



SIIC Environment Holdings Ltd. Sustainability Report 2019

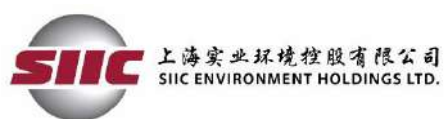


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1. About this Report

This Sustainability Report (“**Report**”) aims to provide investors and related stakeholders with disclosures pertaining to the environmental, social and governance (“**ESG**”) performance of SIIC Environment Holdings Ltd. (together with its subsidiaries, collectively “**SIIC Environment**”, the “**Company**” or “**we**”).

1.1 Reporting Scope

Reporting Period: Unless otherwise specified, this Report covers the period from 1 January 2019 to 31 December 2019 (“**Reporting Period**”). To enhance the integrity, comparability and timeliness of the Report, some of its content covers a time period earlier or later than the Reporting Period¹.

Business Scope: This Report covers the Company’s headquarter, as well as projects that were in operation during the Reporting Period at the Company’s major business units, including SIIC Environment Holdings (Wuhan) Co., Ltd. (“**Central China**”), Nanfang Water Co., Ltd. (“**South China**”), SIIC Environment Holdings (Weifang) Co., Ltd. (“**North China**”), Longjiang Environmental Protection Group Co., Ltd. (“**Northeast China**”), Fudan Water Engineering and Technology Co., Ltd. (“**East China**”), **Waste Incineration Division**, and Ranhill Water (Hong Kong) Ltd. (“**Ranhill Water**”).

1.2 Reporting Guideline

This Report is prepared in accordance with the “Comply or Explain” provisions and the Materiality, Quantitative, Balance, and Consistency principles of the *ESG Reporting Guide* set out in Appendix 27 to the *Rules Governing the Listing of Securities* (the “**Hong Kong Listing Rules**”) on *The Stock Exchange of Hong Kong Limited* (“**SEHK**”). In addition, this report is prepared by taking reference from the guidance under the Sustainability Reporting Guide set out as Practice Note 7.6 of the Listing Manual of the Singapore Exchange Securities Trading Limited, and is prepared with reference to the internationally recognised Global Reporting Initiative (GRI) Standards, which represents the global best practices for reporting on a range of economic, environmental and social impacts. We adhere to the above reporting frameworks’ generic sustainability considerations, general principles and indicators, and duly applied them to report our sustainability policies, practices, performance and targets on our activities. In order to fully understand the Company’s ESG performance, this Report should be read in conjunction with the *Corporate Governance Report* within the Company’s Annual Report for the financial year ended 31 December 2019 (“**2019 Annual Report**”).

1.3 Data and External Assurance

SIIC Environment applies a unified approach to data collection and analysis across our projects in operation during the Reporting Period. We recorded the ESG data in an online ESG data collection system and have verified the data internally before external reporting. We have not sought independent external assurance for the data in this Report.

1.4 Disclaimer of the Report

This Report presents the Company’s sustainability philosophy, actions and achievements

¹ Chapter 5 of this Report “Combating COVID-19” covers a time period of January through March 2020.

during the Reporting Period. The Company's Board of Directors ("**Board**") is responsible for the reliability, truthfulness, objectivity, and completeness of the content of this Report.

This Report is published in both English and Traditional Chinese. Should there be any discrepancy between the two versions, the English version shall prevail.

1.5 Comments and Feedback

We welcome all stakeholders to provide valuable comments and suggestions in relation to this Report by contacting us at: info@siicenv.com.

2. About SIIC Environment

2.1 Overview

SIIC Environment is one of the leading investors and operators in the environment industry in the People's Republic of China ("**PRC**"). We engage in wastewater treatment, water supply, sludge treatment, solid waste incineration and other environmental related businesses. As at the date of this Report, the Company owns over 200 water treatment and supply projects, 8 waste incineration power generation projects and 10 sludge treatment projects across 19 provinces and municipalities. Our water business and sludge treatment services are offered and managed through the Central China, South China, North China, Northeast China, and East China business units. Our waste incineration power generation business is managed by Waste Incineration Division. Our Ranhill Water business unit offers industrial wastewater treatment and other public utility services.

2.2 Business Outlook

Wastewater treatment and water supply are two of the principal business lines of the Company. As we develop new high-quality water projects, the Company continuously upgrades existing wastewater treatment projects to meet the government's more stringent discharge standards for urban wastewater treatment plants ("**WWTPs**"). In 2019, the Company acquired 8 new concessionary and O&M projects and 5 WWTP expansion and upgrading projects with a total capacity of 720,000 tonnes/day, and approximately 1,600,000 tonnes/day of newly constructed or upgraded projects commenced commercial operation, facilitating the high-quality and rapid development of the Chinese economy while preserving "lucid waters and lush mountains" for cities in China.

To drive the development of the waste incineration business, the Company actively promotes cooperation with other leading enterprises in the environmental protection industry. In 2019, the Company's waste incineration power generation capacity reached 8,800 tonnes/day with a year-over-year increase of 232%.

By 2020, the last year addressed in the *13th Five-Year Plan*, investments in the construction of urban wastewater treatment and water reclamation facilities are expected to reach approximately RMB 565.4 billion; the capacity of waste incineration power generation projects is expected to reach nearly 600,000 tonnes/day. The Company will continue to follow the national strategy, work closely with local governments, capture critical development opportunities for the environmental industry, and establish more quality water treatment and

waste incineration projects. In addition, the Company will enhance collaboration with other industries and improve technological innovation capabilities.

The Company will step up efforts in research and development of technology, expand into the high-end environmental equipment manufacturing sector, extend its industrial value chain, and actively develop overseas market in response to China's "Belt and Road Initiative".

Leveraging on the Company's distinctive strategic positioning and business model, SIIC Environment will continue to expand its business in water treatment, solid waste treatment and sludge treatment and disposal, and explore opportunities in other environmental fields such as industrial wastewater treatment, seawater desalination, soil remediation, renewable energy, water treatment technology, and pollution prevention.

2.3 Board Statement

The Board considers ESG issues as part of the Company's strategic formulation and has reviewed the material ESG issues identified by the stakeholders, listed in the following section. The Board oversees the management and monitoring of the material ESG issues and continues to actively identify sustainable development opportunities for the Company.

The Company pays particular attention to the impact of its operations on both the environment and society. The business units have established internal policies such as the *Environmental Protection Management System in Project Operation* and the *Management System for Environmental Factor Identification and Evaluation* and adopted measures for environmental impact prevention and mitigation. The Company has also adopted various management and control measures to help project companies improve resource efficiency. Meanwhile, our business units have developed management systems and standard operating procedures such as the *Management System for Production and Operation Processes* to continuously improve the project companies' operation processes. Projects of our business units have implemented or are in the process of adopting the Quality Management System (ISO 9001).

The operation of the Company's projects strictly adheres to the applicable environmental protection standards and requirements. The laws, regulations and standards highly relevant to the Company's business include *the Environmental Protection Law of the PRC, Atmospheric Pollution Prevention and Control Law of the PRC, Water Pollution Prevention and Control Law of the PRC, Law of the PRC on the Prevention and Control of Environment Pollution Caused by Solid Wastes, Production Safety Law of the PRC, Labour Law of the PRC, Discharge Standard for Pollutants of Municipal Wastewater Treatment Plants (GB18918-2002), Environment Quality Standards for Surface Water (GB3838-2002), and Standard for Pollution Control on Municipal Solid Waste Incineration (GB18485-2014)*, etc. During the Reporting Period, the Company has complied in material respects with the relevant laws and regulations that have a significant impact on the Company's business and operation.

Meanwhile, the Company is committed to maintaining an ongoing communication with our key stakeholders, including shareholders and investors, government and regulators, business partners and suppliers, media, customers and employees, through various engagement channels. The Company strives to deliver high-quality services to our customers through improvements in operation management systems and water treatment processes, customer engagement programs and other measures. Regarding employee welfare, the Company

adheres to a “people-oriented” spirit and strives to provide a favourable working environment and comprehensive benefits for our employees.

2.4 Corporate Governance

At SIIC Environment, we are aware that good corporate governance ensures the protection of shareholders’ interests and enhances corporate performance and accountability. We are committed to establishing corporate governance practices in line with the principles, provisions and recommendations of the *Code of Corporate Governance* issued by Singapore’s Ministry of Finance in 2018 and the applicable provisions of the *Corporate Governance Code* set out in Appendix 14 to the Hong Kong Listing Rules.

2.4.1 Sustainability Governance

The Board is obliged to oversee the business and corporate affairs of the Company, including the consideration of ESG issues. The Board is responsible for evaluating and determining the Company’s ESG-related risks, ensuring appropriate and effective ESG risk management and internal control systems, setting management approach, strategies, priorities, and objectives of the Company, periodically reviewing the Company’s performance, and improving disclosures in the Company’s sustainability reports.

The Company’s ESG working group (“**ESG Working Group**”) is comprised of senior management and employees from various departments who possess good understanding of both the ESG matters and the Company’s operations. The ESG Working Group is responsible for preparing the Company’s annual sustainability reports, including coordinating stakeholder engagement in materiality assessments of the ESG issues and liaising with the business units within the reporting scope to collect and validate ESG data within the Reporting Period.

In preparing this Report, the Company used an online data collection system to gather ESG-related information pertaining to the Reporting Period. Under the guidance of the ESG Working Group, representatives from each of the Company’s projects within the reporting scope reported sustainability performances in 2019 in the system through qualitative and quantitative key performance indicators. Before being incorporated into this Report, the reported information was reviewed and verified internally by representatives from our major business units (Central China, South China, North China, Northeast China, East China, Waste Incineration Division, and Ranhill Water) and the headquarter. The above work procedure helps us ensure the accuracy and reliability of the content of this Report.

2.4.1.1 Stakeholder Engagement

The Company has identified six stakeholder groups that are key to the Company’s business and operations, including shareholders and investors, government and regulators, business partners and suppliers, media, customers, and employees. Ongoing communication with stakeholders is an essential component of the Company’s day-to-day operations. Communication channels such as meetings, interviews and surveys allow stakeholders to express their ideas, opinions and suggestions to the Company.

Stakeholders	Methods of Communication
Shareholders and Investors	Annual reports, quarterly results, interim reports, public announcements, circulars, press releases, annual and extraordinary general meetings, non-deal roadshows, individual and group meetings
Government and Regulators	Government meetings, supervision, assessments, questionnaires, on-site visits
Business Partners and Suppliers	Partner meetings, questionnaires, seminars, on-site visits
Media	Press releases, interviews and announcements
Customers	Customer meetings, customer satisfaction surveys, on-site visits
Employees	Company meetings and departmental meetings, annual staff meetings, questionnaires, internal emails

2.4.1.2 Materiality Assessment

The Company has reviewed the existing material ESG issues together with the Company's business, strategy, business model, regulatory changes, and industry trends during the Reporting Period. We concluded that the 13 material ESG issues identified in the 2017 Sustainability Report (as shown in the table on the next page) continue to apply to the Reporting Period and hence, this Report. The Board has reviewed and confirmed the identified material ESG issues for 2019 and the reporting scope of this Report.

This Report focuses on addressing the 13 identified ESG issues that are considered material to SIIC Environment. We plan to expand the scope of materiality assessment in the future by engaging external stakeholders, in order to capture a broader range of perceptions towards ESG-related issues and respond to the concerns and expectations of different stakeholders in a timely manner.

In 2018, we initiated the process of setting long-term targets to the material ESG issues. During the Reporting Period, we took various actions towards fulfilling these targets, as summarized in the table below. These targets remain applicable for the forthcoming year. Building upon our efforts in 2019, we will continue to strive towards achieving these targets in the future and present our progress qualitatively and quantitatively in future reports.

In addition, in 2019 we developed short- and medium-term targets related to environmental, social and governance aspects, based on the material ESG issues and the Company's actual operation and business growth. These targets include providing customers with high-quality municipal services related to water supply and treatment, sludge treatment and waste incineration under the premise of meeting relevant laws and regulations, and further enhancing cooperation with local governments.

Area	Material Issues	Corresponding Chapter	Long-Term Targets	Efforts in 2019
Environmental	1. Treatment of waste gas, wastewater and solid waste	3.2 Air Emissions and Wastewater Management 3.3 Hazardous and Non-hazardous Waste Management	Actively and continuously exploring opportunities to minimize our adverse impacts on the environment and the depletion of natural resources.	Improving treatment processes and upgrading facilities to enhance treatment efficiency and lower pollutant emissions
	2. Clean water and sanitation	3.2 Air Emissions and Wastewater Management	Meeting public demand for high-quality water through the adherence to higher treatment requirements.	
	3. Promotion of environmental protection concepts	4.5.1 Cultivating Environmental Awareness	Executing our corporate mission, and raising stakeholders' awareness of SIIC Environment's environmental protection concepts.	Continuing to host business open houses; organizing environmental cleanup events and other public education programs
	4. Management of environmental impacts	3. Environment	Standardizing our approach to environmental management, refining our environmental management	Improving management of air and water emissions, hazardous and non-hazardous waste, and

			systems, implementing our environmental management strategy, and ensuring full compliance with regulatory requirements.	resource consumption; providing employee training on environmental data collection and management; improving the online data collection system to streamline data collection process and to standardize recordkeeping
Social	5. Service quality and standards	4.1 Service Quality and Standards	Delivering outstanding product and service quality as a commitment to our customers.	Ensuring treatment efficiency; conducting frequent site visits to promptly respond to customers' concerns and expectations; improving supply chain management
	6. Research and development	4.2 Research and Development	Enhancing our research and development capabilities and introduce new technologies to further improve our operational efficiency and the competitiveness of our existing projects.	Forming strategic partnership with educational institutions and industry peers on research and development; creating favourable internal environment for research and development through reward systems
	7. Strengthening communication and partnerships within the industry	4.3 Communication and Partnerships Within the Industry	Exploring strategic cooperation partnership opportunities.	Actively engaging in industrywide events such as conferences and expos; forming partnership with educational institutions and

				other sectors in the environmental industry
	8. Employee benefits	4.4.2 Employee Benefits	Offering attractive remuneration packages, which include salary, welfare and other benefits.	Offering comprehensive employee benefits
	9. Employee training and development	4.4.3 Training and Development	Developing our employees' expertise and know-how through continuous training programs.	Holding professional skills contests and employee training activities; a total of 4,943 employees received approximately 54,166 hours of training in 2019
	10. Occupational health and safety	4.4.4 Occupational Health and Safety	Providing our employees with a safe working environment which includes, among other things, providing adequate protective clothing and gear, providing safety education and training, and having dedicated safety management personnel.	Conducting regular safety training and emergency drills; providing occupational health checkups for employees
Governance	11. Organizational governance	2.4.1 Sustainability Governance	Incorporating the expertise and experience of our business operations, and refining our ESG governance structure and system, facilitating the understanding of ESG risks and opportunities.	Working on developing corporate sustainability governance structure from the level of the headquarter, business units, and project companies

	12. Business outlook	2.2 Business Outlook	Expanding our business and exploring new markets such as industrial wastewater treatment, seawater desalination, soil treatment, renewable energy, water technology and pollution control, thereby strengthening our top-tier position in the PRC's water and environmental industry.	Exploring new ideas and paths for business growth through enhancing communication and forming strategic partnership with other sectors in the environmental industry
	13. Legal and regulatory compliance	2.4.2 Anti-Corruption 3. Environment 4. Social	Tightening internal control management, enhancing relevant training we provide to our employees, and strengthening our audits and inspections.	Further improve and implement internal policies at different levels of the Company according to ESG-related laws and regulations

2.4.2 Anti-Corruption

The Company places a strong emphasis on corporate integrity and honesty. We abide by laws and regulations related to bribery, extortion, fraud, and money laundering such as the *Criminal Law of the PRC*, *Anti-Money Laundering Law of the PRC*, *Anti-Unfair Competition Law of the PRC*, and *Prevention of Corruption Act of Singapore*.

The Company has implemented the internal *Fraud and Whistleblowing Policy* to facilitate the development of controls that aid in the detection and prevention of fraud, and to provide a protocol for employees to express concerns about wrongdoing, malpractice or possible irregularities within the Company. The policy applies to all directors, officers and employees of the Company, its subsidiaries, and associated companies.

If employees notice acts of wrongdoing, they can report in writing to the Chairman of the Audit Committee of the Company and deliver the report in person, by mail or by email. Upon receiving a report, the Chairman of the Audit Committee determines whether the reported matter falls within the scope of the *Fraud and Whistleblowing Policy* and whether an investigation is appropriate. The Chairman then conducts the initial investigation if appropriate and refers the matter to the management and the Audit Committee for further investigation. We take proper measures to protect whistleblowers from reprisals; harassment or victimization of the whistleblowers in retaliation for raising concerns over alleged wrongful act will not be tolerated.

Our business units have also implemented policies and measures to prevent and handle corrupt practices. Some business units regard employee integrity as one of the key evaluation criteria when designating essential personnel and specify penalties for corrupt practices, while the others conduct regular internal and external audits, as well as audits targeted at key management personnel.

During the Reporting Period, there were no legal cases regarding corrupt practices brought against the Company or its employees, and no cases of non-compliance with laws and regulations related to bribery, extortion, fraud, and money laundering.

For more details on corporate governance, please refer to the *Corporate Governance Report* in the Company's 2019 *Annual Report*.

3. Environment

3.1 Environmental Management Overview

In 2019, the Company has improved its performance in environmental emissions compared to the previous years, demonstrated by the better effluent quality and greater reductions on levels of chemical oxygen demand ("**COD**"), biochemical oxygen demand ("**BOD**") and ammonia nitrogen in our water treatment business. At the same time, the Company enhanced non-hazardous waste recycling and reuse, significantly increasing the amount of sludge and slag recycled and reused. With respect to carbon reduction, the Company adopted measures such as increasing the use of renewable energy and tree planting to reduce greenhouse gas ("**GHG**") emissions. Moving forward, the Company will seek to further improve its environmental performance and fulfil its mission of protecting the planet, conserving the

environment and preserving natural resources.

As a leading investor and operator in the environmental industry in China, SIIC Environment is committed to protecting the planet, conserving the environment and preserving natural resources. We have developed and implemented relevant internal policies to properly manage the potential impacts of our operational activities on the environment, in accordance with the *Environmental Protection Law of the PRC*, *Atmospheric Pollution Prevention and Control Law of the PRC*, *Water Pollution Prevention and Control Law of the PRC*, *Law of the PRC on the Prevention and Control of Environment Pollution Caused by Solid Wastes*, and other laws and regulations related to air emissions such as waste gas and greenhouse gas (“GHG”) emissions, wastewater discharge, and hazardous and non-hazardous solid waste disposal.

Our business units and their project companies have respectively adopted measures for environmental impact prevention and mitigation, to avoid the potential negative impacts of the Company’s four major business lines (wastewater treatment, water supply, sludge treatment, and waste incineration) on the wellbeing of the environment and the community caused by mismanagement.

The business units have established internal policies such as the *Environmental Protection Management System in Project Operation* and the *Management System for Environmental Factor Identification and Evaluation*. The *Environmental Protection Management System in Project Operation* specifies the management and control of the consumption of water, electricity, fuel, and other resources; it also stipulates that the project companies should have emergency response plans in place for potential environmental incidents such as equipment malfunction and hazardous materials incident. The *Management System for Environmental Factor Identification and Evaluation* outlines procedures to identify environmental factors relevant to business operations such as wastewater discharge and resource consumption, and develop corresponding management and control measures; each project company is required to update the environmental factor list at the beginning of each year.

The project companies under each business unit have also taken active steps to minimize impacts on the environment and natural resources in daily operations. Through advancement in treatment techniques, equipment maintenance and upgrade, regular environmental sampling and testing, resource recycling, and other measures, the project companies strive to achieve full compliance with national and local emission standards and go above and beyond.

The following sections delve into the details of how each of our four major business lines manages air emissions and wastewater discharge, how each business line disposes of hazardous and non-hazardous waste during business activities, as well as our efforts in improving resource use efficiency.

3.2 Air Emissions and Wastewater Management

When managing air emissions and wastewater discharge during business operations, our project companies strictly follow relevant discharge standards such as the *Emission Standards for Odour Pollutants* (GB14554-1993), *Discharge Standard of Pollutants for Municipal Wastewater Treatment Plants* (GB18918-2002), *Environment Quality Standards for Surface Water* (GB3838-2002), and *Standard for Pollution Control on the Municipal Solid Waste Incineration* (GB18485-2014) to safeguard environmental health and sanitation.

3.2.1 Wastewater Treatment Business Line

Main pollutants generated from the wastewater treatment process include COD, BOD, ammonia nitrogen, and suspended solids in the discharged wastewater, as well as hydrogen sulphide and ammonia in gas phase.

To guarantee the effluent of the WWTPs meets the discharge standards, we sample and test water quality at each treatment stage on each day and appropriately calibrate the treatment process based on the test results. To effectively reduce pollutants concentrations in the effluent, we maximize the removal efficiency at each treatment stage, such as increasing the removal rate of inorganics during pre-treatment, and enhancing microbial treatment efficiency to increase the removal rate of organics during biochemical treatment. At the Yongxin County Industry Development Zone Comprehensive WWTP Project 1st Phase, through adding a hydrolysis acidification unit to the treatment process, we significantly enhanced COD removal, achieving a 92.6% increase in COD reduction compared to 2018. As a result, in 2019 our wastewater treatment projects have collectively reduced the concentration of COD, ammonia nitrogen and total suspended solids in the wastewater discharged compared to the 2018 level, by 13%, 25% and 18%, respectively.



Figure 1. Shanghai Qingpu Second WWTP Project.

To reduce air emissions and mitigate the impact of odorous gas on the environment, a project of our East China business unit uses fiberglass reinforced plastic (FRP) to cover and seal the influent inlets and the sludge treatment facilities, where odorous gas tends to concentrate. Biofilters are then used to remove odour before the gas in the facility is released into the atmosphere; the estimated odour removal efficiency is 95%. We also plant black bamboo, sweet viburnum and other air-purifying plants around the facilities to mitigate impacts of odorous gas on the surrounding community.



Figure 2. Yinchuan Binhe District WWTP Project 1st Phase covers the biological treatment units.



Figure 3. Qingpu Second WWTP Project 4th Phase (Expansion) grow plants on top of the cover to help purify the air and reduce the impact of odorous gas on the surrounding environment.



Figure 4. Linhai Park WWTP Project with high rates of foliage coverage purifying the site.



Figure 5. Plants at the site of Taixing City Huangqiao WWTP Project 1st Phase mitigate the impact of odorous gas.

3.2.2 Water Supply Business Line

Wastewater discharge is one of the major by-products of the water supply business. Project companies such as the Qianchuan Water Plant Project (Expansion) and the Qianchuan Water Plant O&M Project are in the process of building wastewater collection and treatment systems, which could help reduce wastewater discharge.

GHG emissions are the major air emissions generated from the water supply business. In addition, projects using liquid chlorine as the disinfectant face bear risks of chlorine leak incidents. To mitigate GHG emissions, as will be discussed in detail towards the end of Section 3.2, the water supply projects plant trees at the project sites to help offset indirect carbon emissions from purchased electricity consumption. In addition, water supply projects that apply disinfectants such as liquid chlorine, hydrochloric acid, sodium hypochlorite, and other chemicals to purify the raw water are faced with potential risks as chlorine gas may leak and pose threats on the surrounding environment and human health if not managed properly, project companies using liquid chlorine have taken specific measures to prevent chlorine gas from leaking. For example, a water treatment plant from our Central China business unit has installed alarm systems for leak detection at the chlorination room and conducts weekly tests to ensure the proper functioning of the alarms. The project company has also installed chlorine gas absorption devices to mitigate impacts of a leak incident, as shown in the picture below. In 2019, no water supply projects have experienced chlorine gas leak incident.



Figure 6. Jiamusi City Municipal Water Supply TOT Project (Xijiao Water Resource Water Supply Project).



Figure 7. Chlorine gas absorption device (left picture) and alarm system (right picture) at a water treatment plant from our Central China business unit.

3.2.3 Sludge Treatment Business Line

During the Reporting Period, the two major types of waste gas generated from sludge treatment process, hydrogen sulphide and ammonia gas, have both met the *Emission Standards for Odour Pollutants (GB14554-1993)* and other relevant standards. In particular, Jiamusi City WWTP Sludge Disposal Project has achieved zero hydrogen sulphide emission through desulphurization and zero ammonia gas emission by means of ferric oxide and chemical and biological deodorization processes, respectively. Wastewater generated from

the sludge treatment process is treated in-house at the sludge treatment plant or discharged to the WWTPs that belong to the same project company for further treatment.



Figure 8. Sludge chamber of a project under the East China business unit.



Figure 9. Desulfurization equipment at the Jiamusi City WWTP Sludge Disposal Project.



Figure 10. Chemical deodorization equipment at the Jiamusi City WWTP Sludge Disposal Project.



Figure 11. Biological deodorization equipment at the Jiamusi City WWTP Sludge Disposal Project.

3.2.4 Waste Incineration Business Line

Major air emissions emitted from the waste incineration process include sulphur oxides, nitrogen oxides, dioxins, carbon monoxide, and smoke. To ensure full compliance with emission standards in the *Standard for Pollution Control on the Municipal Solid Waste Incineration* (GB18485-2014), we treat flue gas with a combination of techniques including semi-dry desulphurization, activated carbon adsorption for heavy metal and organics removal, bag filtration for dust removal, and selective non-catalytic reduction (SNCR) denitration.



Figure 12. Flue gas treatment system at the Dazhou City Municipal Household Waste Incineration Power Generation Project 1st Phase.

We treat wastewater generated during waste incineration by means of pre-treatment for large debris removal, anaerobic digestion, external membrane bioreactor (MBR) treatment, ultrafiltration, and nanofiltration to effectively remove COD, ammonia nitrogen, and other pollutants from the wastewater. During the Reporting Period, all treated water met the *Discharge Standard of Pollutants for Municipal Wastewater Treatment Plants* (GB18918-2002).



Figure 13. Flue gas online monitoring system at the Dazhou City Municipal Household Waste Incineration Power Generation Project 1st Phase.



Figure 14. Wastewater treatment system at the Dazhou City Municipal Household Waste Incineration Power Generation Project 1st Phase.

3.2.5 GHG Emission Management

Our business operations also emit GHG and we have taken relevant measures to reduce the Company's carbon footprint. The direct (scope 1) emissions are mainly generated from waste incineration, and indirect (scope 2) emissions primarily result from purchased electricity consumption. We installed solar panels and planted trees at the project sites in order to offset our GHG emissions. During the Reporting Period, we used 1,816,575 kWh of electricity produced from the solar panels, reducing CO₂ emission by 1,528 tonnes compared to coal-fired power generation². We have also planted a total of 23,064 trees at the project sites, which helps offset 530.47 tonnes of CO₂ per year³.

² Calculation for CO₂ offsets and water savings referenced coefficients from the *China Power Industry Annual Development Report* issued by the China Electricity Council in 2019.

³ CO₂e offsets were calculated using the methodology outlined in the *Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional Purposes) in Hong Kong* (2010 Edition) published by the Environmental Protection



Figure 15. Solar panels installed at the Dalian Quanshui River WWTP Project 2nd Phase.

3.3 Hazardous and Non-hazardous Waste Management

With respect to managing and disposing of hazardous and non-hazardous waste, our project companies strictly follow the requirements of the *Disposal of Sludge from Municipal Wastewater Treatment Plant - Quality of Sludge Used in Land Improvement* (GB/T 24600-2009), *Disposal of Sludge from Municipal Wastewater Treatment Plant - Quality of Sludge Used in Gardens or Parks* (GB/T 23486-2009), *Control Standards of Pollutants in Sludge for Agricultural Use* (GB 4284-2018), *Disposal of Sludge from Municipal Wastewater Treatment Plant - Quality of Sludge Used in Separate Incineration* (GB/T 24602-2009) and other applicable standards.

3.3.1 Wastewater Treatment Business Line

Regular sludge⁴ is the main non-hazardous waste generated in the wastewater treatment process and is disposed at local landfills or collected by third-party companies and repurposed into fertilizers and construction materials. Other non-hazardous waste such as domestic waste, screening waste, grits, and packaging materials are mainly collected and handled by local environmental sanitation departments. To effectively reduce the amount of regular sludge produced, we add chemicals such as polyacrylamide (PAM) in the sludge dewatering process to facilitate the separation of solids from water, reducing the water content and volume of the sludge. To further lower the water content of the sludge to meet more stringent local requirements, our project companies engage additional processes after the dewatering process such as sludge desiccation. For example, the Huangqiao Industrial Park WWTP Project 1st Phase achieved a sludge water content of 80% after dewatering, and was able to reduce sludge water content from 80% to as low as 30% through desiccation, achieving approximately a two-third reduction in the quantity of the sludge generated.

Department and the Electrical and Mechanical Services Department.

⁴ In this Report, regular sludge is defined as the sludge that is not listed in the *Directory of National Hazardous Wastes (2016 Revision)* published by the Ministry of Ecology and Environment of the PRC, the National Development and Reform Commission of the PRC and the Ministry of Public Security of the PRC.



Figure 16. Belt filter press system for sludge dewatering from our North China business unit (left). Sludge desiccation system from our South China business unit (right).

Domestic waste is another type of non-hazardous waste produced in the sludge treatment business. In daily work activities, we promote the efficient use of office supplies and reduce food waste at dining halls to decrease the amount of domestic waste produced.

A small amount of hazardous waste is also generated during wastewater treatment, mainly including hazardous sludge, laboratory waste liquids, waste motor oil, empty reagent container, and used activated carbon. All hazardous waste is collected and handled by certified third-party waste handlers. To reduce hazardous waste generation, the wastewater treatment projects strictly follow standard laboratory procedures to minimize waste liquid generation. We also recycle and reuse hazardous waste; for example, project companies such as Suizhou City Cheng Nan WWTP 1st Phase apply waste motor oil as lubricant to valves, nuts and bolts and other parts.

3.3.2 Water Supply Business Line

The water supply business line does not involve hazardous waste generation. Non-hazardous waste produced including regular sludge and small quantities of domestic waste and packaging materials is collected and handled by local environmental sanitation departments. A portion of our project companies from the Central China business unit have been recycling regular sludge for landscaping purposes, while other projects were able to reduce sludge discharge through equipment upgrades such as replacing the filter cells.



Figure 17. Filter cells at the Jiamusi City Water Supply Project.



Figure 18. Recycling regular sludge for landscaping at our Wuhan City Huangpi District Xinwuhu Water Plant 1st Phase.

3.3.3 Sludge Treatment Business Line

We adopt typical sludge treatment processes such as high-temperature aerobic fermentation and a combination of thermal hydrolysis and anaerobic digestion to repurpose sludge into organic fertilizers, reducing the quantity of sludge discharge. Hazardous waste generated during sludge treatment include small quantities of laboratory waste liquids and waste motor oil, both collected and handled by certified third-party waste handlers. Regular sludge is the main non-hazardous waste generated, and is reused for clinker production, landscaping and mining pit restoration, or disposed at the disposal facilities designated by the local government. Small quantities of domestic waste are also generated and are disposed at local landfills.

In 2019, 82% of the total regular sludge generated was reused by our sludge treatment projects, a significant increase from the 2018 level of 26%.

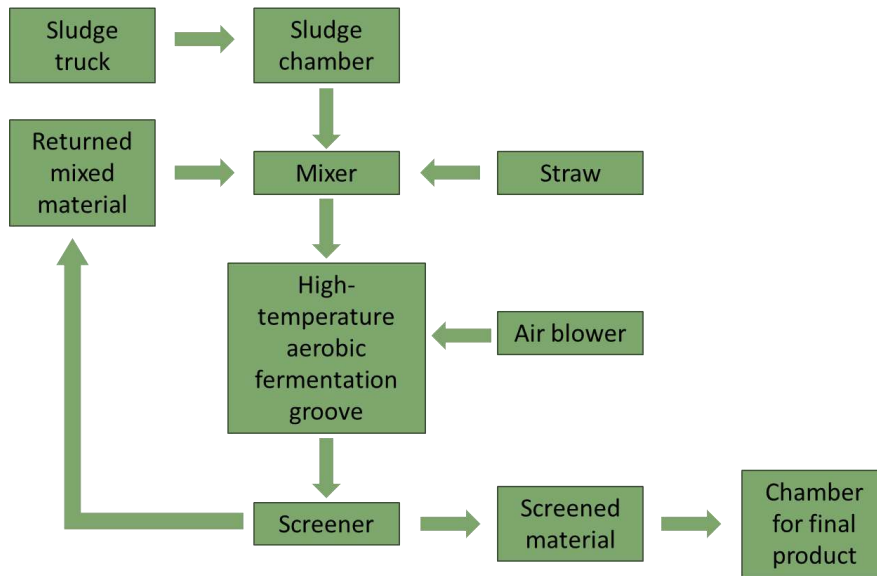


Figure 19. Process flowchart of high-temperature aerobic fermentation sludge treatment.



Figure 20. High-temperature aerobic fermentation chamber at the Xinxiang City Sludge Treatment and Disposal Project.



Figure 21. Sludge turner at the Xinxiang City Sludge Treatment and Disposal Project.

3.3.4 Waste Incineration Business Line

Fly ash and activated carbon waste are two main types of hazardous waste generated during waste incineration power generation. Fly ash produced from domestic waste incineration is solidified with cement and chelating agents before being transported to landfills for disposal. Waste gas generated from the incineration process is treated with activated carbon. Used activated carbon is handled by certified waste handlers or fed back into the waste incinerators for processing in accordance with local environmental regulations. In addition, other hazardous waste generated from the waste incineration business such as small quantities of laboratory waste liquids and waste liquids from online monitoring instrument are collected and handled by certified third-party waste handlers. Through replacing outdated monitoring instrument and other measures, the project companies were able to reduce hazardous waste generation.

The main non-hazardous waste produced during waste incineration is slag. To reduce quantity generated, slag is first processed for metal recovery and then used to produce construction materials such as bricks. In 2019, a total of 77,335 tonnes of slag was reused by our waste incineration projects, 2.6 times the reuse amount in 2018.

3.4 Resource Consumption Management

In daily office activities, we follow the principles of green office and encourage employees to save paper and electricity, reuse or recycle packaging materials and use environmentally friendly office supplies. Through these actions, we hope to reduce energy consumption and carbon footprint resulted from daily office activities while decreasing office operating costs.

To further promote the efficient use of energy, water, chemicals, and other resources during our operation, the Company has adopted various management and control measures to help the project companies improve resource efficiency. At our South China business unit, we require project companies to establish production resource management systems to enhance energy consumption control and monitoring of key production processes and energy-intensive equipment. At our North China business unit, we have developed the *Evaluation Management System for Wastewater Operation Units* which incentivizes project companies

to improve resource efficiency: without affecting normal operations, companies with lower unit electricity and chemical cost would receive higher scores in seasonal and annual evaluations and would be rewarded. Guided and motivated by the Company's internal policies, the project companies have come up with a variety of ways to increase resource efficiency during day-to-day operations.

3.4.1 Chemical and Energy Consumption

To improve chemical use efficiency, our wastewater treatment and water supply projects closely monitor the operating parameters such as influent and effluent quality to adjust chemical addition accordingly. For example, we control the amount of polyaluminum chloride (PAC) addition based on the total phosphorous content and suspended solids concentration in the effluent. We also seek to enhance chemical use efficiency by adjusting chemical use. In 2019, the Jingjiang City Xingang Park WWTP Project 1st Phase replaced chlorine dioxide with sodium hypochlorite as the disinfectant, which helped reduce chemical consumption and cost and facilitated turbidity removal from the wastewater. Other measures we have adopted to increase resource use efficiency include using electronic balance to accurately weigh the chemicals and refining the chemical feed system. Through these actions, wastewater treatment projects reported significant decrease in chemical consumption in 2019. In particular, the Yongfeng County Industrial Park WWTP Project 1st Phase achieved a 41% reduction in unit chemical consumption compared to the 2018 level.

The project companies improve energy use efficiency by adjusting equipment operation. For example, the Yongxin County Industry Development Zone Comprehensive WWTP Project 1st Phase promptly adjusts equipment operating schedule according to water quality monitoring results, and was able to achieve a 45% reduction in unit electricity consumption in 2019 compared to the 2018 level. In addition, by installing more energy-efficient lighting systems, our Mudanjiang City WWTP Sludge Disposal Project reported a 10% reduction in electricity consumption in 2019 compared to 2018. In 2019, the Jiamusi City Municipal Water Supply TOT Project (Jiangbei Water Plant) replaced 13 water pumps that reached their life span, which improved efficiency of the water pumps and saved 0.4% of the project's annual electricity consumption. Other energy-saving measures the project companies have implemented include adding frequency converters to equipment such as water pumps and promptly replacing the filters of the air blowers to ensure equipment efficiency.



Figure 22. Energy efficiency lighting system at the Mudanjiang City WWTP Sludge Disposal Project.

We also promote the use of renewable energy among our project companies. While some projects engage solar power generation as mentioned earlier, our Jiamusi City WWTP Sludge

Disposal Project and Mudanjiang City WWTP Sludge Disposal Project use biogas produced from anaerobic digestion during the sludge treatment process to supply energy for daily operations, helping conserve non-renewable energy resources. A total of 2,248,032 m³ of biogas was used during the Reporting Period. In addition, we convert waste into energy through household waste incineration power generation, an integrated resource utilization method encouraged by the state. A portion of the electricity generated by incineration supplements our Waste Incineration Division's daily energy consumption, and the rest is exported to the power grid. During the Reporting Period, we used 21,525,487 kWh of electricity produced from waste incineration.

3.4.2 Water Consumption

Project companies in the Company's all four major business lines have made great efforts in decreasing freshwater consumption through water reuse programs and improving water efficiency through equipment maintenance and upgrades. Used water from plant operations and effluent from the wastewater treatment process are mainly reused for landscaping, cooling, cleaning, and chemical preparation purposes. In 2019, the Mudanjiang City WWTP Sludge Disposal Project remodelled its pipelines to pump water from the disinfecting tank of the WWTP for reuse with an annual reuse amount of approximately 73,000 tonnes, significantly reducing tap water usage. A WWTP from our South China business unit uses recycled treated wastewater instead of tap water to prepare for the chemical wastewater treatment process after remodelling the pipelines. During the Reporting Period, our project companies recycled and reused a total of 30,113,491.8 tonnes of water, effectively reducing dependence on purchased freshwater. We further enhance water efficiency by inspecting pipelines regularly for water leakage, adopting water-saving faucets and other equipment upgrades, installing flow meters on main pipelines to better manage water use, and through employee education.



Figure 23. Yinchuan Fifth WWTP Project uses on-site recycled water for outdoor fountains.



Figure 24. Remodelled pipelines for water recycling at a WWTP from our South China Business unit.



Figure 25. Nanyang City WWTP Sludge Treatment and Disposal Project 1st Phase recycles and reuses water for on-site landscaping.

Considering that the water supply projects may experience fluctuations in water supply due to seasonal variations and drought-related issues, the Company has adopted various policies and measures based on the actual operation and local conditions to stabilize the quantity and quality of water supply. For example, projects that source water from nearby rivers relocate the water inlet from the riverbank to the middle of the channel cross section during dry seasons; for water supply projects that source water from groundwater wells, we enhance well maintenance and increase well cleaning depth to satisfy demands of water supply from our clients during drought seasons. For projects located in water source protection zones, we strictly abide by the *Management Rules for Pollution Prevention and Control at Drinking Water Source Protection Zones*, prohibiting activities such as farming and waste disposal to guarantee the quality and quantity of water supply.

3.5 Environmental Performance Data ^{1,2,3,4}

3.5.1 Wastewater Treatment Business Line

Emissions					
Emission Type	Indicator	Unit	2019	2018	2017
Air Pollutants	Ammonia gas	/	In compliance	In compliance	Not Reported
	Hydrogen sulphide	/	In compliance	In compliance	Not Reported
Greenhouse gases	Indirect emissions (Scope 2) ⁵	tonnes CO ₂ e	406,119.08	372,838.86	301,174.33
Wastewater	Wastewater	tonnes	2,371,773,168.72	1,941,010,660.44	1,839,375,196.54
	COD	tonnes	51,992.19	48,984.42	79,751.10
	BOD	tonnes	12,581.52	Not Reported	Not Reported
	Total suspended solids	tonnes	15,514.21	15,407.80	Not Reported

¹ Due to the characteristics of the Company's business operations, air pollutant emissions and direct greenhouse gas emissions (Scope 1) are not material to the wastewater treatment, sludge treatment and water supply business lines. Therefore, these emissions are only disclosed for the waste incineration business line.

² In order to better reflect the environmental performance of different business lines of the Company and improve the comparability of data over the years, starting from the reporting period of 2018, we revised the calculation method for the intensity of environmental performance data. The denominator of intensity calculations was changed from the revenue of each business line, which was used in 2017, to the total daily design capacity of the projects disclosed by each business line. Therefore, the intensity data from 2017 is reported as "Not Applicable" in this Report.

³ In order to optimize disclosed environmental performance data management, during the Reporting Period, we refined the collection scope and method for a portion of the performance data. To match this adjustment and to ensure comparability of data collected over the years, we adjusted a portion of the 2017 and 2018 data, and the adjusted data are denoted by "*".

⁴ Data collection scope of the number of trees is adjusted from "the number of trees owned that are above 5 metres" used in 2018 to "the number of trees planted after the factory was built and those can reach at least 5 metres in height". Future reports will adopt the adjusted scope.

⁵ Scope 2 emissions were calculated using the *2011–2012 Regional Power Grid Average CO₂ Emission Factors in China* guideline published by the National Development and Reform Commission of the PRC. Scope 2 emissions were from purchased electricity consumption during the Reporting Period.

	Ammonia nitrogen	tonnes	2,239.06	2,438.65	3,786.12
Hazardous wastes ⁶	Hazardous sludge	tonnes	1,729.83	1,318.82	551.54 *
	Other hazardous wastes ⁷	tonnes	54.65	18.33	9.95
Non-hazardous wastes	Regular sludge	tonnes	1,332,828.95	1,231,067.12	1,126,270.39*
	Other non-hazardous wastes ⁸	tonnes	32,811.08	7,960.29	1,374.03
Initiatives and processes to reduce emissions/discharges					
Initiatives and processes	Indicator	Unit	2019	2018	2017
Trees	Number of trees able to reach at least five metres in height	trees	19,410	15,493	8,483
	Amount of CO ₂ offset ⁹	tonnes CO ₂	446.43	356.34	195.11
Wastewater treatment	COD reduced after treatment	tonnes	462,068.12	420,543.34	251,778.53
	BOD reduced after treatment	tonnes	207,316.00	164,218.72	Not Reported

⁶ Hazardous wastes were defined according to the environmental impact assessment reports, as well as *the Directory of National Hazardous Wastes (2016 Revision)* published by the Ministry of Ecology and Environment of the PRC.

⁷ Other hazardous wastes mainly include: laboratory waste liquids, waste motor oil, empty reagent container, and used activated carbon.

⁸ Other non-hazardous wastes mainly include: screening waste and grit, domestic waste, packaging cardboard box, pharmaceutical packaging, and discarded maintenance parts.

⁹ CO₂ offsets were calculated using the methodology outlined in the *Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional Purposes) in Hong Kong (2010 Edition)* published by the Environmental Protection Department and the Electrical and Mechanical Services Department.

	Ammonia nitrogen reduced after treatment	tonnes	61,734.51	39,629.93	24,908.72
Water recycling	Recycled water used ¹⁰	tonnes	29,358,613.80	86,783,725.00 *	35,886,090.00 *
Reclaimed water supply	Reclaimed water produced	tonnes	25,459,359.00	Not Reported	Not Reported
Sludge recycling	Regular sludge reused	tonnes	792,519.45	412,110.66	Not Reported
Use of Resources					
Resource Type	Indicator	Unit	2019	2018	2017
Energy consumption	Petrol	litres	147,526.07	294,007.94	205,978.55
		litres/tonnes of daily design capacity	0.02	0.04	Not Applicable
	Diesel	litres	53,413.85	83,521.86	55,622.33
		litres/tonnes of daily design capacity	0.01	0.01	Not Applicable
	Purchased electricity	kilowatt hours	621,803,352.05	536,579,325.09	442,224,367.81
		kilowatt hours/tonnes of daily design capacity	85.65	81.52	Not Applicable
	Natural gas	cubic metres	236,004.09	183,688.00	130,380.00
		cubic metres/tonnes of daily design capacity	0.03	0.03	Not Applicable

¹⁰ This Report combines “reused reclaimed water” and “other reused water” disclosed in the Company’s 2018 Sustainability Report into “recycled water used”; the 2017 and 2018 data were adjusted accordingly.

	Renewable energy (solar)	kilowatt hours	1,816,574.50	943,698.30	Not Reported
		kilowatt hours/tonnes of daily design capacity	0.25	0.14	Not Reported
Water consumption	Purchased freshwater	tonnes	1,700,259.74	1,088,317.75	1,085,681.48
	Water consumption intensity	tonnes/tonnes of daily design capacity	0.23	0.17	Not Applicable
Raw materials consumption	Disinfectants ¹¹	tonnes	16,386.95	Not Reported	Not Reported
	Adsorbents	tonnes	1,967.63	1,092.04	
	Carbon sources	tonnes	521,778.67	27,651.81	
	Coagulants and flocculants	tonnes	150,914.01	252,072.74	
	Acid-base regulators	tonnes	10,006.91	15,556.42	
	Other raw materials ¹²	tonnes	24,544.76	Not Reported	

¹¹ The 2018 Sustainability Report did not disclose the amount of disinfectants used; it only disclosed the amount of hydrogen peroxide used, which was 2,770.66 tonnes.

¹² Other raw materials mainly include: ferrous sulfate, hydrochloric acid, polyaluminum chloride, phosphorus removal agent, and citric acid.

3.5.2 Water Supply Business Line

Emissions					
Emission Type ¹	Indicator	Unit	2019	2018	2017
Greenhouse gases	Indirect emissions (Scope 2) ²	tonnes CO ₂ e	79,866.07	78,798.62	87,527.90
Wastewater	Wastewater	tonnes	20,131,104.41	18,524,475.20	12,528,587.50 ³
Non-hazardous wastes	Regular sludge	tonnes	15,892.00	17,305.00	Not Reported
	Other non-hazardous wastes ⁴	tonnes	66.80	289.00	303.78
Initiatives and processes to reduce emissions/discharges					
Initiatives and processes	Indicator	Unit	2019	2018	2017
Trees	Number of trees able to reach at least five metres in height	trees	3,567	3,448	2,691.00
	Amount of CO ₂ offset	tonnes CO ₂	82.04	79.30	61.89
Water recycling	Recycled water used	tonnes	422,000.00	2,018,900.00	1,786,414.00
Sludge recycling	Regular sludge reused	tonnes	5,000.00	Not Reported	Not Reported
Use of Resources					
Resource Type	Indicator	Unit	2019	2018	2017
	Purchased electricity	kilowatt hours	123,100,846.99	116,524,195.00	130,827,253.00

¹ Hazardous waste is not material to the water supply business line and is therefore not disclosed.

² Scope 2 emissions were calculated using the *2011–2012 Regional Power Grid Average CO₂ Emission Factors in China* guideline published by the National Development and Reform Commission of the PRC. Scope 2 emissions were from purchased electricity consumption during the Reporting Period.

³ Due to unit change and rounding, there is a slight discrepancy between data disclosed in this Report and the Company's 2018 Sustainability Report.

⁴ Other non-hazardous wastes generated in 2019 mainly include: domestic waste and packaging cardboard box.

Energy consumption ⁵		kilowatt hours/tonnes of daily design capacity	76.70	71.71	Not Applicable
Water consumption	Surface water	tonnes	323,909,897.42	363,747,118.00	259,487,231.00
	Groundwater	tonnes	67,200,076.00	2,527,707.00	4,915,149.00
	Water consumption intensity	tonnes/tonnes of daily design capacity	243.68	225.40	Not Applicable
Raw materials consumption	Disinfectants	tonnes	2,895.94	Not Reported	Not Reported
	Coagulants and flocculants	tonnes	4,830.91	4,795.17	Not Reported
	Water purification agents	tonnes	643.81	Not Reported	Not Reported

⁵ Compared to purchased electricity consumption, other energy consumption is insignificant and is not material to the water supply business line, and is therefore not disclosed.

3.5.3 Sludge Treatment Business Line ¹

Emissions					
Emission Type	Indicator	Unit	2019	2018	2017
Air Pollutants ²	Ammonia gas	/	In compliance	In compliance	Not Reported
	Hydrogen sulphide	/	In compliance	In compliance	Not Reported
Greenhouse gases	Indirect emissions (Scope 2) ³	tonnes CO ₂ e	12,658.03	13,265.23	7,267.92
Hazardous wastes	Other hazardous wastes ⁴	tonnes	2.85	0.86	Not Reported
Non-hazardous wastes	Regular sludge	tonnes	200,092.88	116,052.21	101,661.00
	Other non-hazardous wastes ⁵	tonnes	233.00	Not Reported	Not Reported
Initiatives and processes to reduce emissions/discharges					
Initiatives and processes	Indicator	Unit	2019	2018	2017
Trees	Number of trees able to reach at least five metres in height	trees	240	70	Not Reported
	Amount of CO ₂ offset	tonnes CO ₂	5.52	1.61	Not Reported

¹ Since wastewater generated from the sludge treatment process is treated in-house and reused at the sludge treatment plant or discharged to the WWTP that belongs to the same project company for treatment, the discharge of wastewater is not material to the sludge treatment business line, and is therefore not disclosed.

² Since some sludge treatment projects are not equipped with quantitative data monitoring systems, this table discloses the sludge treatment business line's performance on air pollutant emissions by evaluating whether the emissions met the local emission standards.

³ Scope 2 emissions were calculated using the *2011–2012 Regional Power Grid Average CO₂ Emission Factors in China* guideline published by the National Development and Reform Commission of the PRC. Scope 2 emissions were from purchased electricity consumption during the Reporting Period.

⁴ Other hazardous wastes in 2019 and 2018 mainly include waste motor oil and laboratory waste liquids.

⁵ Other non-hazardous wastes in 2019 mainly include domestic waste.

Water recycling	Recycled water used ⁶	tonnes	116,100.00	35,040.00	91,250.00
Sludge recycling	Regular sludge reused	tonnes	164,925.43	30,047.46	Not Reported
Use of Resources					
Resource Type	Indicator	Unit	2019	2018	2017
Energy consumption⁷	Diesel	litres	334,103.13	223,719.71	93,332.57
		litres/tonnes of daily design capacity	182.57	141.59	Not Applicable
	Purchased electricity	kilowatt hours	16,607,310.00	18,920,238.82	10,310,739.70
		kilowatt hours/tonnes of daily design capacity	9,075.03	11,974.83	Not Applicable
	Natural gas	cubic metres	209,017.00	251,533.42	227,796.30
		cubic metres/tonnes of daily design capacity	114.22	159.20	Not Applicable
	Renewable energy (biogas)	cubic metres	2,248,032.00	Not Reported	Not Reported
		cubic metres/tonnes of daily design capacity	1,228.43	585.43	Not Reported
Water consumption	Purchased freshwater	tonnes	19,058.00	88,640.34	Not Reported
	Water consumption intensity	tonnes/tonnes of daily design capacity	10.41	56.10	Not Applicable
Raw materials consumption	Straw	tonnes	33,620.77	31,155.90	Not Reported
	Rice husk	tonnes	25,250.77	23,287.00	Not Reported

⁶ Recycled water used in 2019 includes reclaimed water and other recycled water consumption; in 2018, only reclaimed water consumption was counted toward recycled water consumption.

⁷ Based on the analysis of the 2017 and 2018 energy consumption data, petrol consumption is not considered material to the Company's sludge treatment business and therefore will not be disclosed in this Report or future reports.

3.5.4 Waste Incineration Business Line¹

Emissions					
Emission Type	Indicator	Unit	2019	2018	2017
Air pollutants ²	NO _x	tonnes	226.29	182.47	174.22
	SO _x	tonnes	43.95	23.06	26.58
	CO	tonnes	15.58	4.85	Not Reported
	Smoke	tonnes	7.17	7.93	Not Applicable
	Dioxins ³	/	In compliance	In compliance	In compliance
Greenhouse gases	Direct emissions (Scope 1) ⁴	tonnes CO ₂ e	93,013.65	64,067.22	64,953.44 *
	Indirect emissions (Scope 2) ⁵	tonnes CO ₂ e	151.03	19.66	235.36
Wastewater	Wastewater	tonnes	166,777.77	125,318.00	Not Reported
	COD	tonnes	13.92	8.64	0.52
	Ammonia nitrogen	tonnes	1.04	0.56	0.003
Hazardous wastes	Used activated carbon from treatment of waste	tonnes	156.96	77.51	75.12

¹ In 2019, the reporting scope of the waste incineration business line has expanded from the previous reporting period to include the Shandong Province Wulian County Household Waste Incineration Power Generation Project 1st Phase, which had commenced operation in 2019. Increases in the reported 2019 environmental performance data compared to 2018 was primarily due to this reporting scope expansion.

² Air pollutants only include those generated from waste incineration during the Reporting Period.

³ During the Reporting Period, dioxins emission did not violate the local emission standards of the project operation site.

⁴ Scope 1 emissions were calculated using the *Greenhouse Gas Accounting Tool for Chinese Cities (Pilot Version 1.0)* published by the Greenhouse Gas Protocol. Scope 1 emissions were generated from waste incineration during the Reporting Period.

⁵ Scope 2 emissions were calculated using the *2011–2012 Regional Power Grid Average CO₂ Emission Factors in China* guideline published by the National Development and Reform Commission of the PRC. Scope 2 emissions were from purchased electricity consumption during the Reporting Period.

	gases generated during waste incineration				
	Fly ash from domestic waste incineration	tonnes	6,572.72	3,273.30	3,589.19
	Other hazardous wastes ⁶	tonnes	2.25	Not Reported	Not Reported
Non-hazardous wastes	Slag	tonnes	74,681.00	39,735.00	44,377.00
Initiatives and processes to reduce emissions/discharges					
Initiatives and processes	Indicator	Unit	2019	2018	2017
Trees	Number of trees able to reach at least five metres in height	trees	17	17	Not Reported
	Amount of CO ₂ offset	tonnes CO ₂	0.39	0.39	
Water recycling	Recycled water used	tonnes	216,778.00	332,613.00	Not Reported
Electricity generation from waste incineration	Electricity generated	kilowatt hours	116,624,780.00	82,429,730.00	83,319,510.00
Waste recycling/reuse	Slag reused ⁷	tonnes	77,335.00	29,738.00	Not Reported
Use of Resources					
Resource Type	Indicator	Unit	2019	2018	2017
Energy consumption	Diesel	litres	242,320.15	84,939.81	46,258.61

⁶ Other hazardous wastes include waste liquid generated by the online monitoring equipment at the sewage stations.

⁷ Slag reused includes the slag generated in 2019 and a portion generated in 2018.

		litres/tonnes of daily design capacity	242.32	121.34	Not Applicable
	Purchased electricity	kilowatt hours	222,800.00	37,400.00	447,704.00
		kilowatt hours/tonnes of daily design capacity	222.80	53.43	Not Applicable
Water consumption	Purchased freshwater	tonnes	696,814.00	425,959.00	Not Reported
	Water consumption intensity	tonnes/tonnes of daily design capacity	696.81	608.51	Not Reported

4. Social

4.1 Service Quality and Standards

SIIC Environment strives to deliver high-quality services to our customers. Our business activities strictly comply with relevant laws, regulations and standards related to product and service health and safety, such as the *Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant* (GB 18918-2002) and the *Standard for Pollution Control on the Municipal Solid Waste Incineration* (GB 18485-2014). We also abide by the *Advertising Law of the PRC*, the *Trademark Law of the PRC*, the *Patent Law of the PRC*, and other laws and regulations on advertising, labelling and privacy matters related to our products and services. During the Reporting Period, there were no non-compliance cases regarding the above laws and regulations. Projects of our business units have implemented or are in the process of adopting the Quality Management System (ISO 9001).

4.1.1 Maintaining Service Quality

The Company's Audit Committee and Risk and Investment Management Committee oversee regular inspections, evaluate and manage risks arising from our operations, and ensure the effectiveness of key internal controls. The two committees report findings to the Board for review. Through these procedures, we ensure full implementation of our policies and compliance with regulatory requirements or applicable laws.

SIIC Environment maintains a project management system and operational management procedures applicable to the Company as a whole. We hold quarterly meetings where our business operations report their operational performance, significant fluctuations of water input and water supply, and material incidents to our headquarter. Interactions at these meetings help us identify opportunities to improve our service quality.

Our business units have developed management systems and standard operating procedures to continuously improve the project companies' operation processes and guarantee safe and quality production activities. For example, project companies from the water supply business abide by internal policies such as the *Management System for Production and Operation Processes* to meet internal operation, maintenance and safety standards; in the event of water quality exceedances, the project companies take actions in accordance with the emergency response plans outlined in the internal policies. For sludge treatment projects, we designate relevant personnel to conduct regular inspections and surveys with our customers on sludge treated by our sludge treatment plants to ensure the treated sludge meets relevant standards. The Dazhou City Municipal Household Waste Incineration Power Generation Project 1st Phase from our Waste Incineration Division has developed the *Environmental Monitoring Plan*, which specifies the monitoring location, parameter, frequency, and method for waste gas, wastewater, noise, groundwater, soil, solidified fly ash, and slag, guaranteeing that the emissions meet the relevant environmental standards.

To guarantee the quality of drinking water provided to our customers and protect public health, the water supply projects have developed quality assurance procedures based on the *Standards for Drinking Water Quality* (GB 5749-2006) and other industry standards. By increasing testing frequency of raw water quality, enhancing water quality early warning systems, optimizing chemical composition for treatment, and other measures, the project

companies make great efforts to ensure that the quality of water supply meets the industry standards.

4.1.2 Improving Customer Satisfaction

Feedback from customers is crucial in helping the Company improve service quality. At our Central China business unit, in the event that a customer files a complaint related to our products or services, we first categorize the complaint and identify the personnel responsible for the issue, and subsequently carry out investigations and promptly resolve the issue. We then review the complaint case, and if necessary, modify the existing management systems or develop new ones to prevent recurrence of the issue. During the Reporting Period, we received 10 service-related customer complaints, mainly on water quality, water pressure and water meter. For water quality-related complaints, we sampled the water at the customer's site and provided testing results to the customers in a timely manner (all testing results met the relevant water quality standards); for complaints regarding water pressure or water meter issues, we conducted prompt site visits to check water pressure or calibrated water meters at the customers' site, and provided timely feedbacks and solutions to the problems proposed by the customer. As a result of our prompt response and professional problem-handling process, the customers expressed satisfaction towards the handling results.

Case study:

In recent years, employees from our water supply project companies continue to engage in neighbourhood and community service programs to educate residents on water use and water saving tips, collect customers' feedbacks and promptly respond to their concerns to help improve our service quality. On 28 August 2019, employees of Yiyang City Tap Water Co., Ltd. visited a local community and met with representatives from three nearby neighbourhoods, who provided feedback on water supply and usage. To address the issues raised by the representatives during the meeting, our employees subsequently conducted site visits and developed prompt solutions to the problems.



Figure 26. Employees of Yiyang City Tap Water Co., Ltd. met with representatives from local communities to gather customers' feedback, and conducted site visits to effectively solve the issues raised during the meeting.

Regarding customer privacy, at our Central China business unit, we strengthen customer information protection by enhancing employee education, standardizing information management and reinforcing data protection technology. We provide training to staff in contact with customer information, such as sales, management and maintenance personnel, to increase their awareness of customer data protection and information security. At the same

time, we standardize management procedures for the uploading, transfer and search of customer data, and utilize password protection and data backup to further enhance information security. In addition, we strengthen maintenance of the hardware and software critical to the safe operation of our information system and reinforce data breach prevention technologies.

4.1.3 Supply Chain Management

During the procurement stage, the Company manages the bidding process through a fair and transparent supplier evaluation system to facilitate efficient procurement and guarantee the quality of purchased products and services. These activities are also performed in accordance with the *Bidding Law of the PRC*, the *Regulation on the Implementation of the Bidding Law of the PRC* and other relevant laws and regulations.

The Company regularly reviews and updates the list of contracted suppliers in accordance with procedures set out in the *Material Supplier Review and Management System*, the *Project Company On-site Procurement Management System* and other policies. These policies include the use of routine and spontaneous on-site inspections, ratings and evaluations of suppliers' performance. Our Waste Incineration Division has developed a scoring system to quantify suppliers' performance during procurement and on product and service quality and user experience, and categorize suppliers into A, B and C levels based on the final score. For A-level suppliers, we would increase procurement quantity as a reward; for B-level suppliers, we maintain the current procurement quantity; for C-level suppliers, we would suspend procurement and propose supplier improvement plans, and resume procurement once the supplier has rectified the issues.

To better manage the environmental and social risks of the supply chain and the overall quality of products and services provided by the suppliers, our business units have implemented policies such as the *Supplier Management System*. One of the basic supplier entry criteria listed in the *Supplier Management System* is the supplier's ability to fulfil its environmental and social responsibilities. In the implementation of supplier management policies at our Northeast China business unit, if the supplier was found to practice bribery, have product or service quality problems that have caused major accidents, or other issues specified in the *Supplier Management System*, we would immediately terminate partnership with the supplier and in cases of severe violations, not consider the supplier for any future business cooperation opportunities.



Figure 27. Supplier distribution by geographical region during the Reporting Period.

4.2 Research and Development

At SIIC Environment, we believe technological development and innovation will help improve our operational efficiency and service quality, increasing our competitiveness in the environmental industry. During the Reporting Period, we continued to explore opportunities for technological development and our expenditure on research activities amounted to approximately RMB 2.85 million. The business units actively engaged in cross-unit technical exchange meetings, developed internal reward systems to encourage research and technological innovation, participated in provincial and national research programs, and adopted other measures to create a favourable environment for research and development. As will be discussed in the next section, we also actively seek opportunities to partner with educational and research institutions to enhance our research capabilities, and explore new development paths that combine production, research and education. During research and development activities, we register, maintain and protect our patents and will seek legal assistance in cases of violations of our intellectual property rights.

Case study:

In 2019, our Central China business unit organized three cross-business unit technical exchange meetings. The meetings covered topics ranging from wastewater treatment technologies to operation management. Information gathered during the meetings was compiled into technical essays to facilitate information sharing and technological improvement. To create an environment favourable for technological development and putting theory into practice, in May 2019, the Central China business unit formulated a reward system that provides financial rewards to employees who publish journal articles in national industry journals, academic journal collections, and other external publications.



Figure 28. In February 2019, our Central China, South China business and Ranhill Water units participated in a technical exchange meeting.

Case study:

In October 2019, our Northeast China business unit successfully registered as a high-tech enterprise in Heilongjiang Province, demonstrating the business unit's high level of awareness in innovation and strong capabilities in market development and operational management. In addition, construction of the second phase of the business unit's Research and Development Centre is close to completion and will soon be in operation. The second phase of the Research and Development Centre aims to construct the nation's most established enterprise cold-

climate aquatic microorganisms centre and provide technical support for the application of cold-climate water treatment technologies.

The Northeast China business unit also made technological breakthroughs in sludge treatment in 2019. After approximately one year of testing and trialling, the business unit completed the remodelling of the sludge advanced dewatering system at the Harbin City WWTP and Sludge Disposal Project, marking another milestone in the business unit's research and application of sludge treatment technologies. The upgraded dewatering technology can achieve advanced dewatering of sludge, and helped increase sludge treatment capacity at the Harbin City WWTP and Sludge Disposal Project by 33% in November 2019 compared to the level in November 2018, with estimated annual cost savings of approximately RMB 5 million.

4.3 Communication and Partnerships Within the Industry

Maintaining communication with other sectors in the environmental industry is crucial in bringing new ideas and directions for our business growth and keeping ourselves updated on market and industry trends. We actively seek opportunities to collaborate with peer companies, educational institutions and other sectors, hoping to better contribute to the environmental protection and sustainable development in China, and help the public better understand wastewater treatment, waste incineration and other businesses in the environmental industry.

Case study:

In April 2019, the Company participated in the 20th IE expo China in Shanghai. More than 2,000 companies from China and around the world brought over 30,000 cutting-edge environmental technologies to the expo, ranging from water treatment technologies to noise mitigation technologies. Apart from presenting our strengths and accomplishments in the environmental sector at the expo, we actively interacted with peer companies from China and overseas to exchange information and ideas, and with companies from up and down the value chain for potential collaboration opportunities. We look forward to engaging in different types of events that facilitate environmental protection in various ways in the future to maintain communication with peer companies and other sectors in the environmental industry.



Figure 29. SIIC Environment participated in the 20th IE expo China held in Shanghai in April 2019.

Case study:

In 2019, we signed a strategic cooperation framework agreement with Baowu Environment and Canvest Environment, and will utilize our respective strengths and resources to collaborate in the field of environmental technology to ensure that the Shanghai Baoshan Renewable Energy Utilization Centre Project, currently under construction, will follow international environmental standards and serve as an exemplary waste incineration power generation project in China. Through the strategic cooperation framework agreement, we plan to actively explore opportunities arising from the transformation of steel industrial parks in major cities along the Yangtze River such as Nanjing, Wuhan, Ma’anshan, and Chongqing, establish more high-standard and modern environmental projects, and contribute to ecological protection and development of the Yangtze River Economic Belt. We will work together with our partners to vigorously strengthen research and development of technologies, enter the field of high-end manufacturing of environmental protection equipment in due course, extend value chains, respond to the Belt and Road Initiative, and actively expand into overseas markets.



Figure 30. Exhibition hall at the Shanghai Baoshan Renewable Energy Utilization Centre Project, which shows a model of the project currently under construction.

Case study:

On 19 November 2019, our Northeast China business unit signed a strategic cooperation framework agreement with East University of Heilongjiang. School-enterprise collaboration is a powerful way to serve local community and boost local economy. We look forward to working with East University of Heilongjiang on cultivating talents, research and development and other areas to improve our corporate core competency. We hope the partnership will also benefit the university and its students with our resources such as job and internship opportunities, therefore achieving a win-win outcome through school-enterprise cooperation.



Figure 31. Our Northeast China business unit formed a strategic partnership with East University of Heilongjiang.

4.4 Employment Management and Employee Welfare

4.4.1 Employment and Labour Practices

The Company is committed to talent management and adheres to a “people-oriented” spirit. We strongly believe that our employees are the most important asset to the Company, as their work influences our corporate culture and business growth. We strictly comply with the *Labour Law of the PRC, Labour Contract Law of the PRC, Regulation on the Implementation of the Labour Contract Law of the PRC, Employment Act of Singapore, Employment of Foreign Manpower Act of Singapore*, and other laws and regulations related to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. During the Reporting Period, there were no non-compliance cases regarding the above laws and regulations.

As described in the *Recruitment Management Measures, Employee Relations Management Measures* and other internal policies, we provide open and equal employment opportunities to attract talent, and bear no discriminations toward gender, age, race, or religion of the applicants. The termination of employment contracts and dismissal of employees are carried out in strict compliance with relevant laws and regulations, and we fully protect the rights and obligations of both the employees and the Company.

We have also established the *Attendance Management System* and implement a work schedule of 8 hours per day in accordance with relevant laws and regulations. Each project company arranges its own working hours according to the actual work requirements and reports the work schedule to the human resource, administrative and legal departments for record keeping. The arrangement of employees’ working hours needs to ensure the total amount of working hours and the normal operations. In the case that there is a need for employees to work overtime, the concerned department needs to prepare an overtime work plan beforehand and submit for the management’s approval; employees can take compensatory time off after the overtime work concludes.

The Company adopts a zero-tolerance approach toward child labour and forced labour, and we abide by relevant laws and regulations such as the Labour Law of the PRC and Provisions on the Prohibition of Using Child Labour. During the recruitment process, we verify applicants’ identity and employment eligibility to prevent hiring underage candidates. We establish labour relations with employees based on equality and mutual benefit and do not retain employees’ identity documents or sign unlawful agreement or contract with employees. If forced labour was identified, employees can report directly to local labour supervision groups. When cases of child labour or forced labour are found, we take immediate action to eliminate such practices, identify and penalize staff members responsible for the violations, and review and improve our employment management systems to prevent future violations.

The Company had a total workforce of 6,140 full-time employees and zero part-time employees by the end of 2019. We continue to improve our recruitment strategies and employee recognition and reward systems to attract and retain the best talents. A breakdown of our employees by gender, age group, and geographical region is shown below:

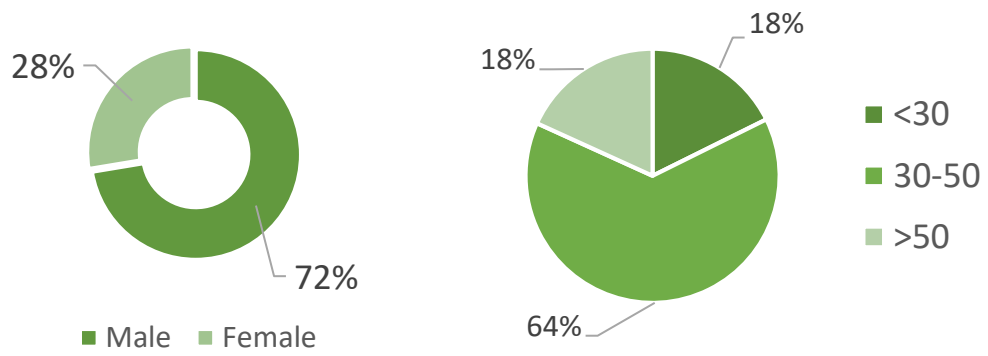


Figure 32. Employee breakdown by gender (left) and age group (right).

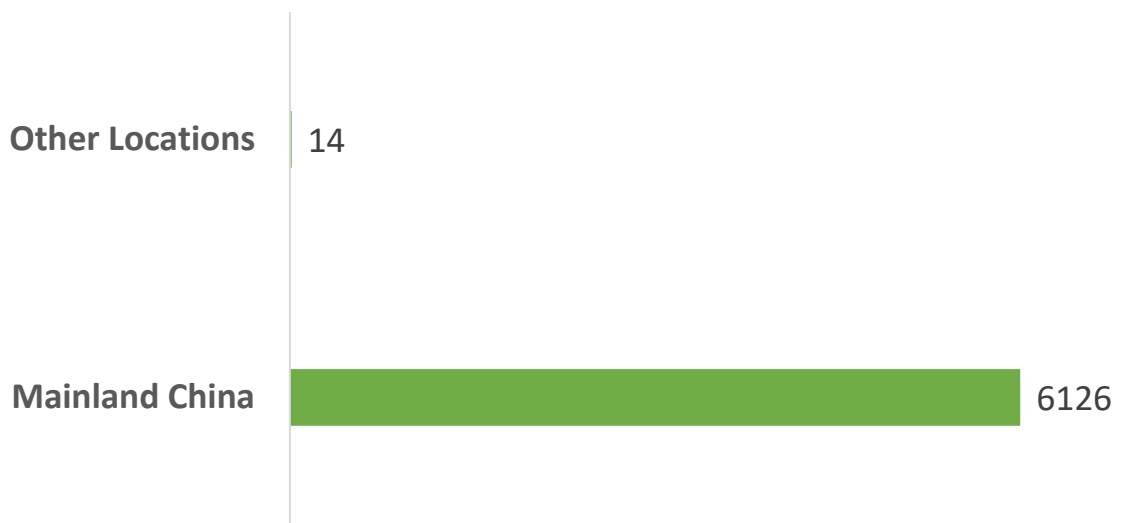


Figure 33. Employee breakdown by geographical region.

A breakdown of our employee turnover rate by gender, age group and geographical region is shown below:



Figure 34. Employee turnover rate.

4.4.2 Employee Benefits

We ensure that employees are fairly compensated by assessing individual skills and contributions, corporate performance, market trends, and other factors stipulated in the *Compensation Management System* and other internal policies. In addition to offering competitive remuneration and bonuses in accordance with the requirements outlined in the *Employee Benefits Management System*, *Holiday Management System* and other internal policies, we also provide employees with medical allowances, regular physical examinations, paternity and maternity leave, marriage leave, personal accident insurance as well as retirement benefits. At Ranhill Water, we also provide additional compensation for nightshift employees and distribute employee allowances in summer for coping with the hot weather. Our employee manuals set out clear policies and codes of conduct for office procedures, reporting duty, attendance, performance appraisals, rewards and penalties, compensation and benefits as well as training and employee rights.

To enrich employees' life after work and strengthen team cohesion, our business units and project companies organized a variety of recreational activities during the Reporting Period.



Figure 35. In May 2019, Chenzhou City Wastewater Treatment Plant Project 1st Phase from the South China business unit organized employees to participate in the neighbourhood tug-of-war competition (left picture). In June 2019, employees participated in the citywide badminton tournament (right picture).



Figure 36. In July 2019, project companies from the east region of our Northeast China business unit co-organized a basketball tournament to facilitate communication among the project companies and facilitate team bonding, and to celebrate the 70th anniversary of the founding of the Northeast China business unit.

4.4.3 Training and Development

SIIC Environment views professional development and training of its employees as a way to broaden employees' horizons and assist them in realizing their own value and potential. The business units within the Company have established relevant internal policies such as the *Production Training Management System* based on their actual operation. At Ranhill Water, we provide a range of internal and external training programs such as new employee training, position-specific training, and external training opportunities for management personal and professional staff. Without affecting work performances, we encourage employees to attend different kinds of education and training programs, and grant time off for employees who need to prepare for professional examinations. Our training programs take on various forms to enhance their effectiveness, such as inter-departmental exchange programs, position rotations, lectures, and skillset competitions. When an employee completes a training program, we conduct evaluations to assess the effectiveness of the training and take the evaluation results into consideration in the yearend assessment of the employee performances. During the Reporting Period, a total of 4,943 employees received approximately 54,166 hours of training, as shown in the graphs below. The average training hours per employee were approximately 8.8 hours.

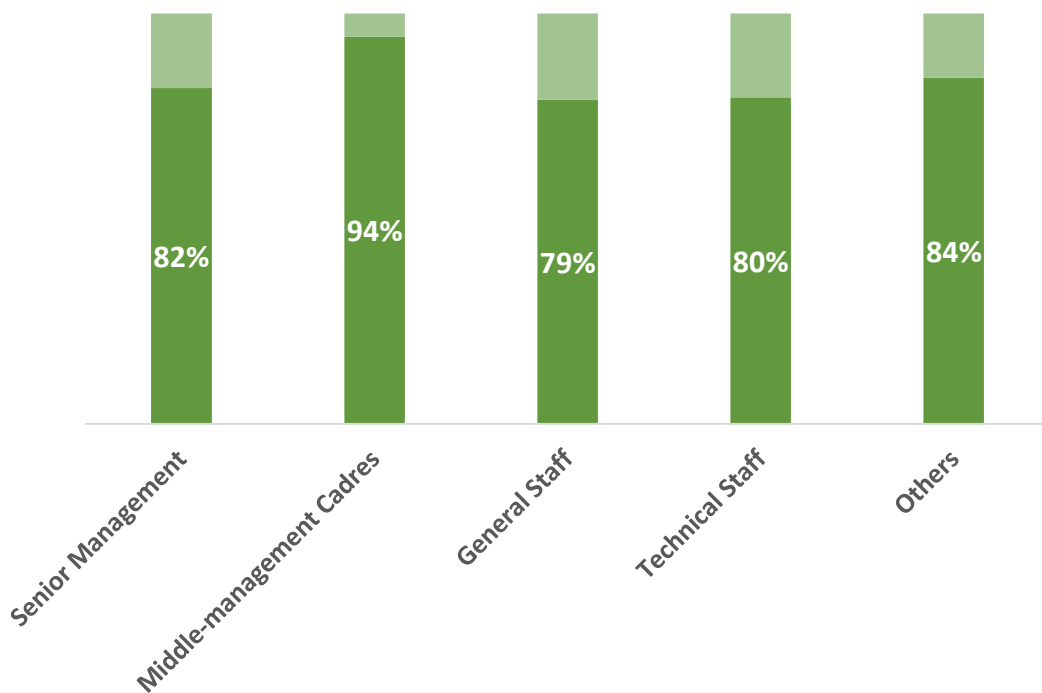


Figure 37. Percentage of trained employees by employment grade.



Figure 38. Percentage of employees trained by gender and average number of training hours.

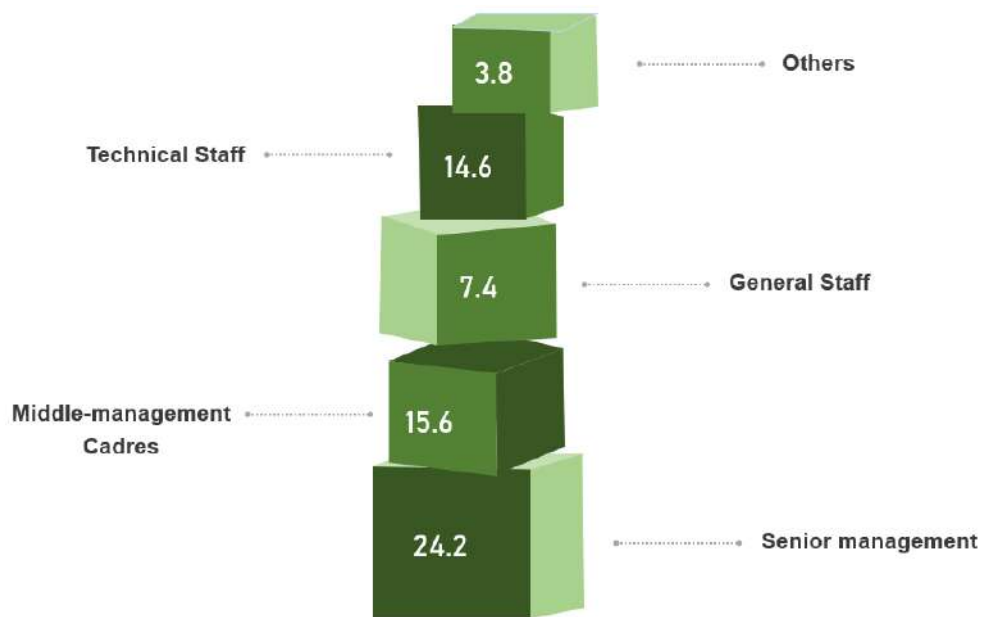


Figure 39. Average training hours of employees by employment grade.

Case study:

In December 2019, our East China business unit held a three-day operation management training centring on three topics including automation, electric system operation and maintenance and safety management. More than 30 employees attended the training, including managers of the project companies and technical staff in the field of electric automation. The training was well received by the participants, who reflected that it helped expand their knowledge base and skillset, and enhanced cohesion among the project companies.



Figure 40. Operation management training held at our East China business unit.

Case study:

To strengthen employees' professional skills, in 2019, our Northeast China business unit held the first "Craftsman Cup" professional skills contest. Our Ranhill Water business unit organized employees to participate in training programs on production process and operation theory.



Figure 41. "Craftsman Cup" skill contest held at the Northeast China business unit.



Figure 42. bottom picture: training course on production process and operation theory held at Ranhill Water.

4.4.4 Occupational Health and Safety

Safety is our top priority at SIIC Environment. We strictly comply with the *Law of the PRC on Work Safety*, *Law of the PRC on the Prevention and Control of Occupational Diseases* and other laws and regulations related to providing a safe working environment and protecting employees from occupational hazards. During the Reporting Period, there were no cases of non-compliance regarding the above laws and regulations; a total of 240 days was lost due to work injury and there was no work-related fatality. Projects of our business units have implemented or are in the process of adopting the Occupational Health and Safety Assessment Series (OHSAS 18001).

From a supervisory perspective, the Company adheres to national standards such as the *Measures for the Supervision and Administration of Employers' Occupational Health Surveillance* and *Regulations on the Reporting, Investigation and Disposition of Work Safety Accidents*. We have standardized our safety accident reporting procedures to ensure that accidents are reported to supervisory personnel and regulatory authorities in a timely manner. We submit reports to regulatory authorities on a regular basis to disclose results of our self-assessments on occupational and health safety (“OHS”) hazards. Recommendations provided by regulatory authorities lay a foundation for us to further improve our safety standards.

The mechanisms of production safety in our workplace are based on three main aspects: strengthening safety management systems, enhancing employee safety education, and improving employees' emergency preparedness. Our business units have incorporated these mechanisms when developing production safety management systems to ensure safe operation at the project companies.

To strengthen safety management systems, the Company has established specialist teams, which are responsible for coordinating, planning, organizing, developing, and promoting health and safety matters. Our Ranhill Water business unit has formed a safety committee at the business unit level and requires each project company to establish safety teams. Ranhill Water conducts semi-annual comprehensive safety assessments of the project companies in accordance with its *Safe Production Management System*, which also specifies work procedures for safety management of production activities and equipment, management of safety briefings and meetings, rules on safety inspection, and the handling of safety incidents. Our East China business unit has developed a set of rules and policies on managing safety-related issues during production and office activities, and on managing safety risks of suppliers, construction teams and other external parties. The other business units have also developed and implemented similar policies to streamline safety management at the project companies. In addition, in accordance with the requirements specified in the safety management systems, we provide personal protective equipment to employees in specialist and technical positions and conduct regular quality check on the equipment. The equipment is required to meet applicable national or industrial standards with respect to their design, manufacturing, installation, and usage.

To enhance employee safety education, we organize employees to participate in regular safety trainings. Our business units have developed safety training management systems, which specify training requirements for different employee types including the management, safety personnel, new employees, and employees in special positions such as those working with hazardous chemicals. Before commencing work activities, new employees are required to pass a three-level safety training given by representatives from the business unit,

department and project team levels. Topics covered at the training include OHS laws and regulations and the Company's policies, knowledge on using safety equipment, emergency response measures, and other relevant information.

To improve employees' emergency preparedness, every year we organize emergency drills to help employees better respond to fire, water quality incidents and other emergencies. For employees whose work may pose potential health threats, we provide annual occupational health checkups in addition to the general checkups.



Figure 43. In June 2019, our Central China business unit invited trainers from the provincial fire safety education centre to provide fire safety training to our employees.



Figure 44. The water supply projects from our North China business unit organized emergency drills to help employees better respond to chlorine leak incidents and water quality incidents.



Figure 45. Health and safety notices and warning signs posted at the production sites of our Waste Incineration Division.



Figure 46. North China business unit to remind employees of the potential risks and to take precautions.

4.5 Community Investment

SIIC Environment has a strong presence in the society and we actively engage in public welfare activities related to environmental protection, education, labour needs, and other areas. During community engagement events, we follow the principles of legality, voluntariness and honesty, and with particular focus on ecological and environmental protection, aiming to promote industry-related knowledge among the public and contribute more to environmental protection. In 2019, we contributed a total of 3,906 hours and approximately RMB 5.8 million to community engagement activities.

4.5.1 Cultivating Environmental Awareness

The Company has a corporate mission of remaining committed to protecting the planet, conserving the environment and preserving natural resources along with pursuing business growth. We recognize the importance of passing on these concepts to our internal and external stakeholders. Internally, these concepts are communicated via corporate culture training, talks, environmental knowledge competitions, newsletters, and other platforms.

Externally, we convey our corporate mission via social media, public reports (including sustainability reports), exhibitions, conferences, site visits, and business open houses. During the Reporting Period, we hosted and participated in a variety of activities aimed at raising environmental awareness of the public.

Case study:

On 5 June 2019, the annual Environment Day, the Company participated in activities themed “Beautiful Shanghai, I am a Participant” in Shanghai, echoing the national Environment Day theme “Beautiful China, I am a Participant”. We participated in educating the public on waste sorting and presenting community engagement in green development.



Figure 47. The Company participated in the 2019 Environment Day activities in Shanghai.

Case study:

In October 2019, our Northeast China business unit hosted open houses in Harbin City, Heilongjiang Province for students from local primary schools. Students visited wastewater treatment facilities and learned how turbid water is turned clear. Students also developed a better understanding of water shortages in China and the importance of establishing good water saving habits.



Figure 48. Students visited the Northeast China business unit on open house days.

Case study:

On 23 May 2019, Mudanjiang Longjiang Environmental Protection Water Supply Co., Ltd. hosted the “Drinking Danjiang Water, Protecting Mother River” plastic waste cleanup event. During the event, employees distributed flyers to the public, urging them to protect the Mudanjiang River watershed and the riparian environment. The event was well received by the public, who voluntarily joined our employees in the cleanup.



Figure 49. Plastic waste cleanup event at the Mudanjiang River.

4.5.2 Giving Back to the Community

SIIC Environment’s business activities are closely linked to people’s everyday life and we strive to build a rapport with local communities where we operate our business. To this end, employees are encouraged to participate in community services and utilize available corporate resources to help those in need.

Case study:

On 8 July 2019, approximately 50 employees from our Northeast China business unit participated in a book distributing volunteer event organized by local governments and associations in Harbin City. The event aimed to educate the public on public health and safety emergency response measures. Our volunteers will continue to serve the community and the environment under the service motto of “Helping Others, Improving Ourselves”.



Figure 50. Employees volunteered at the book distributing event in Harbin City.

Case study:

Our Xinxiang City Sludge Treatment and Disposal Project, located in Tangzhuang County, Weihui City in Henan Province, donated approximately 10,000 tonnes of soil produced to local communities for restoration of abandoned mine pits. In addition, when choosing suppliers during business activities, the project prioritizes local suppliers to help boost local economy. Currently 50% of the project's raw material suppliers and 75% of the project's labour force are local.

At the beginning of 2019, the project provided the end product, nutrient soil, to a local peach orchard owner for free trial use and offered complimentary soil testing services. Testing results showed that our soil product complies with the risk screening values for soil contamination of agricultural land listed in the *Soil Environmental Quality Risk Control Standard for Soil Contamination of Agricultural Land (Trial)* (GB 15618-2018). The orchard owner later commented that peaches grew better on the soil we provided compared to previous years, and recommended our soil product to nearby orchards.



Figure 51. Mine pit during restoration (left) and after restoration (right).



Figure 52. Sampling the soil used by orchard owners for testing.

Social Responsibility: Combatting COVID-19

This chapter is dedicated to all our employees especially those staying on frontline positions in affected areas.

5. Combatting COVID-19

The COVID-19 outbreak in early 2020 has promoted awareness of the government and the public on the importance of pollution prevention and control, which is a significant component of the utility industry and an essential part of public safety management systems. Public services closely related to the residents, such as ensuring safe water supply, complying with wastewater treatment standards, turning waste into resources, and properly disposing medical waste are vital to the overall interests of the community and the society. As a leading enterprise in the environmental protection industry, SIIC Environment shoulders corporate social responsibility and values social benefits along with developing corporate economy. We actively respond to national policies on disease prevention and control, integrate corporate growth with needs of the country, and devote every effort to the battle against COVID-19.

Once the outbreak occurred, the Company instantly established a disease prevention and control command center ('Command Center'). Business units and project companies assembled multi-level disease prevention and control groups to guarantee normal and steady operation of all projects, guarantee safe water supply, and protect urban ecological environment.

5.1 Fighting tirelessly to serve the public

SIIC Environment maintained normal operation with a focus on preventing disease, which actively responded to the call of the government. Employees of the Company adhere to the spirits of maintaining high-quality services and hold their positions in the frontlines to ensure the normal operation of wastewater treatment, water supply and other businesses. Remaining true to our original aspiration and keeping our mission firmly in mind, SIIC Environment will contribute wherever there is need in the environmental sector.

During the pandemic, the Company made overall arrangements for production and operation activities. Under the coordination of Command Center, the internal disease prevention and control groups surveyed project companies on problems encountered in disease control and operation activities, assisted staff in tackling the relevant problems, and ensured the ample inventory of disease control equipment, chemicals used for operation activities and the other necessities for our business. The groups also established feasible and effective temporary management measures to guarantee the normal operation of each project.

In order to maintain people's life quality and promptly solve customers' problems, during the pandemic, our water supply customer service hotline was accessible 24/7 and the pipeline network maintenance staff were on standby at all times; we also opened online services. Project companies involved in disease prevention and control managed the regional health and medical facilities and treatment centers in accordance with the requirements and designated responsible persons to ensure stable water supply at the medical facilities and treatment centers. All projects of the Company comprehensively strengthened management and control measures, increased the frequency of water quality testing, closely monitored the quality of influent water, and promptly adjusted process parameters and chemical addition, in order to ensure that the effluent meets relevant discharge standards and prevent the spread of coronavirus through aerosols, wastewater and sludge. Most of our projects, especially those in affected areas adopted various measures to guarantee that effluent meet relevant discharge standards in order to safeguard the aquatic environment. These measures included increasing the dosage of sodium hypochlorite and conducting daily testing for

residual chlorine and fecal coliform in the effluent.



Figure 53. We maintained normal operations of water supply during the pandemic. Our water supply customer service hotline was accessible 24/7 during the pandemic.



Figure 54. During the pandemic, all projects closely monitored water quality to ensure water use safety and prevent disease outspreading.



Figure 55. The temporary service station for disease control.

We exhibited our corporate responsibility through coordinated development and mutual assistance. While maintaining our normal operations and fulfilling own duties, we actively mobilized resources to help residents in the surrounding communities. Upon learning the shortage in disinfectant supply in the local communities, the Pinghu City Eastern WWTP Project from the East China business unit took immediate actions. Under the premise of

ensuring stable operation, the project provided disinfectants such as sodium hypochlorite to local companies and residents free of charge, and educated them on preparing disinfecting solution, which received compliments from the local residents.



Case study: Constructing "water of life" module hospital

On February 7, 2020, Wuhan City Huangpi District Xinwuhu Water Plant 1st Phase was informed that the water supply project of the second mobile cabin hospital in Wuhan City needs to be completed within 24 hours. Upon receiving the task, the water plant immediately organized staff to conduct field investigation of the site. We worked days and nights to successfully complete the task. The water supply pipeline of the mobile cabin hospital was fully connected and the "water of life" of the module hospital was ready in time.

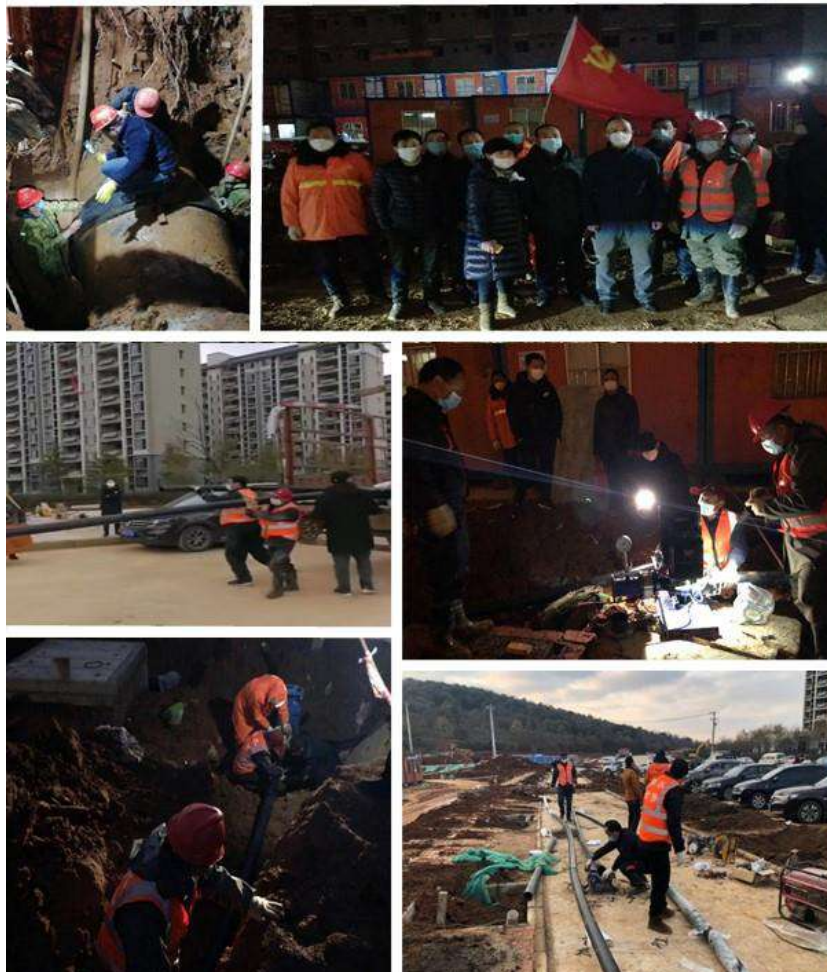
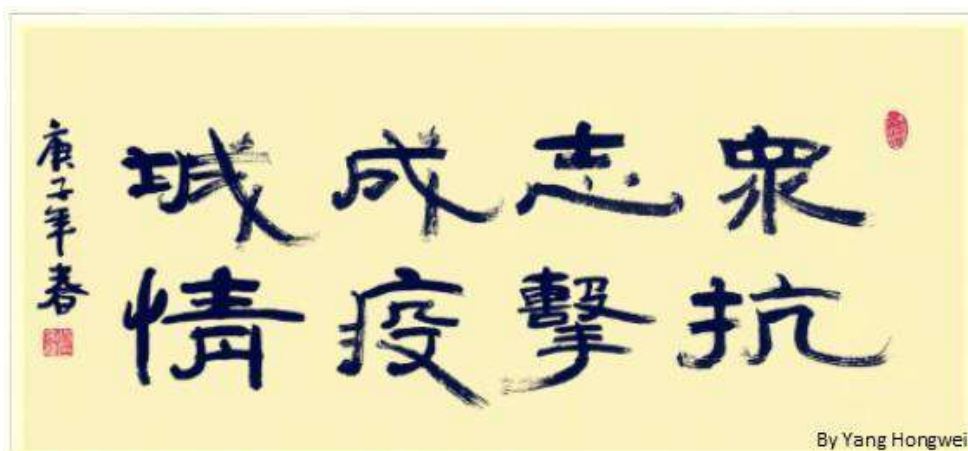


Figure 56. The normal operation of water supply, waste treatment, wastewater treatment, and other public utilities and public services played an indispensable role in fighting against COVID-19.

5.2 Coordinating resources, Protecting employees

SIIC Environment always puts the lives, health and safety of employees first. In the early stage of the pandemic, the Company purchased and deployed disease prevention materials through multiple channels, in order to secure the first line of defense and provide a favourable working environment for employees and to build a safety fortress for employees who are fighting in the frontline in Hubei Province, especially in affected areas such as Wuhan City. We have equipped our employees with protective equipment such as masks, disinfectants, protective clothing, and goggles. Through reasonable deployment of operating personnel, closed production and operation management, and the transfer of employees to and from work by dedicated vehicles, we have effectively reduced the risk of cross-contamination. Other measures including strict body temperature measurements for personnel entering the factory area, reducing nonessential on-site work shifts, cleaning and disinfecting production areas and public areas at regular intervals every day have also been adopted.

During the pandemic, we were moved by the cohesion and solidarity of the Chinese people. We pay high tribute to the medical staff and the People's Liberation Army soldiers who fought unreservedly regardless of the danger. We also noted down the bits and pieces that occurred around us as an environmental professional during the pandemic, which are the encouraging stories of mutual encouragement and striving forward hand-in-hand. We have collected a number of colorful anti-pandemic works by organizing employees to solicit articles, poems, calligraphy and paintings, paper-cut and other ways to help employees stay motivated, and engage in pandemic prevention and control and work safety with full fighting spirits.



在疫情中坚守初心 在防控中担当使命

By Xu Ziyang



庚子年春

众志成城
抗击疫情

By Yang Hongwei



By Wu Jing



By Hu Ming



By Hu Ming

不忘初心
牢记使命

By Shao Yanqiang



By Jiang Dongxiao



By Hu Ming

潜龙勿用
见龙则吉
羸豕孚蹢躅
羸豕孚蹢躅

By Yang Xuefeng

Appendix: Hong Kong Stock Exchange *ESG Reporting Guide* Content Index

General Disclosures and Key Performance Indicators (KPIs)	Description	Relevant Section	Page Number
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.	3.1 Environmental Management Overview, 3.2 Air Emissions and Wastewater Management, 3.3 Hazardous and Non-hazardous Waste Management	10-23
KPI A1.1	The types of emissions and respective emissions data.	3.5 Environmental Performance Data	27-37
KPI A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).		
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).		
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).		

KPI A1.5	Description of measures to mitigate emissions and results achieved.	3.2 Air Emissions and Wastewater Management, 3.5 Environmental Performance Data	11-19, 27-37
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.	3.3 Hazardous and Non-hazardous Waste Management	19-23
Aspect A2: Use of Resources			
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.	3.4 Resource Consumption Management	23-26
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 Environmental Performance Data	27-37
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).		
KPI A2.3	Description of energy use efficiency initiatives and results achieved.	3.4.1 Chemical and Energy Consumption	24-25
KPI A2.4	Description of whether there are any issues in sourcing water that is fit for purpose, water efficiency initiatives and results achieved.	3.4.2 Water Consumption	25-26
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Not Applicable (the Company's business activities mainly involve providing services and do not involve products)	

Aspect A3: The Environment and Natural Resources			
General Disclosure	Policies on minimizing the issuer's significant impact on the environment and natural resources.	3.1 Environmental Management Overview	10-11
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 Air Emissions and Wastewater Management, 3.3 Hazardous and Non-hazardous Waste Management, 3.4 Resource Consumption Management	11-26
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.	4.4.1 Employment and Labour Practices, 4.4.2 Employee Benefits	45-47
KPI B1.1	Total workforce by gender, employment type, age group and geographical region.	4.4.1 Employment and Labour Practices	45-46
KPI B1.2	Employee turnover rate by gender, age group and geographical region.		45-46
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.	4.4.4 Occupational Health and Safety	51-53
KPI B2.1	Number and rate of work-related fatalities.		51-53
KPI B2.2	Lost days due to work injury.		51-53
KPI B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.		51-53
Aspect B3: Development and Training			
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	4.4.3 Training and Development	48-50
KPI B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).		48-50
KPI B3.2	The average training hours completed per employee by gender and employee category.		
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.	4.4.1 Employment and Labour Practices	45-46
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour.		
KPI B4.2	Description of steps taken to eliminate such practices when discovered.		
Aspect B5: Supply Chain Management			
General Disclosure	Policies on managing environmental and social risks of the supply chain.	4.1.3 Supply Chain Management	38-39
KPI B5.1	Number of suppliers by geographical region.		
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.		
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,	4.1 Service Quality and Standards	38

	advertising, labelling and privacy matters relating to products and services provided and methods of redress.		
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	Not Applicable (the Company's business activities mainly involve providing services and do not involve products)	
KPI B6.2	Number of products and service related complaints received and how they are dealt with.	4.1.2 Improving Customer Satisfaction	39-40
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights.	4.2 Research and Development	41-42
KPI B6.4	Description of quality assurance process and recall procedures.	4.1.1 Maintaining Service Quality	37
KPI B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	4.1.2 Improving Customer Satisfaction	39
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.	2.4.2 Anti-corruption	10
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.		
KPI B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.		
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.	4.5 Community Investment	53-56
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).		53-56
KPI B8.2	Resources contributed (e.g. money or time) to the focus area.		53-54