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World LinkUp Smart Waste Initiative

Submitted By: World Linkup



Organization Profile

Organization Name: World Linkup

Organization Type: Private sector

Website: https://worldlinkup.org/

Practice Details

Country(ies): Bangladesh

City(ies): Dhaka city

Start Year: 2019 **Ongoing:** Yes **End Year:** N/A

Main Adequate Housing Components:



Housing Thematic Areas:

- Housing Affordability & Financing
- Housing & Climate Mitigation
- Technology & Digital Solutions in Housing

Relevant SDGs:



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Problem & Context

Dhaka, the capital of Bangladesh, generates over 7,000 tons of waste daily, including organic, plastic, and industrial materials. Most are collected without segregation and dumped in sites like the Matuail Sanitary Landfill, releasing methane gas, toxic leachate, and pollutants that contaminate air, water, and soil. This uncontrolled disposal causes diseases and high greenhouse gas emissions. The estimated market value of these wastes in the global market exceeds USD 672 billion, yet they remain unutilized. Existing municipal systems focus on collection, not segregation or recycling, causing both environmental and economic loss. Our initiative seeks to make Dhaka a model SDG-aligned city through a smart, integrated waste management system—from household collection to landfill recovery—that turns waste into valuable products, reduces methane, and creates sustainable green jobs.

Solution Developed

World LinkUp developed a citywide Smart Waste Management System to address Dhaka's growing municipal waste crisis. The system introduces smart bins for source-level segregation of organic, recyclable, and non-recyclable waste in households, markets, and institutions. Collected waste is transported to central recovery hubs for sorting, processing, and upcycling. The initiative converts city waste into valuable, eco-friendly products such as bio-fertilizer and compost from food waste, recycled plastic goods, paper crafts, refined cooking oil for industrial use, and construction materials from compressed plastic and glass. World LinkUp also applies its research in rural waste valorization to produce high-value items like mango seed oil, coco compost, and moringa powder, linking urban and rural circular economies. The practice empowers women and youth through training in recycling micro-industries, creating green jobs, reducing methane emissions, and promoting urban sustainability within a circular economy model to make Dhaka a model SDG city.

Implementation

Implementation began in 2023 under World LinkUp's "Waste to Wealth for Sustainable Housing" project. Phase 1 focused on awareness and capacity-building workshops introducing the smart bin concept to local communities. Phase 2 distributed smart bins to pilot households with hands-on training in waste segregation. Phase 3 established a warehouse facility for sorting and transforming collected materials into eco-friendly products. Phase 4 linked these products to e-commerce platforms such as linkupmart.com for national and international sales. Key actors include World LinkUp (project coordination and community training), local government units (policy support and logistics), private sector partners (smart bin manufacturing, packaging, and marketing), and community cooperatives (collection and sorting). Funding and resources were mobilized through community partnerships, donations, and pilot grants. The project emphasizes inclusivity, eco-innovation, and green job creation for sustainable urban transformation.

Enablers & Obstacles

Enablers: Strong community engagement, youth participation, academic collaboration, and the rising demand for eco-friendly products globally. Technological innovation through smart bins enhanced efficiency and transparency in waste collection. Policy alignment with Bangladesh's SDG commitments created institutional support.

Obstacles: Initial public resistance to behavior changes in waste segregation and limited financial resources for large-scale bin production. These were mitigated through awareness campaigns, demonstration projects, and partnerships with local industries for low-cost bin manufacturing.

Results & Impact

The project improved household waste management practices in over 500 pilot homes across Bangladesh, reducing methane emissions and improving neighborhood cleanliness. Organic waste was converted into value-added products, generating additional income for low-income families.

- Over 20 tons of waste processed monthly.
- 60% reduction in unmanaged household waste.
- Creation of 150 green jobs for women and youth.
- Household income increased by an average of 30% for trained participants.

Environmental benefits include reduced landfill dependency, methane emission control, and cleaner community surroundings. The project contributed to SDG 8 (Decent Work), SDG 11 (Sustainable Cities), and SDG 12 (Responsible Consumption), demonstrating a sustainable and replicable model for circular housing systems.

Replication & Scale Up

The model has been replicated in semi-urban regions of Rajshahi and Khulna. Success factors include community readiness, strong youth engagement, and the adaptability of smart bins to diverse waste types and community sizes.

By integrating the smart bin system into national municipal waste programs and public-private partnerships. Expanding digital traceability and introducing micro-financing for household bin purchase will enable large-scale adoption. Collaboration with e-commerce and export markets will ensure economic sustainability.

Policy Uptake

This housing practice is a new or innovative practice that is not yet adequately or fully integrated into formal policy frameworks.

To embed this initiative into policy frameworks, the government should integrate circular economy principles into urban waste management and housing policies. Municipal bylaws must mandate source segregation, recycling incentives, and community participation. Public-private-community partnerships (PPCPs) can formalize collaboration for scalability. Green procurement and carbon credit policies should support financial sustainability, while education programs promote long-term behavioral change aligned with SDG 11 and 12.

Lessons & Takeaways

Community sensitization and continuous engagement are critical for behavioral change. Future improvements include scaling digital monitoring for waste tracking, diversifying product lines, and strengthening government partnerships for sustained implementation.