

## IMPACT OF HOUSEHOLD WASTE ON THE ENVIRONMENT AND SOIL PROPERTIES

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**Abstract.** Today, the increasing demand for food and consumer goods, the variety of products produced to meet population needs, and the accumulation of low-quality production waste on the Earth's surface contribute to soil and environmental pollution, leading to ecological hazards. Collecting, sorting, and recycling household waste has become a pressing issue of the day.

**Keywords:** soil, environment, waste, pollution, ecological hazard, collection, sorting, recycling.

In Uzbekistan, extensive measures are being taken to protect the environment, utilize natural resources rationally, and improve the sanitary and ecological conditions of regions, districts, and cities. In particular, significant work was done in 2017-2018 to improve the infrastructure for managing solid household waste. Thirteen state sanitary cleaning enterprises, along with their 172 district and city branches, as well as nine clusters for comprehensive household waste management, were established. These measures enabled nearly half of the population to access sanitation services.

The Presidential Decree of the Republic of Uzbekistan No. PF-60, dated January 28, 2022, "On the Development Strategy of New Uzbekistan for 2022-2026," set important goals, including improving the ecological situation in cities and districts, increasing household waste collection to 100%, and raising recycling rates from 21% to 50% by 2026. Based on this, it is essential to assess the pollution levels of soils around household waste disposal sites, evaluate the impact of pollution on soil properties, and uncover the mechanisms behind changes in soil fertility indicators.

Currently, Uzbekistan has 223 household waste disposal sites where 35 million cubic meters of household waste are accumulated annually. Waste is primarily stored openly, burned, buried, or disposed of in ways that negatively impact the environment. The recycling rate is only 12-15%.

Moreover, rural areas face insufficient service coverage for the collection and removal of solid household waste. The infrastructure for managing such waste remains inadequate, and existing waste disposal sites often fail to meet sanitation and environmental standards. This calls for the adoption of comprehensive measures in this sector.

Household waste consists of the following components:

Organic waste: food remnants, fruit and vegetable peels, garden and yard waste (grass, leaves, etc.).

Plastic waste: bags, food packaging, plastic items.

Paper and cardboard: newspapers, magazines, books, cardboard boxes, office paper.

Glass waste: glass containers, bottles, windowpanes.

Metal waste: tin cans, aluminum, and iron scraps.

Textiles: old clothes, fabrics, carpets.

Electronic waste: unused phones, computer parts, household appliances.

Chemical waste: batteries, cleaning agents, paints, oils, and other hazardous substances.

Sorting and recycling these wastes help minimize environmental harm. The exact composition of household waste varies based on lifestyle, geographic location, and season.

Household waste can contaminate soil through various means, both natural and anthropogenic. Improper disposal of waste in rural and urban areas is common. Waste discarded indiscriminately may directly contaminate soil, while failure to transport waste to designated sites can pollute nearby land. Special waste disposal sites are used for waste collection, but these areas sometimes contribute to soil pollution.

Leachate from waste decomposition can infiltrate soil and mix with groundwater, causing water contamination. Wind and rain can spread waste beyond landfill sites, affecting the surrounding environment. Additionally, waste such as plastics, paper, or other lightweight materials can be dispersed over wide areas by wind, leading to soil contamination. Plastics and chemical waste, in particular, persist in soil for extended periods, altering its composition and reducing fertility, thereby harming ecosystems. Hence, special measures are needed for waste management and disposal.

**Conclusion.** Improperly managed household waste poses significant ecological risks to soil. Proper disposal, sorting, recycling, and safe utilization of waste can protect soil and preserve natural resources. Adopting advanced technologies from developed countries in waste management can yield effective results.

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