COLLECTION, SORTING & TREATMENT

After waste is generated, the way it gets collected and then further sorted and treated for composting or sale into recycling markets can make a big difference. This includes how cities dispose of the waste that is not recycled or composted, such as through a managed landfill. Municipalities might implement changes in this regard such as introducing a new collection stream (e.g., recyclables or organics), adding collection locations and frequency, or improving sorting infrastructure and productivity. Running an efficient collection, sorting, and treatment operation is critical to economically producing usable recycled material or compost. The communities with the strongest waste management practices typically ensure that the system has reliability across needed technology and machinery, consistency of schedules and expectations, and sufficiency of labor force and system capacity.

KEY ACTIONS:

- Upgrade waste sorting and treatment facilities, and their operations
- Expand service coverage
- Track waste flows to optimize collection routes and monitor system inputs and outputs
- Ensure safe operation of disposal sites

RETHINKING RECYCLING INDONESIA IN DENPASAR, BALI

IMPROVING OPERATIONS OF COLLECTION AND SORTATION IN INDONESIA THROUGH AN EASY-TO-USE DIGITAL SOLUTION

SITUATION

To date, waste management operations in Bali have been largely informal and fragmented. The waste management in place today is not a broadly available public service, but is offered as a paid subscription program at the household level. System records of key metrics such as number of households serviced and volume of waste collected are seldom maintained, and if so, are done manually on paper or in notebooks. Additionally, collection and tracking of subscription payments is highly inconsistent throughout the system, with estimates as low as 30-40% of subscription payments being collected. This creates a lack of accountability and significantly impacts the revenue stability of local sorting centers – a critical factor to achieving financial sustainability. This informal system also contributes to a lack of transparency within the supply chain, ultimately deteriorating system performance and viability. Working with our partners, Delterra set out to help improve the day-to-day processes of collection and sortation in Bali.

ACTION

We wanted to offer the sorting centers in Indonesia (TP3SRs) a simple tool with a big impact – a way to digitize and standardize their data in a simple turnkey solution. To do this, we partnered with waste management company Bintix to re-design a tool they had built for sorting centers in India. Together, we customized it for our communities in both Indonesia and Argentina. Thus, our Operations Platform was born.

The Operations Platform is a simple, easy-to-use solution that improves payment collection, monitoring of waste input volumes and management of post-sorting material offtake through tracking of:

- **Financial activities:** the tool allows users (TP3SRs / sorting facilities) to monitor incoming payments from households, which combine with off-the-shelf accounting tools to ensure that sorting facilities adhere to their budgets

- **Material diversion rates:** by enabling users to track incoming volumes, as well as sorted volumes and offtake, sorting centers and local communities can understand how effectively they are diverting waste from landfills and open dumping - an important performance indicator for any sorting center

- **Offtake by material type:** following sortation, the recyclable materials are typically sold by the sorting facility to an aggregator. Using the Operations Platform, sorting centers can track what materials are sold to which offtakers, as well as prices received. This feature supports price tracking, but more importantly, sets sorting facilities up to leverage material traceability data in the future.

RESULT

Since implementation of our selected solutions, participating centers have seen significant improvements such as:

- Significant decreases in uncollected payments, with routine collection rates of 85%+ every month in multiple villages

- An estimated 70-80% of waste volumes entering the participating sorting centers are tracked through the Operations Platform, as opposed to almost zero tracking prior to the platform implementation

- Offtake volume and price tracking, enabling villages the ability to identify what recyclables are being returned to productive use, as well as monitor trends over time to support informed decision making

- Up to 9x reduction in time spent doing manual processes such as reconciling cash payments and deposits at month-end, freeing up staff capacity .

INNOVATIVE WASTE COLLECTION AT THE SOURCE IN VIETNAM[13]

SITUATION

The Mekong River is one of the main entry paths for marine litter, especially plastic waste, worldwide. Vietnam's Long An province, in the Mekong Delta near this river, has a majority rural population of 1.5 million people, 10% of whom live in the capital city of Tân An. The area has poor or no waste collection systems, lacking the capacity to separate, collect, and treat waste adequately, which results in the disposal of waste in unsecured dumps.

ACTION

To curb land-based marine litter, the WWF and Tân An City piloted a new collection concept that would separate and sort waste at the source:

- In August 2020, a decentralized "sorting-at-cart" method was piloted for 425 households (1,855 residents) during door-to-door collection operations. Waste collectors were provided with hand-pushed collection carts equipped with tables to sort waste during collection, with different types of waste being collected on different days of the week (i.e., organic waste on one day, dry recyclables on another, etc.)

- This "sorting-at-cart" method enabled an immediate check on sorting quality at the point of collection, greatly improving the material that ultimately gets sorted for recovery. Many cities use compactor trucks to collect recyclables, and this means that contaminated waste gets "pressed" together with well-sorted recyclables, ultimately reducing the amount of waste that can be recovered at the sorting center. With the pilot's method of collection, recyclables that have not been well-separated do not end up in the sorting centers, which results in higher recovery rates and better working conditions for workers separating the waste

- The method leads to extensive resource recovery and high waste utilization rates, thus creating high value from the waste

RESULT

Findings in the pilot demonstrated that a labor-intensive, separated waste collection method, with immediate post-sorting led to collection and recovery rates of over 80% for organic waste, which makes up roughly half of all waste collected from households. The pilot also demonstrated the potential for a 50-65% diversion rate from landfill. The separately collected and immediately sorted recyclables were of high-grade purity and quality. Even with higher collection costs, the reduction in residual waste being disposed of at landfill led to reduced total costs due to a decrease in transportation and disposal fees.

The initial pilot was expanded to a further 4,800 households in October 2020 and to the rest of Tân An city shortly thereafter, with future plans to expand to other towns and districts.

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Real Change, At Scale.