</td>
<td>Guangxi Xing Gui Forest Co., Ltd.</td>
<td>3,820.40</td>
<td>CFCC/PEFC-FM-ZTFC-000031</td>
</tr>
<tr>
<td>12</td>
<td>Guangxi Jin-taoyang Forestry Technology Co., Ltd.</td>
<td>1,389.00</td>
<td>CFCC/PEFC-FM-ZTFC-000031</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>254,660.01</td>
</tr>
</tbody>
</table>

PEFC CoC Certification at APP China

<table>
<thead>
<tr>
<th>No.</th>
<th>APP China Affiliates</th>
<th>Certificate No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gold East Paper (Jiangsu) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001032</td>
</tr>
<tr>
<td>2</td>
<td>Gold Huaxiang Paper (Shizhu Industrial Park) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001026</td>
</tr>
<tr>
<td>3</td>
<td>Ningbo Zhonghua Paper Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001010</td>
</tr>
<tr>
<td>4</td>
<td>Ningbo Asia Pulp and Paper Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001056</td>
</tr>
<tr>
<td>5</td>
<td>Hainan Jinhai Pulp &amp; Paper Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001002</td>
</tr>
<tr>
<td>6</td>
<td>Gold Hongye Paper Group Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001010</td>
</tr>
<tr>
<td>7</td>
<td>Hainan Gold Hong Ye Paper Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001063</td>
</tr>
<tr>
<td>8</td>
<td>Ningbo Hongye Trading (Hong Kong) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001063</td>
</tr>
<tr>
<td>9</td>
<td>Guangxi Jingul Pulp &amp; Paper Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-001003</td>
</tr>
<tr>
<td>10</td>
<td>Hainan Jinhai Trading (Hong Kong) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-000017</td>
</tr>
<tr>
<td>11</td>
<td>Gold East Trading (Hong Kong) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-0049</td>
</tr>
<tr>
<td>12</td>
<td>Gold Shengpu Paper Products (Suzhou Industrial Park) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-000017</td>
</tr>
<tr>
<td>13</td>
<td>Yanggu Paper Products (Kunshan) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-000017</td>
</tr>
<tr>
<td>14</td>
<td>Gold Huaxiang Trading (Hong Kong) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-0049</td>
</tr>
<tr>
<td>15</td>
<td>Sinar Mas Paper (Shenzhen) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-0049</td>
</tr>
<tr>
<td>16</td>
<td>Ningbo Yangtai Trading (Hong Kong) Co., Ltd.</td>
<td>SGS-CFCC/PEFC-COC-0049</td>
</tr>
</tbody>
</table>

2018 Sustainability Management System Certification at APP China

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold Huaxiang</td>
<td>Periodic audit</td>
<td>Periodic audit</td>
<td>Periodic audit</td>
<td>Periodic audit</td>
</tr>
</tbody>
</table>

Stakeholder Engagement

Drawing on an array of interviews, communication, and information, we have identified ten key stakeholder groups. On an irregular basis, each of our functional departments engages directly and maintains close contact with a range of stakeholder groups through varied channels during their daily operations. They manage to respond promptly to stakeholder expectations and concerns and continuously improve their management and practices in this process.

We visited industry associations on many occasions in 2018, when we had in-depth communication on issues such as the establishment and optimization of waste paper recycling system in China, implementation of national environmental policies, and industry self-discipline. We provided our own practice and individual experience, among other contents. On average, we published 10 articles every month on our WeChat account to share our latest practices and industry knowledge.

Besides materiality surveys, we also invited experts from environmental government agencies, domestic environmental organizations, colleges and universities, and third-party consultancies during the report preparation to have in-depth communication and discussions on the company’s sustainability strategy and key practices.
Stakeholders

Top 5 Concerns

• Occupational health and safety
• Product quality and safety
• Environmental compliance
• Air pollutant emissions
• Employment

• Product quality and safety
• Customer service quality
• R&D and innovation
• Environmental compliance
• Compliance and risk management

• Economic performance
• Compliance and risk management
• Economic performance
• Product quality and safety
• Compliance and risk management

• Environmental compliance
• Air pollutant emissions
• Waste management
• Promoting regional development
• Greenhouse gas emissions

• Community relationship
• Environmental compliance
• Water resources management
• Waste management
• Sustainable forest management

• R&D and innovation
• Water resources management
• Air pollutant emissions
• Sustainable forest management
• Waste management

• Water resources management
• Environmental compliance
• Air pollutant emissions
• Waste management
• Communication on specific topics

• Product quality and safety
• Environmental compliance
• Greenhouse gas emissions
• R&D and innovation
• Water resources management

Engagement Channels

• Company intranet
• Internal corporate magazine
• Employee representative meetings
• Employee communication meetings

• Customer visits
• Engagement meetings/activities
• Satisfaction surveys
• Customer service hotline/mail

• Supplier meetings
• Contractor meetings
• Cooperative R&D mechanism

• Government communication meetings
• Governmental inspection and supervision
• Information disclosure and reporting

• Daily visits
• Community opinion processing and feedback
• Community representatives’ supervision and engagement
• Community outreach activities

• Industry communication meetings
• Regular visits
• Industry exhibitions and forums

• Cooperative R&D mechanism
• Talent cultivation
• Company website

• Communication on specific topics
• Work cooperation
• Sustainability reports
• Company website

• Media coverage
• Participation in meetings and forums
• Press conferences
• Company website

Materiality Analysis

Drawing reference from the GRI Standards, the Global Compact Ten Principles, key industry sustainability issues, and the latest national and industry policies, we identified 23 issues closely related to the company’s development. Compared to 2017, the major changes in materiality include the addition of “biodiversity” “customer service quality” and “community relationship” and the deletion of “customer relationship management,” other than the merging of certain issues, such as the inclusion of “diversity and equal opportunity” in “employment,” no significant changes have taken place in issue boundaries. We conduct online and offline surveys every year regarding the significance of the issues to stakeholders. A total of 765 valid questionnaires were collected in 2018. The issues have been arranged in order of materiality based on discussions with internal and external experts.
Performance in Numbers

Economic performance

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>RMB100 million</td>
<td>1,726</td>
<td>1,582</td>
<td>1,658</td>
</tr>
<tr>
<td>Total taxes paid</td>
<td>RMB100 million</td>
<td>30</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Sales revenue</td>
<td>RMB100 million</td>
<td>590</td>
<td>503</td>
<td>474</td>
</tr>
<tr>
<td>Total profit</td>
<td>RMB100 million</td>
<td>30</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Net profit</td>
<td>RMB100 million</td>
<td>23</td>
<td>26</td>
<td>24</td>
</tr>
</tbody>
</table>

Indirect economic impact

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee volunteer time</td>
<td>Hours</td>
<td>31,018</td>
<td>26,645</td>
<td>33,784</td>
</tr>
<tr>
<td>Donations</td>
<td>RMB10,000</td>
<td>2,610</td>
<td>1,869</td>
<td>1,327</td>
</tr>
</tbody>
</table>

APP China sources of pulp procurement

<table>
<thead>
<tr>
<th>Region</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>23.3%</td>
<td>27.0%</td>
<td>28.9%</td>
</tr>
<tr>
<td>South America</td>
<td>2.8%</td>
<td>3.9%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Europe</td>
<td>1.1%</td>
<td>2.2%</td>
<td>1.0%</td>
</tr>
<tr>
<td>South Africa</td>
<td>22.7%</td>
<td>23.2%</td>
<td>19.5%</td>
</tr>
<tr>
<td>China</td>
<td>49.4%</td>
<td>43.4%</td>
<td>45.9%</td>
</tr>
<tr>
<td>Oceania</td>
<td>0.1%</td>
<td>0.3%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

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

Materials

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total volume of pulp purchased</td>
<td>10,000 tons</td>
<td>534.38</td>
<td>573.25</td>
<td>540.97</td>
</tr>
<tr>
<td>Total volume of certified pulp purchased</td>
<td>10,000 tons</td>
<td>76.07</td>
<td>98.71</td>
<td>92.64</td>
</tr>
<tr>
<td>Proportion of certified pulp in total pulp purchased</td>
<td>%</td>
<td>14.23</td>
<td>17.22</td>
<td>17.12</td>
</tr>
<tr>
<td>Proportion of certified wood fiber in total wood fiber purchased</td>
<td>%</td>
<td>17.45</td>
<td>16.90</td>
<td>21.91</td>
</tr>
<tr>
<td>Volume of waste paper purchased</td>
<td>10,000 tons</td>
<td>38.19</td>
<td>44.08</td>
<td>60.72</td>
</tr>
</tbody>
</table>

Energy

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>Tons</td>
<td>5,035,063.85</td>
<td>5,195,476.17</td>
</tr>
<tr>
<td>Gasoline</td>
<td>Tons</td>
<td>581.14</td>
<td>687.30</td>
</tr>
<tr>
<td>Diesel</td>
<td>Tons</td>
<td>10,065.11</td>
<td>8,155.76</td>
</tr>
<tr>
<td>Fuel oil*</td>
<td>Tons</td>
<td>144.35</td>
<td>26,112.59</td>
</tr>
<tr>
<td>Natural gas</td>
<td>10,000 cubic meters</td>
<td>21,859.78</td>
<td>19,400.94</td>
</tr>
<tr>
<td>LPG</td>
<td>Tons</td>
<td>9,126.50</td>
<td>7,350.49</td>
</tr>
<tr>
<td>Kerosene</td>
<td>Tons</td>
<td>2.24</td>
<td>2.09</td>
</tr>
<tr>
<td>Biomass fuel</td>
<td>Tons</td>
<td>240,512.46</td>
<td>272,813.88</td>
</tr>
<tr>
<td>Black liquor from pulp</td>
<td>Tons</td>
<td>2,092,690.55</td>
<td>2,527,691.50</td>
</tr>
<tr>
<td>Solar power generation</td>
<td>10,000 kWh</td>
<td>2,964.05</td>
<td>2,355.62</td>
</tr>
<tr>
<td>Power purchased</td>
<td>10,000 kWh</td>
<td>1,977.17</td>
<td>1,455,013.23</td>
</tr>
<tr>
<td>Steam purchased</td>
<td>GJ</td>
<td>2,455,775.16</td>
<td>1,455,009.24</td>
</tr>
</tbody>
</table>

*The marked decrease in the use of fuel oil resulted from its substitution by natural gas at Hainan Jinko Pulp & Paper.
### Water resources and waste water

#### Indicator: Total water withdrawal
- **Unit:** Tons
- **2018:** 138,935,175
- **2017:** 118,173,907
- **2016:** 124,617,318

#### Indicator: Total waste water discharge
- **Unit:** Tons
- **2018:** 90,057,680
- **2017:** 84,968,795
- **2016:** 91,621,394

#### Indicator: Waste water discharge per ton of paper produced
- **Unit:** Tons
- **2018:** 6.79
- **2017:** 6.36
- **2016:** 12.23

#### Indicator: Waste water discharge per ton of pulp produced
- **Unit:** Tons
- **2018:** 12.68
- **2017:** 13.90
- **2016:** 21.87

#### Indicator: COD emission per ton of paper produced
- **Unit:** kg
- **2018:** 0.23
- **2017:** 0.26
- **2016:** 0.69

#### Indicator: COD emission per ton of pulp produced
- **Unit:** kg
- **2018:** 0.94
- **2017:** 1.99
- **2016:** 3.16

* 95.53% came from surface water, 0.34% from municipal water, 0.12% from recycled rain water, and 0.01% from well water.

#### Water reuse

#### Indicator: Amount of reused water (tons)
- **2018:** 567,192,412
- **2017:** 581,093,529
- **2016:** 598,451,353

#### Air pollutant emissions

#### Indicator: Total SO2 emissions
- **Unit:** Tons
- **2018:** 1,254.11
- **2017:** 2,622.63
- **2016:** 1,892.79

#### Indicator: Total NOx emissions
- **Unit:** Tons
- **2018:** 5,715.42
- **2017:** 6,883.50
- **2016:** 5,374.06

#### Indicator: Total smoke dust emissions
- **Unit:** Tons
- **2018:** 502.62

#### Waste

#### Indicator: General waste generated
- **Unit:** Tons
- **2018:** 1,743,836.25

#### Indicator: General waste disposed of
- **Unit:** Tons
- **2018:** 1,738,064.25

#### Environmental investment

#### Indicator: Environmental investment
- **Unit:** RMB10,000
- **2018:** 64,083.68
- **2017:** 82,593.16
- **2016:** 47,111.28

#### Environmental compliance

#### Indicator: Environmental fines
- **Unit:** RMB
- **2018:** 1,620,000
- **2017:** 977,400

#### Employment

#### Indicator: Number of employees directly employed
- **Unit:** Number
- **2018:** 19,976
- **2017:** 21,746

#### Indicator: Number of male employees directly employed
- **Unit:** Number
- **2018:** 14,507
- **2017:** 15,779

#### Indicator: Number of female employees directly employed
- **Unit:** Number
- **2018:** 5,469
- **2017:** 5,967

#### Indicator: Number of employees indirectly employed
- **Unit:** Number
- **2018:** 1,405
- **2017:** 1,887

#### Indicator: Number of new employees
- **Unit:** Number
- **2018:** 1,514
- **2017:** 2,259

#### Indicator: Number of male employees who retired
- **Unit:** Number
- **2018:** 13
- **2017:** 23

#### Indicator: Number of female employees who retired
- **Unit:** Number
- **2018:** 43
- **2017:** 30

Note: The employment data are within the reporting scope; the notable increase in 2018 turnover was a result of industry management upgrading and the application of AI programs that led to workforce streamlining; other reasons mainly included job transfer and negotiated contract termination. Our employees are notified of major operational changes at least one month in advance as required by the labor contract.
### Employee turnover rate

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee turnover rate</td>
<td>%</td>
<td>16.20</td>
<td>15.77</td>
<td>18.00</td>
</tr>
<tr>
<td>Male employee turnover rate</td>
<td>%</td>
<td>15.38</td>
<td>15.09</td>
<td>16.20</td>
</tr>
<tr>
<td>Female employee turnover rate</td>
<td>%</td>
<td>18.31</td>
<td>17.50</td>
<td>13.40</td>
</tr>
</tbody>
</table>

### Employee retention after maternity/paternity leave

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of female employees who took maternity leave</td>
<td>Number</td>
<td>530</td>
<td>634</td>
<td></td>
</tr>
<tr>
<td>Number of female employees who returned to work after maternity leave</td>
<td>Number</td>
<td>479</td>
<td>568</td>
<td></td>
</tr>
<tr>
<td>Number of male employees who took maternity leave</td>
<td>Number</td>
<td>808</td>
<td>991</td>
<td></td>
</tr>
<tr>
<td>Number of male employees who returned to work after maternity leave</td>
<td>Number</td>
<td>756</td>
<td>943</td>
<td></td>
</tr>
<tr>
<td>Number of male employees who resigned after maternity leave</td>
<td>Number</td>
<td>41</td>
<td>31</td>
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### Employee composition by level

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of senior-level managers</td>
<td>%</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Percentage of middle-level managers</td>
<td>%</td>
<td>10</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Percentage of line-level employees</td>
<td>%</td>
<td>89</td>
<td>90</td>
<td>92</td>
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### Employee composition by gender

<table>
<thead>
<tr>
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<th>Unit</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
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<tbody>
<tr>
<td>Percentage of female employees</td>
<td>%</td>
<td>27.38</td>
<td>27.44</td>
<td>28.10</td>
</tr>
<tr>
<td>Number of female employees in management</td>
<td>Number</td>
<td>560</td>
<td>528</td>
<td>374</td>
</tr>
<tr>
<td>Percentage of female employees in management</td>
<td>%</td>
<td>25.85</td>
<td>24.28</td>
<td>22.50</td>
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### Employee composition by age

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of employees aged 30 and below</td>
<td>%</td>
<td>20.66</td>
</tr>
<tr>
<td>Percentage of employees aged between 31 and 50</td>
<td>%</td>
<td>75.79</td>
</tr>
<tr>
<td>Percentage of employees aged 51 and above</td>
<td>%</td>
<td>3.55</td>
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### Employee training

<table>
<thead>
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<th>Unit</th>
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<th>2017</th>
<th>2016</th>
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<tbody>
<tr>
<td>Total training investment</td>
<td>RMB10,000</td>
<td>523.14</td>
<td>396.50</td>
<td>433.50</td>
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<tr>
<td>Total employee training time</td>
<td>Hours</td>
<td>717,135</td>
<td>762,557</td>
<td>665,563</td>
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<tr>
<td>Number of employees who participated in company-paid diploma programs</td>
<td>Number</td>
<td>78</td>
<td>96</td>
<td>63</td>
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<tr>
<td>Total investment in company-paid diploma programs for employees</td>
<td>RMB10,000</td>
<td>12.77</td>
<td>29.51</td>
<td>16.68</td>
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<tr>
<td>Average training time for senior-level managers</td>
<td>Hours</td>
<td>21.08</td>
<td>28.77</td>
<td>33.90</td>
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<tr>
<td>Average training time for middle-level managers</td>
<td>Hours</td>
<td>41.82</td>
<td>32.71</td>
<td>31.34</td>
</tr>
<tr>
<td>Average training time for line-level employees</td>
<td>Hours</td>
<td>35.43</td>
<td>34.39</td>
<td>40.22</td>
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### Occupational health and safety

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<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee safety training time</td>
<td>Hours</td>
<td>294,354.45</td>
<td>206,759.50</td>
<td>313,700.20</td>
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<tr>
<td>Total investment in protective gears</td>
<td>RMB10,000</td>
<td>630.35</td>
<td>615.55</td>
<td>442.58</td>
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<tr>
<td>Lost hours per million working hours</td>
<td>Hours</td>
<td>830.61</td>
<td>1,090.35</td>
<td>1,159.80</td>
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<tr>
<td>Work-related injuries</td>
<td>Person-times</td>
<td>50</td>
<td>79</td>
<td>83</td>
</tr>
<tr>
<td>Number of work-related fatalities</td>
<td>Number</td>
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### Anti-corruption

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<th>Unit</th>
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<tr>
<td>Number of governance agency members reached by anti-corruption policies and procedures</td>
<td>Number</td>
<td>28</td>
</tr>
<tr>
<td>Percentage of governance agency members reached by anti-corruption policies and procedures</td>
<td>%</td>
<td>100</td>
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<tr>
<td>Number of governance agency members receiving anti-corruption training</td>
<td>Number</td>
<td>28</td>
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<tr>
<td>Percentage of governance agency members receiving anti-corruption training</td>
<td>%</td>
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</tr>
<tr>
<td>Number of senior-level managers receiving anti-corruption training</td>
<td>Number</td>
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<tr>
<td>Percentage of senior-level managers receiving anti-corruption training</td>
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<tr>
<td>Number of middle-level managers receiving anti-corruption training</td>
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<tr>
<td>Percentage of middle-level managers receiving anti-corruption training</td>
<td>%</td>
<td>80.15</td>
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<td>Number of line-level employees receiving anti-corruption training</td>
<td>Number</td>
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<tr>
<td>Percentage of line-level employees receiving anti-corruption training</td>
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### Employee retention after maternity/paternity leave

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</thead>
<tbody>
<tr>
<td>Number of female employees who took maternity leave</td>
<td>Number</td>
<td>530</td>
<td>634</td>
</tr>
<tr>
<td>Number of female employees who returned to work after maternity leave</td>
<td>Number</td>
<td>479</td>
<td>568</td>
</tr>
<tr>
<td>Number of male employees who took maternity leave</td>
<td>Number</td>
<td>808</td>
<td>991</td>
</tr>
<tr>
<td>Number of male employees who returned to work after maternity leave</td>
<td>Number</td>
<td>756</td>
<td>943</td>
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Assurance Statement

SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD. SHANGHAI BRANCH'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE SINHA MAS PAPER (CHINA) INVESTMENT CO., LTD.'S SUSTAINABILITY REPORT FOR 2018

NATURE AND SCOPE OF THE ASSURANCE

SGS-CSTC Standards Technical Services Co., Ltd Shanghai Branch was commissioned by SAMA BAS KAPPA (CHINA) INVESTMENT CO., LTD Shanghai Branch to evaluate the SAMA BAS KAPPA (CHINA) INVESTMENT CO., LTD Shanghai Branch's Sustainability Report 2018 (the "Sustainability Report") in accordance with the Assurance Report Assurance methodology, including the list and data in the reporting range, confirmed in the 2018 CSR Report. The information and data in the Assurance report are not included in the Assurance document. The Assurance report is based on the SGS standards, including the Principles contained within the GS-standards for assurance. The Assurance report is intended to provide assurance on the content of the Assurance document.

The Assurance report has been drafted in accordance with the GS-standards for assurance. The Assurance report is intended to provide assurance on the content of the Assurance document. The Assurance report is based on the SGS standards, including the Principles contained within the GS-standards for assurance. The Assurance report is intended to provide assurance on the content of the Assurance document.

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STATEMENT OF INDEPENDENCE AND COMPETENCE

SGS is an international inspection, testing, and certification company that operates a network of over 1,600 offices and laboratories around the world, providing the services necessary to the certification of the Assurance report. The Assurance report is intended to provide assurance on the content of the Assurance document. The Assurance report is based on the SGS standards, including the Principles contained within the GS-standards for assurance. The Assurance report is intended to provide assurance on the content of the Assurance document.

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ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the Assurance report for the year 2018 confirms that the assurance of the Assurance report is based on the SGS standards, including the Principles contained within the GS-standards for assurance. The Assurance report is intended to provide assurance on the content of the Assurance document. The Assurance report is based on the SGS standards, including the Principles contained within the GS-standards for assurance. The Assurance report is intended to provide assurance on the content of the Assurance document.

We believe that the organization has chosen an appropriate level of ambition in accordance with all requirements in the Assurance report.
# GRI Content Index

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<td>GRI 102-14</td>
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<td>GRI 102-16</td>
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## GRI 102: General disclosures 2016

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  - GRI 103-1: Materials 2016
  - GRI 301-2: Recycled input materials used
  - GRI 301-2: Energy consumption within the organization
  - GRI 302-1: Energy consumption outside of the organization
  - GRI 302-4: Reduction of energy consumption
  - GRI 303-1: Water withdrawal by source
  - GRI 303-2: Water sources significantly affected by withdrawal of water
  - GRI 303-3: Water recycled and reused
  - GRI 304-1: Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
  - GRI 304-2: Significant impacts of activities, products, and services on biodiversity
  - GRI 305-7: Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions
  - GRI 306-1: Water bodies affected by water discharges and/or runoff
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- **Economic performance**
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- **Indirect economic impacts**
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- **Procurement practices**
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- **Materiality Issues**
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  - GRI 103-2: Indirect economic impacts 2016
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<td>Training and Education</td>
<td>GRI 103: Management approach 2016</td>
<td>10-12, 45-46</td>
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<td>GRI 404-1: Average hours of training per year per employee</td>
<td>67</td>
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<td>GRI 404-2: Programs for upgrading employee skills and transition assistance programs</td>
<td>10-12, 45-46, 67</td>
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<td>Diversity and Equal Opportunity</td>
<td>GRI 405-1: Diversity of governance bodies and employees</td>
<td>66-67</td>
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<td>Non-discrimination</td>
<td>GRI 103: Management approach 2016</td>
<td>47</td>
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<tr>
<td>GRI 407: Freedom of association and collective bargaining</td>
<td>407-1: Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk</td>
<td>43-44, 47</td>
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<td>Child Labor</td>
<td>GRI 103: Management approach 2016</td>
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<td>GRI 408-1: Operations and suppliers at significant risk for incidents of child labor</td>
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<td>Forced or Compulsory Labor</td>
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<td>GRI 409-1: Operations and suppliers at significant risk for incidents of forced or compulsory labor</td>
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<td>Local Communities</td>
<td>GRI 103: Management approach 2016</td>
<td>29, 37-38, 47</td>
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<td>GRI 413-1: Operations with local community engagement, impact assessments, and development programs</td>
<td>29, 37-38, 47</td>
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<td>GRI 413-2: Operations with significant actual and potential negative impacts on local communities</td>
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<td>Supplier Social Assessment</td>
<td>GRI 103: Management approach 2016</td>
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<td>GRI 414-1: New suppliers that were screened using social criteria</td>
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<td>GRI 414-2: Negative social impacts in the supply chain and actions taken</td>
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<td>Customer Health and Safety</td>
<td>GRI 103: Management approach 2016</td>
<td>26-27, 33</td>
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<td>GRI 416: Customer health and safety</td>
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<td>Marketing and Labeling</td>
<td>GRI 103: Management approach 2016</td>
<td>28-29</td>
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<td>GRI 417: Marketing and labeling</td>
<td>28-29</td>
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About this Report

This is the 12th 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.

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

Reporting Boundary and Scope

The time span of this report is from January 1, 2018 to December 31, 2018, with certain 2019 data included for the continuing nature of our work. Our last Sustainability Report was published in November 2018. Data in “Company Profile”, “Economic Performance”, “APP China sources of pulp procurement”, and “Materials” and for R&D investment relate to APP China Group; cases and other data in the report are collected from APP China Head Office, nine pulp & paper mills, and APP China Forestry Business Unit, unless otherwise stated.

• APP China Head Office
• Gold East Paper (Jiangsu) Co., Limited (Gold East Paper)
• Hainan Jinhai Pulp & Paper Co., Limited (Hainan Jinhai Pulp & Paper)
• Guangxi Jingui Pulp & Paper Co., Limited (Guangxi Jingui Pulp & Paper)
• Ningbo Zhonghua Pulp & Paper Co., Limited (Ningbo Zhonghua)
• Ningbo Asia Pulp & Paper Co., Limited (Ningbo Asia)
• Gold Huasheng Paper (Suzhou Industrial Park) Co., Limited (Gold Huasheng)
• Gold Hongye Paper Group Co., Limited (Suzhou Gold Hongye, including Suzhou Mill and Sales & Marketing)
• Hainan Gold Hongye Paper Co., Limited (Hainan Gold Hongye)
• Hainan Gold Shengpu Paper Co., Limited (Hainan Gold Shengpu)
• APP China Forestry Business Unit (APP China Forestry, including Forestry Business Headquarters, Hainan, Guangxi, and Guangdong BUs, and Lancang, Ganzhou, Wenshan, and Henan Sub-BUs)

Reporting Frameworks

The report has been prepared in accordance with the core option of the GRI Standards issued by the Global Sustainability Standards Board (GSSB). Additionally, the report refers to the Global Compact Ten Principles, the International Integrated Reporting (IR) Framework developed by International Integrated Reporting Council (IIRC), and papermaking industry clean production and emissions standards. The disclosure of indicators can be found in the section of GRI Content Index and UN Global Compact Ten Principles Index in this report.

Content and Indicator Selection

This report was prepared in accordance with the GRI principles of materiality, stakeholder inclusiveness, sustainability context, and completeness. At the preliminary stage, APP China conducted policy analysis, industry issues analysis, stakeholder surveys, and field visits to its Head Office, pulp & paper mills, and forestry BUs to collect the management approaches, specific practices and performance indicators on sustainability issues most relevant to the company.

Report Assurance

APP China commissioned SGS-CSTC Standards Technical Service Co., Ltd. (SGS) to assess the reliability, objectivity, and transparency of this report. Please refer to the Assurance Statement for further details.