



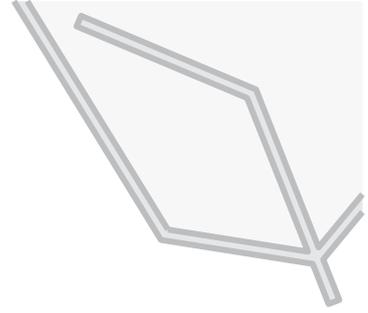
THEMATIC REPORT 14

**China Hazardous Waste Treatment
and Disposal Industry**

Edited by China-Italy Chamber of Commerce



Camera di Commercio Italiana in Cina
中国意大利商会
China-Italy Chamber of Commerce



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1. Analysis of Environmental Influence on China Hazardous Waste Treatment and Disposal Industry

1.1. Analysis of Industrial Policies and Laws and Regulations Environment

1.1.1. National Policies

Since 2016, policies related to China's hazardous waste industry have been issued more frequently. In 2016, the Supreme Judiciary issued a special judicial interpretation for environmental pollution crimes for the third time. It further clarified the conditions of environmental pollution crimes and provided a legal basis to fight them. In the same year, the Ministry of Environmental Protection, the National Development and Reform Commission, and the Ministry of Public Security revised *the National Hazardous Waste List*. They put 479 hazardous wastes into 46 categories (of which 362 were from the original list and 117 are new), so to adjust to the judicial interpretations of the two supreme authorities, with a view to promote detailed management of hazardous waste.

Central environmental supervisions, special supervisions, and enhanced supervisions have been implemented one after another to strengthen the government's implementation of environmental management. At the same time, environmental protection penalties have also been increased.

No.	Time	Institution	Policy name	Main Content
1	April 2014	The National People's Congress (NPC)	<i>Environmental Protection Law of the People's Republic of China (2014 Edition)</i>	The approval of hazardous waste business licenses by the Ministry of Environmental Protection was delegated to provincial environmental protection departments
2	June 2016	Ministry of environmental protection, National Development and Reform Commission, Ministry of Public Security	<i>National Hazardous Waste Catalogue (2016 Edition)</i>	This revision adjusted hazardous wastes into 479 kinds of 46 categories (of which 362 were from the original list and 117 were newly added). At the same time, an additional 16 types of hazardous wastes were added to the Exempted Management List of Hazardous Wastes.
3	November 2016	The National People's Congress (NPC)	<i>Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Wastes (2016 Edition)</i>	It included the cancellation of provincial approval procedures for the transfer of hazardous waste
4	November 2016	The State Council	<i>13th Five-Year Plan for Ecological Environmental Protection</i>	It incorporated centralized disposal facilities for hazardous wastes into the overall construction of local public infrastructure. It encouraged large-scale petrochemical and other industrial bases to support the

				construction of hazardous waste utilization and disposal facilities. It also encouraged large-volume, single-type enterprises and parks to construct facilities for hazardous waste collection, storage, pre-treatment and disposal. It guided and standardized the coordinated disposal of hazardous waste in cement kilns.
5	December 2016	The Supreme People's Court and the Supreme People's Procuratorate	<i>Interpretation of Several Issues Concerning the Application of Law in Handling Criminal Cases of Environmental Pollution</i>	The Supreme Judiciary issued the Third Special Judicial Interpretation on Environmental Pollution Crimes
6	April 2017	The Environmental Protection Agency	<i>13th Five-Year Plan National Hazardous Waste Standardized Management Supervision and Assessment Work Plan</i>	The emphasis was put forward in terms of improving the management system, increasing management intensity, promoting refined management, and strengthening prevention and control of environmental risks. It aims to strengthen the national hazardous waste management assessment mechanism from four aspects, and included the hazardous waste supervision and assessment into the local environmental protection performance assessment index system.

Table 1 Main contents of China's industrial hazardous waste policy.
Data source: GEP Research.

1.1.2. Local Policies

Since 2016, local governments in Zhejiang, Hebei, Fujian, Anhui, Sichuan, Shandong, Guangxi, Hunan, Guangdong, and Xinjiang have launched their province's *13th Five-Year Plan for Hazardous Waste Disposal*. Waste disposal utilization rate is targeted to reach more than 90% in their planning, which has achieved matching of disposal capacity and production quantity. After the province of Shandong issued *the 13th Five-Year Plan of hazardous waste disposal plan*, for the first time in China there were 16 hazardous waste disposal policies, that is the largest number of policies issued by local governments nationwide.

1.1.3. Technical Specifications

Up to now, the country has issued nearly 30 national standards or technical specifications for hazardous waste (including medical waste) industries. They regulate hazardous waste treatment pollutant discharge (control), monitoring technology, engineering technology, and construction project management.

At local level, Beijing, Liaoning Province, Jilin Province, and Shanghai have issued 9 local standards or technical specifications related to hazardous waste industries.

Standard num.	Standard title	Standard category
GB 18484-2001	<i>Hazardous waste incineration pollution control standard</i>	Pollutant emission (control) standard
GB 19217-2003	<i>Technical requirements for medical waste transfer truck</i>	-
GB 5085.1-2007	<i>Identification standards for hazardous wastes Corrosion identification</i>	-
GB 5085.6- 2007	<i>Identification standards for hazardous wastes Identification of toxic substances</i>	-
HJ/T 365-2007	<i>Technical specifications for monitoring dioxin emissions from hazardous waste (including medical waste) incineration and disposal facilities</i>	Environmental monitoring specifications (technical specifications for environmental monitoring)
HJ/T 228-2006	<i>Technical Specifications for Centralized Treatment of Medical Waste Chemical Disinfection (Trial)</i>	Environmental Management Specifications (Technical Specifications for Environmental Protection Engineering)
HJ 2025-2012	<i>Technical Specification for Hazardous Waste Collection, Storage and Transportation</i>	-
HJ 2042-2014	<i>Technical guidelines for hazardous waste disposal engineering</i>	-
HJ/T 176-2005	<i>Technical specifications for construction of centralized incineration and disposal of hazardous waste</i>	Environmental management specifications (construction project management)
HJ/T 177-2005	<i>Technical specifications for construction of medical waste incineration and disposal project</i>	-
HJ/T 298 - 2007	<i>Technical specifications for identification of hazardous waste</i>	Environmental management specifications (other)
HJ 561-2010	<i>Technical specification for performance test of hazardous waste (including medical waste) incineration and disposal facilities</i>	-
HJ 662-2013	<i>Technical specification for environmental protection of cement kiln co-processing solid waste</i>	-
HG/T 20504-2013	<i>Chemical Hazardous Waste Landfill Design Regulations</i>	-

Table 2 National standards and code related to hazardous waste industry.

Data source: GEP Research.

1.2. Administration System of the Waste Industry

At present, the management of livelihood garbage in China is mainly led by the Ministry of Housing and Urban-Rural Development, the Ministry of Environmental Protection, the Ministry of Science and Technology, the Ministry of Finance and other departments. They have different functions and conduct supervision in coordination. At a local level, the Ministry of Housing and Urban-Rural Development and local Environmental Protection Department are responsible for the specific management of domestic waste. The local Housing and Urban-Rural departments are responsible for cleaning, transportation, and disposal of livelihood garbage. They also manage the related facilities. The environmental protection departments are responsible for prevention and dealing with pollution during the processing of solid garbage treatment.

Industrial solid wastes are subject to unified supervision and management by the local environmental protection departments at or above the county level. They tackle the prevention and control of environmental pollution caused by solid wastes within their respective administrative areas.

1.3. Hazardous Waste business License

Hazardous waste business licenses are divided into two types, comprehensive business licenses and collection business licenses. With a comprehensive business license, businesses can engage in the collection, storage, and disposal of hazardous wastes. With a license for the collection and management of hazardous wastes, businesses can only engage in collection and operation of waste mineral oil, generated from motor vehicle maintenance activities, as well as hazardous waste collection and operation activities of waste cadmium-nickel batteries, generated from daily life.

There are 46 major categories of hazardous waste. Each hazardous waste operation license allows only one type of hazardous waste to be collected, transported, and processed. Enterprises are allowed to apply for multiple types of hazardous waste business licenses.

2. Demand Analysis and Prospect Forecast of China Hazardous Waste Treatment and Disposal Industry

2.1. Market Demand Analysis and Trend Forecast of China Hazardous Waste Treatment and Disposal Industry

China's Ministry of Environmental Protection (MEP) collects hazardous waste production data from reports of companies. However, there is a partial concealment of data, as the figures are smaller than the actual production.

In 2018, China's hazardous waste generation volume was about 120 million tons (companies reported 70 million tons), and the compound annual growth rate of hazardous waste generation volume from 2010 to 2018 stood at 8%.

Considering the impact of the decline in hazardous waste production intensity and the slowdown in industrial output, it is estimated that China's hazardous waste production will reach 140 million tons in 2020 and 200 million tons in 2030. The annual compound rate of hazardous waste production in 2020-2030 will reach 3%.

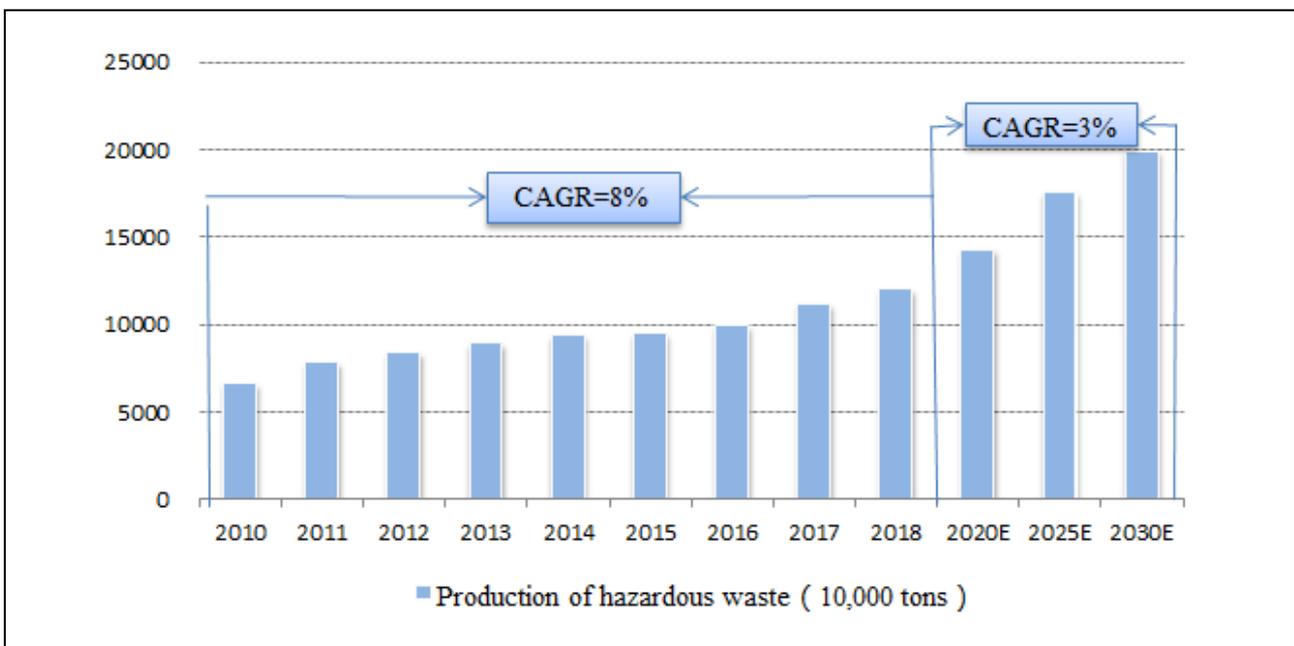


Figure 1 Production of hazardous waste and Forecast in China 2010-2030.
Data source: GEP Research, Ministry of Environmental Protection.

In 2018, the obvious market size of China's hazardous waste disposal (reported by enterprises) reached RMB 185.5 billion, and it is estimated that it will reach RMB 282.5 billion and RMB 432 billion in 2020 and 2030 respectively. In 2018, the scale of China's hidden hazardous waste disposal market (the number companies concealed) reached RMB 132.5 billion. It is estimated that the average size of the hidden waste disposal market will reach RMB 120 billion annually in 2018-2030.

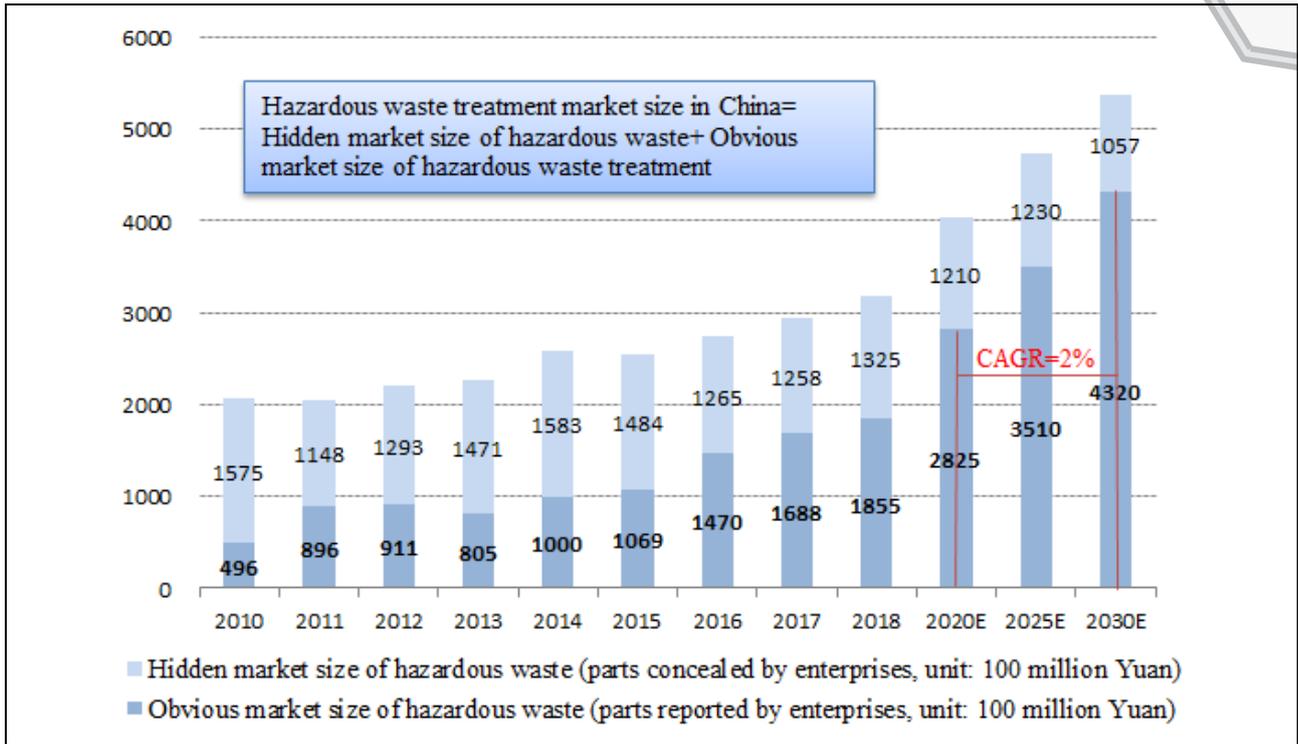


Figure 2 Forecast of the size of the hazardous waste market from 2010 to 2030.
 Data source: Ministry of Environmental Protection, GEP Research.

2.2. Regional Market Demand Analysis and Prospects

Production and disposal of hazardous waste have strong regional characters. Regions with the largest hazardous waste production in China are mainly industrially developed provinces like Shandong, Jiangsu, Zhejiang, Xinjiang (asbestos), Qinghai (asbestos) and Hunan (non-ferrous metals).

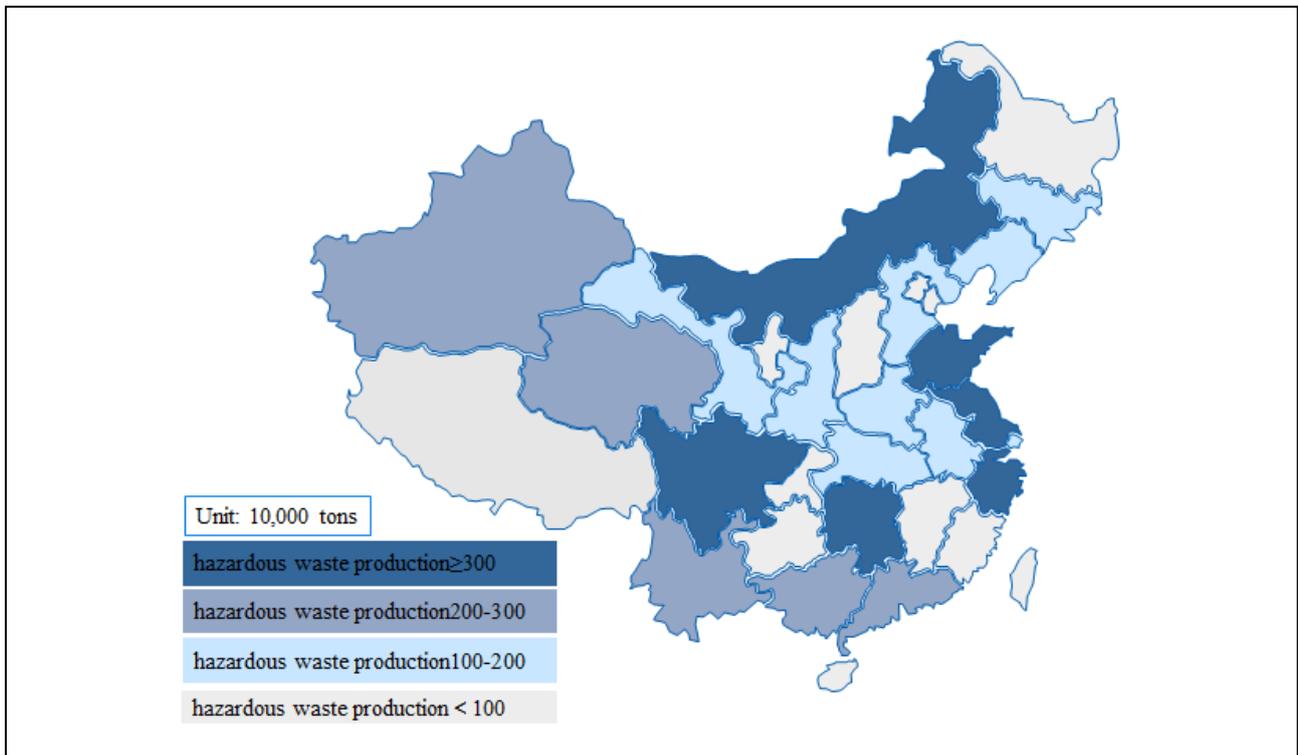


Figure 3 Regional distribution of hazardous waste production in China.
 Data source: 2018 Data of Provincial Environmental Protection Departments, GEP Research.

3. Analysis of Supply and Competition in China Hazardous Waste Treatment and Disposal Industry

3.1. Market Share, Industry Concentration and Forecast of the Hazardous Waste Treatment and Disposal Industry

At present, there are 2676 hazardous waste certificated enterprises in China in the hazardous waste industry (including collection, storage, utilization, and disposal). Competition is highly scattered. Hazardous waste treatment enterprises have relatively obvious regional features and are highly dispersed. According to GEP Research data, CR10 in China's hazardous waste disposal industry is less than 10%, and the industry concentration is relatively low. With the industrial development in the future, the industry concentration is expected to have a growingly increase.

3.2. M&A Activities

Approvals of hazardous waste qualifications are greatly affected by local environmental protection departments, and the hazardous waste treatment industry shows strong regional barriers. Therefore, large hazardous waste companies often expand across regions through mergers and acquisitions, which are more frequent now.

In recent years, many companies have entered the hazardous waste industry through mergers and acquisitions (such as CICC Environment, Jinyuan, Shengyun Environmental Protection, Golden Beetle Environmental Technology, etc.) or expanded hazardous waste businesses (such as Dongjiang Environmental Protection, Tus-sound Environmental Resources, etc.). The number has reached its peak in 2017. In 2018, hazardous waste mergers and acquisitions decreased significantly. Competition in the industry will become more intense in the future.



The high-level training program Sicab – Sino Italian Capacity Building for Environmental Protection is supported by IMELS – ITALIAN MINISTRY FOR THE ENVIRONMENT, LAND AND SEA.



Sicab is included within the SINO-ITALIAN COOPERATION PROGRAM FOR ENVIRONMENTAL PROTECTION (SICP). SICP was launched by IMELS – the Italian Ministry for the Environment, Land and Sea and MEE – the Chinese Ministry of Ecology and Environment.

Sicab consortium includes five partners: Politecnico di Milano (Lead Partner), Euro-Mediterranean Center on Climate Change, Italy China Foundation, Fondazione Politecnico di Milano, Sapienza University of Rome.



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