



大唐環境產業集團股份有限公司

Datang Environment Industry Group Co., Ltd.*

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

Stock Code: 1272



2017

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

* For identification purpose only



Contents

About the Environmental, Social and Governance Report	1
Messages from the Manager	2
1. Corporate Governance, Fulfilling Responsibility	4
1.1 Group Profile	4
1.2 Corporate Governance	5
1.3 Combating Corruption and Promoting Integrity	6
1.4 Stakeholder Engagement	8
2. Products' Value, Demonstrating Innovation	9
2.1 Products and Services	9
2.2 Innovation Makes Excellence	11
2.3 Suppliers' Management	12
3. Environmental Protection, Scientific Development	13
3.1 Environmental Protection and Energy Conservation Solutions	13
3.2 Environmental Monitoring System	13
3.3 Emissions Management	15
3.4 Making Good Use of Resources	16
3.5 Environmental Performance Summary	18
4. Safe Production, Full Protection	20
4.1 Safe Production	20
4.2 Occupational Health	21
4.3 Investigation and Handling of Potential Hazards	22
5. Social Responsibility, Cooperating for Common Prosperity	23
5.1 Employees' Rights, Benefits and Development	23
5.2 Community Communication	28
6. Way Forward	31

SEHK ESG Reporting Guide Index	32
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About the Environmental, Social and Governance Report

The Environmental, Social and Governance Report (hereafter referred to as the “**ESG Report**”) mainly introduces the annual performance of various aspects with regard to compliant operation, quality management, environmental protection, employee development, and the fulfilment of corporate social responsibility, etc. of Datang Environment Industry Group Co., Ltd. (the “**Company**”) and its major subsidiaries (the “**Group**” or “**we**”) in 2017. It is to be read in conjunction with the “Corporate Governance Report” section of *Datang Environment Industry Group Co., Ltd. 2017 Annual Report* (the “**2017 Annual Report**”), so as to have a comprehensive understanding on the environmental, social and corporate governance performance of the Group.

Reporting Scope

Unless otherwise stated, the organizational scope of the ESG Report covers the Company and its major subsidiaries and the reporting period is consistent with that stated in the 2017 Annual Report of the Group, which is 1 January 2017 to 31 December 2017 (the “**reporting period**”). All information disclosed in the ESG Report was sourced from the Group’s documents and statistic. The Group certifies that the truthfulness, accuracy and completeness of the ESG Report.

Reporting Guideline

The ESG Report was prepared based on Rule 13.91 and Appendix 27 *Environmental, Social and Governance Reporting Guides* to the *Rules Governing the Listing of Securities* (the “**Listing Rules**”) issued by the Stock Exchange of Hong Kong Limited (“**SEHK**”).

Reporting Language

The ESG Report is published in two versions, Traditional Chinese and English. If there is any inconsistency, the Traditional Chinese version shall prevail.

Stakeholder Engagement

The preparation of the ESG Report was made with the engagement of each employee from different departments of the Group. This helped the Group have a better understanding on its current condition of sustainable development.

Comment and Feedback

Thank you for reading the ESG Report. Your comments and recommendations are motivations for the Group to keep enhancing the standards of our sustainable development work and our report writing quality. You are welcome to contact us by email at ir@dteg.com.cn.



Messages from the Manager

In 2017, with the tremendous support of all shareholders, and the precise strategy of board of directors of the Company (the “**Board**”), the Group firmly adhered to its core philosophy of “Value Thinking and Profit Orientation”, and comprehensively improve various management capabilities of the Company by ways of deepening reform, strengthening innovation and establishing system and mechanism. The development of the Group in 2017 can be summarized as focused strategy, structural adjustment, overseas layout, and steady advancement. Although facing with severe and sophisticated development trend, we have concentrated our efforts and worked hard to conquer difficulties, proactively fought against the rigorous market challenges and maintained a steady and sustainable development momentum.

In the past year, we continued to build a positive brand image as a listing company. We successfully applied and was awarded the *Listed Companies with Best Investment Value during the Thirteenth Five-year Plan Period* of the 7th China Securities Golden Bauhinia Awards and the *Listed Companies with Most Potential* of the 2017 China Financial Market Award, which further expanded our international reputation and credibility.

In the past year, we proactively fulfilled corporate social responsibility, pushed forward green development and relentlessly improved our professional management level. All of our desulfurization and denitrification devices achieved up-to-standard discharge and environmental protection devices’ efficiency was kept improving, which made positive efforts to promote ecological progress in China.

In the past year, we focused on the enhancement of team building and of employee’s comprehensive capabilities, further established and improved the overall responsibility management system and the whole employee performance evaluation system. Moreover, we held various employee trainings to increase employees’ team cohesion.

In the past year, we continued to strengthen technological innovations and build the core talent team. We have become the formal governing unit of the National Key Laboratory of Tsinghua University, and successfully invited Hao Jiming, an academician of China Engineering Academy, to the Workstation of Experts of the Company. Moreover, we have achieved various industry-level technology awards.



We contribute to enhancing our core competitiveness to achieve our healthy and sustainable development. We strive to grow into a domestic top-grade and internationally renowned company in energy conservation and environmental protection, so that to make greater contributions to creating a sustainable and green society and fighting battle to defend blue skies!

Chairman of the Board

JIN Yaohua

A handwritten signature in black ink, consisting of three characters: '金耀华' (Jin Yaohua).

1. Corporate Governance, Fulfilling Responsibility

1.1 Group Profile

The Group is the sole platform for the development of environmental protection and energy conservation business under China Datang Corporation Ltd., which is one of the five major state wholly-owned power generation groups in the People’s Republic of China (the “PRC”). Our principal businesses include concession operation of environmental protection facility, denitrification catalysts, environmental protection facilities engineering, water treatment business, energy conservation and renewable energy engineering business. As a trendsetter and leader of the environmental protection and energy conservation in China’s electric power industry, we can provide one-stop environmental protection and energy conservation solutions to customers, including research and development, engineering, products, services, investment, operation, etc., which are convenient and high-quality. The solutions cover the entire industry value chain of environmental protection and energy conservation for coal-fired power plants, including desulfurization, denitrification, dust removal, ash and slag handling, water treatment and energy conservation.

We always uphold the core philosophy of “value thinking and profit-oriented” and develop the Datang spirit of “being practical, dedicated, creative, self-motivated”. We strive to continuously enhance our capability of management, service, market, research and development, implementation and control, so as to make a great effort to the development of national environmental protection and energy conservation. In terms of the cumulative contracted generator capacity by the end of 2017, the Group has continued to be the largest nationwide flue gas desulfurization and denitrification concession operator.

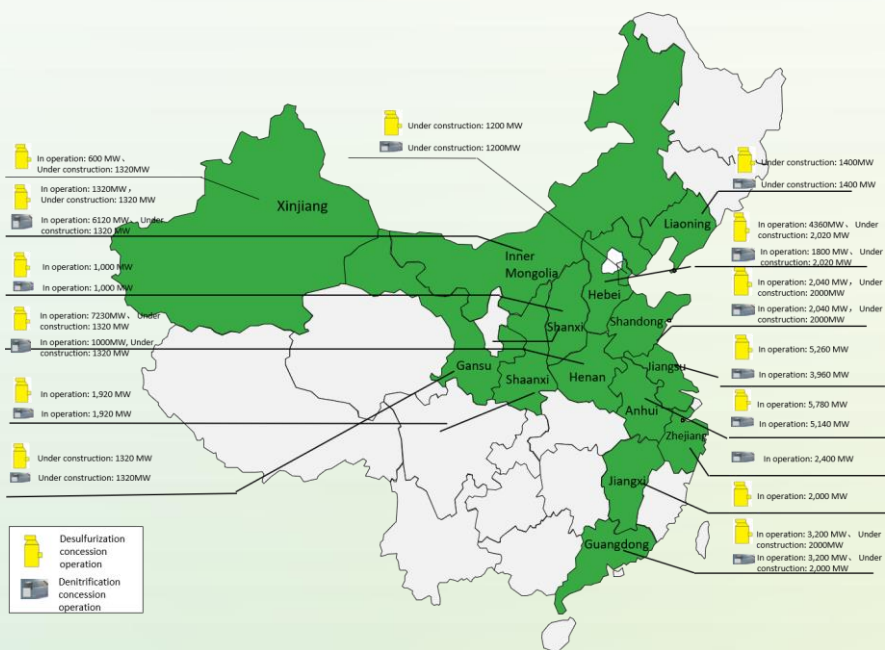


Figure 1. The geographical layout and the cumulative generator capacity of the Group’s concession operations as at 31 December 2017



1.2 Corporate Governance

The Group strives to maintain a high standard of corporate governance practice. Since its establishment, it has always been committed to improving corporate governance by adopting the code provisions of the Corporate Governance Code (the “Code”) as set out in Appendix 14 to the Listing Rules and applied the principles of the Code during the reporting period. It established a modern corporate governance structure comprising a number of independently operated bodies including the general meetings, the Board, the Supervisory Committee and the Senior Management in order to provide an effective check and balance. There are five professional committees under the Board, including the Audit Committee, Nomination Committee, Remuneration and Evaluation Committee, Strategy Committee and Investment Committee, to monitor the specific works of the Company accordingly.

Meanwhile, the Board is responsible for assessing and determining risks related to environment, social and governance (“ESG”), and to ensure that the Group has set up appropriate and effective risk management and internal monitoring systems for aspects of environment, social and governance. The Group conducted ESG related work according to the requirements of the *Environmental, Social and Governance Reporting Guide* released by SEHK and invited external independent third-party consulting agencies to provide advice to establish an effective ESG information management system, aiming to better manage the Group’s ESG performance and to continuously advance the Group’s performance on sustainable development. Furthermore, the Group has formulated and implemented risk and opportunity control procedures to identify and confirm the possible risks that could be found within our products, activities and service processes, and hence to evaluate and formulate corresponding measures according to internal and external situational factors and the expectations of relevant parties.

In order to standardize and improve management level, we adopted three standards namely the *Quality Management Systems – Requirements* (GB/T 19001-2016), the *Environmental Management Systems Requirements with Guidance for use* (GB/T 24001-2016) and the *Occupational Health and Safety Management Systems Requirements* (GB/T 28001-2011), together with existing laws and regulations during the reporting period. Based on the original management system documents and combined with the actual situation, the system documents were further revised and improved to form a new *Management Manual*. The “three standards in one” manual ensured that our quality, environment and occupational health and safety can be effectively managed.

1.3 Combating Corruption and Promoting Integrity

“Being law-abiding and operating with compliance” is both the Group’s principle as well as every single one of our employees’ code of conduct. To conscientiously implement the Party’s style of work, uphold integrity and combat corruption, and to solidly and effectively carry out anti-corruption work, the Group strictly abides by relevant national laws and regulations, such as the *Criminal Law of the PRC*, the *Regulations of the PRC for Suppression of Corruption*, relevant regulations of the State-owned Assets Supervision and Administration Commission of the State Council, the Listing Rules and fair competition rules, etc. In addition, various internal regulations and policies were formulated and implemented such as the measures for combating corruption and upholding integrity of the Group and the *Implementation Measure for the Responsibility System for Improving the Party’s Style of Work and Upholding Integrity of Datang Environment Industry Group Co., Ltd.* to govern our employees’ behaviour. Meanwhile, the Supervision Department was set up, promptly reporting the possible happenings of the issues of corruption, bribery, extortion, fraud, money laundering or other misbehaviours, requiring each of our employee to sign the *Statement of Upholding Integrity in Work* such that the requirements of combating corruption and upholding integrity can penetrate the Group’s development. In 2017’s work meeting on the implementation of the Party’s style of work, promotion of integrity and anti-corruption, we requested all units to strictly implement the responsibility system for the Party’s style of work and upholding integrity, to specify that the responsible target does not violate any laws or regulations. During the reporting period, we did not receive any proceedings or complaints of corruption, bribery, extortion, fraud or money laundering against our internal employees.

The Group implemented works on the Party’s style of work, upholding integrity and combating corruption. During the reporting period, a number of projects were conducted that deeply advanced the Group’s education on combating corruption and upholding integrity, and the construction of a probity culture.



Figure 2. The Company held the work conference in 2017 on the work of the Party’s style and preventing corruption. The meeting conveyed the key remarks of General Secretary Xi Jinping and the spirit of the Seventh Plenary Session of the 18th Communist Party of China Central Commission for Discipline Inspection, together with the spirit of work conference of state-owned enterprise and China Datang Corporation Ltd.’s Party’s style of work and prevention of corruption



Figure 3. The Company held the kick-off meeting for the propaganda and education month of promoting the Party's style of work, upholding integrity and combating corruption in 2017



Figure 4. The Company implemented the works of the Party's style of work, upholding integrity and combating corruption, and held a conference to discuss the fulfillment of the "two responsibilities"

1.4 Stakeholder Engagement

The Group formulated and implemented the *Control Procedure of Organization's Environment and Stakeholder's Demand*, proactively engaging with each stakeholder to promptly understand stakeholders' expectations towards the Group's ESG performance in order to better adjust the Group's sustainable development strategies.

Stakeholder	Request and expectation	Engagement channel	Response
Government related departments	Conform with the requirements of the environment and safety related laws and regulations; tax accordingly to law; timely update of policies and regulations	Supervision and assessment; meeting in relation; information disclosure	Taxed accordingly to law; work implemented to ensure operation complied with environment, health and safety related requirements
Shareholders and investors	Return on investment; avoid operational risks; develop new markets	General meeting; day-to-day investors' visit; participation in investment summit; hold earnings release conference; regularly publish annual report and ESG report	Continuous improvement of corporate management to ensure the Group's sustainable development
Customers/ tenants	Products and services conform with requirements of related laws and regulations to guarantee the qualities of products and services; smooth communication channels	Comprehensive feedback system	Continuous improvement of the quality management of products to provide satisfying products and services
Employees	Good work and rest environment; clear and feasible system and process information; promotion and development	Employee meeting; employee activity	Perfecting employees' policy to protect employees' rights and benefits; enriched employees' activities
Suppliers	Clear and comprehensive procurement information description; smooth communication channels	Tendering and bidding; cooperation meeting	Ensured a fair and transparent procurement process; grew alongside with suppliers
Surrounding community	Protect the community's environment; support local economic development	Community communication; charitable events	Implemented environmental protection measures; proactively engaged in community services



2. Products' Value, Demonstrating Innovation

We always focus on the environmental protection and energy conservation of the entire industry value chain and the green, clean and efficient application of energy, as our foremost purposes are to construct high quality projects, produce exquisite products and provide exceptional services. Relying on advanced technology, technological innovation and management improvement and growing alongside with our suppliers, we make an all-out effort to provide customers with products and services that meet standards and are of high quality.

2.1 Products and Services

The quality, function and safety of our products are of critical importance to our customers. We are strictly pursuant to the applicably relevant laws, regulations and quality standards with regard to the health and safety of the products and services provided, labels and remedies for environmental protection and energy saving services, coal-fired power plant pollutant emission monitoring service and renewable energy service, such as the *Product Quality Law of the PRC*, the *Interim Measures for the Supervision and Administration of Energy Conservation and Emission Reduction at Central Enterprises*, the *Law of the PRC on Promoting Clean Production*, the *Renewable Energy Law of the PRC*, the *Atmospheric Pollution Prevention and Control Law of the PRC*, the *Law of the PRC on Conserving Energy*, etc. In addition, to further standardize quality management work and to continuously improve on product's quality, we formulated the *Management Measure for the Quality of Maintenance and Technical Renovation Projects of Datang Environment Industry Group Co., Ltd. (Trial)*, and successfully obtained the certification of *Quality Management Systems – Requirements (ISO 9001: 2015)*, and based on that requirement formulated and implemented the operational management procedures of the desulfurization and denitrification facilities, the design of the control procedures, the project management procedures of engineering, procurement and construction (“EPC”), and the management procedures of other products and services.

In terms of quality control of raw materials components and equipment, we have established and maintained stringent quality assurance standards and inspection procedures. For instance, regarding quality monitoring of raw materials, certain staff conducts inspections on raw materials, including raw materials sampling and delivering samples to either laboratories or testing bodies for testing. At the same time, we conduct traceable quality control over the entire life cycle of our products and services, including identifying the product in accordance with applicable product labelling regulations. During the entire process of the product realization, appropriate methods are adopted to identify the product and its production status, and unique identification is applied to products that may require further modification.



As for the management of concession operation business, we formulated the *Professional Management Scheme of Desulfurization and Denitrification Concession Operations*, which contains the management standards for each aspect in operation including production safety, operation indices, etc. The standard covers technical standards for design, operation, inspection and maintenance, supervision and standardized working process. Meanwhile, professional management systems for concession operations business was established to improve our efficiency. We established standardized management systems, technical standards and operation procedures; we established an operation management information platform to collect real-time data from relevant desulfurization and denitrification environmental protection facilities and support our specialized management. The platform also helps to realize the centralized monitoring and life-cycle management of the environmental protection facilities as well as the sharing of environmental protection data and feedback; we set up an operation supervision and assessment platform to supervise, assess, and pre-emptively control the risk over various indices of our concession operations' such as safety, technology, economics and environmental protection performances.

Moreover, we established a quick response mechanism for customers' demands to strengthen our customer management. We formulated the *Measurement and Control Procedure for Customer and Stakeholder Satisfaction*. Through investigating and analysing information collected from satisfaction surveys, we assess customers and stakeholders' satisfaction levels towards the Group's products and service processes and made improvements on the dissatisfied factors of the products and services accordingly. Furthermore, we formulated the *Control Procedure of Substandard Products*, to ensure that substandard products are effectively identified and controlled such that either unintended usage or delivery can be prevented. In addition, we formulated the administrative measures for coordinated service and supervision of production and renovation projects to improve the quality of technical renovation projects' customer service and the operation and management of the concession operations. During the reporting period, we did not receive any customer complaints, nor did we have any of our products recalled due to safety and health related reasons.

Regarding the information of the Group and our clients, we strictly abide by relevant laws and regulations, relevant privacy laws, trade secrets protection and confidentiality arrangement and the Group's confidentiality agreement to keep the information safe by proper measures and to ensure information security. Concurrently, effective controls of customers' properties, including document, facility, equipment, etc., are implemented through measures like identification, verification, registration, protection, maintenance and recording.

We sell products and provide services to our customers through direct sales model which does not involve any issues related to product advertising.

2.2 Innovation Makes Excellence

Scientific research and innovation have enabled us to make continuous improvement. We firmly seize the new trend in technological advancement in the upcoming future, continuously strengthening our research and development capabilities to keep improving and excelling. In 2017, the Group continued to increased investment in research and development and technological innovation, and focused on the research and development and cultivation of the technological innovation team. As a result, we achieved outstanding results and received 26 industry-wide technological awards, including 3 first prizes of China Power Innovation Award, 1 first prize of Power Enterprise Science and Technology Innovation Achievement Award and 12 industry-wide second prizes. In addition, we continued to focus on our proprietary development and innovation and persist in promoting commercialization of technological achievements. Our own research and development results of the “Establishment and Application of the Life-long Management Platform of Denitrification Catalysts Based on Big Data” passed the technical appraisal of the China Electricity Council and reached international leading level. Until 31 December 2017, the Group accumulated 764 patents, 23 technical standards under preparation of which one of the main standards was an international standard, and 6 of the main standards were nationwide and industry-wide standards.



Figure 5. We were awarded with three first prizes of China Electric Power Innovation Award in 2017



Figure 6. We were awarded with two second prizes of Energy Innovation Award in 2017

We attach great importance to the protection of intellectual property rights and the achievements of our research and development colleagues. We rely upon a combination of patents, copyrights and trademarks, trade secrets, confidentiality policies, non-disclosure and other contractual arrangements to protect our intellectual property rights. In addition, we protect our trade secrets by entering into either confidentiality agreements or trade secrets protection agreements with our suppliers and employees.

2.3 Suppliers' Management

Suppliers are our important partner, through building supplier's management system, to partner with suppliers that have good performance in their corporate social responsibility, aiming to create a sustainable development atmosphere together. We formulated the *Bidding Management Measure of Datang Environment Industry Group Co., Ltd.*, the *Supplier Management Measure of Datang Environment Industry Group Co., Ltd.*, the *Working Rules of Centralized Procurement Bidding for the Working Group of Datang Environment Industry Group Co., Ltd.*, and other policies to implement a well-managed procurement management system and a stringent supplier selection process, which includes qualification confirmation, laboratory testing, production process inspection, annual review and secondary review to manage the procurement and outsourcing processes required for product realization. We mainly select suppliers through open tender, and conduct assessment to select the most appropriate supplier based on their capability of quality assurance, product safety and environmental protection performances, qualifications, price, previous comments of the products, etc. Meanwhile, we also consider suppliers' corporate social responsibility performance, including if the supplier respect colleagues' work achievements, prohibit any forms of child labor, if facilities of environmental protection or energy saving were employed, adopted mitigation measures for emissions, etc. Reassessment of the qualified suppliers is conducted on a regular basis to keep the list of qualified suppliers updated. In addition, we inform the materials and equipment suppliers of the environmental requirements in written form, hoping to create a green supply chain together.



3. Environmental Protection, Scientific Development

We commit to the duty of “pollution prevention and control, energy conservation and energy consumption reduction and reduction of major impact on environment”. We proactively respond to the national “13th Five-year” *Comprehensive Plan for Energy Conservation and Emission Reduction* and other policies regarding environmental protection, leading our work by the theory of Scientific Outlook on Development. Apart from Conserving energy and reducing energy consumption in our operation, we commit to the business of energy management contract project, desulfurization, denitrification, dust elimination, water treatment and other environmental protection projects construction and operation, which cover electric power industry, metallurgical industry, chemical industry and other industries. Moreover, we devote to the manufacture of denitrification catalyst and other environmental protection products as well as the construction of wind power and other green energy projects. By doing so, we are able to make contributions to the country, the society and the energy conservation and environmental protection industry.

3.1 Environmental Protection and Energy Conservation Solutions

We promote clean and efficient energy utilization by our state-of-the-art technology, strong capabilities of research and development and excellent services. In 2017, all of the Group’s desulfurization and denitrification devices achieved up-to-standard discharge, with a yearly recorded emission reduction of 1,061,100 tons of sulfur dioxide and 125,100 tons of nitrogen oxide in aggregate. In terms of engineering construction and product manufacturing, the Group completed the ultralow emission transformation of a total of 34 coal-fired generating units in 17 projects, and produced 33,674.01 cubic meters denitrification catalysts throughout the year. For the renewable energy business, we completed 1 wind power plant engineering projects in total, with a cumulative installed capacity in operation and a cumulative contracted capacity of 1,045 megawatts and 698 megawatts, respectively. And we completed 5 photovoltaic power plant engineering projects in total, with a cumulative installed capacity in operation and a cumulative contracted capacity of 800 megawatts and 530 megawatts, respectively, making remarkable contributions to the establishment of a beautiful and ecological environment in China.

3.2 Environmental Monitoring System

We gained the certificate of the Environmental Managements System (ISO 14001: 2015) and accordingly formulated the *Control Procedures of Identification and Assessment of Environmental Factors and Source of Hazards*. Identification and assessment of environmental factors and sources of hazards in the operations or activities of the Group that can be either controlled or changed are conducted. This facilitates the effective implementation of the control measures to reduce the major impact on the environment and natural resources. When identifying environmental factors, we consider 3 statuses (normal, abnormal and urgent), 3 chronological conditions (past, present and future) and 8 categories (atmospheric emissions, water discharges, discharges to soil, utilization of raw materials and natural resources, energy utilization, energy discharges, generation of disposals and by-products and physical properties, such as size, shape, color, appearance and other issues).

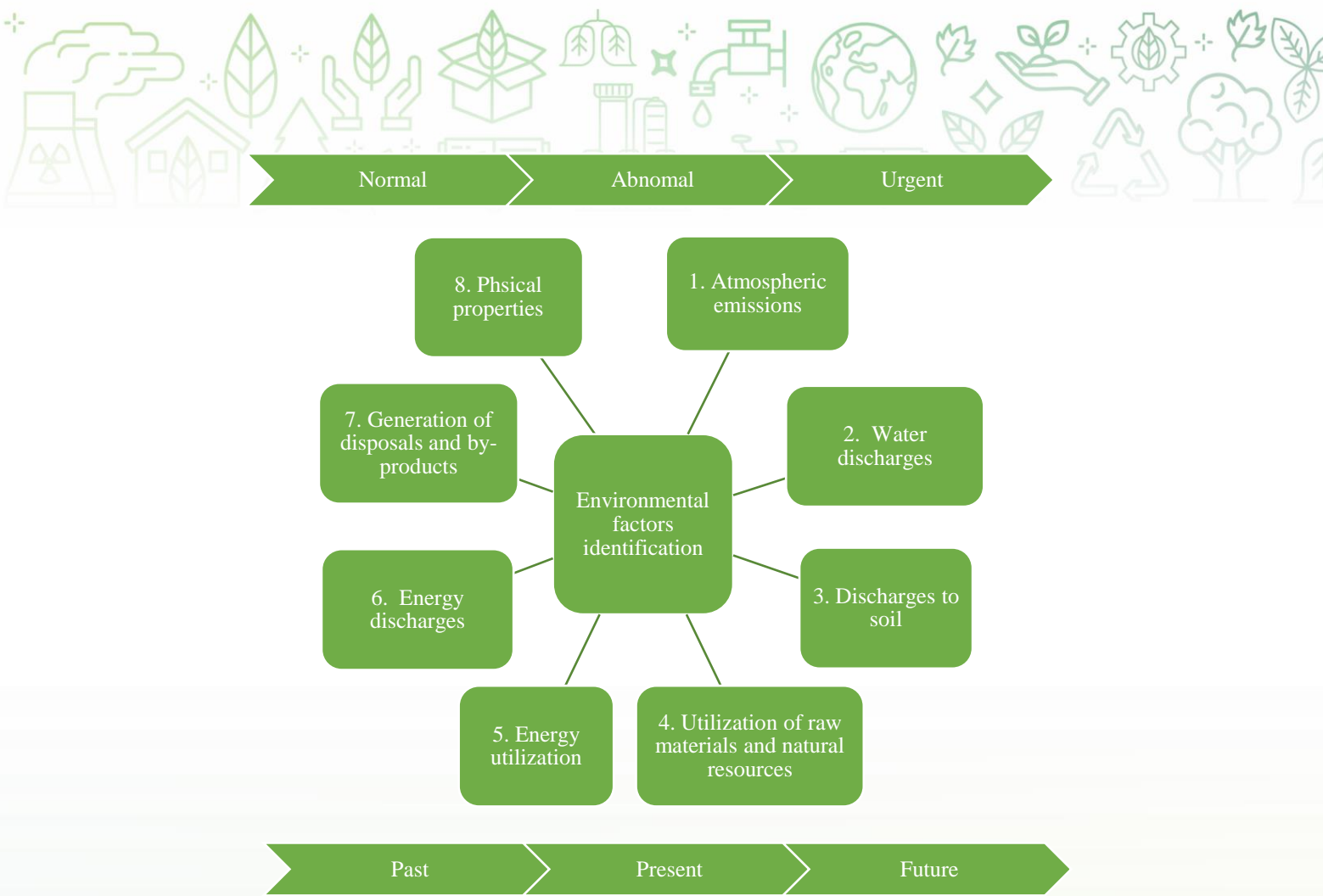


Figure 7. The figure of the environmental factors identification of the Group

In addition, the *Environmental Operating Control Procedure* that we formulated acts as a basis for the implementation of the supervision, inspection and control of environmental factors in the working environment. We ensure that the generated emissions during our operation, such as exhaust gas, discharges to water and soil, hazardous and non-hazardous disposals, etc., comply with the related environmental laws regulations and requirements of target so as to realize the continuous improvement of environmental performance. For one thing, we develop analysis of operating status on a regular basis and supervise the emission requirements, water usage, power consumption of the factory and other major indicators. Summaries, supervision and reports of operating information are prepared and analyzed. And following technical solutions of abnormal circumstances in operation are conducted. For other thing, we implement management of suppliers and subcontractors of construction projects. Regarding the major environmental factors and unacceptable risks involved in the provided materials and their behaviors, we ensure that the relevant environmental emissions comply with standards by informing them of specific requirements in written form to mitigate impacts on environment and reducing energy consumption.


A decorative header at the top of the page features a horizontal row of various environmental and industrial icons. From left to right, these include a gear inside a head, a book, a sun, a plant, a water tap, a house, a leaf, a lightbulb, a bicycle, a recycling symbol, a globe, a cloud, and a tree. The icons are rendered in a light blue and green color scheme.

3.3 Emissions Management

The major emissions generated that may have impacts on environment and natural resources during the Group's operation are wastewater, exhaust gas and wastes (for the relevant emissions data, please refer to "3.5 Environmental Performance Summary"). We strictly abide by the national laws and regulations relating to air and greenhouse gas ("GHG") emissions, discharges into water and land, and generation and disposal of hazardous and non-hazardous wastes, and minimise the significant impacts on the environment and natural resources, which include but are not limited to the *Environmental Protection Law of the PRC*, the *Water Pollution Prevention and Control Law of the PRC*, the *Law of the PRC on the Prevention and Control of Environmental Pollution by Solid Waste*, the *Water and Soil Conservation Law of the PRC*, the *Law of the PRC on the Prevention and Control of Atmospheric Pollution* and the *Measures for Cleaner Production Review*. In addition, we formulated and implemented the *Operational Control Procedure for Environmental Management*, the environmental performance monitoring procedures and other environmental management policies to implement works related to emissions management and mitigation of significant impacts on the environment and natural resources. During the reporting period, our operations complied with relevant national laws and regulations with regard to environmental protection. We did not receive punishments due to the violations of relevant laws and regulations relating to environmental protection.

The generated wastewater from our operations mainly comes from the operations of the desulfurization and denitrification systems and the production of desulfurization and denitrification catalysts. We have already set up wastewater treatment facilities and rainwater and wastewater separation systems to mitigate the impacts of wastewater on the environment. In order to reduce wastewater discharges, the desulfurization and denitrification systems have implemented zero discharge practices for the wastewater generated from operation and all treated wastewater would be collected and reused in power plants. During the reporting period, the wastewater discharges were 81,771 tons.

We devote to providing solutions of environmental protection to customers and making contributions to the reduction of sulfur dioxide and nitrogen oxide by the desulfurization and denitrification devices of the concession operation. There is exhaust gas generated from our operations, which mainly is the dust from the production of catalysts and air pollutants from the machine we used. In order to reduce the generation of the exhaust gas, for one thing, we give preference to the technologies and equipment that are well-developed, environmental friendly and energy saving. For the other, regular maintenance is conducted to ensure machines' normal function and prevent the exhaust gas emission from increasing due to equipment malfunction.



We treat solid wastes in a better way by segregating solid wastes into general non-hazardous wastes and hazardous wastes according to their properties for further treatments. Reduction plans for solid wastes are formulated according to the wastes records that are continuously made so as to reduce the generation of solid wastes in line with the principle of reducing, reusing and recycling. General non-hazardous wastes, such as paper and office supplies, are collected and stored at specific areas, and subsequently delivered to the environmental protection department for further treatments. Moreover, as for hazardous wastes, pursuant to the *Regulation on the Safety Management of Hazardous Chemicals* (No. 591 Order of the State Council), the *Standard of Identification of Major Hazards Installation of Dangerous Chemicals* (GB 182819-2009) and other laws and regulations, we formulated regulations of dangerous chemicals management so as to accomplish the dangerous chemicals management of the Group and to prevent the hazardous chemical accidents that cause impacts on the environment from happening. Considering the treatments of relevant dangerous chemicals, their wastes are sent to qualified waste collection suppliers for harmless and centralized treatment. Furthermore, we built independent store rooms according to design standards for storing chemicals to mitigate the impacts of the leakage of dangerous chemicals on the soil, water and atmospheric environment and minimize safety and environmental risks.

3.4 Making Good Use of Resources

The Group strictly abides by the laws and regulations relating to energy management and use of resources, such as the *Law of the PRC on Conserving Energy*, the *Renewable Energy Law of the PRC*, the *Circular Economy Promotion Law of the PRC*. Meanwhile, we formulated and implemented the *Operational Control Procedure for Environmental Management*, etc., and enhanced the management of energy use by establishing energy use monitoring plans. We focus on managing the equipment that consume the majority of energies to ensure the full and effective use of energy.

As for energy use, in 2017, we set the annual requirements and targets of energy consumption for the desulfurization and denitrification business according to the actual operational conditions of each production department. Each production department was required to optimize operations to reach the annual requirements and, therefore, developed competitions for reaching requirements and gained certain achievements. By comparing and analysing the results, in 2017, the electricity consumption of desulfurization business decreased by 0.08 kilowatt hours/kilogram as compared to last year and saved approximately 85,040,000 kilowatt hours electricity; while electricity consumption of denitrification business decreased by 0.11 kilowatt hours/kilogram as compared to last year and saved approximately 14,090,000 kilowatt hours electricity. Moreover, we implemented energy renovation of lamps in factories by replacing the traditional lamps with LED lamps. By doing so, it is estimated that it saves 476,544 kilowatt hours electricity annually and reduce approximately 475.114 tons carbon dioxide emissions.



In terms of water sourcing, the water of the Group sources from municipal fresh water supplies, desalinated water and reclaimed water. Therefore, there are no difficulties with water sourcing. We formulated water efficiency plans and developed water saving competitions to increase water efficiency. The competitions included developing equipment maintenance to reduce water wasting and leakage, optimizing the equipment's operational mode and increasing the use efficiency of reclaimed water by, for example, reusing the treated wastewater for equipment washing or for equipment cooling, etc., which saved approximately 2,378,900 tons water.

Conserving the environment through small changes can be done in our daily life. We think highly of saving water and save water by posting water-saving signs, utilizing water-saving equipment and other measurements. Additionally, we control the paper usage by, on the one hand, adopting office automation system for paper usage reduction and, on the other hand, conducting large scale collection and reutilization of office wastepaper.

3.5 Environmental Performance Summary

As of 31 December 2017, the major emissions of the Group during the reporting period were as follows:

Parameter	Unit	2017
Total revenue	RMB'000	8,024,494
Air pollutant ¹		
Sulphur dioxide emissions due to productions	Tons	1.32
Nitrogen oxide emissions due to productions	Tons	7.69
Compliant sulphur dioxide emissions from concession operation ²	Tons	11,824.84
Compliant nitrogen oxide emissions from concession operation	Tons	18,010.39
GHG ³		
Scope 1: direct emissions (excluding reductions due to planted trees)	Tons CO ₂ equivalent	7,887.67
Emission intensity of scope 1	Tons CO ₂ equivalent / RMB'000	9.83 x 10 ⁻⁴
Scope 2: indirect emissions	Tons CO ₂ equivalent	1,646,470.95
Emission intensity of scope 2	Tons CO ₂ equivalent RMB'000	0.21
Planted trees	Trees	50
GHG emission reduction due to planted trees ⁴	Tons CO ₂ equivalent	1.15
Total GHG emissions	Tons CO ₂ equivalent	1,654,357.47
GHG emission intensity	Tons CO ₂ equivalent / RMB'000	0.21

¹ The air pollutants mainly sourced from productions and the Group's machines. The data used in the calculation in air pollutant emissions was sourced from the recorded data of the Group and best conservative estimates were made based upon historical performance data or benchmarking with similar facilities.

² The compliant air pollutant emissions from the concession operations refer to the compliant air pollutants emissions that were treated by the Group's desulfurization and denitrification systems, from the power plants, which are the Group's customers.

³ The GHG emissions were calculated according to the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* and the *Guidance for Compiling Provincial GHG Emission Inventory (Trial)*. The data used in the calculation in GHG emissions was sourced from the recorded data of the Group and best conservative estimates were made based upon historical performance data or benchmarking with similar facilities.

⁴ The calculation of GHG reduction by planted trees was set out based on the *Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Building (Commercial, Residential or Institutional Purposes)* in Hong Kong published by Electrical and Mechanical Services Department and Hong Kong Environmental Protection Department.

As of 31 December 2017, the energy consumption and water consumption of the Group during the reporting period were as follows:

Parameter	Unit	2017
Water consumption	Tons	26,787,916.34
Intensity of water consumption	Tons / RMB'000	3.34
Electricity consumption	Kilowatt hours	2,307,163,545.61
Intensity of electricity consumption	Kilowatt hours / RMB'000	287.52
Natural gas	Ten thousand cubic meters	327.61
Intensity of natural gas consumption	Ten thousand cubic meters/ RMB'000	4.08×10^{-5}
Gasoline	Tons	338.61
Intensity of gasoline consumption	Tons / RMB'000	4.22×10^{-5}
Diesel	Tons	9.83
Intensity of diesel consumption	Tons / RMB'000	1.23×10^{-6}
Energy saving of concession operation	Kilowatt hours	99,130,000.00
Energy saving of the energy renovation of lamps	Kilowatt hours	476,544.00

As of 31 December 2017, the wastes of the Group during the reporting period were as follows:

Parameter	Unit	2017
Hazardous waste		
Spent catalysts	Cubic meters	12,000
Spent lubricating oil	Tons	20.30
Sludges from wastewater treatment	Tons	10,967.39
Collected dusts that contained hazardous wastes	Tons	54.10
Non-hazardous waste		
Dust	Tons	451.00
Leftover materials from cutting	Tons	141.00
Domestic wastes	Tons	292.70
Paper	Tons	127.26
Total amount of generated non-hazardous wastes	Tons	1,011.96
Intensity of generated non-hazardous wastes	Tons / RMB'000	1.26×10^{-4}



4. Safe Production, Full Protection

“Human-oriented and safe development” is the Group’s fundamental management concept. We always uphold the spirit of “being practical, dedicated, creative, self-motivated” to respect and care about our employees. We adhere to the management concept of “intrinsic safety”, and set the Group’s safety target, to “resolutely put an end to large accidents, prevent personal injury and death, avoid ordinary accidents from happening, ensure accidents of bad nature or that may cause adverse social impact from happening, and to ensure annual targets of production and operation being accomplished smoothly’. The safety target aims at managing safety risk that may happen in production and to avoid personal injury and damage to health.

4.1 Safe Production

The administrative principle of safety we take is “safety first, precaution crucial, human-oriented, law-abiding and self-discipline, technology-led and safe development”. We always comply with the requirements or relevant laws and legislation relating to safe production, including but not limited to the *Work Safety Law of the PRC*, the *Production Safety Prohibitions for Central Enterprises*, the *Interim Provisions on the Supervision and Management of Work Safety at Central Enterprises* and the *Regulations on Safety Supervision over Special Equipment*. At the same time, we formulated and implemented the *Management Measure for the Quality of Maintenance and Technical Renovation Projects of Datang Environment Industry Group Co., Ltd. (Trial)* alongside with other company policies, to develop production and operation activities in accordance with the objective of safe production. To enhance the Group’s management level, we adopted the *Quality Management Systems – Requirements of National Standard of the PRC (GB/T 19001-2008, identical to ISO 9001:2008, Quality Management Systems – Requirements)*, and obtained the certificate of the Occupational Health and Safety Management System (OHSAS 18001:2007). Also, the entrenched idea of the “Four Don’t” principle lay out that any accident’s investigation shall not be allowed to pass if the cause of the accident was not discovered, if the persons liable for the incident and the public had not been educated, if the practical precaution measures had not been put into effect, or if the persons liable were not subjected to punishment. Moreover, to achieve safe production, the Group carries out a three-level hierarchical responsibility management framework, which divides the Group into three levels namely “company’s headquarter, subsidiaries and business department, and project department”. The framework established and improved the security system for having the chiefs of all levels to be responsible for safe production. With these two frameworks, a systematic and hierarchical supervision system of safe production was established, and the realization of the safe production goals of the Group could be effectively assured. We also hold regular safety meetings to summarize and analyse the existing weaknesses of our safe production management, to formulate and enforce corresponding precautionary measures.

During the reporting period, to implement the Safety Inspection 2017 and to do well in safety production work during the “19th National Congress of the Communist Party of China”, we set up a safety inspection group to perform safety inspections at a few of our subsidiaries by conducting site visit, information check and interview, and to focus on specific inspection issues following the “immediate inspection, prompt correction” principle, requesting responsible unit to rectify at once whenever necessary.



Figure 8. The safety educational panels set up at the Group’s sites

4.2 Occupational Health

We are strictly in accordance with relevant laws and regulations regarding work place safety and employees’ protection on occupational hazard prevention, including but not limited to the *Law of the PRC on the Prevention and Control of Occupational Diseases*, the *Provisions on the Supervision and Administration of Occupational Health at Work Sites*, and the *Provisions on the Supervision and Administration of Labor Protection Articles*. Meanwhile, we formulated and implemented occupational health safety activities management process and occupational health safety performance monitoring system, developing occupational health programs in a structured and effective manner. During the reporting period, we did not receive any cases of major incidents and did not receive any punishments due to the violations of relevant laws and regulations of the PRC regarding occupational health and safety.

Corresponding work safety manuals and occupational health manuals are provided to employees focusing on respective operational process. To raise employees’ safety awareness, daily safety education and trainings are arranged for them on a regular basis. Not only can the measures favor employees’ understanding of relevant laws and regulations, they also enable employees to learn professional operational skills and stipulated requirements. We also organize and conduct various kinds of safety inspections and safety month events within the Group to improve safety management of special equipment and respective operators. Managers of the Group regularly conduct inspection and instruction on safety related measures at workplace, responsible personnel then monitor and perform maintenance for operating facilities on a regular basis, to ensure that operations comply with relevant laws and regulations.



Necessary labor protection articles are provided to every employee in the operating site to help prevent or reduce possible incidental injuries or occupational hazards. Additionally, not only are regular body check-ups arranged for our employees, but also their health archives are established in the Group, to ensure that the fundamental management of the prevention of occupational disease is implemented.

4.3 Investigation and Handling of Potential Hazards

Strictly pursuant to the *Fire Control Law of the PRC*, the *Interim Regulations for the Accident Investigation and Handling of Potential*, the *Interim Regulations for the Supervision and Administration of Power work* and other relevant national laws and regulations, the Group formulated regulations for the investigation and handling of potential safety hazards to thoroughly adhere to our policy of “safety first, precaution crucial and comprehensive administration”. By such, we aim to standardize the work of accident investigation and handling of potential safety hazards, and effectively prevent safety related incidents from happening. Identification, assessment and updates of environmental factors and source of hazards are conducted on a regular basis. The major environmental factors and major sources of hazards are classified according to the assessment results. Risk control manuals are established according to the assessment results and is put into effect.

Comprehensive emergency preparation and response processes were formulated, including contingency plans for fire, occurrence of different incidents, work-related injury, emergency incidents and natural disasters. Concurrently, we hold various kinds of drills regularly to fully enhance employees’ capability to cope with emergencies.



Figure 9. The fire drill of the Company in 2017

5. Social Responsibility, Cooperating for Common Prosperity

It is our obligation to fulfil our corporate social responsibility, meanwhile it is also our mission. We always put people first, focus on the interests of our customers, employees, the society and other stakeholders, caring for employees' health and development, striving to commit in energy conservation and environmental protection industry while actively fulfilling our corporate social responsibility.

5.1 Employees' Rights, Benefits and Development

Employees are our valuable assets and their growth is the foundation of our sustainable development. The Group strictly abides by relevant laws and regulations regarding remuneration and dismissal, recruitment and promotion, working hours, holidays, equal opportunities, diversity, anti-discrimination and other benefits, for instance, the *Labor Law of the PRC*, the *Labor Contract Law of the PRC* and the *Trade Union Law of the PRC*. To protect the legal rights and benefits of the employees, we formulated and implemented human resources systems, including sound recruitment systems, labor contract systems, comprehensive promotion mechanisms and remuneration and benefit policies, compliant working hours, people-centric leave and holiday systems, etc. During the reporting period, all our employees have entered into labor contracts, which stipulated employees' salaries, position, benefits, trainings, confidentiality liabilities relevant to commercial secrets and grounds for dismissal and termination and other issues. During the reporting period, we did not experience major labor disputes nor received any punishments due to serious violations of the labor laws and regulation of the PRC.

Function	Number of employees	Percentage of the total number of employees
Concession operation management personnel	299	24.39%
Engineering and technical personnel	234	19.09%
Sales personnel	139	11.34%
Research and development personnel	411	33.52%
Administrative and management personnel	91	7.42%
Manufacturing personnel	26	2.12%
Others	26	2.12%
Total	1,226	100%

Table 1. The number of employees as at 31 December 2017 by their functions of the Group



5.1.1 Employees' Recruitment and Equal Opportunity

We formulated the human resources management protocol for recruiting employees. Based on job responsibilities and requirement, we shortlist potential employees of high compatibility from internal and external recruitment. We also advocate equal job opportunity policies, and will not discriminate against employees due to their races, nationalities, colors, religions, sex, ages, disabilities or pregnancy.

5.1.2 Employees' Remuneration and Benefits

The remuneration package of our employees includes salaries, bonuses and allowances. We also provide employees benefits of medical, housing subsidy, retirement and other welfare, and establish social insurance funds (including pension insurance, medical insurance, work-related injuries insurance, unemployment insurance and childbirth insurance) and housing provident funds. We carry out employee performance appraisals and construct different forms of dynamic appraisal mechanisms in order to establish pay adjustment mechanisms accordingly.

5.1.3 Employees' Incentives and Promotion

Based on our development requirements, we further established and improved the overall responsibility management system and the performance evaluation system of all employees. We adopt an encouraging approach to inspire employees' potential and their work passions, and to build a foundation for their career developments. Through establishing performance goals and standards, we objectively and accurately evaluate employees' performance in reaching their work performance goals, and based on quantifiable evaluation results to present rewards or penalties. Meanwhile, the evaluation results also act as references in determining employees' promotion. Upholding our principle of "having the right person in the right job", we implemented a comprehensive promotion system, aiming to provide favourable advancement opportunities to our employees and to build a sound career development path for them.

5.1.4 Working Hours and Leave and Holiday Policies

We formulated people-centric leave and holiday policies to ensure that our employees can legally enjoy paid leaves, maternity leaves and other public holidays. We comply with relevant national labor laws and regulations regarding working hours and rest periods.

5.1.5 Labor Standards

The Group strictly complies with relevant applicable laws and regulations, such as the *Law of the PRC on the Protection of Minors* and the *Provisions on the Prohibition of Using Child Labor*, resolutely eradicating any employment of child labor under the age of 16 and forced labor.

5.1.6 Employee Dismissal

We established a set of procedures of the termination of employee’s labor contract and was implemented by the managers of the Group’s Human Resources Department to ensure relevant laws and regulations are complied with.

5.1.7 Employees’ Development

We place strong emphasis on employee’s trainings, proactively creating a work environment where employees can grow alongside with the Group. To attract and retain high-quality employees and to further enhance employees’ knowledge base, skill level and professional literacy, we provide our managers and other employees with in-service education, trainings and other opportunities, to raise their professional skills and knowledge. To implement employees’ trainings, we set up talent development plans. Based on our existing resources, we offer quality training programs and actively develop all kinds of competitions, to carry out talent evaluation work and at the same time to perfect our trainings for graduate trainees. During the reporting period, the Group carried out 23 training programs of operation management, professional technological skills and production skills. The employee training rate reached 100%.



Figure 10. The “International talent” training program 2017 – business English training class



Figure 11. The “International talent” training program 2017 – business English training class graduation show

Employees’ development does not merely focus on knowledge expansion, it also focuses on the relaxation of employees’ physical and mental health. Through organizing numerous activities of a wide range of varieties, it on one hand enriches employees’ lives allowing them to relax and relieve stress, it on the other hand boosts team bonding. Moreover, in traditional festivals like Chinese New Year, Mid-Autumn Festival and National Day, the leaders of the Company led the team, visited more than 10 project departments to send holiday blessings and condolences to frontline workers, spreading the care and love of the organization.



Figure 12. The 3rd Singing Contest of the Company



Figure 13. The Basketball Competition 2017



Figure 14. The Female workers' symposium 2017



Figure 15. The Football league 2017

5.2 Community Communication

While the Group concerns its business in energy conservation and environmental protection, it also concerns the local community. To enhance our communication with the community, we on one hand published the Group's information via platforms such as online media; on the other hand, we actively organized and held different kinds of charitable activities, such as "Great Walker Fundraising Hiking Event", "Books Donation to Wumeng with Love", "Culture Aid School Education Scheme", etc., to share the Group's positivity with the community. 2017 was the second consecutive year that we participated in the "Great Walker Fundraising Hiking Event". An accumulation of RMB74,000 of funds was raised with the participation of 44 employees, 8 of them participated in the 100-km walk and 36 of them participated in the 50-km walk. We also received the "Best Dissemination Team" award by donating a kitchen of love to hometown-remained children of remote areas in Guizhou, spreading love and warmth by actively disseminating the spirit of goodness through actions. Furthermore, we developed the work of "precise school education aid, culture alleviates poverty", and kicked-off the "Culture Aid School Education Scheme" in Shijingshan Huaao School. From repairing school's classrooms to donate cultural display panels and teach children performance skills, we actively respond to the national call for poverty alleviation through culture aid school education scheme and let the Datang spirit take root.



Figure 16. The volunteers of the Company participated in the “Great Walker Fundraising Hiking Event 2017”



Figure 17. The Company leveraged the “Learn from Lei Feng Day” as an opportunity to initiate the “Books Donation to Wumeng with Love” event, and made an all-out effort in promoting poverty alleviation and providing education support



Figure 18. The Company's kick-off event of "Culture Aid School Education Scheme" for Huaao School



Figure 19. Visiting the nursing home



6. Way Forward

Looking forward to 2018, the Group is going to grasp every opportunity firmly, further improve the business's professionalism level in management, enhance our capability in sustainable development, fully unleash the Company's skills and technologies and outstanding quality, continuously improve and enhance existing technologies and production processes, to bring forth a win-win scenario receiving both economic and environmental benefits. At the same time, we strive to continue to grasp all market opportunities brought about by the *Paris Agreement* and the "Belt and Road Initiative", to leverage our own management experience, technical know-how and integration ability, to comprehensively enhance the Group's core competitiveness and sustainable development capabilities, and to proactively fulfil our corporate social responsibility for the society and for contributing to building a beautiful and ecological civilized China!

SEHK ESG Reporting Guide Index

General Disclosures and KPIs	Description	Relevant Chapter(s) or Other Explanation
Environmental		
Aspect 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.	3.2 and 3.3
KPI A1.1	The types of emissions and respective emissions data.	3.5
KPI A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	3.5
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	3.5
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	3.5
KPI A1.5	Description of measures to mitigate emissions and results achieved.	3.1, 3.3 and 3.4
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.	3.3
Aspect A2: Use of Resources		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.	3.4
KPI A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	3.5
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	3.5
KPI A2.3	Description of energy use efficiency initiatives and results achieved.	3.4 and 3.5
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved.	3.4
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Not applicable ⁵
Aspect A3: Environment and Natural Resources		
General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources.	3.2 and 3.3
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	3.2 and 3.3

⁵ Due to the operation nature of the Group, according to the materiality principle, the packaging material used for finished products is not applicable.

General Disclosures and KPIs	Description	Relevant Chapter(s) or Other Explanation
Social		
Aspect 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, antidiscrimination, and other benefits and welfare.	5.1
Aspect 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.	4
Aspect B3: Development and Training		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	5.1.7
Aspect 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.	5.1.5
Aspect B5: Supply Chain Management		
General Disclosure	Policies on managing environmental and social risks of the supply chain.	2.3
Aspect 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.	2.1 and 4.1
Aspect 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.	1.3
KPI B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.	1.3
Aspect 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.	5.2