



山東晨鳴紙業集團股份有限公司

SHANDONG CHENMING PAPER HOLDINGS LIMITED*

(a joint stock company incorporated in the People's Republic of China with limited liability)

Stock Code : 1812



2018

ENVIRONMENTAL, SOCIAL
AND GOVERNANCE REPORT

* For identification purposes only

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Introduction

Shandong Chenming Paper Holdings Limited (the "Company", together with its subsidiaries, the "Group") has developed into a leading enterprise in China's papermaking industry after over half a century of arduous development since its inception in 1958. The Group is a large conglomerate mainly engaged in pulping and papermaking while building presence in finance, mining, forestry, logistics and building materials business. The Group has production bases in Shandong, Guangdong, Hubei, Jiangxi and Jilin. The Group built production bases and opened a new office in Shanghai during the year.



Chairman's Statement

With the newly completed production bases, the Group currently has a total of approximately 996 hectares of land and over 30 advanced pulp and paper production lines to produce paper products, which are mainly divided into five categories: printing paper, packaging paper, office paper, industrial paper and household paper. We are positioned to provide mid-range and high-end products, including high-end offset paper, white paper board, light-weight coated paper, household paper, electrostatic copy paper, thermal paper and glassine paper. Our major products stand at the forefront of the Chinese market in terms of market share. With total assets of over RMB100 billion and an annual pulp and paper production capacity of over 11 million tonnes, the Group is a listed company with A shares, B shares, and H shares. It is among the top 100 listed companies in China and the top 10 star enterprises in China, and was rated as one of the 50 Most Competitive Blue-chip Companies in China. The Company has successively won over 200 accolades above the provincial level, including the China May 1st Labour Prize, the Top 10 Light Industry Enterprises in China, the Outstanding Contribution Prize in Business Administration in China and the National Advanced Unit in Spiritual Civilisation. It has maintained a leading industry position in China in terms of key economic performance indicators for over 20 consecutive years.

Looking forward, the Group will continue to make steady progress and adhere to the overall strategy of green, low-carbon, circular and sustainable development. We will continue to follow the "Made in China 2025" initiative with a focus on scientific development and quality and efficiency improvement, and promote the integration of industry with intelligence development, so as to comprehensively improve our quality and efficiency, management level, technology prowess, happiness index and brand image. The Group will put into practice the spirit of Chenming and make every effort to improve its management level. With an aim to "build a RMB100 billion company with a history of 100 years", we aspire to develop the Group into a garden-style, highly environmentally friendly and efficient conglomerate.

About this Report

Scope of Reporting

This report covers the environmental, social, and corporate governance performance of the Company and its subsidiaries as set out below.

- Jiangxi Chenming Paper Co. Ltd. ("Jiangxi Chenming Paper")
- Zhanjiang Chenming Pulp & Paper Co., Ltd. ("Zhanjiang Chenming Pulp & Paper")
- Jilin Chenming Paper Co., Ltd. ("Jilin Chenming Paper")
- Wuhan Chenming Hanyang Paper Holdings Co., Ltd. ("Wuhan Chenming Hanyang")
- Huanggang Chenming Pulp & Paper Co., Ltd. ("Huanggang Chenming Pulp & Paper")
- Shanghai Chenming Industry Co., Ltd. ("Shanghai Chenming Industry")

Reporting Standards and Reporting Period

This report is prepared in accordance with the provisions of the Environmental, Social and Governance Reporting Guide set out in Appendix 27 to the Listing Rules. Unless otherwise stated, this environmental, social and governance report covers the Group's commitments and practices in environmental, social and corporate governance during the 12-month period from 1 January 2018 to 31 December 2018 (the reporting period).

Valuable Feedback

In order to improve its environmental, social and governance performance on a continuous basis, the Group welcomes stakeholders to put forward their valuable opinions to the Group.

Shandong Chenming Paper Holdings Limited

Address: No. 2199, Nongsheng East Street, Shouguang City, Shandong Province

Postcode: 262705

Tel: 0536-2158008

Email: chenmmingpaper@163.com

Communication with Stakeholders

The Group is eager to meet the demands and expectations of shareholders while developing its business, with a view to achieving balanced and satisfactory results. Of course, the Group understands that different stakeholders have different expectations of and demands from the Group. As such, in order to fully understand the stakeholders' concerns about the Group's business, environmental, social and corporate governance practices, the Group has identified external and internal stakeholders and established open and effective communication channels, such as interviews, electronic media communications, various forms of meetings, questionnaires and industry exhibitions, to help identify major issues and assess their significance, so as to develop long-term development objectives. During the reporting period, the Group collected opinions on employment, legal compliance, supply chain management and product responsibility from employees, customers, governments and suppliers through the above communication channels.



2018/19 Shareholders' Conference



The 6th China Marine Economy Expo

Environmental Protection

The Group implements a policy for green, innovative and diversified development and strives to build a complete industrial chain to continuously improve its industrial competitiveness. Since its inception, the Group has always regarded environmentally friendly production as an important part of its business operations. In response to national environmental policies, the Group has invested substantial resources in environmental protection projects over the years to phase out low-efficiency, high-pollution equipment and enhance production processes. The Group has also introduced state-of-the-art papermaking equipment and technology to improve resource use and product quality, reduce pollution and protect the environment. During the year, the Group invested a total of RMB686 million to carry out more environmental renovation projects in various production bases as needed, including the construction of on-line monitoring equipment at the main sewage outfall, the system for reuse of reclaimed water, the improvement of sewage treatment system, thermal power plant equipment, and the upgrading of desulphurisation and dust removal facilities. In addition, the Group achieved the goal of zero discharge of wastewater by introducing advanced sewage treatment equipment, and discharged pollutants in strict compliance with legal requirements and standards to ensure that the concentration and total amount of pollutants meet the relevant standards. In the future, the Group will keep a close eye on the national and global trends in sustainable development to keep up with the times, and invest in relevant environmental protection projects as needed to further improve environmental performance.

Low Carbon Production

The issues concerning carbon emissions and environmental pollution have received much attention in recent years. The Chinese government put into effect the Environmental Protection Law in 2015, which not only raises penalties and lowers emission caps, but also strengthens the supervision over carbon emissions of various industries and the control of pollutant emissions. The time-consuming pulping and papermaking processes involve the use of high-power production equipment, which consumes a lot of energy and emits large amounts of greenhouse gases. In view of this, the Group has built thermal power plants in the production bases in Shandong, Jilin, Wuhan, Jiangxi and Zhanjiang. These plants not only supply power and heat to production factories to reduce the power load of these factories, but also make good use of energy by recycling the waste heat generated by the plants themselves. Huanggang Chenming Pulp & Paper, which has just been put into production, is expected to complete the construction of its power plant in the coming year. During the reporting period, the power provided by the Group's thermal power plants accounted for approximately 76% of the Group's total power consumption. Nevertheless, the power supply to the production bases by the thermal power plants alone is not enough to meet the daily electricity demand, so the Group strives to explore more energy generation modes. For example, the Company used garbage incinerators and generator sets to generate electricity with heat generated by burning garbage, thereby providing more than 7.55 million kWh of electricity. Meanwhile, the Group also collected biogas emitted from wastes, and then transferred it to internal combustion engine generator sets for power generation, thus supplying more than 6.9 million kWh of electricity to the Company.



Although the above approaches can supply power to the production bases, the Group is well aware that it cannot ignore the air pollution problems caused by the treatment towers and incinerators of the thermal power plants. As such, the Group has invested resources to upgrade dust removal and desulphurisation systems in order to meet the national ultra-low emission standards for sulphur dioxide and dust emissions. The fumes in boilers are sealed with hanging film and glass fibre reinforced plastics and collected in biological deodorisation devices for central treatment, and are never disposed of at will. The Group has also added super ammonia diluters in the ammonia zone and carried out a renovation project for the combustion of ink residue at the thermal power plants, in hope of further reducing pollutant emissions.

To deal with the odour released during operation, the Group employs the biofilter-based biological deodorisation process. It works by pumping the odour with a centrifugal fan through the collection pipe to an integrated biofilter deodorising device for deodorisation treatment. Moreover, the Group films the aeration tank in the sewage treatment process, introduces waste gas into the odour treatment system, and removes odour through alkali washing and biological deodorisation. In addition, in order to improve indoor air quality, the Group has installed ventilation systems to enhance air circulation and clean the production areas on a regular basis.

However, these measures may become futile and ineffective if the hardware is left without an appropriate monitoring system. Accordingly, in terms of controlling emissions, the Group conducts regular spot checks on the emission concentration of exhaust pipes and appoints external agencies to conduct annual inspections of the treatment towers and incinerators of thermal power plants, so as to ensure that exhaust emissions meet national standards. The Group has also installed a real-time monitoring system at each production base. The system, which is connected with the environmental protection bureau, is designed to closely monitor pollutant emissions to ensure that the emission limits required by local laws and regulations are not breached. Government departments can directly access relevant emission data through the system. During the reporting period, Jiangxi Chenming Paper was fined on 8 June due to excessive pH value at the overflow port of its odour treatment facility. After discovering the problem, Jiangxi Chenming Paper replaced the old valves with automatic valves, stepped up daily inspection of equipment and facilities, and strengthened routine maintenance of key equipment. The sewage overflow pipe was repaired to ensure that in case of automatic valve failure, the alkali washing water in the alkali washing tank can still be transferred to the wastewater treatment system through the overflow pipe for effective treatment. The treated wastewater is discharged in an up-to-standard manner through the wastewater discharge port of the factory. The wastewater discharge port is under 24-hour on-line monitoring, thus completely solving the problem of possible leakage in the alkali washing system. The rectification for the problem was completed on 12 June. The Group did not commit any other acts of excessive exhaust emissions or violation of environmental laws and regulations.



In addition to the use of high-performance, low-pollution equipment in the production process, the Group also implements energy conservation and emission reduction measures in day-to-day operations to enhance its energy conservation performance and improve environmental quality. For example, the Group has put up energy-saving reminders at the production bases to remind employees to turn off the lights and air conditioning before leaving and maintain the indoor air conditioning temperature between 24 and 26 °C. The Group also encourages employees to use public transport as much as possible and to give preference to video or teleconferencing over business trips, so as to reduce greenhouse gas and air pollutant emissions. In addition, the Group's production facilities have gradually been replaced, electric vehicles and Euro-5 vehicles are used to reduce fuel consumption, and traditional lighting systems have been phased out and replaced with energy-efficient T5 tubes or LED lights. The air conditioning and lighting systems in the Shanghai office are equipped with sensors to adjust the air volume and running time according to the season and temperature. During non-office hours and holidays, non-emergency elevators and escalators will be closed for energy conservation.

(As at 31 December 2018)

| Emissions | Unit | |
|---|-------------------------------------|--------------------|
| Greenhouse gas emissions in total (Scope 1 and 2) | tonnes of carbon dioxide equivalent | 894,900 |
| Direct emissions (Scope 1) ¹ | tonnes of carbon dioxide equivalent | 189,701 |
| Indirect emissions (Scope 2) ² | tonnes of carbon dioxide equivalent | 705,199 |
| Nitrogen oxides (NOx) ³ | kg | 467 |
| Sulphur oxides (SOx) ⁴ | kg | 281 |
| Particulate matter ⁵ | kg | 34 |
| Use of Resources | | |
| Purchased electricity ⁶ | kWh | 793,231,346 |
| Per capita purchased electricity | kWh | 52,217 |
| Diesel (mobile source) ⁷ | litre | 6,083,154 |
| Diesel (stationary source) ⁸ | litre | 196,532 |
| Steam | tonnes | 22,484,591 |

¹ Including emissions from vehicles and combustion of stationary natural gas and diesel and acetylene.

² Only including emissions from power purchased from power companies.

³ Calculated based on the total mileage of company vehicles in Wuhan, Shanghai and Huanggang.

⁴ Calculated based on the total gasoline consumption of company vehicles in Wuhan, Zhanjiang, Huanggang, Shanghai, Shandong and Jiangxi.

⁵ Calculated based on the total mileage of company vehicles in Wuhan, Shanghai and Huanggang.

⁶ Only including power purchased from power companies and excluding power generated by the Group's production bases.

⁷ Calculated based on the total gasoline consumption of company vehicles in Zhanjiang, Huanggang, Shandong and Jiangxi.

⁸ Calculated based on the total diesel consumption of diesel boilers in Shandong and Jiangxi.

| | Unit | |
|--------------------------------|----------------|------------|
| Gasoline (mobile) ⁹ | litre | 12,451,322 |
| Natural gas | m ³ | 77,997,005 |

⁹ Calculated based on the total gasoline consumption of company vehicles in Wuhan, Zhanjiang, Huanggang and Shanghai.

Waste Management

The Group is well aware that proper waste management measures can help reduce the load on landfills and incinerators while promoting the use of resources. The Group requires the wastes be stored in two categories, recyclable and non-recyclable, and actively searches for upgrading and recycling methods according to different fibre components in hope of recycling and reusing wastes as much as possible. For example, the waste paper collected, after being crushed, decoloured and pulped, is converted into recycled paper to reduce the felling of trees; sludge collected in the papermaking process, after removal of harmful substances and high-temperature treatment, is converted into organic fertiliser for use in farmland to provide nutrients for crops; grey powdered coal ash and cinder generated from high-temperature combustion at thermal power plants are processed and remade into building material such as cement, gypsum board and bricks. These measures not only make the best use of resources, but also bring economic benefits to the Group. The Group will continue to develop more recycling methods for waste paper to enable it to be widely recycled.



In addition, Shanghai Chenming Industry, which has just been put into operation, strictly abides by the Measures of Shanghai for Promoting Classification and Reduction of Domestic Waste and comprehensively promotes a system for classification of domestic waste by setting up containers to collect four types of waste, i.e. recyclables, hazardous waste, wet waste and dry waste. The collected waste will be handed over to the government's special sanitary department for disposal. Drinking fountains and hand dryers are also installed to reduce the use of disposable utensils and toilet paper. As there is recovery value in waste paper pulp and waste wood chips, Jiangxi Chenming Paper has always recycled such items as valuable by-products and thus did not register them with the solid waste platform. On 27 June, Jiangxi Chenming Paper, at the request of the environmental protection bureau, made arrangements for the collection of statistics and ledgers of waste paper pulp and waste wood chips for 2017, and filled in an application form on the general industrial solid waste registration website of Nanchang Environmental Protection Bureau and printed and submitted it to the municipal solid waste office for registration. Since then, Jiangxi Chenming Paper would continue to prepare statistics of and apply for the disposal of waste paper pulp and waste wood chips to prevent similar violations from happening again.

As for hazardous waste, the Group classifies the waste according to the National Catalogue of Hazardous Waste and has the waste collected and managed by different departments. The disposal procedures are carried out according to the Catalogue. There are a series of management procedures from storage, transfer, warehousing and selection of contractors. Hazardous waste will be temporarily stored in covered containers in suitable sites at the production bases and ultimately be transported and disposed of by qualified contractors, so as to ensure effective disposal of hazardous waste and avoid secondary environmental pollution. Meanwhile, the Group also attaches great importance to the qualifications of contractors and requires that to become a qualified contractor of the Group, a contractor handling hazardous waste must have a Hazardous Waste Disposal Permit and a Road Transport Permit issued by the competent government agencies and have experience in handling hazardous waste. During the reporting period, Jiangxi Chenming Paper was subject to administrative penalty on 23 June due to improper disposal of sludge by its sludge contractor. In response to this event, Jiangxi Chenming Paper has commissioned an agency to prepare a sludge disposal plan, with arrangements for relevant experts to discuss and work out the best disposal method, which was determined as safe landfill disposal. During the reporting period, the transportation and regulated landfill disposal of sludge were completed. The contractor in question was also removed from the Group's supplier list. The Group did not record any other incidents related to waste disposal in violation of environmental laws and regulations.

Nevertheless, the Group still needs to reduce waste at source to reduce waste generation. The Group implements paperless office and advocates electronic archiving and making good use of electronic communications such as email, WeChat and QQ to send documents, with a view to reducing paper consumption and the use of ink cartridges. Over the years, the Group has implemented many waste reduction measures to raise the awareness of waste reduction among employees and encourage them to reduce waste at source and live a green life. For example, we set up waste paper collection bins in the office; advocate double-sided printing and reuse of used paper for printing; reuse old file folders; and engage professional agencies to recycle printer ink cartridges. In addition, in order to avoid damage to the finished products in the transportation process, paper packaging materials are inevitably used to wrap the finished products in advance, thus generating packaging waste. Each year, large amounts of packaging materials are consumed, which increases the load on landfills and incinerators. As such, the Group strives to reuse packaging materials and reduce disposal. The Group reuses the collected waste paper for paper production to reduce the input of raw materials. Set out below are the amount of waste disposed of and the amount of packaging materials consumed by the Group. As Huanggang Chenming Pulp & Paper just started production, it had not yet generated any waste during the reporting period.

(As at 31 December 2018)

| Waste | Unit | |
|----------------------------|-------------|------------------|
| Hazardous waste | tonnes | 3,793 |
| Non-hazardous waste | tonnes | 1,608,622 |
| Packaging materials | | |
| Plastic | tonnes | 738,150 |
| Paper | tonnes | 75,445 |
| Timber | tonnes | 282,941 |

Use of Water Resources



It is undeniable that the papermaking process consumes a large amount of water from the early pulping and papermaking processes to the later bleaching and dyeing processes. Water resources, on which everyone lives, are extremely precious and limited. In recent years, water shortage becomes increasingly severe. The United Nations' World Water Development Report published in 2018 pointed out that the world is threatened by water shortage in varying degrees and the situation will get worse in the next 20 to 30 years. This has driven the Group to make good use of water resources and make every effort to come up with good ideas to save water.

In terms of sewage treatment, each production base of the Group has a sewage recycling system where all sewage must be treated and purified by processes including inclined sifting, primary sedimentation tank, oxygen aeration tank, secondary sedimentation tank and Fenton method before being discharged. Some purified water will even be reused for production. The sediments and sludge produced by the sedimentation tank will be drained and put back into the thermal power plant for burning treatment. This move can reduce approximately 93% of suspended solids (SS) and 80% of ammonia and nitrogen. In this way, more than 67.7 million m³ of sewage can be treated in a year. The Group also conducts regular testing of sewage to check the chemical oxygen demand (COD), biochemical oxygen demand (BOD), ammonia, nitrogen, SS, pH and other sewage indicators, in order to ensure that the sewage meets and is better than the discharge standards specified in the Discharge Standards for Water Pollutants in Pulping and Papermaking Industry (GB3544-2008) before being discharged. In order to monitor the Group's water consumption in real time, the relevant government department has installed an online monitoring system in each production base of the Group, so that the discharge data will be uploaded directly to the monitoring department. In addition, the production bases and the Shanghai office have set up systems for diversion of rain and sewage and reuse of rainwater to collect rainwater for use in greening, landscaping and waterscape fountain systems, thus making good use of resources.

During the reporting period, the total water consumption of the Group's production bases amounted to 67,888,335 m³, representing a water consumption density of 4,469 m³ per person. As at the end of 2018, it was recorded on 23 May that the suspended solids discharged from the wastewater discharge port of Jiangxi Chenming Paper exceeded the discharge concentration limit of 30 mg/L. As a result of production transformation, the original mode of discharging mixed effluents from thermo-mechanical pulp and waste paper deinking pulp has been gradually changed into the mode of discharging effluents from thermo-mechanical pulp. Given the high COD and SS concentrations of thermo-mechanical pulp effluents, the SS discharge concentration fluctuated greatly during the adjustment of the mid-stage effluent system. As such, the production base promptly stopped the sewage discharge in the production area and carried out a series of adjustment measures as below: (1) adding sludge bacterial strains; (2) putting into use the idle primary sedimentation tank; (3) using the reclaimed water recycling system; (4) increasing the use of pharmaceuticals for in-depth treatment to attain up-to-standard discharge. The Group did not commit any other acts of excessive sewage discharge or violation of environmental laws and regulations.

Green Supply Chain



In the next decade, we will face the challenges arising from two major global trends—climate change and green development, and suffer the impact of rising raw material prices and costs. Accordingly, the Group's overall strategy for future development is to adjust the industrial structure in due course, reduce costs on a large scale and develop into an environmentally friendly enterprise. As one of the key papermaking enterprises in China, the Group is actively developing the concept of circular development with "forestry-pulp-paper" integration, shouldering the responsibility of afforestation and solving the problem of raw material wood supply. The

Group is also committed to developing ecological papermaking and promoting the sustainable development of papermaking enterprises and the papermaking industry.

In an effort to honour its responsibility of forestation, the Group has built its own artificial forests with an area of 46,700 hectares in Guangdong, Hubei, Guangxi and other places, thereby providing the Group with a legal and sustainable source of timber. In addition, the Group established a forestry company in as early as 2005 to mainly undertake the construction of raw material forest bases for the Group's pulp and paper projects and to integrate seedling cultivation, forest production and timber development. Having built a number of large raw material forest bases in Zhanjiang, Yangjiang and Ganzhou, the forestry company serves as an important arm to achieve the Group's strategic vision of "developing a green papermaking conglomerate featuring forestry-pulp-paper integration and meeting international standards". Looking ahead, the Group will continue to increase the proportion of timber supplied from its own forests to its production bases on top of imported timber. It is hoped that in the near future, the Group can fully achieve the integration of forestry, pulp and paper.

In order to further develop ecological papermaking, the Group's production bases in Shandong, Jilin, Wuhan and Jiangxi have obtained the Forest Stewardship Council (FSC) Chain of Custody (CoC) certification, an international recognition. The FSC CoC certification is to supervise and certify the chain of custody from raw material procurement and storage to production and sales in the papermaking industry, and to certify whether raw material wood in the Group's production bases comes from forests that have obtained FSC forest management certification. The certification is conducted annually by a third-party certification agency.

In addition, for the development of the production base in Shanghai, the Group will give priority to the products and services of local suppliers/contractors (such as property management companies and rental agencies). This will help reduce the Group's carbon footprint and promote local economic activities. In the tendering process, suppliers/contracts with excellent environmental performance or products with environmental management system certification and/or environmental labels will be given extra credit/preference

Environmental Protection Example of Huanggang Chenming Pulp & Paper



In response to the tightening environmental policies, the Group strives to update and introduce new technologies to reduce the impact of its business on the environment. Therefore, the newly completed pulping production line in Huanggang has introduced the environmentally friendly ozone-based and chlorine-free bleaching process with low-solids continuous cooking from Valmet and Andritz which possess internationally advanced technologies. This is a highly automated process with low energy consumption and low water consumption. The biogas, wood chips and bark produced in the process will be sent into the alkali furnace for combustion and into the biomass gasifier for generation of methane to replace heavy oil as fuel for combustion in lime kilns. The white mud produced by alkali recovery causticisation is fully recycled and reused after calcination in a lime kiln. All solid wastes are comprehensively used without any discharge of solid wastes, thus achieving efficient use and recycling of resources.

Environmental Protection Example of Shanghai Chenming Industry

To demonstrate the Group's determination in environmental protection, Pujiang International Financial Plaza, an office building of Shanghai Chenming Industry with a total GFA of 120,000 m³, was awarded Two-Star Green Building Label (GBL) in 2015 by the adjudicator China Green Building Council. This proves that the planning and design of the building reach the two-star level of the Green Building Evaluation Standard (GB/T50378-2006). As the new version of the Green Building Evaluation Standard (GB/T50378-2014) has been put into force since 1 January 2015, the Group has been seeking renewal of the certification for the office building of Shanghai Chenming Industry. It is expected that the office building will receive the latest version of GBL in the coming year.



Caring for Employees

Employees are the assets of the Group and serve as the driving force to create value for the Group. The Group not only strictly abides by the national regulations and requirements on employment, but also strives to build a harmonious, safe and healthy work environment for employees. During the reporting period, no major violations of labour-related laws occurred or were found in the Group.

Employment Policy

The Group adheres to the philosophy of discovering able people and putting them at suitable posts and strives to build professional and efficient teams for the Group according to its long-term development objectives. The Group hires and promotes employees in strict compliance with national laws, and set qualifications and requirements for different posts according to business needs. We also have standard recruitment procedures, and the personnel department takes charge of all recruitment work to achieve the principle of fair and open recruitment. All job applicants and employees enjoy equal opportunities for employment and promotion. Employment will only be based on the education background, experience and capabilities of job applicants and the job requirements, regardless of nationality, ethnicity, race, gender, religious belief and cultural background. All employees are subject to annual appraisal for the assessment of their performance, whereby the high-performing, high-potential employees will be promoted. Promotion will be based on the results of the annual appraisal and conditional on the performance and capabilities of employees. The Group also conducts annual reviews of the compensation system and employee benefits in a drive to provide competitive compensation packages and retain talents. As at 31 December 2018, the Group had a total of 15,191 employees.

In addition, the Group makes contributions to the five major social insurance schemes and housing provident fund for its employees in accordance with national regulations. These schemes refer to pension insurance, medical insurance, unemployment insurance, work injury insurance and maternity insurance. Employees are also entitled to statutory holidays and personal and family-related holidays such as marriage leave, honeymoon leave, maternity leave and breastfeeding leave. The bonuses, allowances, subsidies and benefits of employees are distributed in accordance with relevant requirements of the state and the Group. The Group values the opinions of employees and has set up communication channels including bulletin boards, monthly meetings and emails to collect employees' opinions on the environmental, social and governance affairs, in an effort to promote communication with employees, follow up their concerns and make improvements. The Group has also established trade unions in the hope of better understanding employees' demands and opinions. In addition, in order to promote work-life balance, we often hold various social activities and sports events within the Group, such as Spring Festival Gala, sprint competition, tug-of-war competition, fun sports, to enrich the life of employees. Furthermore, the Group distributes festive food to employees in traditional festivals to celebrate the festivals together.



Spring Festival Gala 2019



Employees participated in various sports events

Occupational Health and Safety

Putting safety first is the operating principle of the Group. It is our responsibility to ensure that employees work in a safe environment. As such, the Group has set up a safety committee to be responsible for coordinating, directing and supervising the implementation of safety, fire protection and labour protection work. The Group requires its production bases to implement the 5S methodology and clearly divide the areas for placement of hazardous chemicals and raw materials for production with clear and lucid signs and labels, so as to prevent the leakage and reaction of chemicals due to misuse or human errors. In the bleaching process, the Group has installed level gauges and an alarm system to prevent the escape of acidic corrosive chemicals. The Group has also installed a ventilation system and regularly cleans the production areas to maintain good air quality.

Each production base of the Group has a safety department to implement occupational safety measures in accordance with the guidelines of the safety committee. The safety department also has close communication with the safety committee, regularly inspects the work environment and supervises the implementation of safety work to ensure the safe operation of the Group. Moreover, the safety department will identify risky work procedures, develop safety guidelines and provide employees with appropriate personal protective equipment (PPE) and tools. For example, for employees working at sewage

treatment ponds, the Group not only sets up fences around sewage treatment ponds, but also have them equipped with lifebuoys and life jackets. Emergency relief supplies are also available in the sewage treatment workshops. All employees are provided with gloves, safety helmets, protective goggles, dust masks and protective gowns, with a view to protecting their occupational safety and health. The Group provides physical examination for each employee. In case of abnormal health status, the Group will make appropriate work arrangements as needed. Employees are also protected by the insurance purchased by the Group for them.



In addition, each production base conducts routine safety inspections and detection of occupational hazards (if applicable) on a regular basis, and the inspection and detection results will be submitted to the safety committee. Where safety hazards are found, the safety committee and the production base will take immediate rectification actions, and work out feasible preventive measures together to prevent possible accidents. In the event of a fire, the heads of production departments must report it to the Group according to the established management mechanism, and thoroughly investigate the cause of the incident to prevent similar incidents from happening again.

In addition to having clear policies and a good work environment, appropriate occupational health and safety training also plays an important role in raising employees' safety awareness. Accordingly, the Group requires that all new employees must receive safety training and pass the safety examination. The safety departments often conduct occupational safety training on different topics to help employees safeguard the safety of themselves and others. Every day before work, each department will hold a briefing to remind employees of the work instructions. The Group is pleased to note that during the reporting period, it had no work-related fatalities and injuries caused by industrial accidents among employees, nor was it involved in any violation of any laws and regulations related to occupational health and safety.

Development and Training

The Group upholds the personnel management policy of "cultivating, introducing, deploying and retaining talents" and puts into practice the corporate spirit of "learning, transcending and leading". We regularly provide various types of training sessions for employees to enhance their personal capabilities and professional know-how. The Group prepares annual training plans for employees according to their needs, covering training in professional skills and management capabilities. The Group is keenly aware that learning new knowledge and skills will help employees enhance their competitiveness to cope with the fast-changing market environment. As such, the Group is willing to sponsor employees to take courses, acquire new knowledge, and master new technologies in the market. Employees who have completed their studies can share what they have learned with their colleagues during in-house training sessions of the Group, which will benefit both teaching and learning. After each training session, a questionnaire survey will be conducted to refine future training content and plans. Likewise, the Group also attaches great importance to the training of new employees in order to help them integrate into and adapt to the Group's culture. New employees are required to sign up for a mentoring scheme where senior employees will guide them as to the operations and responsibilities of their positions and the Group's culture. Employees can also review their own performance and express their career expectations in the annual appraisal, which serves as a good platform for employees and their superiors to discuss their future development directions and training needs and for superiors to promote capable personnel and assign them suitable positions.



All employees attended training activities

In order to facilitate the long-term development of the Group and cultivate talents for the development of the industry, the Group carries out campus recruitment each year to provide internships and employment opportunities for the younger generation and offer appropriate training to outstanding students. During the training, experienced staff will help students accumulate work experience and select high-potential talents among them to provide career development opportunities, in the hope that they can showcase their strengths and lead the Group to open a new chapter someday.

Labour Standards

The Group strictly abides by national and local labour laws to ensure that all employees are treated fairly. The Group strictly prohibits the employment of child labour and opposes all forms of forced and compulsory labour. Once such case is found, the Group will issue warnings or even dismiss the personnel involved. In order to avoid the above situations, job applicants are required to bring their identity documents including identity card, graduation certificate, employment reference, military service certificate and medical examination report, or even a Certificate of No Criminal Record for the verification of their age, nationality and identity, so as to comply with the laws and regulations on recruitment. Where a child labour case is found, the Group will invite relevant agencies to assist in following up the case, in an effort to support physical and mental development of children. If necessary, the Group will also provide tuition and living assistance for the children involved so that they can enjoy their childhood and grow up without worries.

In addition, the Group is fully aware of the importance of work-life balance. Long working hours will reduce productivity and increase the risk of accidents. However, due to the business nature, some work processes require long operating time, and so it is inevitable that some employees need to work on shift or overtime. In view of this, all employees are entitled to have rest days and compensatory leave in accordance with national regulations, and the Group will not force employees to work overtime and will arrange sufficient time for rest for employees and lunch during working hours. Employees will also receive overtime allowances according to statutory requirements, and their overtime hours will not exceed the statutory limit. If needed, employees can file complaints with the Group through different channels. During the reporting period, the Group did not identify any cases of child labour and forced labour, nor did it receive any major complaints about labour practices.

Supplier Management

In the course of operations, the Group needs to cooperate with different suppliers and establish long-term and solid partnerships with them, which is beneficial for the Group to provide stable, long-term and reliable services. To this end, the procurement department is responsible for making all purchases of the Group through a standard tendering process. All procurement projects are subject to open tendering where suppliers are required to provide detailed quotations for comparison among more than two suppliers, with a view to preventing transfer of benefits and corruption. In addition, the Group has established supplier management and evaluation systems, which require that to become qualified suppliers of the Group, suppliers must meet the requirements and standards of the Group in terms of quality management, business philosophy, environmental management, occupational health and safety and service performance. During evaluation, the Group will randomly inspect the samples of suppliers' products and present them to the Group's pulp & paper testing centre approved by the state for inspection. If necessary, the Group will also require suppliers to produce relevant permits, certificates and test reports. Only after passing the inspection will a supplier be included in the list of qualified suppliers of the Group. The Group also conducts annual supplier evaluation exercises in accordance with its management measures. If needed, the Group will require the problematic suppliers to make corrections and perform relevant obligations based on the evaluation results. If the case is serious, the Group will consider terminating the cooperation with the supplier concerned and remove it from the supplier list.

In addition to strict supplier quality management, the quality of suppliers' products is also closely related to the Group's service quality. The Group will carry out stringent quality control and conduct acceptance inspection of products in accordance with the laws, regulations and industry standards applicable to the procurement projects. Only up-to-standard products will be accepted and used by the Group. Our laboratories will also inspect the raw materials on a batch-by-batch basis and conduct statistical analysis on the inspection results to ensure that the products are qualified to be put on the market. All approval documents and acceptance inspection reports are properly kept in the internal system for future inspection and follow-up.

Product Responsibility

The Group believes that superior raw materials, coupled with the Group's advanced production technology, can produce premium and environmentally friendly paper products for customers and maintain competitiveness. As at the end of 2018, the Group's production bases in Shandong, Jiangxi and Zhanjiang had obtained ISO 9001 quality management system certification and/or ISO14001 environmental management system certification. Production bases that have not yet obtained such certification will also operate in accordance with the ISO requirements. The Group has also established a state-level corporate technology centre, a post-doctoral scientific research station, and a pulp & paper testing centre accredited by the China National Accreditation Service for Conformity Assessment (CNAS) to carry out new product research, development and testing. As at the end of 2018, among the Group's large product portfolio, a total of seven products had been rated as "National New Products" and 35 products had been granted 21 science and technology progress awards at or above the provincial level for filling domestic product gaps; and the Group had undertaken five state-level science and technology projects and 26 provincial-level technological innovation projects. Over the years, the Group has won numerous awards in the field of product research and development, in recognition of the Group's achievements in its unremitting efforts to provide quality and diversified products and services for customers.

Quality Control

Due to the complex production process of pulp and paper, the quality of finished products is susceptible to unstable factors. As such, each production base and its quality assurance department are jointly responsible for testing and monitoring product quality from product design to production process, so as to ensure that the quality of finished products can meet the relevant standards. The quality assurance department will develop testing methods and determine sampling quantities according to the contract signed with each customer and international standards. The production base will conduct spot checks of finished products in the production process using the testing methods determined by the quality assurance department to ensure product quality.

| | Quality control method | Principle |
|---|--|---|
| 1 | Acceptance of raw materials | Acceptance criteria are set based on the characteristics of different raw materials. Raw materials that do not meet the quality requirements will be replaced. |
| 2 | Quality monitoring in the production process | Inspections are carried out in accordance with the Group's standards for various production steps to detect potential problems as early as possible. Random samples are taken from various production lines to the technical quality assurance department for testing of physical indicators, appearance quality, etc. on a weekly basis. |
| 3 | Quality analysis meeting | At the monthly meeting, the sales department will prepare a summary and report customers' feedback on product quality, and the quality and technology departments will make suggestions on product quality improvement, present quality analysis results, and put forward methods to improve product quality. |

Where there are any problems with the Group's products, quality control and product recall procedures will be initiated. The relevant salesperson will arrive at the site to inspect the defective products and mail a sample of the products with the relevant certificate of quality and a quality problem feedback card to the quality inspection department of the Group. The quality inspection department will complete the testing of the sample within two days and present the testing results to the after-sales management department of the marketing division of the Group. If necessary, the group will proceed in accordance with established procedures to recall the substandard products. The Group regularly conducts customer satisfaction surveys through the product information platform on the Company's official website to learn about the service quality of the Group, so as to seek improvements on a continuous basis. In doing so, we hope to attain a customer satisfaction rate of 90% or above. In addition, we also set up a customer service hotline and email for customers to express their opinions. During the reporting period, there were no major incidents in which the Group was fined or punished by government departments or subject to product recalls due to major quality problems or health and safety reasons.

After-sales Services

The Group understands that the opinions of customers can help improve the service quality of the Group, and is committed to providing reliable and prompt after-sales services for customers. To this end, the Group has established customer complaint handling procedures to handle every complaint in good faith without delay. The maintenance and after-sale services of the Group are jointly handled by the marketing management department, quality management department, production management department and storage & transportation department. The Group stipulates that once a customer complaint is received, the customer service team should investigate the complaint and reply to the customer on the same day, and the complaint handling cycle must not exceed seven days. Moreover, the Group has formulated after-sales service policies, covering return and exchange of goods and compensation, to protect the interests of the parties concerned, in the hope that good after-sales services can win the trust and support of customers for the Group. During the reporting period, the Group did not receive any complaints or compensation claims that seriously affected the operations of the Group.

Protection of Intellectual Property

The Group has great respect for intellectual property rights, and is keenly aware that the development of products and advancement of new production technologies are resource and time intensive, which have far-reaching implications for the uniqueness, competitiveness and profitability of the Group. As such, the Group proactively carries out technical cooperation with academic institutions, research institutes and international advanced enterprises, and applies for patents on proprietary products and technologies with commercial value. As at the end of 2018, the Group had obtained more than 210 national patents, of which 18 were invention patents.

Information Protection

Automated production is a major trend in the manufacturing industry. In recent years, there has been a digital revolution, under which the public is increasingly concerned about the protection of confidentiality and privacy of personal data. Although automated production and data management can help the Group improve its management standards, accelerate the upgrading and transformation of the Group, and improve efficiency and quality, any inadvertent data leakage will damage the Group's reputation and ruin the trust of customers. As computer systems are required for automated production and data management, the Group has formulated a system maintenance policy and strict rules governing the use of computers by employees to educate and regulate them in this regard. The rules stipulate that all confidential information and documents with personal data must be destroyed before being discarded. The Group also installs anti-virus software on all computers and online platforms and regularly updates the software to prevent virus infection. Moreover, the Group backs up and encrypts internal documents on a regular basis to prevent data leakage. In addition, the Group restricts employees' access to the personal data of customers and gives access rights to designated employees only. On the date of assumption of duty, each employee is required to sign and strictly abide by a confidentiality undertaking, pursuant to which they must not disclose any confidential and personal data of a customer to any external parties without the consent of the customer. Once such case is found, the employee concerned will be impartially handed over to the police for investigation without tolerance.

Anti-corruption

The integrity and good corporate governance of the Group are embodied in its brand image and performance. The Group always strictly complies with relevant laws and regulations and prohibits any acts of bribery, extortion, fraud and money laundering within the Group. An audit committee has been established in the governance structure to formulate, review and supervise business management policies and practices. An effective internal monitoring system has also been set up to constantly enhance internal management. In addition, the Group has formulated anti-corruption policies and rules for departments with a higher risk of conflict of interest, including sales, finance, procurement and audit departments, with an aim to deter corruption. The audit department of the Group conducts annual audits and visits each subsidiary for audit purposes. In addition, as some tendering projects involve huge financial benefits, all tendering documents are published on the Group's website while the identity of bidders is kept confidential, so as to enhance the transparency and fairness of the tendering process.

The Group operates with high ethical standards and professional integrity, and constantly reminds employees of relevant regulations to avoid conflict of interest. We also set out our code of conduct in the labour contract and the staff handbook, and formulate binding measures against illegal or unethical acts. Employees can also report suspected illegal or fraudulent activities. The legal department regularly offers law courses on anti-corruption for employees involved in corruption-prone work areas to raise their integrity awareness and reduce the occurrence of illegal activities. Our measures for corporate governance and anti-corruption management are detailed on page 85 of the Group's 2018 Annual Report. During the reporting period, no cases of bribery, extortion, fraud or money laundering were found within the Group.

Community Engagement

While operating business, the Group does not forget to shoulder its corporate social responsibility. To this end, it strives to leverage its own advantages and resources to participate in community investment activities such as poverty alleviation, elderly care, education assistance and promotion of cultural education, in an effort to support the community and promote its healthy and sustainable development. Each subsidiary of the Group has set up a mutual aid foundation to support the employees and their families in need, in a drive to put into practice the spirit of solidarity and mutual assistance. The funds of the foundations are also used to host cultural activities after work and to provide financial relief for those affected by natural disasters.

| Scope of community investment | |
|--|---|
| The Company | Hosting donation activities to support post-disaster reconstruction and helping disaster victims get their lives back on track |
| Jiangxi Chenming Paper | Setting up a staff mutual aid association and actively participating in local cultural and sports activities |
| Zhanjiang Chenming Pulp & Paper | Engaging in poverty alleviation and helping solve local employment problems by providing job opportunities |
| Jilin Chenming Paper | Engaging in poverty alleviation and giving priority to employing poor residents in surrounding villages and towns according to their actual needs |
| Wuhan Chenming Hanyang | Participating in local cultural and sports activities |
| Shanghai Chenming Industry | Participating in volunteer work on elderly care, promoting respect for the elderly and celebrating festivals with them |

During the year, the Group hosted a fundraising event among employees in response to the floods in Shandong, which received strong support from frontline employees and the management. In the end, the Company donated RMB5 million and some supplies to assist in the disaster relief. Zhanjiang Chenming Pulp & Paper also donated RMB3 million to the Zhanjiang Charity Federation to help solve the urgent needs of families in difficulties. In addition, the Group was awarded the title of "Most Caring Charity Enterprise" for the seventh consecutive year. The Group will continue to make community investments to shoulder its social responsibility according to the development needs of its business and the community where it operates.



Frontline employees and the management showed strong support for the disaster relief fundraising event

Content Index of the Environmental, Social and Governance Reporting Guide

| KPI | Content | Index |
|---|---|------------------------|
| Environmental | | |
| A1 Emissions | | |
| General Disclosure | Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste. | Low Carbon Production |
| KPI A1.1 | The types of emissions and respective emissions data. | Low Carbon Production |
| KPI A1.2 | Greenhouse gas emissions in total (in tonnes). | Low Carbon Production |
| KPI A1.3 | Total hazardous waste produced (in tonnes). | Waste Management |
| KPI A1.4 | Total non-hazardous waste produced (in tonnes). | Waste Management |
| KPI A1.5 | Description of measures to mitigate emissions and results achieved. | Low Carbon Production |
| KPI A1.6 | Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved. | Waste Management |
| A2 Use of Resources | | |
| General Disclosure | Policies on the efficient use of resources, including energy, water and other raw materials. | Low Carbon Production |
| KPI A2.1 | Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total. | Low Carbon Production |
| KPI A2.2 | Water consumption in total. | Use of Water Resources |
| KPI A2.3 | Description of energy use efficiency initiatives and results achieved. | Low Carbon Production |
| KPI A2.4 | Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved. | Use of Water Resources |
| KPI A2.5 | Total packaging material used for finished products. | Waste Management |
| A3 The Environment and Natural Resources | | |
| General Disclosure | Policies on minimising the issuer's significant impact on the environment and natural resources. | Green Supply Chain |
| KPI A3.1 | Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them. | Green Supply Chain |

| KPI | Content | Index |
|--|---|---|
| Social | | |
| Employment and Labour Practices | | |
| B1 Employment | | |
| General Disclosure | Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. | Employment Policy |
| KPI B1.1 | Total workforce by gender, employment type, age group and geographical region. | Disclosure is not considered for the time being |
| KPI B1.2 | Employee turnover rate by gender, age group and geographical region. | Disclosure is not considered for the time being |
| B2 Health and Safety | | |
| General Disclosure | Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards. | Occupational Health and Safety |
| KPI B2.1 | Number and rate of work-related fatalities. | No casualties |
| KPI B2.2 | Lost days due to work injury. | None |
| KPI B2.3 | Description of occupational health and safety measures adopted, how they are implemented and monitored. | Occupational Health and Safety |
| B3 Development and Training | | |
| General Disclosure | Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities. | Development and Training |
| KPI B3.1 | The percentage of employees trained by gender and employee category. | Disclosure is not considered for the time being |
| KPI B3.2 | The average training hours completed per employee by gender and employee category. | Disclosure is not considered for the time being |
| B4 Labour Standards | | |
| General Disclosure | Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour. | Labour Standards |
| KPI B4.1 | Description of measures to review employment practices to avoid child and forced labour. | Labour Standards |
| KPI B4.2 | Description of steps taken to eliminate such practices when discovered. | Labour Standards |
| Operating Practices | | |
| B5 Supply Chain Management | | |
| General Disclosure | Policies on managing environmental and social risks of the supply chain. | Supplier Management |
| KPI B5.1 | Number of suppliers by geographical region. | Disclosure is not considered for the time being |

| KPI | Content | Index |
|----------------------------------|---|-------------------------------------|
| KPI B5.2 | Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored. | Supplier Management |
| B6 Product Responsibility | | |
| General Disclosure | Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress. | Product Responsibility |
| KPI B6.1 | Percentage of total products sold or shipped subject to recalls for safety and health reasons. | None |
| KPI B6.2 | Number of products and service related complaints received and how they are dealt with. | After-sales Services |
| KPI B6.3 | Description of practices relating to observing and protecting intellectual property rights. | Protection of Intellectual Property |
| KPI B6.4 | Description of quality assurance process and recall procedures. | Quality Control |
| KPI B6.5 | Description of consumer data protection and privacy policies, how they are implemented and monitored. | Information Protection |
| B7 Anti-corruption | | |
| General Disclosure | Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering. | Anti-corruption |
| KPI B7.1 | Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases. | None |
| KPI B7.2 | Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored. | Anti-corruption |
| B8 Community Investment | | |
| General Disclosure | Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests. | Community Engagement |
| KPI B8.1 | Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport). | Community Engagement |
| KPI B8.2 | Resources contributed (e.g. money or time) to the focus area. | Community Engagement |