China Construction and Demolition Waste Disposal Industry Market Report

June 2021

Content

Background

Since the beginning of the 21st century, the rapid development and urbanization in China has resulted in tens or even hundreds of millions of tons of Construction and Demolition (C&D) Waste produced each year.

As one kind of solid waste, C&D waste refers to all types of waste generated in the process of building new construction, reconstruction, demolition, maintenance, renovation, and natural disasters, which mainly include waste concrete blocks, asphalt, bricks and tiles, and various other wastes such as mortar and concrete, broken bricks, metal, wood, renovation waste, various packaging materials, and other wastes.

C&D waste disposal refers to the whole process of the collection, transportation, disposal, or resource utilization of C&D waste. In recent years, in order to comply with China's rapid urbanization the principle of solid waste disposal, which is reduction, harmlessness and recycling, China authority pays more attention to the disposal and reuse of C&D waste.

Policies are promulgated to promote the development of China's C&D waste treatment industry

The development of C&D waste disposal industry in China started late. Before 2000, there was no relevant guiding policy at the national level for the whole C&D waste disposal industry. In June 2005, China's State Council released the first C&D waste management regulations, the Regulation on Administration of Urban Construction Waste, which clarifies the principle that whoever produces C&D waste shall be responsible for its disposal, and encourages the comprehensive utilization of C&D waste. Later, in January 2009, the Standing Committee of the 12th National People's Congress promulgated the Circular Economy Promotion Law, which stipulates that construction companies should entrust qualified producers to carry out comprehensive utilization or harmless disposal of C&D waste. In September 2015, the State Council of China issued the Action Plan to Promote the Production and Application of Green Building Material, which specifies the requirements for the centralized disposal of C&D waste and encouraged the technical development of recycled building materials.

However, these policies are all guidance, not providing specific disposal suggestions of C&D waste, thus were difficult for construction enterprises to implement.

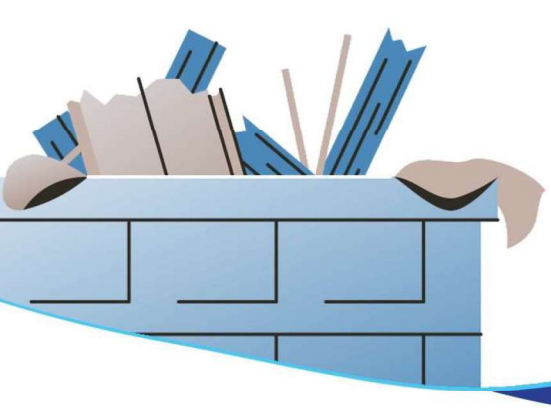
The boom in urban real estate has led to a soaring C&D waste disposal issue. Since 2017, the Chinese government has continuously issued relevant policies, regulations, and guidance on C&D waste disposal in order to promote the development of C&D waste reduction and reuse.

In May 2020, the Guiding Opinions on Promoting C&D Waste Reduction explicitly stipulated that by the end of 2020, a working mechanism for the reduction in construction waste should be established in all regions of the country; By the end of 2025, all regions shall discharge no more than 300 tons of C&D waste (excluding dregs and mud) per 10,000 square meters of building space during building construction.

China's construction waste treatment related regulatory documents (From 2005 to May 2021)

Time	Name of the regulation	Regulation Points
September 2020	Industry Standard Conditions for the Resource Utilization of Construction Waste (Draft for Solicitation of Comments)	In order to thoroughly implement the "Law of the People's Republic of China on the Promotion of Circular Economy" and "The Law of the People's Republic of China on the Prevention and Control of Solid Waste Pollution", shall improve the level of resource utilization of construction waste, and guide the development of the construction waste industry.
September 2020	Administrative Measures Announcement of Construction Waste Resources Utilization Industry (Draft for Solicitation of Comments)	In order to promote the resource utilization of construction waste, shall adapt to the new development situation, guide the healthy development of the industry, and formulate management methods.
May 2020	Guiding Opinions on Promoting the Reduction of Construction Waste	In order to use construction waste as a resource and promote green upgrading, it is proposed that by the end of 2020, all regions should establish a preliminary mechanism for the reduction of construction waste.
April 2020	Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste (Revised Edition)	**Specific regulations on the prevention and control of construction waste pollution have been added**, including the transformation of "construction waste" from the original "domestic waste" classification to a separate category for management; local people's governments at or above the county level and relevant competent departments are required to strengthen the prevention and control of construction waste pollution and establish a construction waste classification and disposal system.
June 2018	Notice on Investigation and Remediation of Irregular Waste Dumping Sites	For areas with a lot of construction waste, cover with soil and plant vegetation. Establish a working mechanism that the provinces take responsible and the cities implement.

December 2017	Reform Plan of Ecological Environment Damage Compensation	Gradually establish a restoration and compensation mechanism for ecological environmental damage, and accelerate the construction of ecological habitats.
February 2017	Development Evaluation Index System of Circular Economy	The recycling rate of urban construction waste is included in the urban evaluation index system for the first time, and the evaluation results will serve as an important reference for the use of relevant funds and policy support in the future.
February 2016	Several Opinions on Further Strengthening the Management of Urban Planning and Construction	Put forward the goal of basically establishing a construction waste recycling system within 5 years.
September 2015	Action Plan to Promote the Production and Application of Green Building Materials	Specify the requirements for the centralized treatment of construction waste and the promotion of the technical development of recycled building materials.
January 2013	Green Building Action Plan	Focus on promoting the resource utilization of construction waste.
2011	Guiding Opinions on Comprehensive Utilization of Resources in the Twelfth Five-Year Plan and Implementation Plan for Comprehensive Utilization of Bulk Solid Wastes	All regions across the country are required to establish a complete recycling system for construction waste and implement construction waste recycling projects.
January 2009	Circular Economy Promotion Law	Construction units should entrust qualified producers to carry out comprehensive utilization or harmless disposal.
June 2005	Regulation on Administration of Urban Construction Waste	Clarifies the principle that whoever produces construction waste shall dispose it, and encourages the comprehensive utilization of construction waste.



Local Governments Introduced Regulations on Resource Utilization of C&D Waste

Local governments across China have issued policies and plans to promote the development of the C&D waste industry. Since March 2018, 35 cities including Beijing, Shanghai and Xi'an have launched pilot projects for C&D waste disposal. Hebei, Zhejiang, Jiangsu, Anhui, Yunnan, Hunan and other provinces and cities have issued plans to regulate the disposal and resource utilization of C&D waste. Here take a few provinces as examples.

The Hebei Provincial Government proposed that by 2020, the resource utilization rate of municipal C&D waste in the province will reach more than 20%; by 2025, it will reach more than 50%.

Nantong City, Jiangsu Province promoted the utilization of resources, pointing out that by 2020, the utilization rate of construction waste in Nantong urban area should reach more than 70%, and the county areas will reach more than 60%.

Anhui Province proposed that by 2020, the reuse of C&D waste in provincial cities should be more than 70%, and that of the counties (cities) should be more than 30%.

Hunan Province has planned to build 37 industrial centers for recycling of C&D waste by 2020, and 75 industrial centers by 2030; the utilization rate of C&D waste resource utilization should reach 35% by 2020, and 85% by 2030.

Current Situation and Prospect of C&D Waste Disposal Market in China

Sources and composition of China's C&D waste

Demolition waste is the main source of C&D waste in China. In 2020, among the total C&D waste, the waste generated by the demolition of old buildings accounted for about 45.08% of total, construction waste accounted for about 29.52%; and building remodeling accounts for about 25.40%..

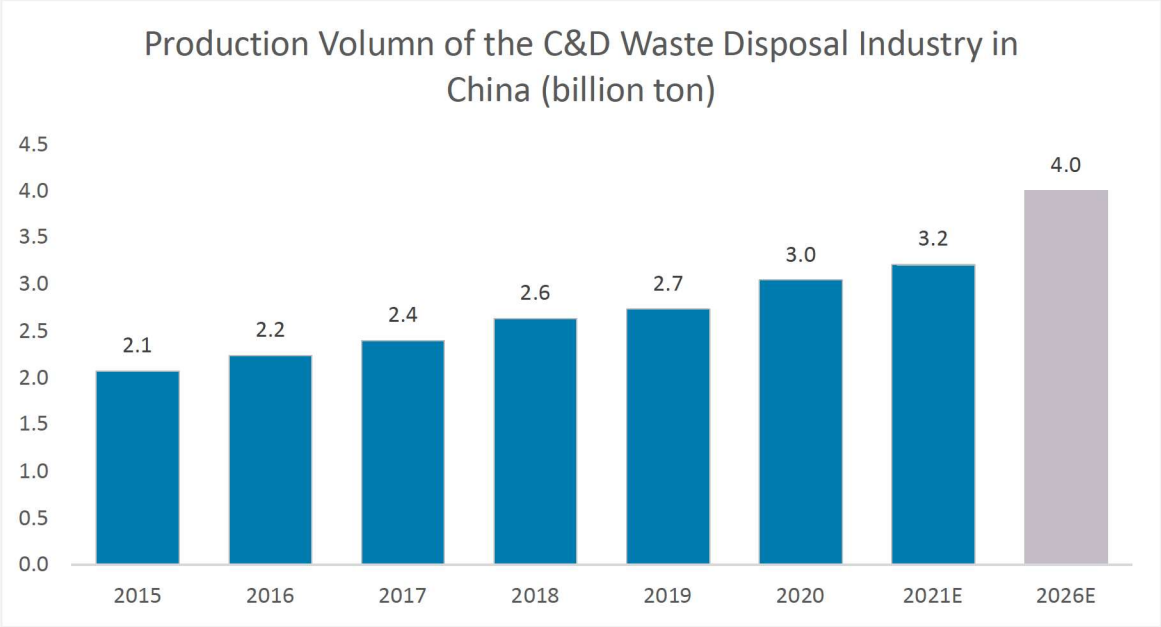
The composition of C&D waste in China is different from that of some developed countries. For example, C&D waste in the U.S. contains a lot of wood, while C&D waste in China contains a lot of concrete and masonry, as well as a small amount of plastic, wood, metal, and other substances.

Physical composition of demolition waste	
Component	**Share**
Concrete, Brick, Stone, Tile	72.90%
Lime Soil	18.80%
Plastic, Paper, Cloth	1.40%
Metal	0.70%
Wood	4.90%
Other sundries	**1.30%**

Physical composition of renovation waste	
Component	**Share**
Concrete, Brick, Stone, Tile	60.60%
Muck	19.50%
Aerated Block, Gypsum Board	4.90%
Plastic, Paper, Cloth	5.40%
Metal	3.40%
Wood	3.60%
Other sundries	**2.60%**

The current stock and potential increase of China's C&D waste are large

According to statistics, China's C&D waste accounts for more than 40% of the total municipal solid waste. The construction of every 10,000 square meter building, 500 to 600 tons of construction waste will be generated, and the demolition of 10,000 square meters of old buildings will generate 7,000 to 12,000 tons of demolition waste. As China's urbanization has continued to accelerate, the amount of C&D waste produced in China increased sharply from 0.470 to 3.037 billion tons from 2006 to 2020. It is predicted that the amount of C&D waste to be disposed of will reach 3.209 billion tons in 2021 and is expected to exceed 4 billion tons in 2026.

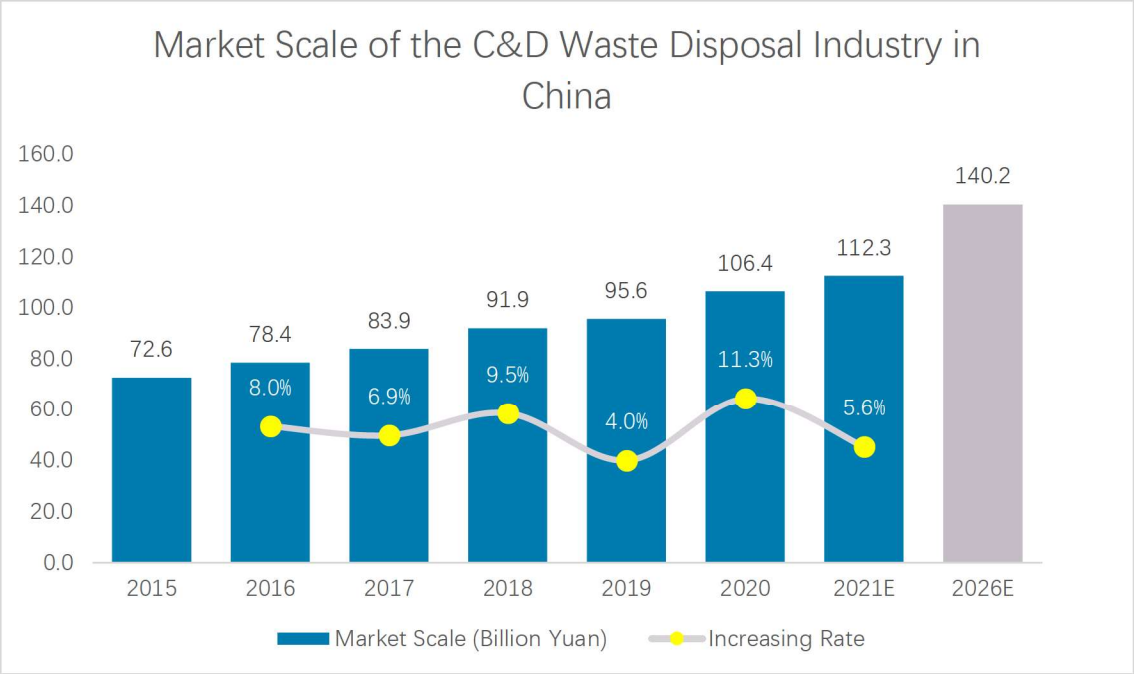


According to Zhang Yi, Chairman of the China Strategic Emerging Industry Environmental Protection Alliance, in terms of inventory, China has produced at least 30 billion cubic meters of clay bricks in the past 50 years, and most of them will be converted into C&D waste in the next 50 years; China currently has 50 billion square meters of buildings, which will also be mostly converted into C&D waste in the next 100 years. If natural disaster like severe earthquake happens, more C&D waste will be generated. It's worth noting that the 2008 Great Sichuan Earthquake brought about 300 million tons of C&D waste, exceeding the total municipal waste generated in China in 2008.

China has large market size with steadily upward trend

The revenue of China's C&D waste disposal industry primarily comes from transportation and disposal charges. The price of service is guided by local Development and Reform Commission, which fluctuates according to the market.

The market size of C&D waste disposal will exceed 140 billion RMB (about 21.5 billion USD) in 2026, estimated based on the revenue of 35 RMB (6 USD) per ton, which is commonly used in the industry as the total revenue from transportation and disposal of C&D waste



C&D waste disposal methods in China - mainly landfill

At present, China's C&D waste is disposed mainly in two ways, one is to transport to local C&D waste disposal sites, and follow with resource, landfill, or incineration disposal, of which direct landfill is the main disposal method; the other way is the C&D waste resource enterprises from the engineering contractor to purchase C&D waste, and to transport to recycling enterprises for reuse.

The traditional landfill disposal method not only takes up a lot of land, but also pollutes groundwater and soil. With the increasing amount of C&D waste generated, many landfill sites are getting saturated. Utilization of C&D waste not only avoids pollution caused by dumping, but also produces recycled construction materials for urban construction, and reduces the demand for sand and stone quarrying.

Sore points of China's C&D waste disposal industry

Low rate of recycling and utilization

As of 2020, China's overall recycling rate of C&D waste is around 10%, which is significantly lower than that of developed countries, where the recycling rate is over 70%.

Industry professionals conclude the reason for the low utilization rate of China's C&D wastes is because most construction projects in China use traditional rough production methods in design, construction, and demolition. These rough methods have directly led to a large generation of C&D solid waste. Compared with developed countries, the disposal process of C&D waste in China is still in a simplistic, disordered status.

On the other hand, for various C&D waste, classified recycling and organized utilization management have not been implemented. Government regulatory agencies have not stipulated mandatory recycling obligations for producers of C&D waste.

Difficulties in the utilization of renovation waste

Renovation waste attracts more and more attention, besides construction waste and demolition waste, especially in well urbanized areas. Typically having small yield and complex composition, the renovation waste has higher recycling cost comparing with other C&D wastes. How to effectively collect renovation waste and ensure its harmlessness are also the focus of C&D waste disposal and recycling in China.

Lack of industry standards and market recognition of recycled construction materials

A survey on the construction market in Shandong Province shows, the price of ordinary concrete is about 500 RMB (77 USD) per cubic meter, and that of recycled concrete is about 450 RMB (69 USD) per cubic meter, 50 RMB (8 USD) lower than the ordinary ones. Although there is an advantage in cost, the use of recycled concrete is not a high proportion in Chinese construction projects.

According to industry experts, in recent years, for the production and application of C&D waste recycling products, policies and standards have been issued, but not yet complete and systematic. The technical level and scale of domestic production enterprises vary, leading to uneven product quality, which is the main reason many construction companies do not choose recycled construction materials

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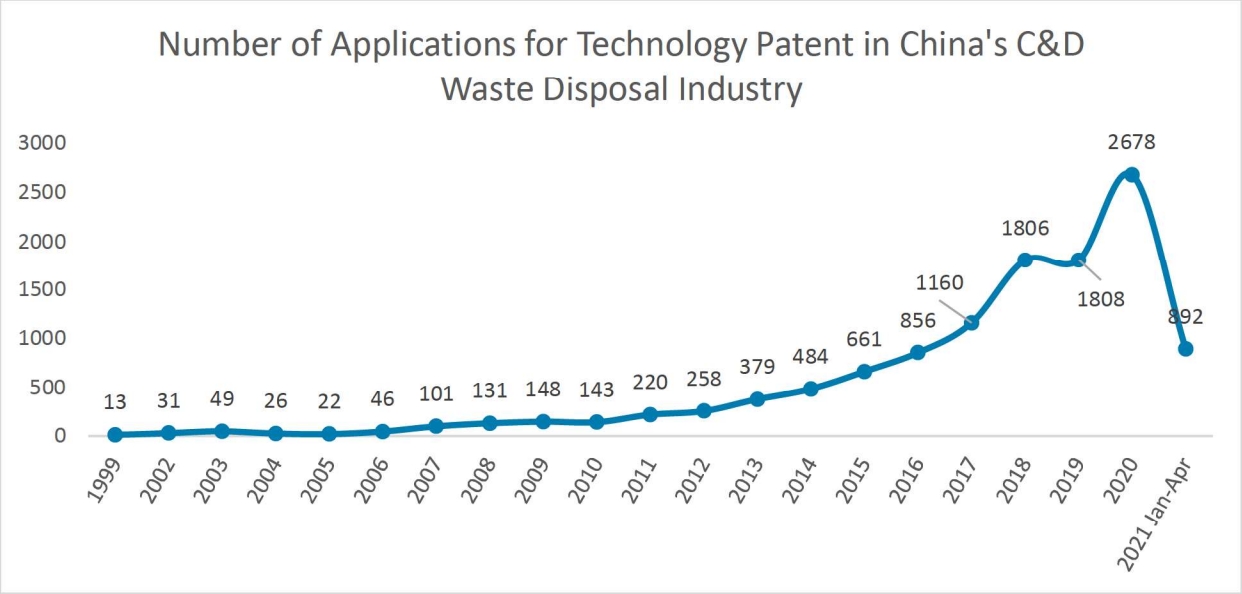
Current Situations and Technology Demands of China's C&D Waste Utilization

According to Soopat, a patent information service platform, the number of patent applications related to C&D waste disposal was 2,678 in 2020.



The current technologies and equipment in China are adequate for crushing, screening, and reusing C&D waste to develop construction bricks.

With the increasing maturity and standardization of urban C&D waste disposal, C&D waste recycling starts to be implemented throughout the country. The expanding and maturing market is calling for more advanced crushing and screening equipment. New recycling and reusing technology are also needed to develop high-quality recycled bricks.

China's C&D waste disposal equipment and products are constantly pushing forward, and the industry's technology is developing rapidly. The rapidly developing industry requires high-quality support equipment, which cannot be satisfied by the current domestic technologies, due to the late start of the industry. Compared with developed countries, there is still a big gap in refined recycling and efficient resource utilization of C&D waste.

Therefore, the Chinese C&D waste disposal market has a high demand for advanced foreign technologies.

China C&D Waste Disposal Industry outlook

China's construction industry keeps developing in a high speed, while the wastes disposal/utilization industry is lagging. With the country's strong support, the landing of various projects across the nation, as well as the development of the market of recycled construction materials, the prospects of the C&D waste disposal industry are promising.

To help develop the recycling industry and maximize the utilization of C&D wastes, Chinese government has provided tax incentives for the utilization of C&D wastes. Moreover, many local governments are giving strong support to C&D wastes utilization. The generation of C&D wastes in China is large but the utilization rate is low. If the utilization rate in China can reach the level of developed countries, it will create a market of trillions of yuan.

Therefore, China's C&D waste disposal industry still has a large market space for the introduction of advanced technologies. The prospects are even more promising.

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