



Empowering a Zero-Waste Earth:

**China's Mission Strategy,
Implementation Approaches, and
the Assistant Effects of Audits in
Solid Waste Disposal**

The National Audit Office of the
People's Republic of China

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PART 01

Introduction



Global status of solid waste

World Bank Report

About 2 billion tons of urban household waste are generated globally each year and projected to reach 3.4 billion tons by 2050.

01



UNEP Report

Urban solid waste volumes are projected to increase from 2.1 billion tons in 2023 to 3.8 billion tons by 2050.

02

International measures



Basel Convention

Aims to control transboundary movements of hazardous wastes and to protect the environment and human health.



United Nations 2030 SDGs

Several targets within it directly or indirectly involve waste management and reduction.

China's measures

Objective: Reduce resource consumption and enhance resource utilization efficiency to achieve a coordinated reduction of pollution and carbon emissions.

Measures: Intensify its oversight across the entire chain of solid waste management, from source to final disposal.

——Revise *National Catalogue of Hazardous Wastes*

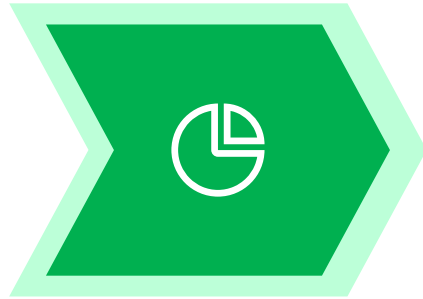
——Issue the *Opinions of the General Office of the State Council on Accelerating the Construction of a Waste-recycling System*

PART 02

China's Journey and Strategic Choices of Solid Waste Disposal



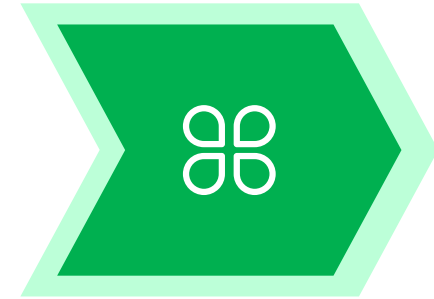
Solid waste disposal



Primary objective



Embody comprehensive characteristics that cross regions, departments, and media



Crucial measure for improving the ecological environment

The Chinese government places great emphasis on solid waste disposal, implementing a comprehensive conservation strategy to promote the economical and intensive use of all resources and accelerate the establishment of a waste recycling system.

Four phases of solid waste disposal in China

Inception Phase (1949-1978)

Solid waste disposal is in its inception phase. Rural areas primarily relied on traditional recycling methods to dispose of household waste, urban areas generated relatively low volumes of solid waste.

Initiation Phase (1979-1990)

Begin exploring waste disposal technologies. Simple landfilling and incineration became the primary disposal methods.

Rapid Development Phase (1991-

The dawn of industrialized, standardized, and regulated. The recycling industry began to take shape, with numerous recycling companies emerging, new landfills or wastewater treatment facilities constructed.

New Era Phase (2012-Present)

Coordinated governance for the reduction of pollution and carbon emissions. Develop circular economy, emphasize the value attributes of waste, and implement comprehensive, precise, and full-chain governance of solid waste.

PART 03

China's Practical Approaches and Achievements in Solid Waste Disposal



(I) China's effective practical approaches in solid waste disposal

01 A robust policy framework has been established to standardize solid waste disposal.

- 1 At the highest legislative level: The concept of "ecological advancement" and "ecological conservation" has been included in the *Constitution of the People's Republic of China*.
- 2 Major initiative: The revised *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Wastes*.
- 3 Specific regulations and policies: China has successively introduced the *Plan for Pilot Development of Solid Waste-Free Cities*, the *Opinions on Establishing and Improving Ecological Product Value-realization Mechanism*, etc.

(I) China's effective practical approaches in solid waste disposal

02 Responsibilities among departments are defined to enhance collaborative governance.

- 1 Departments of ecology and environment: Set environmental standards and conduct routine environmental monitoring.
- 2 Departments of housing and urban-rural development: Classify urban household waste and process facility construction.
- 3 Departments of industry and information: Boost the comprehensive utilization of industrial solid waste.
- 4 Departments of Health: Monitor medical waste and other hazardous waste.

(I) China's effective practical approaches in solid waste disposal

03 Emphasis is placed on leveraging the guiding effect of government investment funds.

- 1 The circular economy for carbon reduction project, supporting the comprehensive utilisation of solid waste.
- 2 Special Funds for the Disposal of Waste Electrical and Electronic Products has been established, providing subsidies to companies.
- 3 Central fiscal allocations are combined with local funds to support the establishment of “Solid Waste-Free Cities”.

(I) China's effective practical approaches in solid waste disposal

04 New technologies and processes are adopted to improve solid waste disposal efficiency.

- 1 In urban areas, a digital recycling model for renewable resources to achieve informatization and precision in the recycling process has been established.
- 2 In rural areas, promote eco-smart agricultural parks to foster a virtuous ecological cycle.
- 3 In the disposal of industrial solid waste, create a traceable system monitoring the entire process.

(II) China's Implementation experiences and achievements in solid waste disposal



Source reduction

——Development of "Solid Waste-Free Cities".

- Shanghai enacted specific regulations to legalize zero-waste objectives;
- In Suzhou, financial institutions have been guided to offer loans for solid waste-free projects;
- Wenzhou has introduced various measures for rewarding "solid waste-free cells", which refers to solid waste-free community developments.



(II) China's Implementation experiences and achievements in solid waste disposal



Source reduction

—Development of "Solid Waste-Free Cities".

Resource utilization

—Construct a technology innovation system for bulk solid waste utilization through diverse channels.

- The coal industry promotes a “coal gangue underground backfilling + surface backfilling” model;
- The mining industry has established a "tiered recycling + ecological restoration + storage preservation" system;
- In the steel and metallurgy industry, the concept of “zero solid waste discharge” is encouraged;
- The construction industry advances on-site regeneration and off-site processing of construction waste;
- Scientific, standardized recycling and circular high-value utilization methods are being explored for emerging industry waste.

(II) China's Implementation experiences and achievements in solid waste disposal



Source reduction

——Development of "Solid Waste-Free Cities".



Resource utilization

——Construct a technology innovation system for bulk solid waste utilization through diverse channels.

——Support is extended to deepen the refined processing industrial chains of recycled resources.



——By adopting strategies tailored to local conditions, synergistic utilization of bulk solid waste has been facilitated.

(II) China's Implementation experiences and achievements in solid waste disposal



Source reduction

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Harmless treatment

——China is actively guiding discarded equipment and consumer products into harmless recycling channels.

PART 04

China's National Audit Enhances Solid Waste Disposal Efficiency





The CNAO has consistently prioritized solid waste disposal in its resources and environment auditing.



The CNAO examines both the operational status of the industry and the performance of government departments.

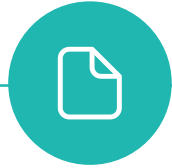


Accelerating the development of an efficient recycling system for solid waste and comprehensively supporting green and low-carbon development.

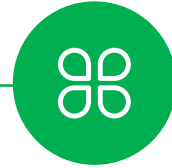
(I) Focusing on national solid waste disposal strategies and policy implementation



Auditors particularly examined industrial clusters such as bases for comprehensive utilization of bulk solid waste and industrial resource recycling.



The enforcement of refined management and effective recycling policies for solid waste were assessed.



Auditors also reviewed the implementation of policies aimed at enhancing the resource utilization and reuse rates of solid waste.

Focusing on the primary responsibilities of fiscal and financial revenue and expenditure, the CNAO prioritizes assessing the implementation of national strategies and major policies regarding solid waste disposal.

(II) Closely monitoring the implementation and financial performance of solid waste disposal projects

Auditors closely examined the mechanisms for land supply and planning guarantees for resource recycling projects.

Special attention was given to the construction and operation of solid waste treatment facilities.

Auditors reviewed the progress of recycling renovations in industrial parks.



Grounded in its role of economic oversight, the CNAO systematically assesses projects, technologies, and the financial performance related to solid waste disposal.

(III) Innovatively applying new technological tools for auditing solid waste disposal



Solid waste disposal auditing

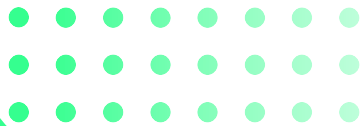
Auditors focused on key segments and risk points throughout the entire chain of various types of solid waste disposal and utilization.

Special audit on medical waste

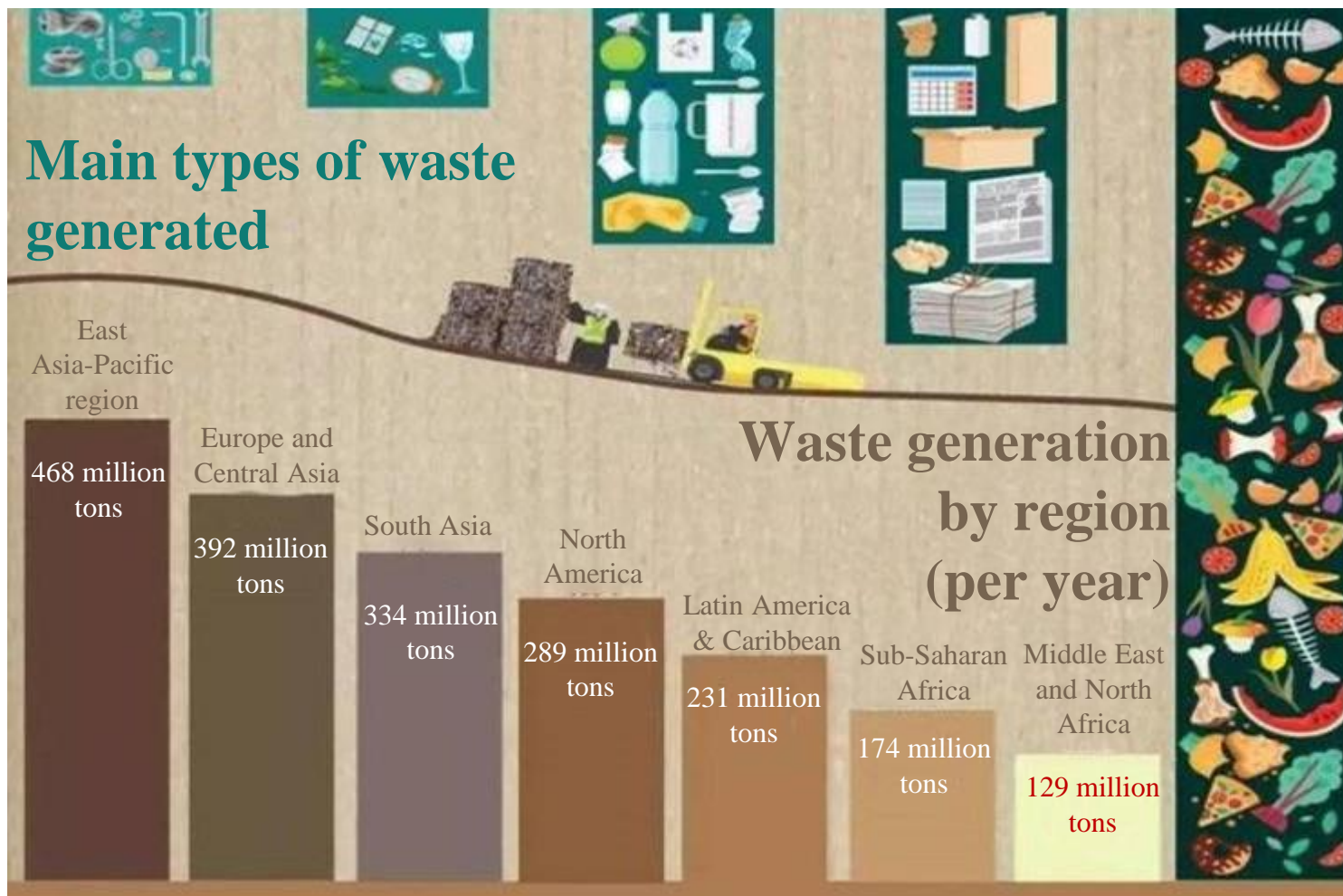
Auditors gathered critical data such as the locations of healthcare institutions and medical waste disposal facilities, regional transportation network data, and GPS coordinates of operational vehicles and utilized database and Geographic Information System (GIS) technologies.

PART 05

Challenges and Vision for Solid Waste Disposal from an Auditing Perspective



Main types of waste generated



Currently, the challenges facing solid waste disposal and recycling in China remain severe. The stockpile and new increments of solid waste are still substantial, posing significant potential threats to the ecological environment.

(I) Current challenges

01

There are still disparities in solid waste disposal capabilities among regions.

Issues such as redundant construction of disposal facilities and idle capacity are prominent, and the implementation of the "three principles" of harmlessness, reduction, and resource recovery remains uneven. The rigid constraints for source reduction vary significantly between regions, and illegal cross-regional transfers continue to occur.

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The proactive awareness of the general public remains a long-term influencing factor.

There is a need for greater public initiative in accurate waste classification and disposal. This is particularly evident in the significant disparity between large cities, medium and small cities, and rural areas.

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03

The environmental risks posed by illegal disposal remain high.

Certain regions still experience low-level, high-risk illegal disposal activities driven by profit motives. There is a need for governments to further strengthen oversight of illegal disposal.

(II) Future Vision

01

We will promote a synergistic integration and mutual enhancement between green development and solid waste disposal outcomes.

02

We will address the imbalance in solid waste disposal investments and technology applications across regions.

03

We will maximize public participation.



In the future, the Chinese government will continue to refine its policy frameworks, enhance regulatory oversight, strengthen technological innovation, promote the efficient and intensive use of various resources and improve mechanisms for public participation. It will also establish robust incentive and constraint mechanisms to further implement comprehensive conservation strategies, safeguard national resource security, steadily advance the goals of carbon dioxide peaking and carbon neutrality, and accelerate the green transition of development methods. These efforts aim to lay a solid foundation for high-quality development with green and low-carbon practices, contributing to the overall goal of building a Beautiful China.



Thanks!