I. Market Overview

China’s environmental industry has been developing rapidly in recent years. Investment in water conservation, environment and public facilities management amounted to RMB8.21 trillion in 2017, an increase of 21.2% year-on-year. Investment in the environmental sector is projected to exceed RMB15 trillion during the 13th Five-Year Plan period (2016-2020), with the focus of industrial development shifting from pollution control to environmental quality improvements. In addition to this, a large number of environmental projects, such as remediation of polluted soil and river sediment and the construction of ‘sponge cities’, will be developed via public-private partnerships (PPPs), which should also attract trillions of yuan in investment.

The environmental market in China covers the equipment manufacturing and engineering of a wide spectrum of technologies and their related services. It includes the provision of equipment and services for environmental pollution control, the removal of pollutants, waste treatment, energy conservation, clean production, as well as the collection, safe disposal, recycling and recovery of waste resources. It also covers services related to the protection of resources and the natural ecology.

- Equipment produced in China for environmental protection is mainly used for the prevention and treatment of water and air pollution. Other China-made equipment includes devices for the disposal and recycling of solid waste, noise control, the prevention of pollution from radioactive and electromagnetic waves, and environmental monitoring.
- The environmental services offered in China mostly involve the design and construction of environmental engineering projects, and the operation of treatment facilities. Other service areas include research and development of environmental technologies, environmental monitoring, and environmental consultancy services.
- Another environmental activity that is important in China is the integrated utilisation of waste resources and their recovery, utilisation and renewal. Industry players focus on key businesses such as solid waste, mainly covering the integrated development and utilisation of intergrown and associated ores in the mining process; solid waste, wastewater, waste gases, residual heat and residual pressure generated in the production processes; and the recovery, utilisation and renewal of various kinds of waste resources generated in the course of production and consumption.
- Some industry players provide natural ecology protection services, including measures to protect the natural ecological environment or to restore and repair it from damage. Special efforts are put into the protection of natural resources (e.g. forests), vegetation conservation works to address the water and soil-erosion issue, the prevention of desertification, cultivation of grassland and the development of eco-agriculture.
Figures released by the National Bureau of Statistics show that in 2016, the total nationwide emissions of ammonia nitrogen, sulphur dioxide and nitrogen oxides decreased by 38.3%, 40.7% and 24.7% respectively, while the COD (the Chemical Oxygen Demand) fell by 53.9%. However, the country’s extensive economic development has resulted in serious environmental pollution and the resulting economic and social cost is of great concern to both the government and the general public. There is therefore a very keen demand in mainland China for cost-effective solutions to this problem, which has created a huge market for environmental protection service providers.

According to the 13th Five-Year Plan for the Protection of Ecological Environment, the quality of the environment has improved. In 2017, the average annual concentration of fine particles (PM2.5) in 338 cities across the country at prefectural level and above was 43µg/m³, down 6.5% from 2016. In the first batch of 74 cities subject to monitoring, the annual average PM2.5 concentration dropped 6.0% on the year, with that in the Beijing-Tianjin-Hebei, Yangtze River Delta and Pearl River Delta regions down by 9.9%, 4.3% and 6.2% respectively. Meanwhile, the proportion of acid rain areas in national land fell 0.8 percentage points year-on-year to 6.4%, a testament to efforts to tackle air pollution.

In 2016, total investment in treating environmental pollution nationwide reached RMB921.98 billion, up 4.7% from 2015, and accounted for 1.2% of GDP. Of this, RMB541.20 billion was invested in urban environmental infrastructure, RMB81.90 billion in treating industrial contamination, and RMB53.20 billion in urban gas construction projects.

The new Environmental Protection Law, which came into effect on 1 January 2015, authorises environmental protection departments to seize, impound or close facilities that cause serious environmental pollution. It also allows them to order entities discharging excessive levels of pollutants to limit or cease production in order to rectify the problem. Penalties and punishments for non-compliance have been made heavier.

During the 13th Five-Year Plan period, China will step up the implementation of policies to save energy, reduce emissions and protect the environment. The plan pinpoints the need to strengthen environmental protection and pollution control to ensure sustainable social and economic development. Steps will be taken to implement pollution control action plans, strictly enforce various environmental indices, and promote pollutant discharge standards and the reduction of total emissions by more than 10%. Measures include the orderly relocation, transformation or closure of heavily polluting enterprises in built-up urban areas, and the implementation of clean production transformation in key industries. Regulatory requirements for industrial pollution sources to meet emissions standards will be fully implemented, polluting enterprises that fail to meet pollutant discharge standards will be revamped, projects that cause serious pollution will be banned, urban domestic sewage and refuse treatment will be fully implemented, and the enforcement of relevant laws will be strengthened.

The recovery and treatment of waste electronic products is also being developed. The Regulations for the Administration of the Recovery and Disposal of Waste Electrical and Electronic Products (China WEEE) came into force on 1 January 2011. Five types of waste/used electronic products, including televisions, refrigerators, washing machines, air conditioners and computers, were included in the First Product Catalogue of China WEEE. Subsequently, the 2014 edition of the WEEE Catalogue increased the number of types of waste electronic products to 14 by adding items such as printers, mobile phones and
telephones. This new catalogue, in force since 1 March 2016, aims to bolster the recovery and administration of waste electronic products.

The China Environmental Labelling Programme is a voluntary product certification labelling scheme administered by the Ministry of Ecology and Environment (MEE) (formerly the Ministry of Environmental Protection, or MEP). Products carrying this label comply with specific environmental requirements regarding their design, production, usage, handling and disposal, and have environmental advantages over similar products such as low toxicity, low hazard and resource conservation. With green consumerism on the rise, certified products are increasingly in demand, prompting more manufacturers to apply for environmental labels for their products.

At the end of 2017, the total amount of investment in environmental PPP projects under the Ministry of Finance was RMB1.9 trillion. Among these projects, RMB674.6 billion was designated for integrated treatment, RMB490.2 billion for pipe networks and RMB218.4 billion for sewage treatment.

II. Market Competition

Treatment of sewage, air pollution and solid waste account for 98% of the total output value of China’s environmental industry. During the 13th Five-Year Plan period, it is expected that some enterprises will, through expansion or acquisition, extend the industry chain and broaden business scope to become integrated environmental services providers.

A number of leading enterprises, such as Thunip Corp of Beijing, Zhonghang Yinyan, and Guangzhou Yueshou Environmental Holdings, are already well positioned in China’s environmental market. These key enterprises provide a range of leading technologies and products in the areas of wastewater, air pollution and solid-waste treatment. For example, Thunip’s Fiber Rotating Disk Filter is the largest of its kind in the world.

In 2016, more than 6,000 entities were engaged in environmental protection-related activity, creating a total revenue of more than RMB250 billion. According to the Opinions on Fostering Environmental Governance and Ecological Protection Market Players, efforts will be made to nurture more than 50 environmental enterprises with an output value exceeding RMB10 billion, and establish a number of international environmental companies with advanced technology, strong integrated services ability and substantial brand influence by 2020.

Meanwhile, multinational companies have been actively pursuing the China market through exports of their products, technology transfer or the establishment of joint ventures with local entities. The majority of the processing equipment used in China is imported from overseas. One example of overseas involvement in China’s environmental industry is the partnership between Germany’s Stuttgart University and Wuhan Iron and Steel Corp and China Ecotek Corporation of Taiwan. They set up Wuhan Huade Environmental Engineering & Technologies Co in 2003, which aims to provide environmental solutions in wastewater, air pollution, solid-waste treatment, energy from waste and advanced biological technologies. Another example is the Veolia Group of France, which has established an office in China to offer special waste, wastewater treatment and other environmental services, as well as the management of water resources.
Within the mainland’s environmental protection sector, most industries have a low degree of concentration and competition is relatively less intense. For example, in the mainland market for urban domestic sewage treatment, the top 10 enterprises take up only 27% of the market share. Furthermore, most environmental protection enterprises are small in scale and there is a lack of clear market leaders. It has been reported that the total revenue of 72 well-known mainland environmental companies is no more than RMB170 billion. Environmental protection industries in developed countries are more concentrated, so much so that markets dominated by large integrated enterprises are formed. One example is the Veolia Group, which reported a global revenue of some RMB160 billion for 2016.

III. Exhibitions

The environmental market in China is still in its development stage. Related exhibitions and expositions serve as business platforms for industry players to learn from one another, share experiences and explore business opportunities. The following are some of the upcoming exhibitions to be held in major mainland cities.

**Selected Environmental Exhibitions in 2018 and 2019**

<table>
<thead>
<tr>
<th>Date</th>
<th>Exhibition</th>
<th>Location</th>
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<tr>
<td>19-23 September 2018</td>
<td>Environmental Protection Technology &amp; Equipment Show</td>
<td>National Exhibition and Convention Center, Shanghai</td>
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<tr>
<td>26-28 September 2018</td>
<td>Wuhan International Water Exhibition</td>
<td>Wuhan International Expo Center</td>
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<tr>
<td>18-20 October 2018</td>
<td>International Trade Fair for Energy Conservation and Environmental Protection</td>
<td>New International Convention and Exposition Center Chengdu Century City</td>
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<tr>
<td>15-17 April 2019</td>
<td>IE Expo China – Shanghai</td>
<td>Shanghai New International Expo Centre</td>
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<tr>
<td>26-28 April 2019</td>
<td>Expo Clean for Commercial Properties and Hotels</td>
<td>Shanghai New International Expo Centre</td>
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Note: please refer to official information from organisers for exhibition details

IV. Import and Trade Regulations

Since the implementation of Supplement II to the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) in January 2006, all products of Hong Kong origin, including those related to environmental protection, can be imported into the mainland at zero tariffs. Hong Kong service providers can also set up wholly owned enterprises on the mainland under CEPA to provide architectural design and engineering services etc, including environmental system engineering services. When Hong Kong service providers set up construction engineering design enterprises in China, their track record in Hong Kong and on the mainland can be used by the authorities as the basis for assessing their application for enterprise qualification.
Also, under Supplement IV to CEPA, Hong Kong service providers may set up wholly owned enterprises on the mainland to provide the following environmental services (not including environment quality monitoring and pollution source inspection):

A. Sewage discharge services (CPC 9401)
B. Solid waste treatment services (CPC 9402)
C. Waste gas cleaning services (CPC 9404)
D. Noise abatement services (CPC 9405)
E. Nature and landscape protection services (CPC 9406)
F. Other environmental protection services (CPC 9409)
G. Sanitation and similar services (CPC 9403)

In accordance with Supplement V to CEPA, the mainland agreed that Guangdong is permitted to approve the qualification of Hong Kong service suppliers setting up enterprises to operate environmental pollution control facilities in the province. Also, under Supplement IX to CEPA, Guangdong can approve Hong Kong service suppliers undertaking entrusted environmental monitoring activities in the province. These measures have greatly simplified the formalities involved when Hong Kong service companies apply to mainland authorities for permission to provide environmental services in Guangdong.

Under Supplement X to CEPA, the mainland agreed that the substantive business engaged by Hong Kong service suppliers in the operation of environmental pollution control facilities in both Hong Kong and the mainland can be taken into account when assessing their applications to operate environmental pollution control facilities on the mainland.

Under the Agreement Between the Mainland and Hong Kong on Achieving Basic Liberalisation of Trade in Services in Guangdong, Hong Kong service providers offering the environmental protection services mentioned above (A to G) in Guangdong are entitled to national treatment, while the Agreement on Trade in Services under CEPA signed on 27 November 2015, allows Hong Kong service providers to enjoy national treatment when providing the same services on the mainland.

China has implemented the Measures for the Administration of Pollution Control of Electronic Information Products (commonly called China RoHS) since 1 March 2007 and the Measures for the Administration of the Prevention and Control of Environmental Pollution by Electronic Wastes since February 2008 to control and reduce the possible environmental pollution brought about by electronic products. The China WEEE came into force on 1 January 2011.

The MEE has established various national environmental standards and related technical requirements, and amended existing ones in response to changes in actual situations. These industrial standards are directly related to the environmental industry and several of its related businesses, including:

- The Environmental Protection Standard for Water
- The Environmental Protection Standard for Atmosphere
- The Environmental Noise and Vibration Standard
- The Environmental Protection Standard for Soil
- The Solid Waste and Chemical Pollution Control Standard
The Environmental Protection Standard for Nuclear Radiation and Electromagnetic Radiation
The Environmental Protection Standard for Ecology
The Clean Production Standard
The Technical Regulations for Environmental Protection Works
The Technical Requirements for Environmental Protection Products

Detailed information on these standards and technical requirements is available from the relevant section of the MEE website.

From 11 July 2017, all mainland sewage and refuse treatment projects involving the government will be run under the PPP model. The government authorities and non-government investing party concerned will enter into a PPP agreement in which equity distribution and risk-sharing mechanisms are clearly set out and the commercial risks of the project will be isolated by the setting up of a PPP project company with independent legal entity status.

On 15 December 2017, the MEP promulgated and implemented The Administrative Provisions on Environmental Protection Concerning Restricted Import Solid Wastes that Can Be Used as Raw Materials (the Provisions), to strengthen the management of such solid wastes. The Provisions list out the conditions for applying for the import of solid wastes. For example, any enterprise applying to import restricted import solid wastes must directly engage in the processing and utilisation of all such wastes and must be a legally-established entity approved to process and subsequently use such materials. It must also be in possession of a Pollutant Discharge Licence and strictly adhere to its stipulations. For details (in Chinese), please refer to the announcement on the promulgation of the Provisions.

On 15 December 2017, the MEP began enforcing the Administrative Provisions on Environmental Protection for Waste Paper Import (the Provisions). This legislation aims at putting into effect the previously-adopted Implementation Plan for Prohibiting the Entry of Foreign Wastes and Promoting the Reform of the Solid Waste Import Management System. All waste paper importers must, in addition to meeting the requirements set out in The Administrative Provisions on Environmental Protection Concerning Restricted Import Solid Wastes that Can Be Used as Raw Materials, comply with specific stipulations. For example, they should have a minimum production capacity of 50,000 tons per year, as well as the required pulp and paper processing equipment. They should also adhere to all requirements as outlined in both the Paper Industry Development Policy and the Guiding Catalogue of Industrial Structure Adjustment. The waste paper processing company in question must not appear on The List of Industrial Enterprises Required to Eliminate Backward Capacity, and it should have lawfully obtained a Pollutant Discharge Licence and should comply with relevant licence requirements.

The MEP, the Ministry of Commerce (MOFCOM) and other authorities have jointly revised the country’s measures in managing waste importation, which came into effect on 31 December 2017. According to the revised measures, 24 solid waste varieties listed under four categories, including eight types of plastic waste from living sources, one type of unsorted scrap paper, 11 types of waste textile raw materials and four types of vanadium slag will be recategorised and shifted from the Catalogue of Restricted Solid Wastes that Can Be Used as Raw Materials to the Catalogue of Solid Wastes Banned from Import.

The MEE, MOFCOM and a number of other government bodies again adjusted the
Catalogue of Imported Solid Waste Management in April 2018. In the adjustment, 16 solid waste varieties including scrap metals and slag and scrap plastics from industrial sources will be moved from the Catalogue of Restricted Solid Wastes that Can Be Used as Raw Materials to the Catalogue of Solid Wastes Banned from Import. A further 16 solid waste varieties including stainless steel scrap, waste and scrap titanium and wood waste will be moved from the Catalogue of Restricted Solid Waste Imports for Use as Raw Materials or the Catalogue of Non-Restricted Solid Waste Imports for Use as Raw Materials to the Catalogue of Solid Wastes Banned from Import. The two adjustments will be implemented on 31 December 2018 and 31 December 2019 respectively.

The General Administration of Customs (GAC) has issued the Implementation Rules for the Supervision and Administration of Pre-shipment Inspections of Imported Solid Waste Raw Materials. From 1 June 2018, it will have a watching brief over all pre-shipment inspection institutions active in the imported solid waste sector. The GAC also clearly states that no third-party pre-shipment inspection institutions will be entitled to conduct a solid waste pre-shipment inspection until it has submitted the required documentation to the GAC and successfully secured prior approval.

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