

## Recycling Plastic Waste to Protect Communities and the Environment

Recycling of single-use plastics (LDPE and PP) that are currently not being recycled in Cox's Bazar, Bangladesh.

**Country:** Bangladesh (Teknaf Refugee Camp)

**Organization:** Terre des hommes (Tdh)

**Authors:** K M Shoeb Amran, and Laxman K Chetty.

**Contact:** Zahidur Mohammed Rahman, Deputy Country Representative. [zahidur.rahman@tdh.org](mailto:zahidur.rahman@tdh.org)

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### Recycling Process

1. **Collection** of waste from HHs and the community by using waste-segregated bins.
2. **Segregation** of plastics (Polythene) from waste.
3. **Cleaning** plastics using detergent and a chlorine solution, followed by drying.



4. **Shredding** into 5-8 mm pieces by machine.
5. **Palletization** – Shredded plastics are melted at 250 degrees Celsius and extruded into pellets using a palletization machine. These pellets, cooled in water, are then further shredded into plastic beads.
6. **Fabrication** - The plastic beads are heated to temperatures ranging from 80 to 100 degrees Celsius and molded or blown using molds into items through a fabrication machine.



### Fabricated Products from Recycling



Educational toys for children and household items distributed in the camp.

**Further improvement** – With the increasing volume of collected waste, we will fabricate construction items, including toilet rings and covers, drainage covers, bricks, and soil retaining items like palisading slabs. To achieve this, the hot emerging pellets can be poured directly into moulds.

**Our project** - We conduct this recycling as part of our WASH interventions in the Rohingya refugee camps and host communities located in Teknaf, Cox's Bazar. This project's overall project name is Kalyana. The WASH component of this project covers Faecal Sludge Management, Solid Waste Management including composting, WASH facilities construction and maintenance, Hygiene kits distribution and emergency response.

### Information about the recycling machine

**Made-in** – Bangladesh. **Capacity** – 200 kg per hour. **Plant-life** – 20 years. **Capital-Cost** – 18000 US\$. **Operation-cost** – 0.18 US\$ per kg. **Repair-and-maintenance-cost** – 900 US\$ per year.

### Impact of improperly managed Plastic Waste

(a) **Environment** - contamination of soil, water, and air. (b) **Marine Ecosystem** - marine debris, ingestion risks for marine life, animal entanglement, coral reef harm, formation of microplastics. (c) **Human Health** - release of toxic chemicals, risk of bioaccumulation. (d) **Economy** - harm to tourism and fishing sectors. (e) **Social and Cultural Impact** - degradation of aesthetics, impact on community health.