

Creating Value in Plastics

Through Digital Technology

Period	1.2021–09.2022
Country	Indonesia
Project partners	Cirplus, German Institute of Development and Sustainability (IDOS), Plastic Bank, Waste for Change

Systems thinking for circular plastic value chains

The goal of this project is to address the inefficiencies of the Indonesian waste management system caused by its complex and disconnected network of stakeholders. To tackle these challenges, the project team applied a systems-thinking approach that helped to enhance the amount of plastic waste segregated, collected and recycled, and to increase the uptake of recyclates in plastic production.

The project

The project links all players of the plastic recycling value chain – from local households to waste collection and recycling facilities to plastic producers globally – through digital technology: a blockchain app and a global online marketplace. Throughout the whole value chain, the project ensured the quality of the recycled plastic by applying a behaviour-centred approach for improved segregation at source and by introducing a standard for recyclates.

Considering all stakeholders of the value chain

The project considered the importance of all players in the plastic recycling value chain by providing them with the necessary tools and capacities:



Behaviour change interventions to increase waste segregation at source:

The establishment of a segregated collection system for plastic waste at household level and through local waste banks improved the quality of the recyclates at the end of the value chain. To increase waste segregation in households, Waste for Change, an Indonesian social enterprise, and the German Institute of Development and Sustainability (IDOS) applied a behaviour-centred approach. This included:

- distribution of a second bin to households to enable better waste segregation,
- redesigning the waste truck and making visible that the truck divides waste to create trust,
- implementing a collaboration game (win a prize together - community party) to motivate people,
- distribution of stickers as an incentive to self-commit and to signal participation to neighbours

Linking local collection apps to a global digital marketplace

The blockchain app and technology by Plastic Bank together with the global online marketplace for plastics by cirplus were the glue which connected the different stakeholders and enabled the tracing of material and financial flows. The mobile blockchain app allows to verify and trace the materials from collection to recycling until they reach the global marketplace. The app distributes incentives to waste collectors and ensures their secure and fair payment. The collected and recycled plastics from the project are offered on the global digital marketplace which connects sellers and buyers of recyclates. For this, the marketplace was adapted to the Indonesian context, introducing a new plastics category for 100% traceability. To ensure a stable quality of recyclates, a quality standard for recyclates (DIN Spec 19446) was developed and introduced to recyclers.

Plastic Bank's blockchain app and cirplus' marketplace provide easy access for brand owners to source ethically recycled material – paying a premium price to raise local living standards.

Achievements

1. Development of a quality standard for recyclates (DIN Spec 19446).
2. Approx. 900 households received bins and information on waste segregation. 80% of these households started segregating their waste.
3. 900 households, 22 waste banks and 2 recyclers were trained on the use of digital tools, which led to an increased use of Plastic Bank's app (250 new users) and the introduction of cirplus' digital marketplace in Indonesia.
4. Improved traceability of both material and financial flows.
5. 10,000 kg of plastic were collected, treated and offered on the marketplace
6. Improved working conditions of the waste workers by providing insurances, higher salaries and safety equipment.

PREVENT Waste Alliance

The PREVENT Waste Alliance serves as an international 'think and do tank' for circular economy practitioners. As a platform for knowledge exchange and international cooperation, it brings together organisations from the private sector, academia, civil society and public institutions. PREVENT's mission is to advance the circular economy in low- and middle-income countries by minimising waste, eliminating pollutants, and maximising the reuse of resources in the economy worldwide.

This project was selected in a call for innovative and scalable solutions to build a circular economy.

The PREVENT Waste Alliance was launched in 2019 by the German Federal Ministry for Economic Cooperation and Development.



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More information: www.prevent-waste.net/