Environmental Engineering and Management Journal

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WASTE BATTERY GENERATION AND COLLECTION IN DEVELOPING COUNTRIES: THE CASE STUDY OF UKRAINE AND CHINA

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Abstract

With the popularity of electronic devices in daily life, the use of batteries has increased significantly, especially in developing countries such as China and Ukraine. Due to the imperfect recycling system, a large number of waste batteries are often landfilled with household waste, causing serious environmental pollution and resource loss. This study estimates the amount and types of household waste batteries through three methods: experimental collection of waste batteries at a Ukrainian university; survey of battery uses in household appliances in China and Ukraine; analysis of public data and existing studies.
The results show that the average person uses about 10–20 batteries per year, mainly alkaline and zinc-carbon dry batteries, accounting for more than 90%. Chinese families use more lithium-ion rechargeable batteries, reflecting the differences in the use of electronic products, while Ukrainian families prefer primary batteries. The collection rate of waste batteries is extremely low, about 0.7% in urban areas of China and 1.5% in Ukraine. The main reasons for this phenomenon include the lack of a collection system, weak public environmental awareness, and incomplete official statistics.
This study emphasizes that accurate estimation of the amount of waste batteries generated is of great significance for establishing reasonable management and recycling policies, and recommends strengthening public environmental education and improving the classification and recycling system for waste batteries to promote resource recycling and reduce environmental risks.

Key words: battery; developing countries; household appliance; waste battery collection, waste battery generation

Received: June, 2025; Revised final: December, 2025; Accepted: January, 2026

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