



CHINA SHANSHUI CEMENT GROUP LIMITED

中國山水水泥集團有限公司

(Incorporated in the Cayman Islands with limited liability)

Stock Code: 691



2018

China Shanshui Cement Group Limited
Environmental, Social, and Governance Report

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About the Report

This Environmental, Social and Governance Report (“the Report”) mainly discloses the performance of China Shanshui Cement Group Limited (the “Company”) and its subsidiaries (collectively referred to as the “Group” or “China Shanshui Group”) relating to environmental, social and governance (“ESG”) in 2018, so as to enable each stakeholder to have a better understanding of the Group’s sustainability philosophy, management approach, measures, relevant performances, etc. The Report is to be read in conjunction with the “Corporate Governance Report” section ¹ of *China Shanshui Cement Group Limited 2018 Annual Report* (“2018 Annual Report”), so as to have a wholistic view on the Group’s ESG performance.

Reporting Period

Unless otherwise stated, the Report’s reporting period is consistent with the 2018 Annual Report of the Group, which is 1 January 2018 to 31 December 2018 (the “Reporting Period”). Where necessary, some of the content goes beyond the aforesaid period so as to enhance the comparability of the ESG Report.

Reporting Organizational Scope

The Report covers the Company and its subsidiaries. Unless otherwise stated, all information disclosed in the Report was sourced from the Group’s documents and statistical reports, and the currency mentioned was in RMB. The Group assures the truthfulness, accuracy and completeness of the Report.

Reporting Guideline

The Report was prepared based on the “ESG Reporting Guide” under Appendix 27 to the *Rules Governing the Listing of Securities* (“Listing Rules”) issued by The Stock Exchange of Hong Kong Limited (“SEHK”). Moreover, it was prepared based on the principles of materiality, quantitative, balance and consistency to determine and disclose its contents, and is compliant with the “comply or explain” provision set out in the “ESG Reporting Guide” issued by SEHK.

Access to the Report

The Report is published in two languages - Traditional Chinese and English. If there is any inconsistency between the two versions, the Traditional Chinese version shall prevail. You are welcome to obtain the Traditional Chinese and English versions of the Report in a PDF format at the Company’s website, www.sdsunnsygroup.com, and SEHK’s HKEX news website.

Comments and Feedback

If there are any comments or feedback for the Group’s ESG reporting, you are welcome to contact the Group by email at wangjinxiaang@sdshanshuigroup.com.

¹: Please refer to pages 65-88 in the 2018 Annual Report.



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About the Group

China Shanshui Group is a large-scale enterprise group with cement and clinker production as its main businesses. It is one of the earliest companies engaged in cement production with new dry process and is also one of the 12 national large-scale cement enterprises with key supports received from the country.

The Company and its subsidiaries cover 10 provinces (municipalities, autonomous regions) including Shandong, Liaoning, Shanxi, Tianjin, Inner Mongolia, Xinjiang, etc. The products of the Group are widely used in key national projects and infrastructure construction projects in the field of railways, highways, airports, real estates, etc. The products have been successfully exported to more than 60 countries and regions, including the U.S., Russia, Europe, Australia, Middle East, Africa, etc.

All along, the Group adheres to the concept of scientific development and strives to establish itself as a resource-saving and environmentally friendly enterprise. All cement production and most of the commercial concrete production subsidiaries of the Group have been certified to be in conformity to ISO 9001, ISO 14001 and OHSAS 18001 management standards. In addition, the Company's cement brand, "Shanshui Dong Yue", is rated as Shandong Famous Trademark and acquired the National Certified Quality Credit AAA Gold Medal.



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Responsible Governance



3.1 Responsible System

Good corporate standards are not only essential in providing a framework for the enterprise to enhance corporate value, to formulate its business strategies and policies, and to enhance its transparency and accountability, but they are also essential elements to promote its sustainable development. The Board of Directors (the “Board”) of the Company is committed to maintaining good corporate governance standards. During the Reporting Period, pursuant to the requirements of the Company Laws, the Articles of Association, the requirements of the SEHK and relevant laws and regulations, with an aim to establish a comprehensive corporate governance structure and speed up the transformation of internal management, the Group has continuously endeavored to amend and improve various systems, thereby it has established a relatively sound internal control system. The Board has established four committees, namely, the Audit Committee, Remuneration Committee, Nomination Committee and Executive Committee, for overseeing specific aspects of the Company’s affairs. The audit department of the Group proceeded with supervision and examination on the implementation of the risk management and internal control system. For specific measures, please refer to the “Risk Management and Internal Control System on Operations” in the 2018 Annual Report. In the future, the Group will continuously improve the establishment and implementation of the risk management and internal control system by reference to the guidelines of the listed companies issued by SEHK.

As the market gradually transitions to a low-carbon economy, it may entail legal, market and other aspects of changes to cope with impacts from climate change, which will pose risks of different levels to enterprises. Furthermore, climate change and ESG related risks will pose financial risks to companies. Therefore, the Group follows the market situation closely and proactively tackles ESG risks. The Board is responsible for evaluating and determining ESG risks and ensures that appropriate and effective ESG risk management and internal control systems are in place, and is responsible for the Group's ESG strategy and reporting.

The Group highly values the management works of ESG and has built an environmental and social responsibility system involving top-down participation with a clear division of responsibilities, consisting of the Company's senior management, all relevant functional departments and subsidiaries that have significant impacts on the Group's ESG issues. By doing so, it is able to guarantee the determination, organization and implementation of the Group's ESG matters. The Group will continue to carry out ESG management works, to enable the ESG management works to be more professional and systematic.



3.2 Stakeholder Communication

It is an essential part of the Group's sustainable development to maintain communication with stakeholders. Stakeholders of the Group include shareholders and investors, employees, government, customers, suppliers, community and the public, etc. The Group maintains good communication with each stakeholder proactively through various channels, actively gathering stakeholders' comment and expectation regarding the Group's sustainability performance, and responding to these comments and expectations through actively organizing and undertaking corresponding ESG actions. For details of the communication between the Group and stakeholders, please see the table below:

Stakeholders	Expectation	Communication Channels	Frequency	Actions of the Group
Shareholders and investors	<ul style="list-style-type: none"> Business capability Profitability Corporate governance 	<ul style="list-style-type: none"> Shareholders' meetings Regular reports Press conference on result announcements 	Annual / quarterly / irregular	<ul style="list-style-type: none"> Increasing production and operation quality and sustainable profitability Keeping optimizing corporate governance Conducting regular communication and strengthening information disclosure
Employees	<ul style="list-style-type: none"> Employee rights and benefits Occupational health and safety Training and development 	<ul style="list-style-type: none"> Employment contracts Employee activities Training courses 	Regular/ irregular	<ul style="list-style-type: none"> Constantly improving the human resource management system and protecting employee rights and benefits Improving employee occupational health and safety work Proactively implementing training to foster employees' knowledge and skills
Government	<ul style="list-style-type: none"> Compliance with laws Compliant operation Implementation of national policies 	<ul style="list-style-type: none"> Stipulating policies Work reporting Information disclosure 	Regular/ irregular	<ul style="list-style-type: none"> Strictly complying with laws and regulations and proactively cooperating with regulatory departments Strengthening corporate's compliant operation
Customers	<ul style="list-style-type: none"> Product quality Service guarantee Product research and development 	<ul style="list-style-type: none"> Customer feedback mechanism Customer service The Company's website 	Annual/ quarterly/ irregular	<ul style="list-style-type: none"> Enhancing the quality assurance system to guarantee product quality Improving the customer service and feedback mechanism Promoting technological research and innovation to increase efficiency in production
Suppliers	<ul style="list-style-type: none"> Fair and just procurement Cooperation with mutual benefit Sustainable win-win development 	<ul style="list-style-type: none"> Contracts and agreements Working meetings Supplier assessment 	Regular/ irregular	<ul style="list-style-type: none"> Strengthening procurement management measures and ensuring fair and transparent bidding and procurement processes Fulfilling contracts and agreements Holding procurement meetings for communication
Community and the public	<ul style="list-style-type: none"> Community investment Harmonious development Environmental protection 	<ul style="list-style-type: none"> Community supports Community visits Social contributions 	Regular/ irregular	<ul style="list-style-type: none"> Engaging in community support activities, such as targeted poverty alleviation Proactively organizing social contributions activities, such as volunteering activities Implementing environmental protection works



Clean Production, Protecting the Environment



4.1 Strictly Controlling Emissions, Persisting in Green Development

2018 was the opening year to thoroughly implement the spirit of the 19th CPC National Congress. In this year, China continued to strengthen its prevention and governance towards environmental issues, and to promote the call of “Accelerating the Reform of Ecological Civilization System and Building a Beautiful China”. Moreover, the Opinions of the Central Committee of the Party and the State Council on Strengthening the Ecological and Environmental Protection in All Aspects and Firmly Winning the Battle of Preventing and Controlling Environmental Pollution was published on 24 June 2018 and set out an overall plan for enhancing ecological and environmental protection and firmly winning the battle of preventing and controlling environmental pollution. In addition, the *Environmental Protection Tax Law of the PRC* has come into force since 1 January 2018 and requires that the enterprises and public institutions shall pay environmental pollution tax in accordance with the provision of the law to implement environmental protection works. With the implementation of environmental protection policies such as energy conservation and emission reduction, staggering peak production and mine reclamation, the cement production capacity of cement enterprises, who generate a large amount of exhaust gas and greenhouse gas (“GHG”), has been constrained. Therefore, cement enterprises need to respond to relevant policies by proactively taking actions.



China Shanshui Group always upholds green development by proactively responding to various kinds of national environmental protection policies and implementing the resource reserve strategy² aiming for long-term development. The Group strictly controls emissions to the environment and meets emission reduction targets by applying new technology and equipment, and strives to take green development as an opportunity to create sustainable business development.

The Group strictly abides by relevant laws, regulations, standards and provincial, municipal and local implementation provisions of environmental protection that have significant impacts on the Group relating to air and GHG emissions, discharges into water and land, generation and disposal of waste and minimizing significant impacts on the environment and natural resources, which include but are not limited to:

- ✍ the *Environmental Protection Law of the PRC*
- ✍ the *Atmospheric Pollution Prevention and Control Law of the PRC*
- ✍ the *Water Pollution Prevention and Control Law of the PRC*
- ✍ the *Law of the PRC on the Prevention and Control of Environmental Pollution by Solid Waste*
- ✍ the *Law of the PRC on Prevention and Control of Pollution from Environmental Noise*
- ✍ the *Environmental Protection Tax Law of the PRC*
- ✍ the *Emission Standards of Air Pollutants for Cement Industry*
- ✍ the *Technical Specification for Application and Issuance of Pollutant Permit Cement Industry (HJ 847-2017)*
- ✍ the *Comprehensive Emission Standard for Regional Air Pollutants in Shandong Province*



Moreover, the Group has formulated and implemented the *Shan Shui Group Environmental Protection and Energy Management System* according to relevant laws and regulations to achieve a standardized, process-oriented and normalized corporate management. The *Shan Shui Group Environmental Protection and Energy Management System* includes two parts: environmental protection management measures and energy management measures.

2: For more details, please refer to pages 37-38 in the 2018 Annual Report.



The environmental protection management measures

mainly include: the working procedures and requirements for environmental protection management, requirements of organizational management and job responsibility, pollutants control, management requirements for environmental protection equipment, pollutants emission standards, etc.



The energy management measures

mainly include: working objective and principle, organizational structure and responsibility, energy use management, system certification and carbon emission, etc.



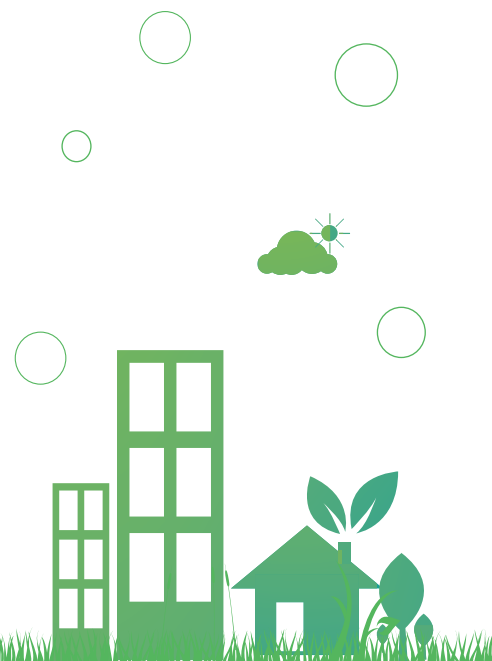
Shandong Cement Factory Co., Ltd. was awarded the title of “the Outstanding Enterprise in Environmental Protection in 2018”

During the Reporting Period, the Group did not receive any cases that violated the aforementioned laws and regulations relating to air and GHG emissions, discharges into water and land, and generation and disposal of waste.

4.1.1 Air Pollutants

The major air pollutants generated during the Group’s operation included nitrogen oxides, sulfur dioxide and soot. Apart from strictly complying with the aforementioned relevant national and local laws and regulations, the Group has equipped each cement production line with well-established air pollutant control devices by comprehensively adopting advanced pollution control technology and delicacy management according to the national integrated plan of industrial development and the overall deployment of urban air pollution control. The Group has strictly controlled pollutant emissions and kept the emissions of nitrogen oxides, sulfur dioxide and soot to meet and exceed the national environment protection requirements with reference to the latest national and local environmental protection requirements, so as to minimize their environmental impacts. All cement clinker plants of the Group have obtained local pollutant discharge permits and entrusted independent environmental monitoring institutions to monitor pollutions on a regular basis.

Moreover, the Group has kept its eyes on the release of new national and local environmental protection requirements and acquired information on environmental policies and requirements in time. For new releases of, or updated, laws and regulations, the Group responds swiftly and communicates with all subsidiaries about formulating emission reduction plans and taking measures according to new laws and regulations. For example, upgrade and renovation plans are made for environmental protection facilities that may not reach the latest air pollutant emission standards in the requirement and their key parts, or orders are made for filter bags of soot collection to suit the latest requirements.





In order to effectively control and reduce pollutant emissions, the Group continued to increase investments in technical renovation to fully promote denitrification, desulfurization and soot removal equipment renovation, especially for air pollutants generated during cement production, so as to ensure that each kind of air pollutant emission meets requirement and the potential environmental impacts of production are minimized. During the Reporting Period, the Group had a total of 154 renovation projects of environmental protection technology with a total investment of RMB0.288 billion, including technical renovations for soot collection, desulfurization and denitrification with an investment of approximately RMB28.875 million, 1.400 million, and 4.120 million, respectively.

The Group took the following measures to control and reduce pollutant emissions:



Online monitoring systems were installed to all cement rotary kilns of each subsidiary, and they are connected to the local environmental protection department to enable real-time monitoring and proactive pre-warning of pollutant emission indicators;



All production lines of the Group were equipped with Selective Non-Catalytic Reduction (SNCR) denitrification systems and achieved the nitrogen oxides emission reduction objectives. In 2018, the Group proactively developed new technologies for emission reduction and energy saving by renovating the spray gun, automation and burners of denitrification. Moreover, the #1 kiln of Zibo Shanshui Cement Co., Ltd. ("Zibo Shanshui") and kilns of Huixian City Shanshui Cement Co., Ltd. ("Huixian Shanshui") implemented the renovation of staged combustion with low nitrogen emissions to effectively reduce nitrogen oxides emission. After renovation, the concentration of nitrogen oxides generated from #1 kiln of Zibo Shanshui reduced from 700-800 milligram/cubic meters (the original concentration before renovation) to 370 milligram/cubic meters, while the original concentration of nitrogen oxides generated from Huixian Shanshui decreased from 700-750 milligram/cubic meters to 350-400 milligram/cubic meters;



In order to solve the problem of high-level emissions of sulfur dioxides from cement production, which was caused by the high sulfur content of mines in a few subsidiaries, the Group proactively developed new desulfurization technologies, improved desulfurization equipment, so as to effectively reduced sulfur dioxide emission;



As for dust, apart from applying sealing designs or increasing dust collection devices for the potential source of dust emission during designing production lines, the Group implemented sealing renovations for the existing warehouses, storage sheds and other facilities in the production line; controlled sources of dust by spraying water during mining open-pit mines, spraying water regularly on the mine transportation roads and installing spraying devices in discharge ports that easily raise dust, etc. to reduce dust.

During the Reporting Period, the emissions of nitrogen oxides of the Group **11.3%** decreased by on a YOY basis

the emissions of sulfur dioxide decreased by **29.4%** on a YOY basis

the emissions of soot decreased by **27.2%** on a YOY basis



Reducing dust via spraying in the mine area

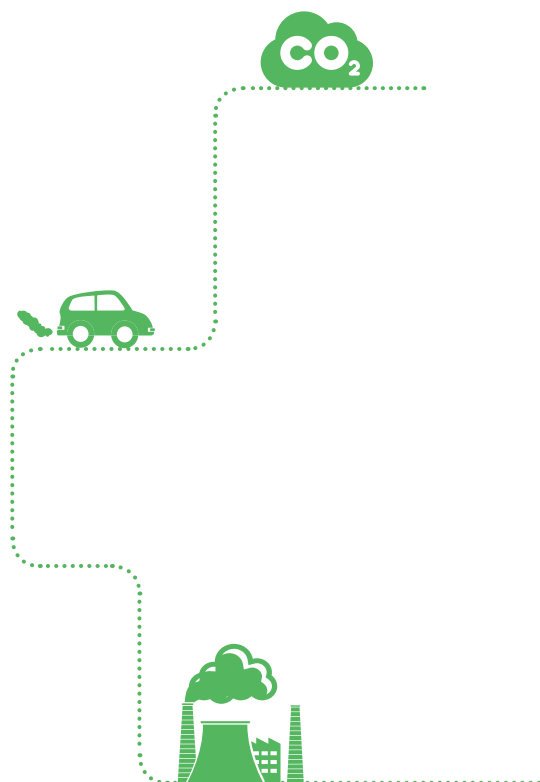


Dust removal in the sealed breaking process in the mine area

4.1.2 GHG

Controlling GHG emission is an important task for China to proactively cope with global warming. The report of 19th CPC National Congress stated that it is required to accelerate the reform of ecological civilization system, to establish a sound, green, low-carbon and circulated developing economic system, to initiate the national carbon emission trading system and to steadily promote the establishment of national carbon emission permit trading market. Therefore, the Group proactively implemented the spirit of 19th CPC National Congress by persisting in a low-carbon development and proactively cooperating with the work of carbon emission audit. Furthermore, the Group has strictly implemented the Work Plan for GHG Emission Control During the “13th Five-Year Plan” issued by the State Council of the PRC by formulating GHG reduction plans and measures according to the Group’s situation.

The Group continued to improve the carbon dioxide data collection system to collect all subsidiaries’ carbon dioxide emission data, which provided the necessary statistics for building a foundation for making reduction plans scientifically, so as to effectively manage the Group’s carbon dioxide emission. In order to reduce GHG emission caused by energy consumption, the Group strengthened internal management, made full use of combustible wastes as alternative fuels and blended industrial wastes in cement grinding appropriately; continually implemented technical renovation for energy conservation and optimized production process to improve energy efficiency.



4.1.3 Wastewater

The Group strictly abides by the *Water Law of the PRC*, the *Water Pollution Prevention and Control Law of the PRC*, the *Implementation Measures of Water Abstraction Licensing* and other laws and regulations relating to water pollution prevention and control. The Group adheres to pollution prevention as principal measure and combining prevention with treatment to fulfill its legal obligations and social responsibility. The Group has established effective wastewater treatment plants for production and domestic wastewater treatment to meet the national and local standards of recycled water according to regulations. Moreover, the method of drainage separation and sewage system has been applied in factories and reservoirs have been built so that rainwater could be stored through drainage trenches. The treated wastewater that meets standards would be used for spraying roads, irrigating greenery, dust mitigation of roads and other aspects to increase water efficiency and realize zero discharge of wastewater.



The wastewater treatment facility of the Group

4.1.4 Wastes

During operation and transportation, the major non-hazardous wastes generated by the Group were general production and domestic wastes, while the major hazardous waste was used machine oil. All wastes have been classified and treated by the Group according to national environmental protection requirements, and they were recycled and reused as much as they could according to the three principles, reduce, reuse and recycle. Recyclable wastes were recycled and reused as a priority, while unrecyclable wastes were sent and burned in the kiln or collected and treated by the entrusted qualified institutions according to their nature. Moreover, used machine oil was reused to lubricate machines, and waste oil barrels³ were collected and handled by qualified collection institutions.

As urbanization accelerating and citizens' living standard improving, more and more industrial wastes are generated in cities. It is important to know how to solve the problem of industrial waste treatment. Hence, the Group has proactively utilized industrial wastes and comprehensively made use of resources by effectively utilizing industrial wastes generated during production

The annually accumulated industrial solid wastes treated by the Group were more than

10.58 million tonnes

as production raw materials, such as coal ashes and desulfuration gypsum generated from coal-fired power plants, converter slag and electric furnace slag from steel enterprises. Advanced production techniques were adopted to use industrial wastes to produce various types of high-quality cement, which not only minimize environmental impacts of industrial wastes, but also make them useful and increases resource efficiency.



Reduce



Reuse



Recycle

3: As there were few waste oil barrels, their data have not been collected yet. The Group's data collection system will be gradually improved in the future.

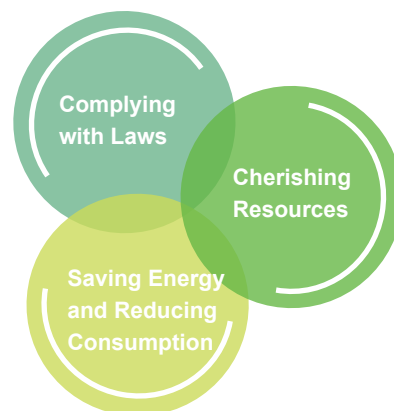


4.2 Cherishing Resources, Striving to Develop and Save Resources

China Shanshui Group always persists in green development and implements national laws and regulations relating to resource saving and environmental protection, including but not limited to the *Cleaner Production Promotion Law of the PRC* and the *Energy Conservation Law of the PRC*. Moreover, in order to fulfill the energy conservation and emission reduction target and task in the “13th Five-Year Plan”, the Group has formulated and implemented the *Shan Shui Group Environmental Protection and Energy Management System* based on the Group's situation. The resources used by the Group during operation includes energy (such as raw coal and electricity), water and raw material (such as limestone).

4.2.1 Energy

The Group has established energy management measures, including organizational structure and job responsibility of energy management, statistical management of energy, energy management for key equipment, energy saving target management, daily energy management and other measures, and determining the energy management policy of “Complying with Laws, Cherishing Resources, Saving Energy and Reducing Consumption”. According to the energy management system, the Group has proactively implemented works of energy saving in all subsidiaries by making energy saving plans and continuously elevating energy efficiency to reduce energy consumption and achieve the overall target of energy saving and reducing consumption.



Measures of the Group's environmental protection and energy management mainly included:



Strengthening the accountability and assessment system with clear energy saving target and further promoting energy saving and consumption reduction. The Group controlled the total energy consumption and increased energy efficiency in strict accordance with the target in the “13th Five-Year Plan” by controlling total energy consumption and its intensity, and improving energy efficiency. In 2018, the Group's energy consumption per unit products of cement and clinker were lower than the national standard (“The Norm of Energy Consumption Per Unit Products of Cement”);



Strengthening internal management; adopting a reasonable mixing formula to reduce coal consumption for clinker production; making full use of combustible wastes as alternative fuels;



Carrying out technological renovation and optimizing production to increase energy efficiency. During the Reporting Period, the Group invested RMB45.00 million in technical upgrade and renovation for energy saving, including upgrading and renovating high-temperature fans, heaters, grate coolers and other production equipment to decrease coal and electricity consumption per unit of products.

In addition, the Group has widely applied the technology of waste heat recovery for power generation, which applies pure low-temperature waste heat recovery for power generation. This technology uses waste heat generated through fuel incineration in the body and head of the kilns during production for power generation. Furthermore, apart from utilizing the waste heat generated during production, the Group made comprehensive use of other waste heat by installing heat exchangers in kilns to supply heat to office and living areas in factories, schools nearby and other public facilities.

During the Reporting Period,
the power generated from
waste heat recovery was

1.16 billion
kilowatt-hours

equivalent to a saving of

0.143 million tonnes
standard coal

to the reduction of

0.356 million tonnes
of carbon dioxide emission



4.2.2 Water Resource

The Group attaches importance to use of water. The Group upholds the sustainability concept and developed ways to make optimal use of water based on the local ecological environment. The zero discharge of wastewater was basically realized through the wastewater treatment system. In 2018, the Group made more than RMB5.25 million investment to upgrade wastewater treatment facilities in the area of water treatment. All water used for production was recycled and reused for waste heat recovery for power generation and equipment cooling, while treated sewage that was treated according to the required standards was used for spraying roads, irrigating greenery, landscaping and other aspects. The Group stipulates that the water used for spraying roads and greenery should use in favor of recycled water, instead of underground water, tap water or other water sources.

In order to reduce water consumption and solve the problem in some subsidiaries of increasing water usage due to high temperature of recycled water in summer, the Group increased the recycling rate of recycled water by adding and expanding recycled water tanks, increasing the height of cooling towers and other measures. Furthermore, the Group replaced the water jet air ejector by vacuum pumps in the deaerator for waste heat recovery power generation. Taking the 6 megawatts power generators as an example, approximately 120 cubic meters can be saved per day.

In 2018, the Group made more than

RMB 5.25 million
investment to upgrade wastewater
treatment facilities in the area of
water treatment

In terms of water sourcing, the Group takes full consideration of water sourcing during design stages of projects and understands their local water stresses, and adopts appropriate water withdrawal measures. Therefore, there were no difficulties in sourcing water.

4.2.3 Raw Materials

Limestone is the major raw material for clinker and cement production. The Group strives to use resources comprehensively and increases the efficiency of using raw materials by continuously enhancing mining recovery rates, elevating the usage proportion of usable materials in mining areas and establishing aggregate production lines to make use of waste stone.



4.3 Caring for Environment, Establishing Green Mines

The Group has earnestly implemented the concept of “Lucid Waters and Lush Mountains Are Invaluable Assets” and the “Implementation Opinions of Accelerating the Developing Green Mines” and is committed to developing green mines. The mining of the Group complies with the *Water and Soil Conservation Law of the PRC*, the *Regulation on the Implementation of the Water and Soil Conservation Law of the PRC* and the *Green Mine Convention*. All subsidiaries are required to implement the green and harmonious development philosophy and to implement environmental protection, energy saving and emission reducing and land rehabilitation during the whole cycle of mining by establishing green mines according to the local environment and strictly controlling the impacts of mining on the mining areas and the surrounding environment.

The Group persists in controlled mining and has applied the top-down horizontal stratification method to mining. The Group upholds the principle of “Preventing and Controlling when Mining” to proactively govern and restore mining areas, soil stacking ground and other areas. Furthermore, water and soil erosion in mining areas are prevented by slope trimming, covering soil, planting grass and trees, spraying and other ecological restoration methods, and the Group strives to achieve 100% coverage of greenery in mining areas.

Additionally, the Group proactively developed intelligent, scientific methods to manage mines, and pursue accurate resources management to govern the whole process of mine resources development in a more effective way, by equipping remote video monitoring systems in mining sites and realizing visualized control in the central control system.



The controlled mining which applied the top-down horizontal stratification method



The greening area surrounding the rock breaking workshops in the mine area



The central control and dispatching system

Looking ahead to 2019, the Group will continue to promote the construction of green mines. Among the 13 subsidiaries in Shandong, while 6 subsidiaries are promoting the green mine projects, the remaining 7 subsidiaries will strive to complete the implementation plans for green mine construction in the first quarter of the year. Apart from this, the Group undertakes intensive efforts on controlled mining and strictly complies with requirements of relevant regulations related to mining, green mine construction, mine environment control and land rehabilitation. Moreover, the Group comprehensively conducts mine control and rehabilitation so as to further lay ground for normalized management of mine resources.



4.4 Energy Saving and Emission Reduction, Demonstrating Environmental Performance⁴

The Group's environmental performance in emissions and use of resources during the Reporting Period is listed in the table below.

Indicators	Unit	2018	2017
Basic information			
Clinker production	Tonnes	35,291,000	35,225,700
Air pollutant ⁵			
Nitrogen oxides	Tonnes	15,061.57	16,979.71
Sulfur dioxide	Tonnes	804.73	1,140.28
Soot	Tonnes	547.39	752.32
GHG			
Carbon dioxide ⁶	Tonnes	30,748,100 ⁷	30,145,500
Carbon dioxide emissions per clinker production	Tonnes/tonnes	0.87	0.86
Use of resource ⁸			
Electricity consumption ⁹	Kilowatt-hours	3,150,000,000.00	3,198,347,817.42
Raw coal consumption	Tonnes	4,464,000.00	4,602,993.17 ¹⁰
Raw coal consumption per clinker production per clinker production	Tonnes/tonnes	0.13	0.13
Total water consumption	Tonnes	13,686,773.00	12,175,033.00
Water consumption per clinker ¹¹	Tonnes/tonnes	0.36	0.32
Water consumption per cement ¹²	Tonnes/tonnes	0.38	0.34
Packaging materials of cement	Pieces	194,378,793	251,142,600
Resource recycling and reuse			
Electricity generated from waste heat recovery	Kilowatt-hours	1,164,000,000.00	1,137,062,055.22

4: As the Group's environmental impacts mainly came from production activities, the environmental performance only included relevant data from the Group's production facilities.

5: As the Group's air pollutant emissions mainly came from the clinker production, the pollutant-related data only included 32 clinker production enterprises and were real-time monitoring data from projects. Due to the short operating period of Hequ Company in 2018, its online monitoring systems was not accepted, so the nitrogen oxides, sulfur dioxide and soot emission data in 2018 did not include this company. The reporting scope of air pollutants in 2018 was 1 company more than that in 2017.

6: The calculation of carbon dioxide was based on the *Accounting Method and Reporting Guideline for Greenhouse Gas Emissions of Cement Production Enterprises in China*. As the Group's GHG emissions mainly came from the clinker production, the pollutant-related data only included 33 clinker production enterprises

7: According to the requirement to the *Notice of Implementing 2018 Carbon Audit Reporting and Verification and Formulating Carbon Emission Monitoring Plans*, every regional administrative department in China will entrust third-party audit institutions to verify the provided GHG data of the Group. The review of the audit report will be finished before 31 May 2019. The verified GHG emission data of the Group according to the review shall prevail. The 2018 GHG emission data may be properly adjusted with reference to the audit result.

8: As some of the Group's subsidiaries were not engaged in production activities, the resource consumption data only covered 79 companies of the Group, including the integrated cement kiln and grinding enterprises (including cement kiln enterprises) and cement grinding enterprises. Due to the change of numbers of subsidiaries, the reporting scope of resource consumption in 2017 is broader than that in 2018.

9: In 2018, the electricity consumption per clinker production and electricity consumption per cement production were 55.15 and 76.5 kilowatt-hours/tonnes, respectively.

10: This data refers to the raw coal consumption from 89 subsidiaries in 2017. The data listed here shall prevail.

11: This refers to the water consumption per tonnes of clinker production calculated based on the water consumption of clinker production.

12: This refers to the water consumption per tonnes of cement production calculated based on the water consumption of cement production.



People-Oriented, Uniting the Team

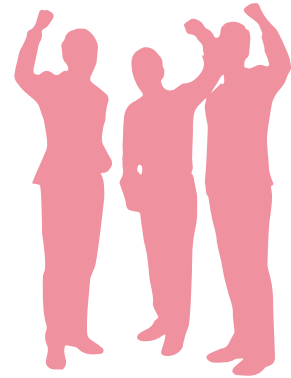


5.1 Compliant Employment, Protecting Employee Rights and Benefits

Employees are the most essential resource of a company and an important motivation to keep a company's development stable and sustainable.

China Shanshui Group strictly complies with relevant laws and regulations that have significant impacts on the Group relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, other benefits and welfare and prevention of child labor and forced labor, including but not limited to the *Labor Law of the PRC*, the *Labor Contract Law of the PRC*, the *Social Insurance Law of the PRC*, the *Law of the PRC on the Protection of Minors*, the *Provisions on the Prohibition of Using Child Labor* and Hong Kong's *Employment Ordinance*. Moreover, the Group has established and implemented the *Regulations on Recruitment Management of Shanshui Group* and other human resource management systems.

The Group upholds the people-oriented philosophy to establish an open, fair and just selection and employment system and strives to build a positive, respectful and diversified work environment to promote employees' development. The recruitment of the Group is conducted according to the *Regulations on Recruitment Management of Shanshui Group*. Adhering to the principle of openness, fairness, justice, fair competition and merit-based, the Group recruits local talent to promote employment in the local area where companies locate. Moreover, during recruitment, the Group strictly reviews candidates' identification to ensure that the information provided by applicants is true and correct and to resolutely object to hiring child labor. The Group advocates an equal and diverse employment policy and does not discriminate against employees because of race, gender, age, religion, ethnicity and other conditions. After recruitment, employees are required to enter into a labor contract according to relevant regulations. Moreover, the Group has established a reasonable remuneration system to regularly adjust employees' remuneration package according to the market, corporate business performance and employees' income levels and employees will be promoted based on their capabilities and job performance. As for resignation, according to the *Regulations on Resignation Management of Shanshui Group*, the Group communicates with employees that resign to acquire his/her reason for resignation and provides assistance to handle the resignation procedure.



The Group respects employees' rights to take rest and leaves. The *Management Measures for Employee Attendance of Shanshui Group* has been established and stipulates that employees should not work more than 8 hours per day and more than 40 hours per week. In order to firmly guarantee employees' rights to ask for leaves, the Group has formulated the *Implementation Measures for the Paid Annual Leave of Shanshui Group*. Employees enjoy statutory holidays, paid annual leaves, marriage and compassionate leaves, paternity leaves and other holidays according to national regulations. Appropriate subsidies in accordance with relevant regulations are also provided for work outside of normal working hours. In addition, the Group provides basic pension insurance, basic medical insurance, unemployment insurance, maternity insurance, work-related injury insurance and housing provident funds to all employees.



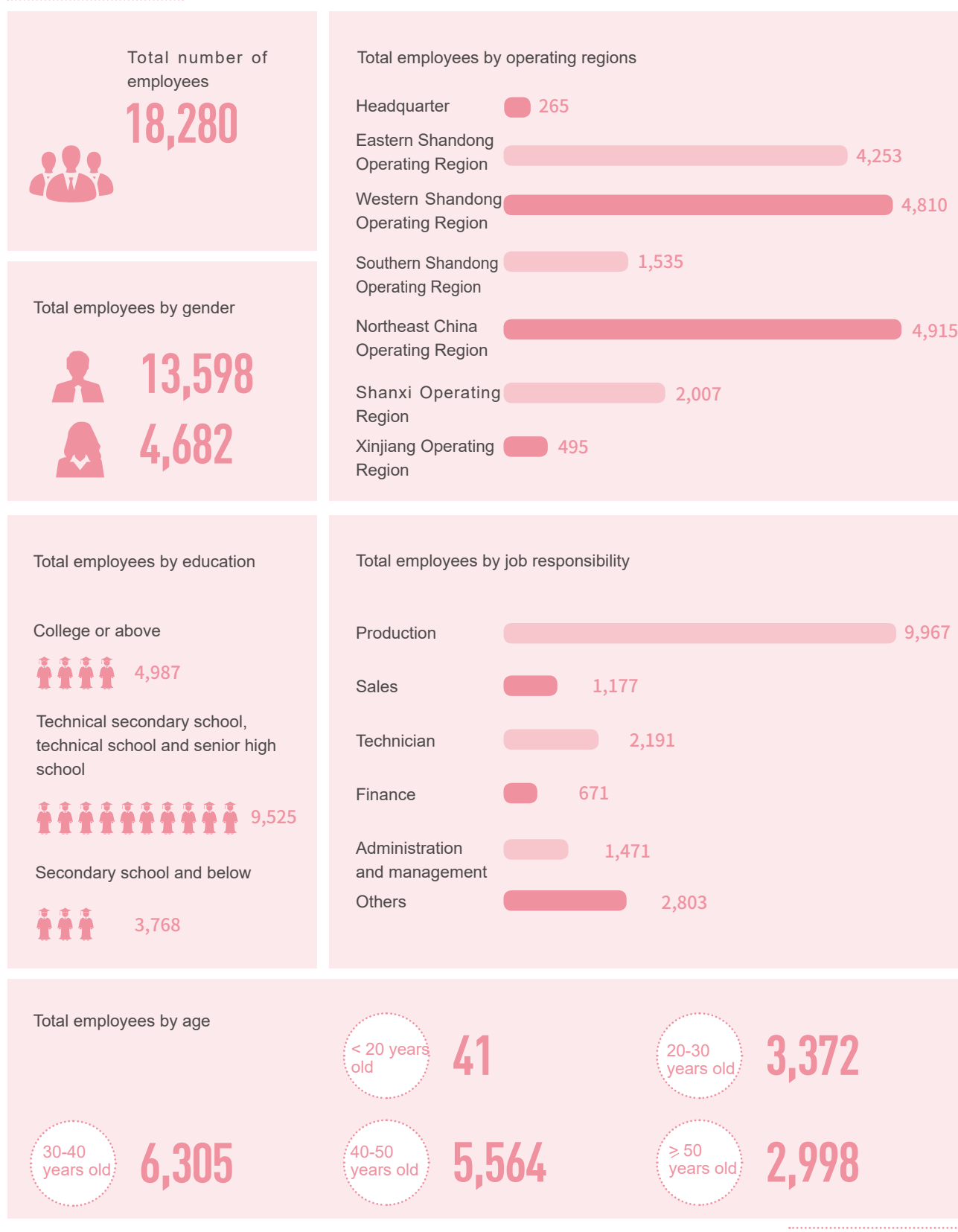
As of 31 December 2018,
the Group had

18,280

in-service employees

During the Reporting Period, the Group strictly complied with the aforementioned laws and regulations relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, other benefits and welfare and prevention of child labor and forced labor. Additionally, there were no cases involving the hiring of child labor.

As of the end of the Reporting Period, the numbers of employees by employee types of the Group are listed in the table below:





5.2 Strengthening Management, Ensuring Health and Safety

Focusing on works related to safety and occupational health is a foundation for the Group's business and operation. The motto of all safety management personnel of the Group is "There Is No End to Safety". China Shanshui Group strictly complies with national laws and regulations that have significant impacts on the Group relating to the provision of a safe working environment and the protection of employees from occupational hazards, including but not limited to the *Work Safety Law of the PRC*, the *Law of the PRC on Safety in Mines*, the *Law of the PRC on the Prevention and Treatment of Occupational Diseases*. In addition, the Group has formulated and implemented the *Regulations on the Work Safety Management of Shanshui Group*, the *General Rules for the Use of Safety Labels of Shanshui Group* and other internal policies. Furthermore, the Group revised the *Safety Operation Procedure of Shanshui Group* according to laws and regulations to continuously promote the normalization and standardization of the Group's safety and occupational health management. There were 4 more subsidiaries of the Group that passed the on-site assessment of "First Level of Safety Standard" according to the "Standardized Evaluation Standard for Safe Production of Cement Enterprise". During the Reporting Period, the Group did not have any ordinary safety accidents or above occurred and did not receive any cases that violated the aforementioned national laws and regulations relating to the provision of a safe working environment and the protection of employees from occupational hazards.

In order to fulfill the requirements of work safety, all subsidiaries of the Group have established their work safety committees and work safety management organizations with general managers as principle officers, therefore, forming the safety management network. The Group has carried out a safety management accountability system and assessed the completion of safety target on a monthly basis, whose results are included in monthly performance appraisals. By doing so, it is able to effectively ensure the smooth implementation of safety management works.

The Group is devoted to providing a safe workplace to employees. The Group continuously strengthens the standardization of work safety and keeps improving the safety conditions of on-site operations through hazards investigation and management, risk identification, and safety training, etc. By proactively upgrading and renovating on-site equipment and facilities intentionally, the Group controlled dust, noise and other occupational health hazards; provided safety helmets, dust masks, heat-insulating suits and other personal protective equipment with reliable quality to employees; organized employees in general posts to attend physical examination on a regular basis, and arranged occupational physical examination for employees in special posts.

During the Reporting Period,

54,445

attendees of the Group
attended occupational health
training courses



Dust control is one of the essential works in the cement industry and also one of the important factors that affect employees' health. The Group always attaches importance to control dust from sources. Apart from the dust control measures taken as mentioned in chapter 4.1.1 of the Report, the Group further installed windshields in the transportation belt to reduce dust during transportation, so as to control dust and minimize its adverse impacts on personnel's health.

In 2018, all subsidiaries of the Group focused on 2 systems, "Risk Management and Control by Level Classification and Potential Hazards Investigation and Rectification", to strengthen safety training and to raise employees' safety awareness and self-protection capability by helping employees be familiar with the risks and hazards at work. In addition, the Group proactively held various kinds of emergency drills, including fire drills, electric shock drills, collapse and burying, etc., and continuously revised and improved relevant contingency plans according to the drills' experience.

Furthermore, the Group organized occupational health and safety training, and safety knowledge competition from time to time to enhance employees' awareness of occupational health and safety.

During the Reporting Period,

19,596

attendees of the Group attended various kinds of emergency drills



Jincheng Shanshui Cement Co., Ltd. held activities during the work safety month



The Group organized and held an emergency drill



The Group held a security emergency drill



Zibo Shuangfeng Shanshui Cement Co., Ltd. ("Zibo Shuangfeng") held a safety knowledge competition



5.3 Cherishing Talent and Improving Together, Promoting Talent Development

Competition among enterprises is equivalent to competition for talents. The Group attaches great importance to employees' development and training. The Group formulates training plans on an annual basis and holds high standard and quality technical training courses according to companies' needs. The employee training is divided into two categories, namely the orientation training for new employees and on-the-job training, according to Group's current development requirements.



Orientation training for new employees

This training is developed for new employees of the Group to enable them to fully understand the Group's development, corporate culture, business workflow, management systems, etc., and to help them adapt to their jobs as soon as possible and fit in the Shanshui family.



On-the-job training

This training is designed for in-service employees of the Group and aims to enhance their professional skills, improve their work performance and meet the development requirements of the Group. The training adheres to the principle of focusing on both theoretical and practical skills so as to enhance employees' knowledge and skills comprehensively.

During the Reporting Period, training activities held by the Group included the following activities:



Training for general managers

this training focused on the summary and sharing of experience of 2017 and discussing the development plans and key works in 2018, so as to enable the better shouldering of the missions and responsibility of the Group's management by the participants



Equipment management and technology seminar of the Group in 2018

this seminar included sharing subsidiaries beneficial experience and good practices of equipment management, equipment status monitoring and case study, aiming to strengthen the team building of the equipment technology management team of the Group



An operation training of central control system of Eastern Shandong Operating Region

a total of 66 participants took part in this training, including production managers in clinker production companies in the operating region, directors of the central control room and operating personnel of rotary kiln



A training on legal affairs and systems and contractual risk control measures via video conferencing



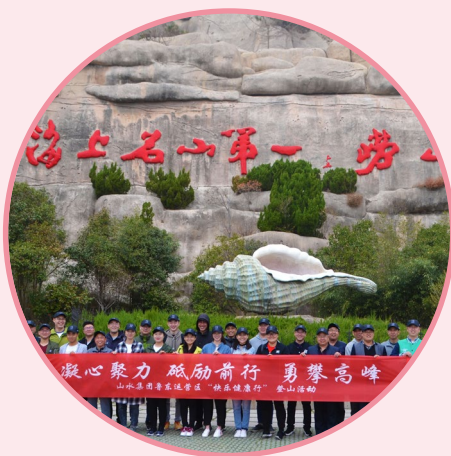
A training on financial matters

Looking into 2019, the Group will focus on implementing talent-oriented development strategy, developing for the replacement of old growth drivers with new ones, including optimizing the talent-nurturing mechanism and establishing a dynamic "Backup Talent Pool"; innovating talent recruitment mode and establishing the "Talent Nurturing Bases of Shanshui Group" as designated demonstration units; enhancing talent incentive mechanism. For more details, please refer to pages 38-39 in the 2018 Annual Report.



5.4 Treating Employees Well, Enriching Cultural Life

The Group continued to improve the work of “Treating Employees Well” by organizing and holding various kinds of employee cultural activities to enrich employees’ psychological and cultural life and to increase their sense of belonging and happiness.



Eastern Shandong Operating Region organized a “Happy and Healthy Hiking” activity for employees to hike Laoshan Mountain



The Group participated in the basketball challenge competition held by Qilu Weekly



The Beihai Branch of Yantai Shanshui Cement Co., Ltd. organized employees to visit the Ocean Aquarium of Penglai



Shenxian Shanshui Cement Co., Ltd. organized employees to visit “Qufu” and hike Mount Tai



Improving Management, First-Class Operation



6.1 Optimizing System, Producing High-Quality Product

China Shanshui Group persists in the business philosophy of “Quality First, Customer Supreme” and devotes to providing high-quality products to customers by upholding the overall requirements of “Improving Service Systems, Optimizing Service Procedure, Standardizing Service Content, Elevating Service Quality”. The Group strives to provide the highest quality products and service to customers by continuously improving service systems.

The Group strictly complies with relevant laws and regulations that have significant impacts on the Group relating to health and safety, advertising, labelling and remedial measures for the products and services provided, including but not limited to the *Product Quality Law of the PRC*, the *Work Safety Law of the PRC*, the *Advertising Law of the PRC*, the *Trademark Law of the PRC*, the *Law of the PRC on the Protection of Consumer Rights and Interests*, the *Rules for Implementation of Manufacturing License for Cement Products* and the *Quality Control Regulations for Cement Manufactures*. During the Reporting Period, the Group did not receive any cases that violated the aforementioned laws and regulations relating to health and safety, advertising, labeling and remedial measures for the products and services.

To guarantee products' quality and safety, the Group formulated the *Quality Management System of Shanshui Group* according to the *Common Portland Cement Requirement* (GB 175-2007) and other product standards and established a sound quality management system with a quality control management mode involving different levels of participation, which is formed by the Group, operating regions and subsidiaries; formulated fundamental requirements for quality control management of procurement, producing and final products; formulated inspection guidelines and organized inspection skill competition on an irregular basis to continuously improve quality control; strengthened the application of new technology and introduction of new equipment to establish a green and intelligent factory and to build the Shanshui Brand. Furthermore, according to the requirements of the *Common Portland Cement Requirement* (GB 175-2007) and the *Trademark Law of the PRC*, the packages of the Group's products clearly state relevant product information, including but not limited to the complying standards, types of cement, strength grade, name of manufactures and label of manufacturing license. The name and strength grade of cement are printed with different colors on both sides of the package of cement according to the types of cement. All cement production and most of the commercial concrete production subsidiaries of the Group have been certified to be in conformity to ISO 9001, ISO 14001 and OHSAS 18001 management standards.



Liaocheng Shanshui Cement Co., Ltd. was awarded the "Winner of Cement Quality Competition of Shandong Province in 2018"



Dongming Shanshui Cement Co., Ltd. achieved the Outstanding Award of Cement Chemical Analysis Competition of "Hongchao Technology Cup" in 2018



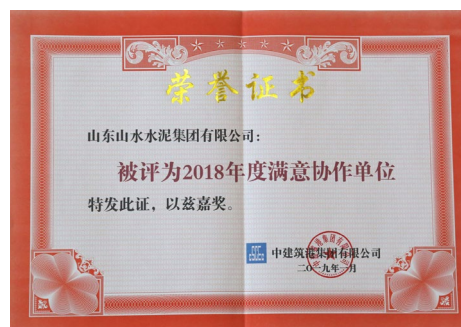
The Gongyuan branch factory of Liaoning Shanshui Gongyuan Cement Co., Ltd. achieved the Outstanding Award of Cement Chemical Analysis Competition of "Hongchao Technology Cup" in 2018



Hequ Zhongtianlong Cement Co., Ltd. achieved the "Outstanding Award" of Cement Specification Inspection Competition of Shanxi Province of "Shanxi Zhongxing Cup" in 2018

In terms of product service and compliant, the Group has established pre-sales consultation, sale reception and after-sale service systems. The Group has arranged customer service personnel to proactively acquire customers' opinions of product's quality, specification and other aspects through telephone inquiry, survey, seminar and other methods. Customer profiles have been established to keep records of customers' opinions so as to keep track of and improve product and service quality. In order to standardize after-sale service, the Group has formulated and implemented the "Regulations of Customer Service Management" and customer complaint handling procedure. Corresponding personnel shall handle customers' complaint in time once they have received and respond to the customer by sending them the handling result. In terms of complaint of product quality, technicians shall conduct on-site sampling, sample testing and finally come up with a test report.

In addition, China Shanshui Group stipulated the external content and format of advertising to standardize external advertising works according to the *Notice on Regulating the Group's External Propaganda Work*; attached great importance to the legal protection of intellectual property and formulated the *Work System for Trademark Maintenance in Cement Market* and the *Implementation Procedure for Anti-Counterfeiting in Cement Market* of the Group to maintain the Group's brand, and did not tolerate counterfeiting, infringement and activities that impair the rights and interests of customers; attached importance to protect the privacy of the Group and its customers, and required employees involving confidential information to enter into a non-disclosure agreement with the Group. Furthermore, a strict confidentiality policy has been implemented for customers' personal information.



Shandong Shanshui Cement Group Company Limited ("Shandong Shanshui") was awarded the Satisfied Company to Cooperate with in 2018



6.2 Keeping Improving, Promoting Innovation

In 2018, the Group focused on enhancing corporate innovation capabilities and business performance to continuously promote innovation by further holding technology renovation, management innovation and other competitions, forming a positive atmosphere of "Benchmarking, Learning, Catching up with, Helping and Surpassing" with all employee' participation. The Group had new achievement in terms of technology renovation and management innovation, such as achieving 3 second prizes and 2 third prizes of the national technology innovation in the building materials industry, and being awarded the "First Prize for Modern Management and Innovation Achievement of National Building Materials Enterprises" and other achievements, and establishing the Shandong International Logistic Industry Park of High-End Building Materials, which includes industrial business platforms, experience and demonstration platforms for high-end building material products, intelligent logistic industry platforms, internet+ trading platforms for building materials industry, providing a reference for the transformation from old momentum to new one.

Achieving

3 second prizes

of the national technology innovation in the building materials industry

Achieving

2 third prizes

of the national technology innovation in the building materials industry

Being awarded

the "First Prize for Modern Management and Innovation Achievement of National Building Materials Enterprises"



6.3 Compliant Operation, Advocating Upholding Integrity and Being Self-Discipline

China Shanshui Group strictly abides by relevant laws and regulations that have significant impacts on the Group relating to bribery, extortion, fraud and money laundering, including but not limited to the *Anti-Money Laundering Law of the PRC*, the *Criminal Law of the PRC*, and the Listing Rules. The Group highly values the employees' ethical principles and codes of conduct on the sense of honesty, trustworthiness and responsibility. The Group has formulated and implemented the *Regulation on the Integrity and Self-discipline of Leading Party Members of Shandong Shanshui*, the *Regulations on the Work of Disciplinary Inspection and Petition of Shandong Shanshui* and other relevant code of conduct, to thoroughly implement the accountability system of clean governance. As for reported cases, the Group's discipline investigation office, each operating region and departments and offices are responsible for reported cases' receipt, investigation and handling. The investigation and handling report shall be handed over to supervisors for review and further handling of violations in time in accordance with regulations. Subsequently, the department in charge shall respond to the real-name whistleblower and keep records. During the Reporting Period, the Group did not receive any cases that violated the aforementioned relevant laws and regulations relating to bribery, extortion, fraud and money laundering.

During the Reporting Period, according to the aforementioned code of conduct, the Group improved the establishment of the system of anti-corruption and upholding integrity of the CPC members and officials in earnest and held training courses of upholding integrity and being self-discipline for the CPC members to raise their awareness of upholding integrity and being self-discipline.



6.4 Mutual Development, Creating Harmonious Procurement

Realizing continuous win-win development with partners is a goal of the Group's supply chain management. With regard to this, China Shanshui Group always upholds the basic principles of "Openness, Fairness and Justice", and standardizes supply chain management with reference to the Group's four basic regulations, the *Management Measures for Monitoring and Control of Procurement and Supply of Shandong Shanshui*, the *Management System for Monitoring and Control of Resources Procurement and Supply of Shandong Shanshui*, the *Bidding Management System of Shandong Shanshui* and the *Management System for Large Facility Central Warehouse of Shandong Shanshui*.

In terms of suppliers selection, the Group takes full account of the following factors:

whether the supplier is a legally approved manufacturing/ operating enterprise by relevant government departments and complies with national and local laws and regulations

whether products provided by the supplier meet quality and price standards, obtain relevant production qualification certificates and pass relevant tests

whether the supplier has adequate technical capability, delivery capability, business performance and good social reputation

In order to further reduce supply chain's potential environmental and social risks, the Group requires the production of suppliers to comply with environmental protection policies, obtain relevant quality and environmental management certificates, and establish occupational health and safety management systems. In addition, the Group will conduct an on-site investigation at the suppliers according to procurement's necessity to acquire suppliers' actual situation. Moreover, the Group will discuss with suppliers about the major safety and environmental protection issues and urge them to improve shortages found, so as to ensure stable production supply.

As for raw materials procurement, the Group attaches great importance to the quality of raw materials provided by suppliers and strictly controls the risks associated with raw material supply. The Group's Procurement Management Department will perform market research in the initial stage of procurement, and thereafter will work with the quality control laboratory to conduct on-site sampling and testing. The tendering and procurement process is then conducted based on the raw material quality standard of each subsidiary; if products are found not to meet the contractual requirements during product delivery, China Shanshui Group will rectify the problems according to the measures formulated by the Group, such as the "Control Procedures for Nonconformity", the "Corrective and Preventive Measures", the "Control Procedures for Monitoring and Measurement of Products" and the "Technical Requirements for Procurement of Materials". In case of any objection relating to quality, a product quality arbitration inspection will be carried out by the nationally recognized and provincial or above level's cement quality supervision and inspection agency.



Caring about Community, Fulfilling Responsibility



7.1 Providing Assistance, Fulfilling Corporate Responsibility

The Group earnestly implemented the spirit of the important instructions of the CPC Central Committee about targeted poverty alleviation and conscientiously fulfilled corporate social responsibility in accordance with the requirement of target poverty alleviation works. The Group provides funds and items to help poverty alleviation districts, scientific, educational, cultural and health care development, disaster areas, welfare and environmental protection development. According to the *Welfare Donations Law of the PRC*, the *Company Law of the PRC* and other relevant laws and regulations, the Group has formulated the *Management Measures for External Donation and Sponsorship of Shanshui Group (Provisional)* to further standardize the Group's external donation process, donation scale, donation scope, etc. During the Reporting Period, the Group participated in various charity and other donation activities, including but not limited to providing more than RMB1 million subsidies in total to a total of 151 employees in need; Weifang Shanshui Cement Co., Ltd. donated RMB0.1 million to Weifang Charity Federation as disaster relief for flooding disasters.



In response to the national poverty alleviation policies, Zibo Shanshui provided financial assistance to impoverished college students from families in difficult circumstances in Zichuan District for two years in a row



In April 2018, Shule Shanshui Cement Co., Ltd. held donation activities for poverty alleviation and donated beds, sofas and other furniture to families in straitened circumstances to improve their living environment



Changle Shanshui Cement Co., Ltd. donated RMB100 thousand to Changle Charity Association and donated cement to areas seriously affected by hurricanes for road repair after disaster

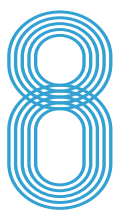


7.2 Participating in Public Welfare, Delivering Corporate's Care

China Shanshui Group proactively participated in public welfare and fulfilled corporate social responsibility by encouraging employees to actively engage in social volunteer activities, delivering care and warmth.



Zibo Shuangfeng organized employees to participate in blood donation in December 2018



SEHK's "ESG Reporting Guide" Index

General Disclosures and KPIs	Description	Relevant Chapter(s) in the Report or Other Explanation
Environmental		
Aspect A1: Emissions		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste	4.1
KPI A1.1	The types of emissions and respective emissions data	4.4
KPI A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	4.4
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	4.1.4
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	Not applicable ¹³
KPI A1.5	Description of measures to mitigate emissions and results achieved	4.1.1-4.1.4
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved	4.1.4
Aspect A2: Use of Resources		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials	4.2
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)	4.4
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility)	4.4
KPI A2.3	Description of energy use efficiency initiatives and results achieved	4.2.1
KPI A2.4	Description of whether there are any issues in sourcing water that is fit for purpose, water efficiency initiatives and results achieved	4.2.2
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced	4.4
Aspect A3: Environment and Natural Resources		
General Disclosure	Policies on minimizing the issuer's significant impact on the environment and natural resources	4.1 and 4.3
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them	4

13: The non-hazardous solid waste generated in the process of production were all recycled, thus this indicator is not applicable.

General Disclosures and KPIs	Description	Relevant Chapter(s) in the Report or Other Explanation
Social		
Aspect B1: Employment		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, antidiscrimination, and other benefits and welfare	5.1
KPI B1.1	Total workforce by gender, employment type, age, group and geographical region	5.1
Aspect B2: Health and Safety		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards	5.2
Aspect B3: Development and Training		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities	5.3
Aspect B4: Labor 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 labor	5.1
Aspect B5: Supply Chain Management		
General Disclosure	Policies on managing environmental and social risks of the supply chain	6.4
Aspect B6: Product Responsibility		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labeling and privacy matters relating to products and services provided and methods of redress	6.1
Aspect B7: Anti-corruption		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering	6.3
KPI B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored	6.3
Aspect B8: Community Investment		
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests	7



Definitions

In the Report, unless otherwise stated, the following words and expressions have the following meanings:

Eastern Shandong Operating Region	refers to	business located at the Eastern Shandong Province, including Weifang, Qingdao, Yantai and Weihai, etc.
Western Shandong Operating Region	refers to	business located at the Central and Western Shandong Province, including Zibo, Jinan and Hebei Province and Tianjin, etc.
Southern Shandong Operating Region	refers to	business located at the Southern Shandong Province, including Zaozhuang, Jining, Heze and Henan Province, etc.
Northeast China Operating Region	refers to	business located at Liaoning Province, the Eastern Inner Mongolia and Jilin Province, etc.
Shanxi Operating Region	refers to	business located at Shanxi Province and Shaanxi Province, etc.
Xinjiang Operating Region	refers to	business located at Kashi, Xinjiang
Articles of Association	refers to	the amended and restated memorandum and articles of association of the Company adopted on 16 May 2014
YOY	refers to	year on year comparison
Raw material	refers to	raw material that needs further processing before being used for productions
Clinker	refers to	a semi-finished product in the cement production process
Commercial concrete	refers to	commercial concrete, also named as ready mixed concrete
PRC or China	refers to	The People's Republic of China
Hong Kong	refers to	Hong Kong Special Administrative Region of the PRC
CPC or Party	refers to	the Communist Party of China
"13th Five-Year Plan"	refers to	"13th Five-Year Plan" with the full name of the Outline of the 13th Five-Year Plan for National Economic and Social Development of the People's Republic of China
19th CPC National Congress	refers to	The 19th National Congress of the Communist Party of China



CHINA SHANSHUI CEMENT GROUP LIMITED

中國山水水泥集團有限公司

(Incorporated in the Cayman Islands with limited liability)

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