

ESTABLISHING RECYCLING MARKETS FOR A FULL SOLID WASTE MANAGEMENT SYSTEM

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BRIEFER 5

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BRIEFER INTRODUCTION



Plastic pollution is a pressing global challenge, and addressing it requires a comprehensive and integrated solid waste management approach. In the context of ports, the exclusion of one component, such as market linkages, can pose significant challenges to achieving effective waste management. Without viable markets for recyclables generated within the ports, the potential for recycling, increasing waste diversion from landfills, and the development of a circular economy are hindered. This, in turn, impacts the industry’s environmental sustainability goals and its ability to mitigate plastic waste leakage into the marine ecosystem.

This brief shares the project experience and lessons learned from the project **“Clean Ports, Clean Oceans: Improving Port Waste Management in the Philippines”** (hereinafter “the project”) in piloting solutions that ensure a holistic approach for solid waste management. The project implemented by the World Wide Fund for Nature (WWF), in partnership with the Grieg Group, was funded by the Group Foundation. This brief, published by WWF-Philippines, examines the key elements of a full solid waste management approach focusing on the importance of establishing recycling market linkages to address plastic waste leakage effectively.

Building recycling market linkages is an important component in the waste management system. First, having market linkages supports the practice of proper waste segregation and segregated collection as it provides the economic value for doing so. Second, market linkages ensure that solid waste management facilities are sustained. A Materials Recovery Facility (MRF) will soon not be functional if there is no market that it can sell its recyclables to. Lastly, these endpoints are important to ensure that segregated waste is recycled and not stored and later ends up in the landfill.

TARGET STAKEHOLDERS

The success of a comprehensive solid waste management approach with market linkages relies on the engagement and collaboration of various stakeholders, in which their active involvement drives effective outcomes. In the context of solid waste management in Philippine ports, the following stakeholders play pivotal roles.

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Port Management Offices

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Terminal Operators

3

**Local Government Units of
Port-Adjacent Communities**

4

Junk Shops

5

Recyclers

6

Informal Waste Sector

7

**Materials Recovery Facility
Operators**

8

Social Enterprises

BUILDING STRONG MARKET LINKAGES FOR SUSTAINABLE INTERVENTIONS

Implementing effective waste management strategies that foster sustainable practices and market linkages demands a **systematic approach**. The following are the key steps required to establish market linkages for recyclables.

COMPREHENSIVE ASSESSMENT

A **thorough review of waste generation and composition** (i.e., potential inflow of materials), existing secondary markets, manpower, materials, and transportation costs lays the groundwork for informed decision-making. Ocular inspections and direct engagement with waste collection activities provide firsthand insights into waste flow dynamics.

Project Experience: Piloting Plastic Flamingo

In the project, the results of the baseline assessment identified the need for establishing markets for port-generated and community-generated recyclables to increase waste diversion from the landfills and improve the existing recycling capacities.

Baseline study results provide an overview of the volume that can be collected and diverted. For the pilot with Plastic Flamingo, a social enterprise that collects segregated plastic waste and recycles them, the project conducted a simple waste audit with the port offices' waste in the Port of Batangas and Manila North Port. This was important to estimate the specific waste types and its respective volumes both needed for the segregated collection events that will be conducted for the port offices.

IDENTIFICATION OF MARKET DEMANDS

Understanding the needs of industries that require recyclable materials is crucial. A market study could help **match supply with demand** to ensure a smooth flow of recyclables from the ports and communities to manufacturers and recycling businesses. Confirmation of buying prices from local junkshops can establish a direct link between waste collection efforts and market transactions.

Project Experience: Determining the Market Demands for Recyclables

Under the project, WWF worked with the Barangay Calicanto, a community located next to the port of Batangas. Prior to piloting the collection of recyclable materials in this community, the project mapped all junk shops in the vicinity to better understand what they collect, the minimum volume for pick-up, and prices for each recyclable. This helped the project team assess the best partner for the recyclables that were collected during collection events at the beginning of the project, and later for the recyclables aggregated in the material recovery facility (MRF).

This assessment also showed that MRFs, which sometimes act as a small junk shop, should sell their recyclables to aggregators or directly to recyclers. This market assessment led the community in Batangas to partner with the San Jose Sico Multipurpose Cooperative who showed expertise and capacity to guide them in their MRF operations.



STAKEHOLDER ENGAGEMENT

Active involvement and collaboration among relevant stakeholders, including port authorities, passengers, communities, local governments, non-governmental organizations, and recycling businesses, are essential in promoting a **shared responsibility for waste reduction and recycling**. Public education campaigns are critical to instill **behavioral change** and **encourage proper waste segregation** at source and recycling. Raising awareness to relevant stakeholders fosters the **development of a sustainability-oriented culture**.

Project Experience: Engaging Port Stakeholders for Recycling through Piloting BEST Inc.

The project piloted the Basic Environmental Systems and Technologies (BEST) Inc. solution in the Port of Cagayan de Oro. BEST is a social enterprise that collects segregated waste including paper, glass, and recyclable plastics which they later bring to ambulant buyers. In piloting this solution, the project needed to engage different stakeholders particularly the port employees, utility workers, and business stall owners to participate in the recyclable collection events of BEST. Public education campaigns have been made prior to the start of the trash-to-cash program to encourage port offices to actively engage in this pilot. A crucial factor in achieving higher participation rates was securing the support and involvement of the upper management of the Port Management Office.



SYSTEM AND INFRASTRUCTURE DEVELOPMENT

Effective waste segregation facilities, streamlined collection systems, and robust materials recovery facilities are integral components of the solid waste management ecosystem. These elements not only facilitate the recycling process but also optimize the value of recyclable materials. Investment in these infrastructure components ensures that the recycling loop remains efficient and effective.

Project Experience: Establishing an MRF

The project invested in establishing a Materials Recovery Facility (MRF) in Barangay Calicanto, Batangas City. This is based on the consultation with local barangay stakeholders which all agreed that a MRF was needed to encourage household waste segregation, store recyclables until it reaches a certain volume, and facilitate their selling. It has also been confirmed by the engaged market linkage partner, San Jose Sico Multipurpose Cooperative, wherein they emphasized the need of the community for the facility with available space to temporarily store the collected recyclables.



POLICY SUPPORT

Governmental backing, in the form of **clear policies, regulations,** and **incentives**, plays a pivotal role in driving sustainable practices and fostering an environment conducive to market linkage. Well-defined policies create **a framework that incentivizes** waste reduction, recycling, and responsible waste management practices. **Regulations provide guidance and standards** for waste handling, ensuring consistency and adherence to sustainable practices.

Example: EPR in the Philippines

The Philippines is implementing the Extended Producer Responsibility (EPR) scheme since the enactment of the EPR law in 2022, which puts accountability to businesses with assets of at least 100M pesos excluding land. With this law, obliged enterprises need to implement an EPR program individually, or with other businesses, or through the Producer Responsibility Organization (PRO). The national government has encouraged the obliged enterprises on partnering with Local Government Units (LGUs) particularly in supporting their MRF operations and in supporting waste workers.

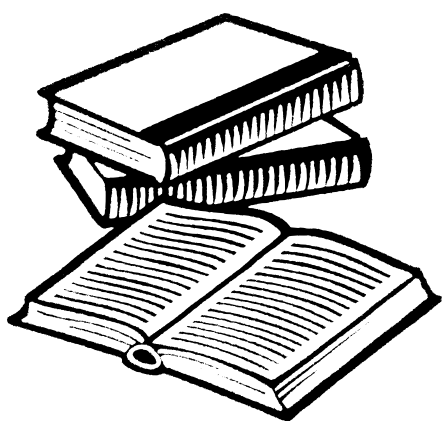


Case Study: Trash Traps and Materials Recovery Facility in Barangay Lapasan, Cagayan de Oro City

Adjacent to the Port of Cagayan de Oro in Barangay Lapasan, waste collection from upstream communities along Bitan-ag Creek is strategically managed with two trash traps provided by the Department of Environment and Natural Resources (DENR). To augment the collection, an initiative, in collaboration with BEST Inc., involves collecting PET bottles and directing them to an improved MRF. These efforts not only benefit the environment but also aim to establish market linkage for sustained cash flow to support the MRF.

Key stages of this endeavor encompass:

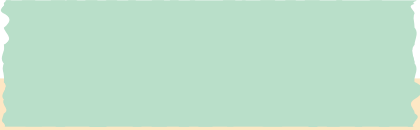
1. **Real-time data collection:** implementation of data-driven monitoring of trash traps ensures accurate and up-to-date information, serving as a foundation for informed strategies.
2. **Business model development:** synthesis of collected data culminates in the creation of a tailored business model for the local authorities which encompasses roles, costs, collection frequency, and market alignment.
3. **Formulation of recommendations and iterative refinements:** capacity building, waste management strategies, materials recovery facility improvement, and community development are identified as essential components, while pilot operations facilitate iterative enhancements.



What Might Went Wrong in Establishing Recycling Markets in the Port Industry?

While the port industry is making strides in addressing solid waste management issues, several common mistakes can hinder the effectiveness of solutions. Recognizing and avoiding these pitfalls is essential for achieving successful waste management outcomes. Here are some of the common mistakes to consider:

- **Overlooking at-source waste segregation:** the absence of proper waste segregation at the source can hinder the recycling process. When different waste streams are mixed, it becomes challenging to extract recyclable materials effectively. Prioritizing waste segregation can encourage clear differentiation between waste types to maximize the value of collected recyclables in the market.
- **Isolated approaches:** implementing fragmented interventions at different stages of the solid waste management system without considering the entire waste management cycle can lead to inefficiencies and limited impact. To overcome this, the ports must invest resources in developing a comprehensive and integrated solid waste management strategy that covers all stages of the waste management process, including the establishment of viable markets for recyclables.
- **Insufficient market study:** establishing markets for recyclables requires a thorough understanding of market demand, pricing dynamics, and potential buyers. Without adequate market research, the industry may struggle to find suitable buyers for recyclables, leading to accumulation or improper disposal of materials. A proper market study ensures that waste management facilities can channel recyclables to the most viable markets, promoting a circular economy.

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- **Incomplete linkage building:** failing to establish strong connections with apex recyclers and industrial-scale operators further along the value chain can jeopardize market stability. Ensuring stable prices and securing long-term contracts for the off take of recycled materials, when possible, is crucial for the sustainability of recycling initiatives.
 - **Limited collaboration with stakeholders:** effective recycling solutions must involve the active participation and support of port stakeholders, local communities, waste management service providers, informal waste workers, and recycling industries. Neglecting to engage stakeholders can result in low compliance rates, improper waste disposal practices, and limited market access for recyclables.
 - **Focusing solely on technical solutions:** while investing in advanced waste management technologies is essential, relying solely on technical solutions without considering social and behavioral aspects can limit the overall impact. Neglecting the importance of education, community involvement, and behavior change can hamper waste management efforts.
 - **Disregarding policy and regulatory support:** a lack of clear policies and regulatory support for waste management initiatives can create uncertainties and slow down the market development. The port industry should collaborate with relevant authorities to establish supportive policies that incentivize responsible waste practices and create a conducive environment for market growth.
 - **Inadequate monitoring and evaluation:** without regular monitoring and evaluation, it is challenging to assess the effectiveness of waste management initiatives and market linkage efforts. Lack of data on recycling rates, stakeholder compliance, and market performance can impede data-driven decision-making for improvement.

CONCLUSION

Market linkage bridges the gap in achieving an integrated solid waste management approach, while weaving together diverse stakeholders to empower sustainable solutions in addressing plastic waste leakage effectively. Anchored in the insights of baseline assessment, the establishment of markets for recyclables promotes waste diversion from landfills and improves recycling capacities to foster a circular economy.