

Reducing Marine Plastics in the East Asian Seas Region Project
funded by the
Ministry of Oceans and Fisheries (MOF) of the Republic of Korea

**PROPOSED PILOT PROJECT IN
DIPOLOG, ZAMBOANGA**



**Mitigating Marine Plastic Pollution through
Trash Trapping in Miputak Creek**

PROJECT PROPOSAL SUMMARY

PROJECT TITLE	Mitigating Marine Plastic Pollution through Trash Trapping in Miputak Creek	
SUBMITTED BY	LGU of Dipolog	November 2024

Location	Miputak Creek, Barangay Miputak, Dipolog City
Background	Dipolog City, with its rivers and creeks, is suffering from the trash input to the sea, largely stemming from these bodies of water. One of these creeks is the Miputak Creek. This creek being heavily polluted, carries a significant amount of trash into the ocean negatively affecting tourism and the local fishing industry in Dipolog. The creek traverses several densely populated barangays, particularly those with informal settlers, contributing to its reputation as a major dumping ground for garbage.
Objectives	<p><i>Goal:</i> To install three (3) trash barriers across strategic points in Miputak Creek.</p> <p><i>1. Objectives:</i></p> <ul style="list-style-type: none"> • Install three trash barriers with a total of 54 meters. • Purchase one (1) waste lifter • Purchase one (1) collection boat and three (3) sets of tools for operation
Resources	The installation and procurement shall be financed from the ODA project, but the maintenance, operations, and sustainability of the project shall come from the LGU of Dipolog.
Budgetary Requirement	The pilot project is estimated to be around 1.3M PhP (including the construction, installation, and procurement)
Timeline	The project intervention is aimed to be implemented and installed, in less than two years.
Monitoring and Reporting	As one of the Project Sites of the ODA-PEMSEA project in the Philippines on Reducing Marine Plastics in the East Asian Seas Region, regular reporting and updates shall be provided to the Project Team, the Funding Agency and the Philippine Government.

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I. INTRODUCTION

Dipolog City, the capital of Zamboanga del Norte, is a vibrant coastal city in Region IX. It is composed of 21 barangays, 8 of which are coastal: Barra, Central, Galas, Minaog, Olingan, Punta, Sicayab, and Miputak. The city is further categorized into 14 urban and 7 rural barangays. Classified as a third-class component city, Dipolog's economy primarily relies on agriculture, with fishing serving as a significant secondary activity.

Dipolog is traversed by several waterways, with the Dipolog River being the main watercourse, emptying into the Sulu Sea. Additional rivers and streams that flow through the area include the Diwan, Layawan, and Katipunan Rivers, as well as the Miputak, Gusawan, and Olingan Creeks.

Miputak Creek, one of the most heavily polluted waterways in the city, carries a substantial amount of trash into the ocean. Flowing through several densely populated barangays, particularly those with informal settlements, the creek has become a significant dumping ground for waste. To address this issue and capture Ocean-Bound Plastics (OBPs), the project proposes the installation of trash barriers at strategic locations along this Creek.

This initiative is part of the Official Development Assistance (ODA) project for the Philippines, spearheaded by the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) under its program to reduce marine plastics in the East Asian Seas region. By implementing this targeted intervention, the project aims to mitigate plastic pollution and promote environmental sustainability in Dipolog City.

II. PROJECT DESCRIPTION

A. Project Background

Dipolog City has already laid out its Solid Waste Management Plan, equipped with City Ordinances, with existing MRFs at the Barangays and City levels. It has also implemented various activities like regular clean-ups, adopted an Estero program, and partnerships with the business sector. Despite all these and all issued ordinances to control open dumping, the wastes, mostly plastics, persistently remain in rivers, and creeks, due to illegal dumping and non-collection occurrences encourage households to dispose of their wastes in a convenient location, particularly in the open environment. In response to this issue, the city proposes installing trash barriers in strategic places along Miputak Creek to prevent these waste and plastics from reaching the seas.

1. Issued Ordinances Related to Waste Management

ORDINANCES	SHORT TITLE	MAIN PROVISION
Ordinance No. 123 (1998)	Establishing a System of Garbage Collection, Health Protection and Sanitation	City's main law on sanitation and cleanliness <ul style="list-style-type: none"> • Mandates the city to follow "No Segregation, No Collection" policy
Ordinance No. 243 (2013)	Regulating the Operation of All Junk Shops and other Similar Business Establishments and Individuals Engaged in the Buying and Selling of Metal Scraps, and Other Junks with Monetary Value, within the City of Dipolog, and Other Purposes	Enforces policies in regulating junk shops, local businesses, and individuals that are involved in buying and selling valuable wastes
Ordinance No. 22-321	Amendment of Ordinance No. 123	Declares the tourism sites in Dipolog City as "Clean-As-You-Go" zones <ul style="list-style-type: none"> • Provides penalties and fines for committed violations
Executive Order No. 12 (2021)	Rehabilitation, Restoration, and Protection of Waterways and Easement of Waterbodies	Creating a joint task force for the rehabilitation, restoration, and protection of waterways and easements of water bodies within the territorial jurisdiction of the city of Dipolog
Executive Order No. 22 (2022)	Reconstituting the Dipolog City Solid Waste Management Board	Authorizes the City Solid Waste Management Board to prepare, submit and implement a plan for the safe and sanitary management of solid waste generated in the city

Source: Local Baseline Assessment Report on Marine Plastics Dipolog City, Philippines by AMH Philippines, November 2024

2. Available Facilities for Waste Management

The city government of Dipolog takes proactive measures to ensure the proper maintenance and functionality of facilities required for the effective implementation of its Solid Waste Management (SWM) framework. To support efficient waste collection, the city operates and maintains 14 collection vehicles, which service all areas, including urban and rural barangays.

Acknowledging the vital role of Materials Recovery Facilities (MRFs) in achieving environmental sustainability, the city encourages each barangay or *purok* to establish its own MRF, in line with the mandates of Republic Act 9003, also known as the Ecological Solid Waste Management Act of 2000. These community-level MRFs typically feature separate containers for biodegradable waste, non-biodegradable waste, and recyclable materials, fostering waste segregation at the source and engaging residents in sustainable practices.

At the city level, a centralized MRF is in operation to process biodegradable waste and selected recyclables into usable products. This facility is equipped with various machinery, including a plastic shredder and a plastic recycling oven, which are used to handle materials such as coconut waste, plastic bags, and Styrofoam. However, while the plastic shredder remains active, the plastic recycling oven is currently not in use, indicating an opportunity to further enhance the city's waste processing efficiency. The city sanitary landfill, located in Barangay San Jose, receives residual and mixed wastes and is projected to accommodate waste for the next five years unless diversion efforts improve.

3. Current Projects/Activities

Not many SWM activities have been recorded for the city of Dipolog but it enforces a “No Segregation, No Collection” policy under City Ordinance No. 123, requiring households and establishments to separate wastes into biodegradable, recyclable, and residual categories. While 68% of households comply with segregation at source, urban areas exhibit higher compliance rates due to better access to waste collection services. However, challenges persist, including inadequate collection equipment, limited coverage in rural areas, and insufficient recycling facilities.

All 21 barangays operate functional purok-level Materials Recovery Facilities (MRFs) that serve as segregation and recovery points for recyclables. Recyclables from these MRFs are sold to nearby junkshops or traders. The city's waste collection system covers all barangays, with varying frequencies based on accessibility and waste volume.

B. The Proposed Pilot Project

The existing waste management system in Dipolog highlights the urgent need for more active involvement from stakeholders, particularly in raising awareness about proper waste handling, processing, and the critical importance of recycling. Current practices, such as the rampant dumping of waste into creeks, pose significant environmental and social challenges that must be addressed. It is imperative to engage stakeholders at all levels, from local government units to community members, in promoting sustainable waste management practices and fostering a sense of shared responsibility.

The installation of trash traps along Miputak Creek is a critical step not only in preventing waste from reaching the ocean but also in demonstrating the tangible impacts of improper waste disposal. While the primary goal of these trash traps is to intercept ocean-bound plastics, their presence serves a dual purpose. They act as visual and functional tools to highlight the consequences of open dumping and to drive home the importance of adopting more sustainable waste management habits. This initiative aims to inspire behavior change among residents and stakeholders, emphasizing that collective action is key to preserving the environment and improving the city's waste management system.

1. Budgetary Requirement: PHP 1.3M

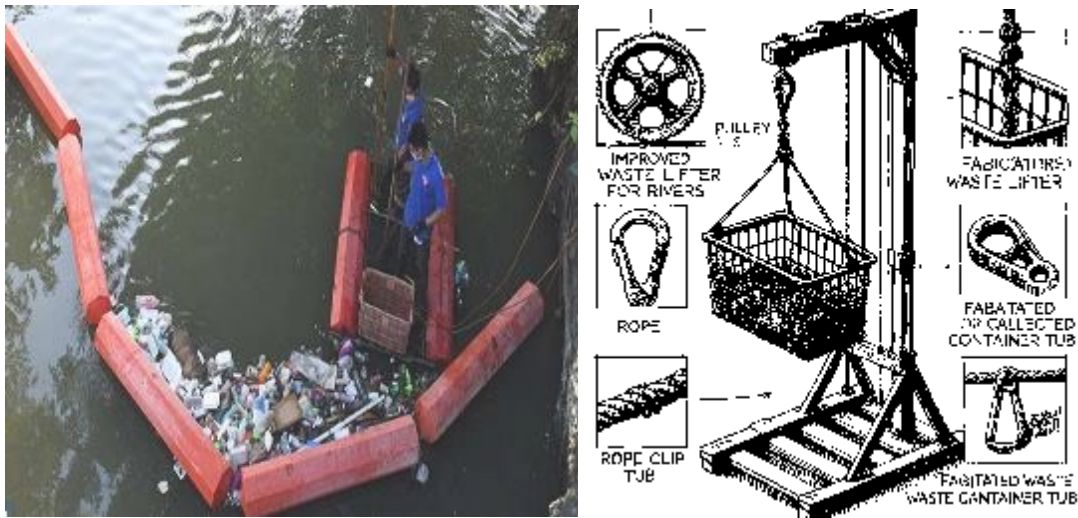
- Trash Booms: PhP1,147,000.00 (54 m @ PhP 21,240/meter)
- Boat Purchase: PhP 23,000
- Waste Lifter: PhP 45,000
- Set of Tools: PhP 51,000 (3 sets @ PhP17,000 each)
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2. Location of Target Sites for the Barriers



3. Proposed Trash Barrier and Waste Lifter

A manual waste lifter to be installed with the trash trap is a simple yet effective system designed to capture and remove floating debris. This system typically consists of a floating barrier or net structure placed across the river, which guides the waste toward a collection point where it can be manually lifted and removed by workers using simple tools like baskets or scoops.



4. Proposed Boat and Set of Tools



This design would allow for an efficient and eco-friendly cleanup process in rivers, as it's easy to maneuver and doesn't require fuel or complex machinery.

5. Proposed Tools/Materials for the Operation per Unit

- Pitchfork
- Nitrile dipped work gloves
- Boots/Safety Shoes
- Concrete Buggy
- Shovel (square point tempered steel blade)
- ReflectORIZED Vest

C. Timeline

It is estimated that full implementation of the project can take place within two years after the preparatory activities. Pre-implementation activities may include the conduct of the Feasibility Study, a canvass of materials, a survey of proposed sites, installation, and testing. The establishment of a coordinating team, who can help manage and do the monitoring responsibilities is crucial to ensure the success of the project.

The feasibility study and canvassing are expected to be completed during the first half of the year, with installation and initial operation scheduled for the latter part of the year. This timeline ensures that the entire implementation process is covered within the target period.

D. Co-Financing Arrangements

1. Co-Financing Arrangements:

The maintenance and operationalization of the trash traps shall be included in the annual fund allotted by the LGU for its SWM activities. The ENRO staff and employees shall also be mobilized for the collection and processing of waste that will be collected from the barriers.

<i>Source of Funds</i>	<i>Program/Activity</i>	<i>Amount Allotted /annum</i>
LGU	Monitoring, Collection, and processing of waste	PhP 2,346M
In-kind contribution of barangay dwellers and Other Civil Society Organizations	Regular clean-ups	-----

III. BENEFITS OF THE PROPOSED PROJECT

1. *Prevent Ocean Bound Plastics and Waste:* Trash barriers are visible structures that prevent waste from going into the lake thus preventing the accumulation of waste, particularly the plastics that destroy aquatic life.
2. *Helps prevent flood:* These barriers also prevent large floating debris (like logs and trash) from clogging the waterways.

3. *Efficient Trash Collection*: Its localized area makes the trash barriers a strategic and efficient waste collection. It is much easier to retrieve large quantities of waste from a single point rather than across large water bodies.
4. *Increase in Plastic Waste Diversion (Approximately 20 %)*: with a more efficient waste collection, the volume of plastics to be diverted shall definitely increase.
 - a. The current and estimated waste diversion of the city/municipality is shown in the table below

	Tons/day	Tons/Year
Total Mixed Waste Generation	56.98 tons/day	20,797 tons/year
Total Plastic Waste Generation	10.36 tons/day	3,782.97 tons/year
Current Amount of Plastic Waste Diverted (Through the existing facilities and other initiatives)	4.27 tons/day	1,558.55 tons/year
Target/Estimated Additional Amount of plastic waste to be diverted through the project (meaning once the project is implemented or operationalized)	2.10 ton/day	766.50 tons/year
Total Amount of plastic to be diverted once the project is implemented	6.37 tons/day	2,325.05 tons/year

- b. Therefore:
 - Current Plastic Waste Diversion = 41.20%
 - Target Plastic Waste Diversion = 20.26%
 - Total Percentage of Plastic Waste Diversion after the project implementation = 61.46%

5. *Improved Waste Flow*: Because of its localized area, segregation would be much easier thus paving the way for possible recycling and repurposing.



IV. BARRIER ANALYSIS

1. *Challenge: Site Suitability and Installation Complexity* – the chosen site may not be suitable for trash trap installation due to varying water flow rates, depths, or accessibility.

Mitigating Measure: A thorough site assessment may be necessary to identify optimal locations for trash traps, considering hydrology, water flow patterns, and accessibility.

2. *Challenge: Maintenance and Durability* - Regular maintenance is required to clear accumulated trash and ensure the traps remain effective.

Mitigating Measure: Use tested, durable, weather-resistant materials for the trash traps and a clear maintenance plan, including assigning personnel and scheduling routine inspections should be developed. It is also recommended to install bins in strategic places to lessen the illegal waste dumping.

3. *Challenge: Ongoing Operational Costs* - Expenses related to maintenance, repairs, and trash disposal can strain the LGUs allotted budgets.

Mitigation Measure: Like-minded, local stakeholders may be tapped for cost-sharing mechanisms, and other partnerships with recycling companies can be explored.

4. *Challenge: Coordination Across Agencies* - Installing and maintaining trash traps may require coordination between multiple agencies or in this case departments and offices in the LGU

Mitigation Measure: Establish a coordinating committee with clear roles and responsibilities for all members. A memorandum of understanding (MOU) may help formalize commitments from all involved parties.

5. *Challenge: Lack of Public Awareness* – Communities or the Barangay dwellers may not understand the importance of trash traps or their role in waste management.

Mitigation Measure: Continuously conduct awareness campaigns to educate the public on the benefits of trash traps and their role in preventing pollution and engage them in the project through participatory workshops or volunteer and scheduled cleanup and retrieval of waste from the traps.

Addressing these barriers requires a multi-faceted approach involving technical, financial, institutional, and community-level interventions. By proactively identifying and mitigating these challenges, the project can enhance the likelihood of successful installation and operation of these trash traps.

V. PROJECT MONITORING

Aside from the activities above, the implementation of the proposed intervention needs to be monitored including the evaluation of the intended impact, thus the need for the establishment of a localized project management team or structure. Different offices of the LGU as well as the Barangays, specifically those that are traversed by the creek should form part of the Coordinating Team.

VI. SUSTAINABILITY AND CONCLUSION

Sustainability is at the heart of this initiative, with the Local Government Unit (LGU) playing a pivotal role in ensuring the long-term success of the project. By committing to the maintenance of the trash barriers and assigning dedicated personnel for their regular collection of waste and monitoring, the LGU demonstrates its responsibility in safeguarding the city's waterways. Furthermore, engaging and educating the community, particularly the residents of barangays near Miputak Creek, fosters a sense of ownership and accountability among stakeholders. When individuals understand the purpose and benefits of the trash barriers, they become active participants in their upkeep, ensuring the system remains effective and impactful over time.

The proposed interventions are projected to bring transformative changes, improving not only the environmental conditions of the coastal areas surrounding Miputak Creek but also contributing to the overall ecological health of Dipolog City. By reducing plastic pollution and promoting waste management awareness, the project sets the stage for a cleaner, more resilient environment.

Additionally, this initiative provides a platform for fostering meaningful partnerships among stakeholders, including government agencies, non-governmental organizations, local communities, and private sector entities. These collaborations can drive future innovations in waste management and sustainability efforts, expanding the impact of the project beyond its immediate goals.