

The Decline in Geomembrane Demand in China Due to a Shift Towards Incineration Technologies for MSW

By GNA Editor



A waste-incineration power plant being built in Guizhou, photographed August 2019 (Image: Alamy)

China, the world's most populous nation, has long grappled with waste management challenges. Traditionally reliant on landfilling, the country is witnessing a paradigm shift as incineration technologies gain prominence. This transition is causing a notable decrease in the demand for geomembranes, which have historically played a critical role in landfill construction.

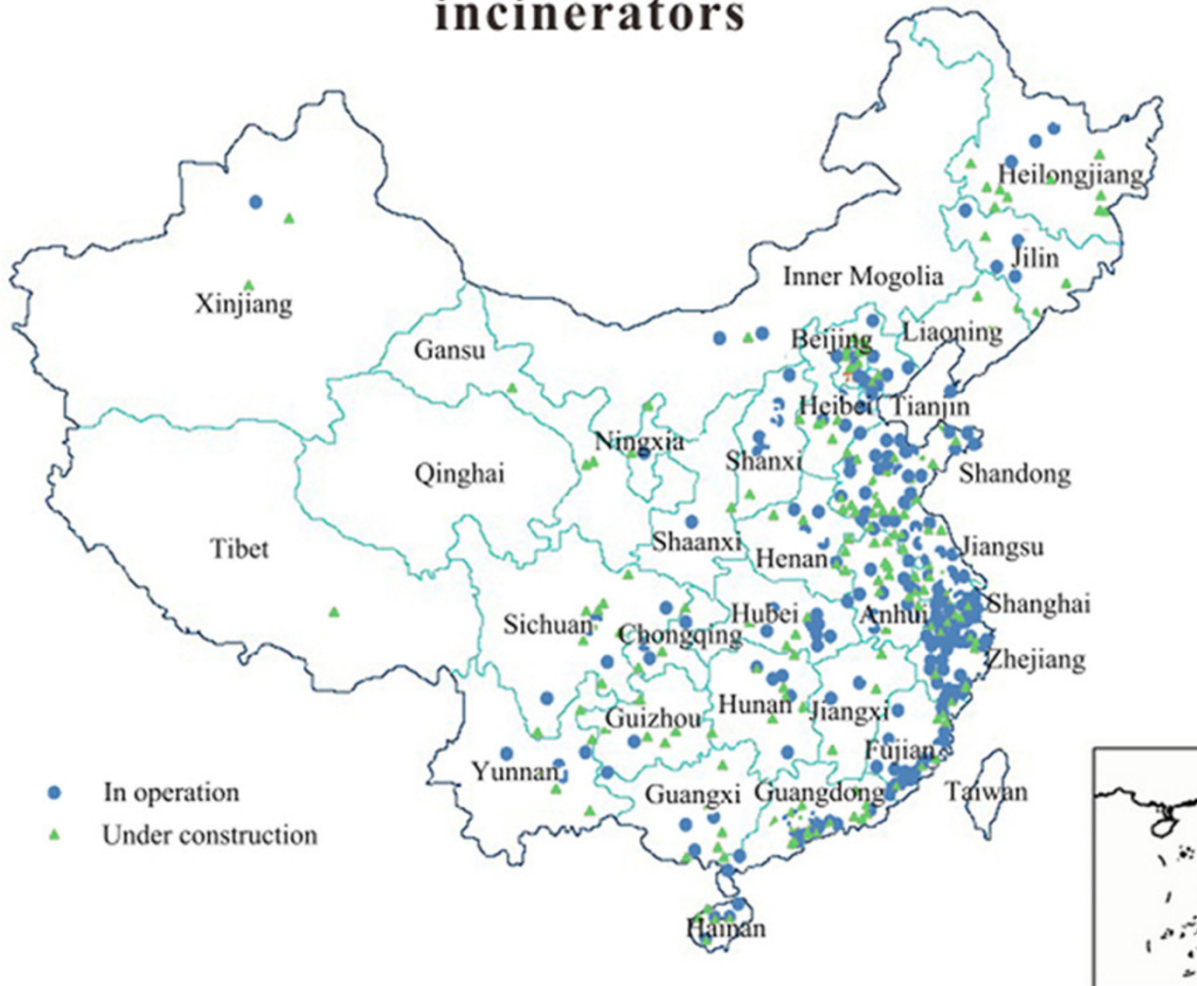
The Rise of Incineration Technologies

Incineration, a process of burning waste to generate energy, has seen rapid adoption in China due to its dual benefits of waste volume reduction and energy production. In recent years, the Chinese government has prioritized the development of waste-to-energy (WTE) plants to combat the growing waste crisis, particularly in urban areas. This shift aligns with the nation's environmental goals to reduce land use for waste disposal and mitigate the environmental impacts associated with traditional landfills.

Between 2015 and 2025, China's incineration capacity has grown by over 150%, with large-scale facilities being commissioned in major cities like

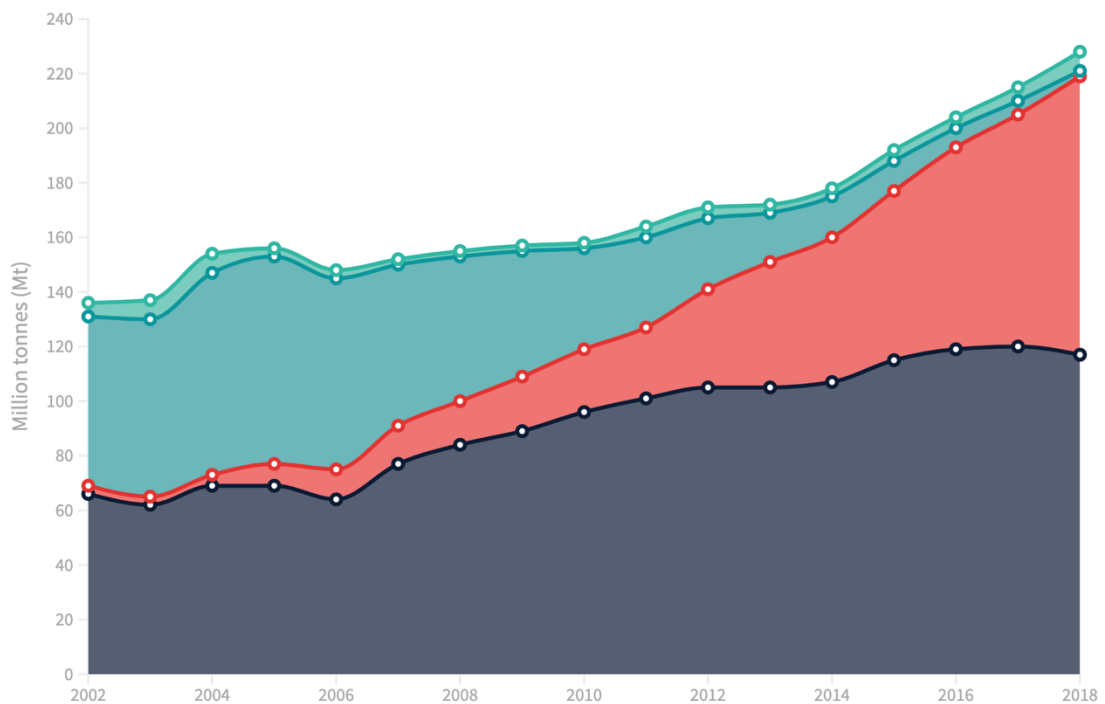
Beijing, Shanghai, and Shenzhen. For example, the Shenzhen East Waste-to-Energy Plant, touted as the world's largest incineration facility, processes 5,000 tons of waste daily, significantly reducing the need for landfill space in the region.

Distribution of MSW incinerators



Treatment of China's municipal solid waste, 2002-18 (recycling not included)

■ Landfilled ■ Incinerated ■ Collected but not treated ■ Composted



Data from annual statistical yearbooks (MoHURD, 2020).

Decline in Landfill Projects

With the expansion of incineration facilities, the number of new landfill projects has declined sharply. Geomembranes, primarily used as liners to prevent leachate contamination in landfills, are now in less demand as fewer landfills are being constructed. Official data reveals a marked decrease in the approval of new landfill sites, with cities like Guangzhou and Nanjing reporting zero new landfill projects over the past five years.

Additionally, existing landfills are reaching capacity and are being supplemented or replaced by WTE plants. For instance, the Laogang Landfill in Shanghai, once among Asia's largest, now operates alongside an adjacent incineration facility, reducing its reliance on geomembrane-based expansions.

Environmental and Economic Drivers

Several factors are driving this shift:

1. **Environmental Regulations:** Stricter environmental policies have made landfilling less favourable. Incineration, with advanced emission controls, is seen as a cleaner alternative.
2. **Land Scarcity:** Urbanization has made land a precious resource, prompting cities to opt for vertical waste processing methods like incineration instead of horizontal expansion through landfills.
3. **Economic Efficiency:** While the initial investment in incineration plants is high, they offer long-term savings by reducing the need for extensive land and geomembrane infrastructure.

Implications for the Geomembrane Industry

The shift towards incineration presents challenges for the geomembrane industry. Manufacturers are seeing a slowdown in domestic demand and are being forced to explore alternative markets or diversify their product offerings. For instance, some companies are focusing on applications in mining, aquaculture, and water containment systems to offset declining landfill-related sales.

Conclusions

China's transition from landfilling to incineration marks a significant evolution in its waste management strategy. While this shift supports the country's environmental and urban development goals, it also signals a structural change in industries like geomembrane manufacturing. As incineration continues to rise, the geomembrane sector must adapt to the changing landscape by seeking new opportunities beyond landfill applications.