

Scaling-up Integrated and Inclusive Waste Management Models through Empowering the Informal Sector and Fostering the Circular Economy (Phase 2)

FINAL NARRATIVE REPORT



Table of Contents

LIST OF ACRONYMS.....	1
LIST OF TABLES	2
LIST OF FIGURES	2
LIST OF PHOTOS	2
1. PROJECT INFORMATION	3
2. ABOUT THE GRANT RECIPIENT	3
3. ABOUT THE PROJECT	3
3.1. Cooperating Partners	3
3.2. Grant recipients and cooperating partner's respective roles in the Project	5
4. PROJECT IMPLEMENTATION – EXPERIENCES AND RESULTS	6
4.1. Brief description of the project and main experiences from the implementation	6
4.2. Brief analysis of the project's results achievements	8
5. THE PROJECT'S PROGRESS AND RESULTS ACHIEVEMENT	30
6. THE PROJECT'S SUSTAINABILITY AND RISK FACTORS	37
6.1. The project's sustainability	37
6.2 Gender equality, environment, and climate change	40
7. FINANCIAL OVERVIEW	42
8. COLLABORATION WITH OTHER PROJECT AND WAY FOREWARD	ERROR! BOOKMARK NOT DEFINED.
ANNEX 1. CO-FINANCING TABLE PROVIDED BY BINH DINH PROVINCIAL PEOPLE'S COMMITTEE	45
ANNEX 2. FINANCIAL REPORT	45

LIST OF ACRONYMS

Acronym	Meaning
CE	Circular Economy
CSO	Civil Society Organization
DAE	Department of Agriculture and Environment
DARD	Department of Agriculture and Rural Development
DOC	Department of Construction
DONRE	Department of Natural Resources and Environment
DPI	Department of Planning and Investment
ICISE	International Centre for Interdisciplinary Science and Education
ISPONRE	Institute of Strategy and Policy on Natural Resources and Environment
IWWs	Informal Waste Workers
LEP	Law on Environmental Protection
MAE	Ministry of Agriculture and Environment
MARD	Ministry of Agriculture and Rural Development
MONRE	Ministry of Natural Resources and Environment
MRF	Material Recovery Facility
MSW	Municipal solid waste
NPAP	National Plastic Action Partnership
PPC	Provincial People's Committee
PC	People's Committee
PPE	Personal Protection Equipment
Quy Nhon PC	Quy Nhon People's Committee
UNDP	United Nations Development Program
VEA	Viet Nam Environmental Administration
VIFEP	Vietnam Institute of Fisheries, Economics, and Planning

LIST OF TABLES

TABLE 1. WASTE FLOW ESTIMATION ON QUY NHON CITY	14
TABLE 2. WASTE COMPOSITION IN LONG MY LANDFILL	15
TABLE 3 - ALL EVENTS ORGANIZED UNDER CE HUB FROM 2023 TO 2025	27
TABLE 4 - PROJECT OUTPUTS, INDICATORS AND RESULTS ACHIEVED	30
TABLE 5. SUSTAINABLE SOLUTIONS FOR THE VIET NAM CE HUB	40

LIST OF FIGURES

FIGURE 1 - LOCATION OF VISITED SITES FOR MRF IN QUY NHON CITY	17
FIGURE 2. THE 1ST COLLECTION POINT ESTABLISHED AND ITS PLASTIC COLLECTION ACTIVITIES	19
FIGURE 3 - LAYOUT DESIGN OF THE MRF'S WAREHOUSE	20
FIGURE 4 - MRF EQUIPMENT SYSTEM	21

LIST OF PHOTOS

PHOTO 1 - TRAININGS AND DELIVERY OF EQUIPMENT FOR IWWs	8
PHOTO 2 - DELIVER BICYCLES FOR IWWs IN BINH THUAN	9
PHOTO 3 - ESTABLISHMENT OF IWWs CLUB IN QUY NHON CITY	9
PHOTO 4 - LIST AND CONTACTS OF IWWs PER 10 WARDS OF QUY NHON CITY	10
PHOTO 5- SIGNING CEREMONY ON COOPERATION BETWEEN MRF AND WASTE BUYERS	10
PHOTO 6 - PLASTIC PRODUCTS USED BY FISHERMAN	11
PHOTO 7 - WAREHOUSE AT QUY NHON FISHING PORT AND EQUIPMENT PROVIDED BY THE PROJECT	12
PHOTO 8 - FISHERMAN IN QUY NHON FISHING PORT COLLECTING WASTES BACK TO THE SHORE.....	13
PHOTO 9 - MRF'S FRONT VIEW AND OPERATION.....	22
PHOTO 10 - PARTICIPANTS AT THE LAUNCHING WORKSHOP	26
PHOTO 11 - MOU SIGNING CEREMONY	26
PHOTO 12 - VIET NAM CIRCULAR ECONOMY HUB WAS OFFICIALLY LAUNCHED	26
PHOTO 13 – INNOVATION DAY'S ACTIVITIES, FEATURING THE HONOURING IWWs (LEFT) AND EDUCATIONAL EXHIBITION (RIGHT)	28

1. PROJECT INFORMATION

- **Name of the grant scheme:** Scaling-up Integrated and Inclusive Waste Management Models through Empowering the Informal Sector and Fostering the Circular Economy (Phase 2)
- **Responsible unit for the grant:** Norwegian Embassy, Viet Nam
- **Agreement title:** Scaling-up Integrated and Inclusive Waste Management Models through Empowering the Informal Sector and Fostering the Circular Economy (Phase 2)
- **Agreement number:** SRV 20/0006
- **Total grant from MFA (NOK):** NOK 10,821,120
- **Reporting Period:** June 2021 – June 2025

2. ABOUT THE GRANT RECIPIENT

- **Name and abbreviation:** United Nations Development Programme (UNDP)
- **Address:** 304 Kim Ma (Ha Noi, Viet Nam)
- **Website:** <https://www.vn.undp.org/>
- **Telephone:** +842438500266
- **Contact Person:** Mr. Vu Thai Truong – Head of Climate Change and Environment Unit - vu.thai.truong@undp.org - +84 0913082727

3. ABOUT THE PROJECT

3.1. Cooperating Partners

Binh Dinh PPC:

The province has been merged with Gia Lai to become Gia Lai province since July 01, 2025. The province is actively pursuing sustainable development through comprehensive strategies in waste management, economic growth, industrial planning, infrastructure development, and environmental conservation. Before the merger, Binh Dinh targeted a Gross Regional Domestic Product (GRDP) growth rate of 7.0–7.5% in 2021–2025, with aspirations to exceed 8.5%¹. The province aims to have industry and services constitute over 70% of its economic structure, reducing reliance on agriculture.

UNDP and Binh Dinh PPC have collaborated for many years in implementing projects in sectors of environment, climate change adaptation and mitigation, biodiversity conservation and agriculture. To strengthen the collaboration between each other, UNDP and Binh Dinh PPC signed a Memorandum of Understanding² dated June 2022 on collaboration in potential areas of Circular Economy and waste

¹ <https://thuvienphapluat.vn/van-ban/Xay-dung-Do-thi/Quy-dinh-1619-QD-TTg-2023-phe-duyet-Quy-hoach-tinh-Binh-Dinh-thoi-ky-2021-2030-591839.aspx>

² <https://www.undp.org/vietnam/press-releases/undp-implement-four-new-projects-binh-dinh-province>

management, Ocean Economy, Climate Change Adaptation and Biodiversity, Mine Actions and Sustainable Rural Development. Binh Dinh PPC approved the project document following the Decision no.2411/QD-UBND dated Aug.03, 2022 signed by the Vice Chairman of the PPC, in which the co-financing for the project is USD 636,000.

Contact point

Mr. Nguyen Tu Cong Hoang - Vice Chairman of Binh Dinh PPC

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Quy Nhon PC:

According to the Binh Dinh Provincial Master Plan, Quy Nhon City is one of the province's key economic areas, as well as its political, cultural, and scientific-technical center. The Provincial Master Plan (2021–2030, orientation to 2050)³ emphasizes green economy, circularity, resilient urban development and efficient resource use. Quy Nhon City's People's Committee showed strong political commitment and practical experience to implement projects in environment, solid-waste management (SWM) and green development. This makes ODA investments well aligned with official development objectives.

A local PMU was established by Quy Nhon PC⁴, comprises members from leader of Quy Nhon City People's Committee, as the Director of the PMU, state management agencies including the Department of Natural Resources and Environment, Department of Agriculture and Rural Development and Quy Nhon Fishing Port Management Board are members of the PMU. Units under the People's Committee of Quy Nhon City, including the Department of Natural Resources and Environment, the Economic Department, the City Public Service Management Board and the city Women's Union, assume the primary responsibility for implementing the project.

A follow-up working session was organized on December 02, 2021, between UNDP and the technical staff from the Department of Natural Resources and Environment and the City Public Service Management Board, under Quy Nhon PC, to agree on the project's activities, workplan, budget and co-financing.

Regarding co-financing, Quy Nhon City arranged the amount of USD 638,109, which is equivalent to almost a half of total project cost, including both in-cash and in-kind contributions. The table showing co-financing arrangement of Quy Nhon City is attached in Annex 1 of this Report.

Contact point

Mr. Nguyen Duc Toan - Vice Chairman of Quy Nhon PC

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Binh Dinh Department of Agriculture and Rural Development:

Binh Dinh Department of Agriculture and Rural Development (DAE Binh Dinh) is tasked with solid waste and plastic management of the province. DAE Binh Dinh was engaged during the design and implementation of

³ <https://thuvienphapluat.vn/van-ban/Xay-dung-Do-thi/Quy-dinh-1619-QD-TTg-2023-phe-duyet-Quy-hoach-tinh-Binh-Dinh-thoi-ky-2021-2030-591839.aspx>

⁴ Decision 3854/QD-UBND dated June 14, 2022, issued by Chairman of Quy Nhon City

project's activities, including development of provincial plan on solid waste management, Quy Nhon city's plan on waste sorting at source program, design and operation of the MRF (Material Recovery Facility).

DAE Binh Dinh has been involved in the Phase 1 project on IWWs support and development of social waste management models, under the sub-project "Enhancing management capacity and environmental protection awareness of local communities, and developing a community-based waste collection, classification and treatment model to minimise plastic waste in coastal wards and communes of Quy Nhon Bay, Binh Dinh Province."

Contact point

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Binh Dinh Environment JSC.:

Binh Dinh Environment JSC. is an urban environmental company collecting, transporting and handling solid waste of Quy Nhon city and some surrounding districts, with total collected volume is about 400 tons per day. The company also manages the Long My Waste Treatment Complex located in the southwest of the city. Landfilling is the dominant treatment modality, in which plastic recyclables still in the landfill site occupied 21.5%, including both high value plastics (i.e. PET and HDPE bottles) and low value plastic waste (i.e. nylon bags, single-used plastics, plastic packaging, Styrofoam box).

Before joining the Phase 2 project, the company implemented projects on composting organic waste and also involved in projects on waste sorting at source for Quy Nhon city and production of composting from domestic solid wastes.

Contact point

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3.2. Grant recipients and cooperating partner's respective roles in the Project

UNDP Viet Nam is implementing the Project under a Direct Implementation Modality (DIM). After completing all internal approval procedures UNDP established the project team, comprising of national and international experts, for the management and implementation of project activities. Besides, during the inception phase, through meetings and technical discussions, comments from experts and stakeholders were captured and reflected in the project framework to clarify the project's activities and to utilize the project's resources to support waste management tasks at local and ministerial level.

The Provincial People's Committee (PPC) of Binh Dinh is the main government counterparts for the project. They were engaged at the project's inception and are fully committed to providing their political support and co-financing to the sub-projects in their respective jurisdictions. This is ensured by the significant co-financing local governments have received for the project with a total amount of USD 638,109⁵.

⁵ Decision no.2411/QD-UBND dated Aug.03, 2022 signed by the Vice Chairman of Binh Dinh PPC

The local partner, Quy Nhon Woman Union, who are also the 'grant recipient', were selected through the UNDP's Low Value Grant modality. Quy Nhon WU implemented the updated survey of 500 IWWs, after the Covid time, in all 20 communes and wards of Quy Nhon city.

Binh Dinh DAE under the PPCs actively participated in various project activities such as assigning staff and providing technical support to the project. In return the deployment of pilot of waste management models in the provinces serve as lessons and input to support DAE in the formulation of provincial policies and regulation on solid waste management, waste sorting at sort and plastic waste management.

4. PROJECT IMPLEMENTATION – EXPERIENCES AND RESULTS

4.1. Brief description of the project and main experiences from the implementation

The Phase 2 project builds on the achievements of Phase 1, which successfully developed socialized waste management models across five cities — Quang Ninh, Da Nang, Binh Dinh, Binh Thuan, and Binh Duong. Building on this foundation, Phase 2 focuses on deepening and scaling innovative models in Quy Nhon City, with an emphasis on developing three practical and inclusive waste management models that enhance environmental outcomes while improving livelihoods and strengthening community participation. These models aim to demonstrate replicable, sustainable approaches for cities seeking to modernize their waste systems and advance Viet Nam's transition toward a circular economy.

Under the Phase 2 project, the first waste management model, the IWWs Club, already engaged 191 informal waste workers (97% female) from 10 wards and communes in Quy Nhon City. In 2024, the Club organized 25 meetings and gatherings to enhance members' occupational safety knowledge and professional skills, and connected them with local waste buyers, aggregators, and MRFs to increase their income. Additionally, 210 scrap-purchasing record books were distributed to members for record-keeping.

The second waste model, the "Fishing Boats Bringing Plastic Waste Back to the Shore" program, has engaged 200 fishing boats, 15m in length onward to collect plastic waste at the end-of-use, such as drinking bottles, food packaging, nylon bags preserving seafood, etc. Specific designed net bags were delivered to 200 fishing boats, a 218m² warehouse was built at Quy Nhon Fishing Port, and sets of equipment for waste transportation, collection and segregation, were delivered to the Port Management Board. By May 2025, the program had collected 3,100 kilograms of recyclable materials, contributing to the effort of marine plastic waste reduction. With support from the project, the Binh Dinh Provincial People's Committee issued Decision 89/QD-SNN to regulate plastic waste management for fishing boats. The program has been continued in Quy Nhon Fishing port and expanded to other ports in Binh Dinh province, Khanh Hoa, and Vung Tau.

An inclusive MRF was established to address the challenges of mixed domestic plastic waste. The MRF equipment system were successfully installed and the MRF warehouse, covering 1,000 m², was built according to the Construction Permit issued by the People's Committee of Quy Nhon City. The warehouse features branded visuals and a story about plastic waste transformation, serving as a site for learning and raising awareness about plastic waste management and the circular economy. By end of October 2025, the MRF collected 200 tons of plastic waste from domestic solid waste, then sold to Duy Tan Recycling and recyclers to create new loops for such recyclable materials, while significantly contributing to reduce the landfilling volume of the city.

The project also supported the Quy Nhon City People's Committee in developing an at-source waste sorting pilot program for two wards, Nguyen Van Cu and Ngo May, covering 10,700 households and waste generators like hotels, restaurants, and schools. Waste is separated into three categories: hazardous waste, recyclable waste, and residual waste. To facilitate community adoption, 144 training sessions were organized for residents. After 6 months of sorting pilot, volume of solid waste of the city was reduced by 2%.

Furthermore, the project supported two provincial decisions (waste management and procedure to collect plastic wastes from fishing boats) and contributed to the Circular Economy National Action Plan (CE NAP) by MONRE. Support was also provided to MOIT to develop a study and policy brief on eco-design, with recommendations for implementation in Viet Nam. To further promote community engagement, the project organized an Innovation Day to showcase the MRF, raise awareness about single-use plastics, and encourage recycling.

Main Experiences from the Implementation of the Phase 2 Project

(i) Strengthened consultations with local authorities and stakeholders are critical for effective project design.

A key lesson from Phase 2 is the importance of early, continuous, and inclusive consultations with city authorities, provincial departments, ward-level officials, waste management companies, fishing port authorities, and community representatives. These consultations ensured that project activities were aligned with local priorities, regulatory directions, and practical needs. As a result, the waste management models were designed in a way that reflected real operational challenges and opportunities, enabling stronger ownership and smoother implementation. Furthermore, the project's support also had resulted in issuance of waste/plastic management plan or regulation at city or provincial level⁶, which contributed to ensure sustainability of the project.

(ii) Sustainability requires integrating project models into city plans, regulations, and institutional frameworks.

For waste management models to be sustained beyond the project duration, they must be formally embedded in city-level strategies and regulatory systems. Phase 2 demonstrated that linking project outputs with Quy Nhon City's policies — such as the city plan on waste sorting at source, and the provincial regulation on fishing boats bringing plastic waste back to shore — creates a strong enabling environment for long-term continuity. This integration provides clear mandates, dedicated resources, and institutional responsibilities, thereby increasing the likelihood that these models will be maintained and replicated across the city.

(iii) Public-private partnerships play a vital role in building value chains and creating added value for recycled materials.

A significant experience from the project was the promotion of PPPs to strengthen downstream value chains for plastics recovered from municipal solid waste. Facilitating partnerships — such as the agreement between Duy Tan Recycling and the MRF operator — helped ensure that sorted materials, particularly PET, have stable markets and commercial value. These partnerships not only support the economic viability of the waste management models but also incentivize local actors to improve sorting, collection, and processing practices, thereby contributing to a more circular and resource-efficient economy.

⁶ Decision 76/2023/QĐ-UBND dated December 04, 2023 of Binh Dinh PPC on regulation on solid waste management;
Decision 200/KH-UBND dated December 04, 2023 of Binh Dinh PPC on waste segregation at source plan
Decision 89/QĐ-SNN to regulate plastic waste management for fishing boats

4.2. Brief analysis of the project's results achievements

OUTCOME 1: SUSTAINABLE PILOT MODELS OF WASTE MANAGEMENT THAT IMPROVE LIVELIHOODS OF WASTE WORKERS (WITH A FOCUS ON WOMEN INFORMAL WORKERS), IMPLEMENTED

Output 1.1 Series of Interventions to empower IWWs, and strengthen their resilience to withstand shocks, including the impacts of COVID-19, implemented

A Low Value Grant was designed to enable the Women's Union of Quy Nhon city, Binh Dinh province to quickly empower IWWs, and strengthen their resilience to withstand shocks. Specifically, the Women's Union of Quy Nhon city implemented the following activities from July to October 2022:

- Conducted a quick assessment across 21 communes in Quy Nhon City and produced a list of 500 IWWs. The list of IWWs is presented in this [link](#). Experts from Quy Nhon University and ICISE conducted a complementary study on the flow of recyclable materials collected and recycled by IWWs in the city.
- Procured and delivered 200 sets of Personal Protective Equipment (PPE) - including soap, masks, hand sanitizers, hats, glasses, gloves, eyedrops, boots - and essential collection gear – including scales, packaging materials, and reflective clothing for night-time collection - to IWWs.
- Organized 02 training on occupational health and safety for 200 IWWs, which coincided with the PPE distribution.



Photo 1 - Trainings and delivery of equipment for IWWs

In Binh Thuan, 32 bicycles were delivered to 32 woman IWWs from 3 districts: Tuy Phong, Phu Quy and Ham Tan. Binh Thuan Woman Union mentioned that these bicycles contribute to create favorable conditions for female workers who belong to vulnerable group to have stable jobs, improve family livelihoods and thereby reduce ocean plastic waste in localities in the region, and improve the livelihoods of the community. They expressed to receive further supports from the project and UNDP to the vulnerable group, especially the woman IWWs who are working in waste sector.



Photo 2 - Deliver bicycles for IWWs in Binh Thuan

UNDP collaborated with the International Centre for Interdisciplinary Science and Education (ICISE) and the Women's Union of Quy Nhon City to consolidate the list of informal waste workers and invite 191 workers (97% female) across 10 wards and communes in Quy Nhon City to join the [IWWs Club](#). In 2024, the Club organized 25 meetings and gatherings where members discussed ways to increase efficiency in their waste collection activities and were trained in occupational safety knowledge and professional skills.



Photo 3 - Establishment of IWWs Club in Quy Nhon City

The IWWs Club also distributed 210 scrap purchasing record books to its members, and 34% have actively used them to track their collection data. This practice helps informal waste workers understand market fluctuations, track their purchasing activities and income, paving way for a practice to make more informed decisions based on this data.

The IWWs Club has been connected with local waste management programs and has collected over 737 kg of various waste materials, including plastic, paper, and aluminium cans. The Club has also been connected with the community through a Facebook page that shares information about waste collection by its members, and through collaboration with the Material Recovery Facility (MRF).

DANH SÁCH TỔ THU MUA PHẾ LIỆU Phường Nguyễn Văn Cừ		
STT	HỌ VÀ TÊN	SỐ ĐIỆN THOẠI
1	Phan Thị Thu	0389368384
2	Trần Thị Chút	0935312253
3	Nguyễn Thị Bích Hiền	0785600750
4	Nguyễn Thị Trúc	0365264454
5	Nguyễn Thị Ánh Tuyết	0358495660
6	Lê Thị Tươi	0935322404
7	Tô Thị Thanh Thủy	0978690478
8	Bùi Thị Hoa	0342814065
9	Lê Thị Bón	0918395524
10	Nguyễn Thị Mỹ Trang	0387874511

DANH SÁCH TỔ THU MUA PHẾ LIỆU Phường Đồng Đa		
STT	HỌ VÀ TÊN	SỐ ĐIỆN THOẠI
1	Trần Thị Mẫn	0383254385
2	Trần Thị Trúc Oanh	0989269405
3	Phạm Thị Bích Huệ	0365774001
4	Đặng Thị Mỹ Loan	0978257477
5	Thân Thị Lan	0376351579
6	Nguyễn Thị Ngọc	0345705045
7	Ngô Thị Hồng	0335103430
8	Nguyễn Thị Thanh Vân	0335103430
9	Nguyễn Thị Chi	0769473762
10	Nguyễn Thị Thương	0395907481
11	Phan Thị Nhân	0392973589
12	Nguyễn Thị Kim Hương	0358787090
13	Sư Thị Thành	0947980083

DANH SÁCH TỔ THU MUA PHẾ LIỆU Phường Trần Hưng Đạo		
STT	HỌ VÀ TÊN	SỐ ĐIỆN THOẠI
1	Lê Thị Mỹ Hạnh	0935903020
2	Lê Thị Thu Thủy	0984466730
3	Nguyễn Thị Bảy	0377846123
4	Nguyễn Thị Đông	0354710252
5	Trần Thị Nga	0395138531
6	Đào Văn Thành	0375550637
7	Phan Thị Bảy	0373739055
8	Trần Thị Được	0356636871
9	Trần Thị Tuyết Nhung	0385887185
10	Nguyễn Thị Thu Hà	0369041144
11	Nguyễn Thị Mai	0344796695

Photo 4 - List and contacts of IWWs per 10 wards of Quy Nhon City

In November 2023, [a workshop on MRF Introduction and IWWs engagement](#) was organized in Quy Nhon city with nearly 70 participants, mainly from informal sector. At the workshop, the MRF model and IWWs club were introduced to encourage more participants from informal sector. The workshop also highlighted the Signing ceremony on MRF cooperation between Binh Dinh Environment JSCs with 03 waste buyers to purchase plastic wastes. As of June 2025, 91,7 tons was collected by IWWs and transferred to the MRF.



Photo 5- Signing ceremony on cooperation between MRF and waste buyers

Output 1.2 Integrated waste management model in the Fishery sector established

Initial assessment on plastic waste generation at Quy Nhon Fishing Port

An assessment at Quy Nhon Fishing Port surveyed 100 fishing boats to collect data on plastic product consumption and estimate the volume of waste generated and discharged daily and monthly by the fleet. The survey confirmed that fishing boats utilize the following plastic-related products during their trips:

- Drinking water, contained in plastic bottles
- Beverage, contained in plastic and aluminum containers
- Food packaging
- Seafood and ice packaging (for preservation of seafood during the trip)



Photo 6 - Plastic products used by fisherman

Plastic waste generated within the fishery sector falls into three main categories: exploitation activity, fishery services rendered at the port, and seafood processing. Estimated results of plastic waste generated in Quy Nhon city are presented below.

- 1. Exploitation activity:** Based on a total of 3,630 fishing boats entering the port in 2021, and extrapolating data from the 100 surveyed vessels, the results showed that 300 fishing boats entering the port per month on average and **on-board crew members discharged a total of 4.16 tons of plastic/month and nearly 71 tons of plastic/year**. They used total of 26,249 plastic bottles (1.5 liters/bottle, the average of each 1.5l plastic bottle is 0.039kg), 13,794 beverages plastic bottles (the average of each beverages plastic bottles is 0.02kg). 1.75 tons of plastic bags and packages used for containing and/or preserving ocean catches or harvests per month.
- 2. Fishery services rendered at the port:** These services generate between 15 kg and 20 kg plastic waste daily. This waste originates from diverse sources: plastic bags and packages containing fishery products from docking vessels; plastic bags and bottles as domestic (on-board) waste from vessels mooring at the wharf; plastic packages and styrofoam boxes/coolers from vehicles transporting fishery products from elsewhere to the fish market of the port; plastic packages lining or covering ice from vans to supply ice to fishing vessels; solid waste from households living adjacent to the fishing port, and also from rivers, lagoon and lakes flowing out into the sea. This volume of plastic waste is collected and sold to external buyers by the port's sanitary workers and local informal waste workers.
- 3. Seafood processing:** The three main seafood processing businesses in Quy Nhon City (Xi nghiep Dong lanh Cong ty CPTS Hoai Nhon; Cong ty CP Thuy san Binh Dinh; Cong ty Lam Son) generate approximately 5 kg of plastic packages per day, which is also collected and sold to waste buyers.

The program "Fishing Boats Bringing Plastic Waste Back to the Shore"

The project has collaborated closely with Quy Nhon People Committee, Binh Dinh Department of Agriculture and Rural Development to launch the model of "Bringing plastic waste back to the shore", which attracted the participation of 200 fishing vessels and about 1,200 fishermen.

Specifically, the project provided support in physical infrastructure, operational mechanism establishment and capacity building for both fishermen and local stakeholders:

1. **Constructed a 100m² Warehouse:** This facility supports the collection, segregation, and storage of plastic waste from fishing boats. The construction included a main warehouse area (96m²), a new changing room for staff (4.84m²), and a concrete staging yard (117m²). While costs for construction and equipment were provided by the project, land area as co-financing resource was provided by Binh Dinh Department of Natural Resource and Environment, through Quy Nhon Fishing Port.
2. **Delivered A Set of New Equipment:** A set of new equipment was provided to the port to facilitate waste collection and transfer to the warehouse: one 10-ton garbage compactor; two 660-liter garbage trolleys; six 660-liter waste bins and twelve 240-liter waste bins; ten trash baskets made of bamboo.
3. **Established Waste Collection Team:** The Management Board of Quy Nhon Fishing Port formally established a five-member “Waste Collection Team” (Decision 200/QĐ-CCBD, November 21, 2023), comprised of 05 Informal Waste Workers. The team collects and transports plastic waste from fishing boats to the warehouse. These team members benefit from selling segregated plastics and other recyclables (like aluminum cans) to the Materials Recovery Facility (MRF) and other recyclers. The project also delivered 10 sets of protective workwear to the team, including shirts, pants, safety shoes, and helmets.
4. **Launched the model of “Bringing plastic waste back to the shore”:** 200 fishing boats from Quy Nhon Fishing Port selected to join the model “Bringing plastic waste back to the shore”. Fishing boats received **200 designed net bags** to collect plastic waste. The net bags were designed to be suitable for hanging on the ship's wall, saving space, tidy folding when not in use, capacity 100kg, volume 0.4 m³. A Zalo group “Rac thai nhua tau ca Binh Dinh” was established to guide, support and connect fishing boats with local authority during the pilot implementation.
5. **Organized workshops and trainings:** A Consultation workshop for the pilot program “Fishing boats bring plastic waste back to shore” on September 26, total 50 participants; A Training for fisherman to implement the program “Fishing boats bring plastic waste back to shore” on October 29, total 200 participants; A Launching Workshop for the Pilot program on collecting plastic wastes from fishing boats back to shore and Inauguration of the Warehouse at the Quy Nhon Fishing Port, on November 27, total 125 participants.



Photo 7 - Warehouse at Quy Nhon Fishing Port and equipment provided by the project

As of May 2025, a total of **3,100 kilograms** of recyclable materials, comprising of plastic and aluminium, had been collected from participating fishing vessels, thereby preventing its leakage into the ocean. At Tam Quan Fishing Port and fishing ports in Khanh Hoa and Vung Tau provinces, the collected volume was 700 kg (580 kg of plastic and 120 kg of aluminium cans).

With supports from the project, Binh Dinh Provincial People's Committee issued Decision 89/QD-SNN to regulate plastic waste management for fishing boats. Under this regulation, fishing vessels longer than 15 meters are required to bring their waste back to shore instead of discharging it into the sea. The regulation also sets a roadmap mandating smaller fishing boats to comply by 2030.

To sustain this program and raise awareness among fishing vessels at the Quy Nhon Fishing Port, the Quy Nhon Fishing Port Management Board and the Fisheries Sub-Department of Binh Dinh Province have collaborated to implement awareness-raising activities and establish incentive mechanisms, such as installing signage with instructions on plastic waste collection procedures for fishing vessels and requiring vessels to declare the amount of packaging and waste used on each sea voyage, Broadcasting awareness campaigns through announcements at the fishing port. Partnering with businesses to create incentive mechanisms, such as exchanging plastic waste for gifts.

During discussions, fishermen participating in the program shared that [they are gradually developing the habit of bringing waste back to shore after each trip](#), even when not docking at Quy Nhon Fishing Port. Some fishing vessels reported achieving up to 80% waste collection rates.



Photo 8 - Fisherman in Quy Nhon Fishing Port collecting wastes back to the shore

The "Fishing Boats Bringing Plastic Waste Back to the Shore" program has achieved initial successes and [gained attention from the Ministry of Agriculture and Rural Development, as well as Department of Agriculture and Rural Development in other provinces](#). The program was recognized as the Zero-Plastic Hero Award winner under the Innovators Tackling Plastic Pollution Initiative, organized by the UNDP Regional Hub.

Output 1.3 An inclusive Material Recovery Facility (MRF) for Improved Local Material Value Chain, piloted and established

Study tour in India to learn about MRF development

In September 2022, Vietnamese delegates undertook a productive field trip to India to learn about MRF design, operation, and essential stakeholder engagement. Attendees from the Binh Dinh People's Committee, the

Ministry of Environment and Natural Resources (MONRE), and Binh Dinh Environment JSC. met with UNDP India and Indian authorities from Ministry of Housing and Urban Affairs (MOHUA) and the Ministry of Environment, Forest and Climate Change (MOEFCC). Discussions covered key topics, such as solid waste management policies and regulations, private sector entry points and trigger actions for establishing MRFs in India, EPR regulation and IWWs model.

The delegation visited a MRF model at Dwarka District, which processes 5–10 tons of plastic waste daily and employs 20–30 workers. The team also met with Utthaan, an association supporting the informal sector. Utthaan focuses on providing social protection to vulnerable informal waste workers through programs like financial inclusion, health insurance, and education.

Study on waste stream in Quy Nhon City to assess waste flow and develop MRF concept

The study began in Dec. 2021 with two primary objectives: (i) To assess the entire domestic waste value chain, including sources; composition (plastic, paper, metal, organic waste, etc.); segregation practices, and current formal and informal recycling efforts.; and (ii) To conduct a feasibility study for establishing one or more Material Recovery Facilities (MRFs) to improve the local material value chain based on actual waste generation and recycling patterns.

Initial surveys found that Quy Nhon city generated about 291 tons of solid waste daily. Therein, 74.1% was landfilled, 16.3% collected by informal sector, 7.3% uncollected, and 2.3% collected for composting program. Regarding composition, the generated waste is composed of 53.2% organic matter, 20.3% plastic, 7% metal, 5.1% paper and 14.4% others. The flow estimation highlighted a significant difference in recycling efficiency by material type. While the informal sector successfully recycles 85.7% of paper and 88.3% of metals, the **plastic recycling rate stands at only 20.6%**. Consequently, nearly 80% of plastic waste is not recycled. This loss translates daily into **49 t/d landfill, and 9 t/d leaked into the environment**. Results of waste composition in Quy Nhon City is presented in Table 1 below.

Table 1. Waste flow estimation on Quy Nhon City

Types	Generation (t/y)	Collection (t/y)	Uncollected (t/y)	Collected by IWWs (t/y)	Collected for compost (t/y)	Recycled (t/y)	Residual (t/y)	Landfilled (t/y)	Mis-managed waste (t/y)
Food	69,926	60,915	6,031	0	2,980	2,980	596	60,915	6031
Paper	6709	292	29	6,388	0	5,749	639	292	668
Plastic	26,676	18,031	1,785	6,860	0	5,488	1,372	18,031	3,157
Metals	9,183	975	96	8,112	0	8,112	0	975	96
Others	18,959	17,251	1,708	0	0	0	0	17,251	1,708
Total	131,453	97,464	9,649	21,360	2,980	22,330	2,607	97,464	11,660

MRFs can be a solution for increasing the proportion of plastic waste recycling in Quy Nhon city. However, MRFs require a sufficient and stable amount of input plastic waste for sustainable operation, and this will thus require that the waste management system be improved.

An inventory of waste composition in Long My landfill was implemented to assess the potential volume of plastic waste which can be recovered. Samples were collected over 03 days, following “Corning and quartering” method, to exam their composition per 8 types as mentioned in the table below.

Table 2. Waste composition in Long My Landfill

No.	Waste Component	Percentage %	Volume by Component (tons/day)
1	High-value plastic	2,1	8,82
1.1	PET	0,6	2,52
1.2	HDPE	0,4	1,68
1.3	PVC	0,3	1,26
1.4	LDPE	0,1	0,42
1.5	PP	0,6	2,52
1.6	PS	0,1	0,42
2	Low-value plastic	20,4	0,00
2.1	Single-use plastic bags	10,2	85,68
2.2	Single-use cups/spoons	1,5	42,84
2.3	Fruit foam wrap	0,6	6,30
2.4	Candy/noodle wrappers	4,3	2,52
2.5	Single-use foam boxes	1,2	18,06
2.6	Other low-value plastic	2,6	5,04
3	Paper	4,9	10,92
4	Kitchen/garden waste	60,6	20,58
5	Rubber/leather/fabric	2,5	254,52
6	Metal	0,5	10,50
7	Glass/ceramics	2,1	2,10
8	Others	6,9	8,82
Total Volume		100	420

The volume of waste currently collected and transported to the Long My Solid Waste Treatment Facility for treatment is approximately **420 tons per day**. This volume increases during the summer months due to higher numbers of tourists visiting Quy Nhon City (about 5% higher than in normal months). During holidays and festivals, waste generation also increases (by around 5–20%), and particularly in the period leading up to the Lunar New Year (Tet), waste volumes may increase by 10–20%. As total waste volumes increase, the amount of plastic waste increases correspondingly.

Of the **8.82 tons per day of high-value plastics** currently present at the Long My Solid Waste Treatment Facility, a portion is recovered by informal workers (waste pickers) on site. According to surveys, the amount currently collected is about 1.24 tons per day, leaving approximately **7.58 tons** mixed with residual waste and disposed of in landfill cells, without being recovered for recycling.

For the **85.68 tons per day of low-value plastics**, including 10.2 tons per day of plastic bags, most waste pickers at the Long My Solid Waste Treatment Facility do not collect these materials because they have little or no economic value and there are no buyers. As a result, the majority of this low-value plastic waste is currently landfilled and not recovered for recycling.

Site visits, criteria for selection of MRF site

The first site visit, held on November 25, 2021, mapped the local waste and recyclable material flows, focusing on existing infrastructure and recycling activities. The assessment identified approximately 48 waste buyers in Quy Nhon City, whose main activity is classification (segregation). Only four large facilities performed additional steps like washing and shredding, but none carried out the final step of granulating plastic into pellets. Key site observations included:

- Nhon Ly Waste Collection Station: This site piloted the domestic waste segregation for 215 households, integrated with the New Countryside Program (Nông thôn mới). Households paid 30,000 VND/month. This activity (waste segregation) is implemented with integration with the New Countryside Program. Wastes are separated into organic (green bins), recyclable (yellow bins), and hazardous (orange bins). Recyclables are sold to buyers, while residual waste goes to the Long My landfill. Six workers operate the station with a monthly salary of 7 million VND/person.
- Quy Nhon Waste treatment Complex: A private sector project to segregate and compost organic waste was under construction. Its design capacity is 400 tons per day (tpd) in the first phase, increasing to 700 tpd later, with a commitment to a low residual waste rate (around 10%).
- Quy Nhon Fishing Port: Observers noted very low environmental awareness among fishermen, who often discharge plastic bottles directly into the sea. Illegal, unreported and unregulated fishing (IUU) team will monitor 100% 24m in length fishing boats and 20% 15m in length fishing boats. It was strongly suggested that regulations requiring vessels to bring plastic/waste back to the Port should be integrated with the fishing registry regulations issued by the Department of Agriculture and Rural Development (DARD). The DARD's Binh Dinh Fishery Department reported 723 solidarity groups of 10-20 fishing boats across three districts and Quy Nhon City. The project identified these groups as critical entry points for implementing pilot waste segregation activities.

In May 2022, a field visit was conducted by 14 participants from Quy Nhon PC (Offices of Natural Resources and Environment, Urban Management, Economic, Public Service Management Board), local DONRE, Binh Dinh Environment JSC, and experts from Quy Nhon University, ICISE. The potential sites for field visit include:

- Composting workshop in [Nhơn Phú 1](#): not under operation, workshop is available, managed by Binh Dinh Environment JSC, the waste collection team no.4 which is in charge of 4 surrounding districts: Nhon Phu, Nhon Binh, Tran Quang Dieu and Bui Thi Xuan; around 10km from the city center.
- [Long Mỹ](#) waste treatment complex: workshop is available but quite limited by the current composting system, managed by Binh Dinh Environment JSC; around 20km from the city center
- [Bùi Thị Xuân](#) industrial cluster: workshop is not available, around 20km from the city center
- Some other sites as recommended by experts and scrap dealers: PE Plastic recycling household of Hoang Phu Co., Ltd (Mr. Nguyen Van Tram), final product: PE pellet, located near Bui Thi Xuan industrial cluster, area of 4000m², capacity around 1 tpd.

- Public sanitary infrastructures which located along Quy Nhon seashore, for scrap collecting center: 2 sites were identified, located in Nguyen Tat Thanh street and An Duong Vương Street, basements are available, both are managed by “Công Ty Cổ Phần Công Viên Cây Xanh Và Chiếu Sáng Đô Thị Quy Nhơn”

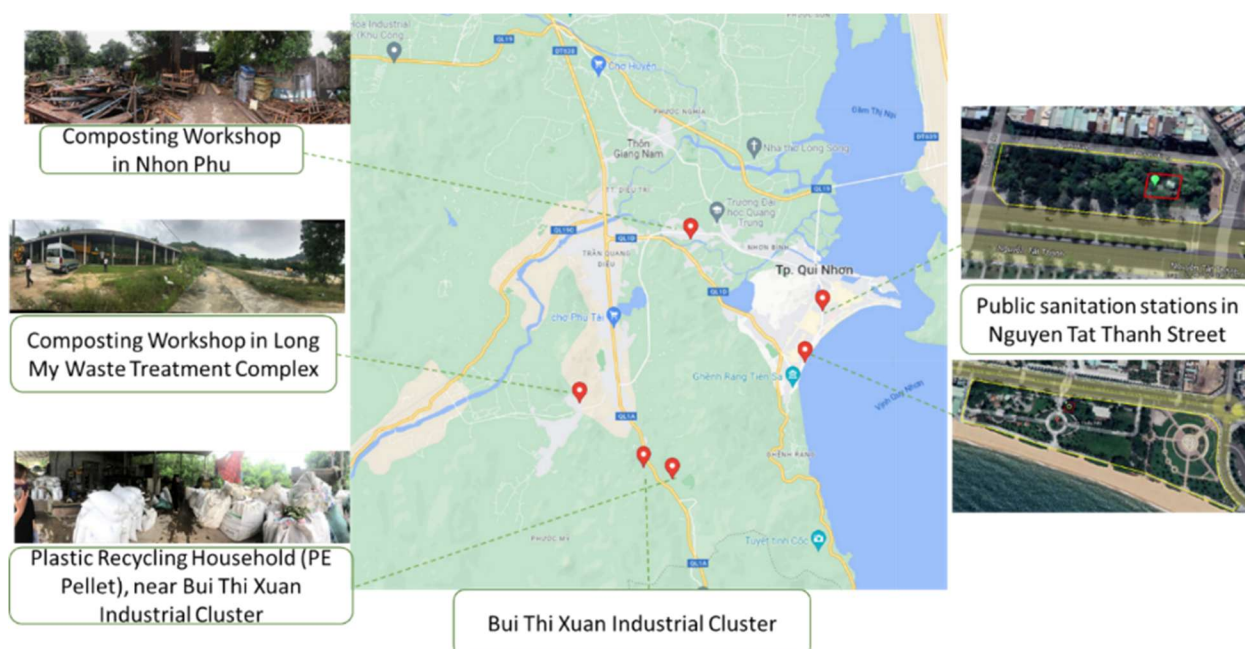


Figure 1 - Location of visited sites for MRF in Quy Nhon City

It was noted that the Long Mỹ Treatment Complex area includes a separate, proposed domestic solid waste treatment project by Nam Thanh Xuân Hiếu Investment JSC. This project has a capacity of 400 tpd and is intended to handle all solid waste from Quy Nhon City and surrounding districts. Crucially, it includes a plastic recycling line with an expected collection capacity of 12–14 tons of plastic per day.

Through detailed assessments and consultation meeting with local stakeholders in August 2022, the composting workshop located on Long My waste treatment complex (managed by Binh Dinh Environment JSC.) was officially selected for MRF formulation.

Legal procedure to approve the development of MRF

The approval and development of the Material Recovery Facility (MRF) in Binh Dinh province followed a stepwise legal and administrative process involving coordination between UNDP, provincial and city authorities, and the implementing enterprise, as outlined below. This sequential process ensured legal compliance, alignment with provincial planning, secured counterpart financing, and fulfilled all technical and construction approval requirements for the establishment of the MRF in Binh Dinh province.

- Initial Agreement and Site Identification (August 2022): The process commenced with a meeting on 30 August 2022 between UNDP and the People’s Committee of Quy Nhon City on the implementation of the project. The meeting minutes confirmed the proposed location of the MRF within the Long My Municipal Solid Waste Treatment Complex.

- Provincial Approval of Location and Counterpart Funding (December 2022): Official Letter No. 7484/UBND-KT dated 9 December 2022, issued by the Binh Dinh Provincial People's Committee, formally approved the site for the construction, installation, and operation of the MRF at Long My.
- Official Letter No. 7655/UBND-TH dated 15 December 2022 approved the policy allowing the use of business capital from Binh Dinh Environment Joint Stock Company as counterpart funding to support the construction and operation of the MRF.
- Adjustment of Detailed Construction Planning (September 2023): To ensure legal conformity of land use and construction, the Provincial People's Committee issued Decision No. 3534/QĐ-UBND dated 25 September 2023, approving the adjustment of the 1/500 detailed construction master plan of the Long My Solid Waste Treatment Complex in Phuoc My Commune, Quy Nhon City, to incorporate the MRF facility.
- Stakeholder Consultation (September 2023): A consultation workshop on the establishment of the MRF project was organized on 27 September 2023 at the Quy Nhon City People's Committee, providing a platform for technical, environmental, and institutional inputs from relevant stakeholders.
- Preparation and Approval of the Technical–Economic Report (May 2024): A technical–economic report was developed, detailing the MRF's technology components, construction scale, implementation approach, environmental impact mitigation measures, total investment cost, and construction schedule. This report, together with the contractor selection plan, was formally approved under Decision No. 78/QĐ-CTMT dated 2 May 2024 by Binh Dinh Environment Joint Stock Company.
- Issuance of Construction Permit (May 2024): The final legal step was the issuance of the Construction Permit by the Quy Nhon City People's Committee on 30 May 2024, authorizing the construction of the MRF workshop.

MRF Fund Establishment and Operation

The project provided support to Binh Dinh Environmental JSC to set up a MRF fund and kick off the use of fund for the collection of plastic wastes from potential sources in Quy Nhon City as the MRF's inputs, aiming to collect at least 2 tons per day. The MRF Fund also aims to establish network of informal workers to collect and transport plastic wastes to the MRF and develop readiness plan to maintain and to expand this network for the MRF's operation. There are 02 centers located inside the city were set up, for collection of plastic waste/recycle material and communication on waste sorting at source and collection of plastic wastes.



Figure 2. The 1st Collection point established and its plastic collection activities

As resulted, potential sources of plastic scrap within the city have been identified for collection and further processing for recycling, including:

- Quy Nhon Fishing Port: about 10 fishing boats arrive at the Port each day
- 09 manufacturing facilities generating plastic scrap
- 2 communes implementing the New rural development program
- 44 units including supermarkets, restaurants, and schools in Quy Nhon City
- 306 waste collection workers from 4 environmental teams of Binh Dinh Environment Joint Stock Company
- Informal waste pickers at the Long My Solid Waste Treatment Complex, including 17 regular pickers and 24 occasional pickers
- 18 scrap dealers within Quy Nhon City.

After one month of pilot plastic scrap procurement, from 28 July 2023 to 28 August 2023, the total quantity of plastic waste collected from the assessed sources was 67,502.5 kg. Accordingly, the average amount collected per day was 2,175 kg.

MRF's Design and Equipment Installation

The MRF system was specifically designed to handle the characteristics of plastic waste found in Quy Nhon City's domestic solid waste streams (households participating in the pilot Waste sorting at source program, hotels, restaurants, supermarkets, fishing ports, and centralized collection points in Quy Nhon City), which typically exhibit low uniformity. The system has a design processing capacity of 500 kg per hour, translating to a potential total daily capacity of 8 tonnes operating over two 8-hour shifts. The MRF warehouse area was designed with a total area of 1,000 m², as approved in [the planning decision by the People's Committee of Binh Dinh Province](#). The facility includes a 400 m² workshop; a 100 m² wastewater treatment area, a 60 m² underground water tank for firefighting and a pump house, and a 437 m² concrete yard for raw material and finished product storage.

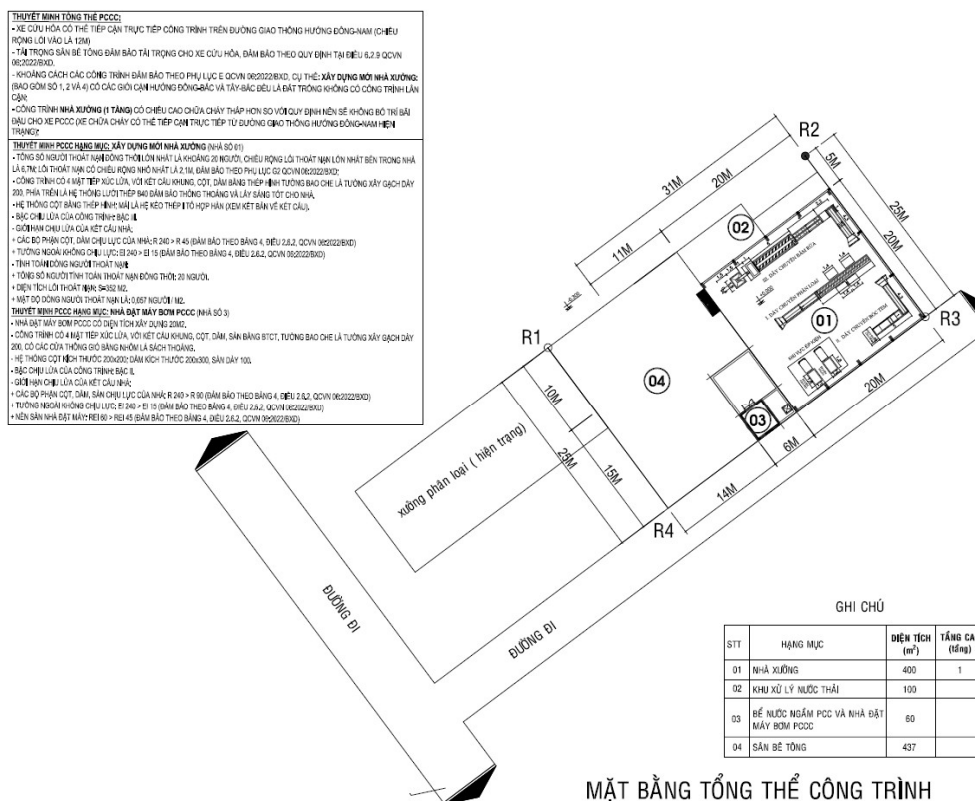


Figure 3 - Layout design of the MRF's warehouse

The MRF equipment system was successfully transported and installed at the designated site within the Long My Waste Treatment Complex (Thanh Long Ward, Phuoc My Commune, Quy Nhon City) in early September 2024. The facility comprises three main processing lines: conveyor system, label remover system, baling system. Supporting equipment includes a forklift, electronic weighing scale, and consumables/spare parts sufficient for 24 months of operation. Following installation, intensive operational and plastic waste sorting training sessions were conducted for MRF workers, adhering to the O&M technical guidance and established plastic waste sorting standards. See this [link](#) for the Layout of the MRF Equipment System.

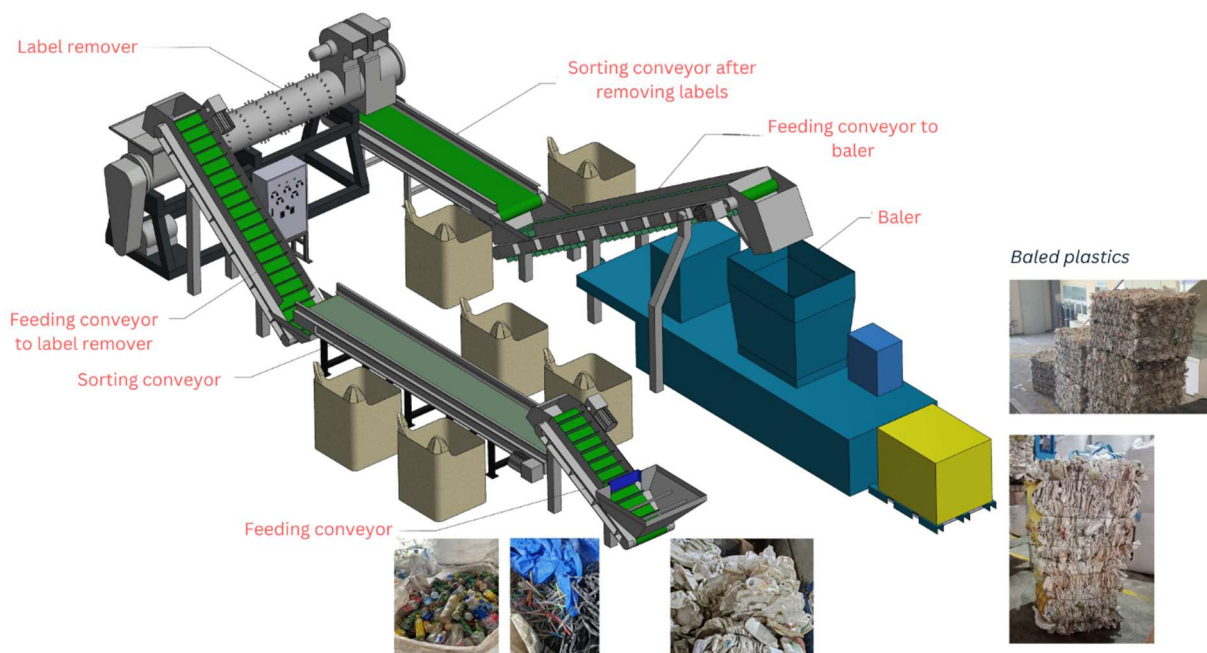


Figure 4 - MRF equipment system

The technical-economic report for the MRF, detailing technology components, construction scale, implementation methods, environmental impact mitigation measures, project costs, and construction timeline, etc., [was approved by Binh Dinh Environment Joint Stock Company, with a total investment of nearly 2.8 billion Viet Nam Dong](#). Quy Nhon City People's Committee issued [Construction Permit No. 874/GPXD](#) for the project on May 30, 2024.

To ensure efficient management and operation as a business model, the Binh Dinh Environment Joint Stock Company established the MRF personnel structure via Decision No. 265/QĐ-CTMT (September 12, 2024), comprising 11 staff:

- Production Manager: Oversees all production unit operations.
- Environmental Engineer: Implements technical solutions for plastic waste recovery and recycling.
- Electromechanical Engineer: Manages inspection, operation, maintenance, and servicing of the production line and equipment.
- Workers (8 total):
 - 2 Workers: Input feeding and addressing production contingencies.
 - 4 Workers: Sorting conveyor line.
 - 1 Worker: Post-label removal sorting conveyor.
 - 1 Worker: Baling machine operation.

Following installation, training, and trial runs, the MRF production line went into operation. It currently receives plastic waste collected from informal waste pickers at the Long My landfill, centralized municipal collection points, fishing ports, and various scrap depots. Since commencing operations in October 2024, the MRF has collected and processed 60,438 kg of plastic waste.



Photo 9 - MRF's front view and operation

[Binh Dinh Environment JSC. has signed a formal agreement with Duy Tan Plastic Recycling Company](#) to purchase MRF's products. DTR is a leading plastic recycling company with the first "Bottle-to-Bottle" recycling technology model in Viet Nam. This contract guarantees the purchase of PET and HDPE plastic products from the MRF, creating a new loop for plastic wastes in Quy Nhon to be input materials for plastic industry. By end of October 2025, there are nearly 200,000 kg of plastic waste sorted from and sold to DTR following agreed standards.

MRF's other activities

The [inauguration of the MRF](#) was held in conjunction with the launch of the Waste Sorting At Source Program in September 2024, attracting participation of 66 representatives from local government agencies, development organizations, businesses and other stakeholders (academia and journalists). The inauguration of the MRF marks the first circular business model in Viet Nam to directly receive recyclables collected from households participating in the Waste Sorting at Source Program.

A MRF Fund has been established to pilot collecting plastic waste from domestic sources, as resulted, 67 tons of plastic waste were collected from the Quy Nhon city landfill site. A list of "potential providers" of plastic wastes in Quy Nhon City was developed. 02 collection centers established inside Quy Nhon city, as connecting points for waste workers, informal waste workers, households and community to sell/exchange their plastic wastes. Since the launch, the collection centers have collected 2.44 tons of plastic waste from households and IWWs.

In addition, 02 communication centers have been established at strategic locations: 40 Phan Boi Chau, Le Loi Ward, and 75 Nguyen Dieu, Nhon Phu Ward, both situated in Quy Nhon City. These centers serve as hubs collecting plastic waste materials from the local community. In a bid to incentivize collection, initiatives such as waste-to-gift redemption programs have been implemented, including events held on World Environment Day (June 5) and workshops introducing the MRF and the informal labor sector. As of December 2023, a noteworthy total of 800kg of plastic scrap has been successfully collected for the MRF.

OUTCOME 2: SCALING AND TAKE-UP OF SUSTAINABLE AND INCLUSIVE WASTE MANAGEMENT MODELS AND INTERVENTIONS THROUGH REPLICATION SUPPORT, CAPACITY DEVELOPMENT AND KNOWLEDGE-SHARING

Output 2.1 Replication, Scaling, Sustainability and Take-up of Outcome 1 assets developed and implemented

Quy Nhon at-source waste sorting pilot program

The project has collaborated with the Quy Nhon City People's Committee to develop and pilot an at-source waste sorting program targeting over 10,700 households in Nguyen Van Cu and Ngo May wards, along with other waste generators (including hotels, restaurants, markets, schools, etc.). Following a six-month implementation period, the results will be reviewed by the City People's Committee to guide the program's city-wide expansion in 2025. This expansion aligns with the requirements of the 2020 Law on Environmental Protection and Binh Dinh Provincial People's Committee's Plan No. 200/KH-UBND concerning the implementation of at-source waste sorting.

To pilot the sorting program, the project has provided support to develop a plan which includes these crucial elements for successful implementation:

- **Technical Guidelines:** Tailored instructions for at-source sorting and storage, classifying municipal solid waste into three categories: (i) recyclable materials, (ii) hazardous waste, and (iii) food waste and others, suitable for local treatment infrastructure.
- **Governance Structure:** Establishment of steering committees and working task forces at city and ward levels to oversee the program.
- **Logistics Scheme:** Defined procedures for waste collection, transportation, and treatment.
- **Stakeholder Roles:** Clearly defined responsibilities for the City and Ward PCs, the waste collection and treatment company (Binh Dinh Environment JSC.), and participating communities.
- **Monitoring & Evaluation (M&E):** A framework for collecting lessons learned to inform the city-wide expansion plan for waste sorting.
- **Budget Estimation:** Cost projections for training, collection, transportation, treatment, and necessary infrastructure (e.g., waste trolleys, e-trucks for segregated transport, public waste bins).

This structured plan facilitated the pilot's rollout and supported Quy Nhon City PC in preparing for the mandatory nationwide household solid waste sorting required by Article 75 of the Law on Environmental Protection (effective January 1, 2025), aligning with technical guidance from the Ministry of Natural Resources and Environment (MONRE) (Document No. 9368/BTNMT-KSONMT).

To support the pilot's logistics and streamline the collection and transportation of plastic scrap to the MRF, UNDP provided four electric trucks dedicated to the segregated transportation of recyclable materials from the two pilot wards to the MRF.

A series of events and training sessions were conducted to launch and support the pilot program between September 2024 and March 2025:

- **Program Launch:** A kick-off event in September 2024 introduced the program's goals and benefits to stakeholders, generating publicity and officially launching operations from October 1, 2024. An inception workshop was held with 66 participants.

- Capacity Building: Task forces were established at city and ward levels. Training was provided for these task forces (240 participants), businesses/schools (216 participants), and waste collection workers (60 participants from Binh Dinh Environment JSC.).
- Community Engagement: Extensive outreach involved 144 training sessions targeting representatives from all 10,700 participating households in Nguyen Van Cu and Ngo May wards (September-October 2024). A second round of household training and a midterm review were planned for February 2025.
- Oversight and Review: Ongoing M&E activities were conducted by Quy Nhon City PC and Binh Dinh Department of Natural Resources and Environment (DONRE) from September 2024 to March 2025, culminating in a planned closing workshop in March 2025.
- A kick-off event was held in September 2024 to introduce the At-Source Waste Sorting program. This event explained the program's goals, objectives, and benefits to stakeholders and generated publicity. It also officially launched the program, which began on October 1, 2024.

Support for policy development

Join efforts from the project, PC of Quy Nhon City, Binh Dinh DONRE and Binh Dinh Environment JSC. have been accelerated to develop the decisions and plans for the Pilot on waste sorting at source program in Quy Nhon City. They are:

- 01 provincial decision issuing regulations on waste management, issued by Binh Dinh PPC:
- 01 provincial plan on waste segregation at source, issued by Binh Dinh PPC
- 01 provincial decision on procedure to collect plastic wastes from fishing boats, issued by Binh Dinh PPC
- 06 decisions and plans of Quy Nhon city on waste sorting at source program:
 - Decision 5316/QD-UBND dated August 29, 2024 issued by Quy Nhon City's PC on plan of the pilot program on waste sorting at source for Quy Nhon City
 - Decision 5418/QD-UBND dated September 9, 2024 issued by Quy Nhon City's PC on establishment of the City's Communication Task Force
 - Plan 69/KH-UBND dated September 10, 2024 issued by Nguyen Van Cu Ward PC on plan of the pilot program on waste sorting at source
 - Plan 75/KH-UBND dated September 18, 2024 issued by Ngo May Ward PC on plan of the pilot program on waste sorting at source
 - Decision 151/QD-UBND dated September 10, 2024 issued by Nguyen Van Cu Ward PC on establishment of the Ward's Task Force
 - Decision 220/QD-UBND dated September 11, 2024 issued by Ngo May Ward PC on establishment of the Ward's Task Force

The project has supported MOIT to develop [a study and a policy brief on eco-design](#). The study provided findings and initial recommendations to implement eco-design in Viet Nam. A survey of 180 businesses in the textile and garment, packaging, plastics, food, and beverage sectors revealed that only 16% of the businesses were familiar with the term "eco-design". Regarding the product design phase, nearly one-third of the surveyed businesses were involved only in product processing (mainly in the textile and garment and packaging industries). In Vietnam, several sectors that should prioritize the implementation of eco-design include packaging, food and beverages, textiles, household goods, construction, and electronics.

Eco-design is still relatively new in Viet Nam. For government agencies and businesses, it is essential to clarify the long-term environmental and economic benefits of implementing a circular economy. This includes fostering a life-cycle thinking approach to comprehensively assess the environmental impacts of products.

Such an approach can help identify more opportunities to select effective intervention solutions. The policy for implementing eco-design in Vietnam should be designed in two phases:

- The first phase focuses on establishing general regulations to familiarize businesses with the principles of eco-design, based on specific criteria for eco-designed products, such as energy and resource consumption levels, recycled material content, reusability and recyclability, component reuse, product lifespan extension, waste reduction, and traceability.
- In the second phase, regulations and guidelines for eco-design should be developed for specific product groups. These regulations should be quantitative, with measurable criteria to assess eco-design aspects of products. These include mandatory criteria that comply with current regulations on environmental protection, energy conservation, and efficiency, as well as standards and technical regulations related to product quality.

In 2024, the project supported the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) in revising the National Action Plan on Circular Economy, incorporating feedback from the Government Office. Additionally, the project team coordinated with ISPONRE to organize a National Circular Economy Forum in December 2024. This forum served as a platform to present innovative CE solutions and practices and highlight sector-specific interventions (e.g., Design for Circularity, Sustainable Production and Consumption, Waste to Resources). Following these efforts, the National Action Plan on Circular Economy was officially approved by the Prime Minister in January 2025 via [Decision No. 222/QĐ-TTg](#). This approval provides an official action framework and sets of guidelines for all central and local level agencies, guiding the implementation of the circular economy transition across Vietnam.

Output 2.2 Knowledge and Intelligence Generated are systematically Collected and Disseminated, to catalyze online, national and regional-level learning and support replication

Project launching and MOU signing with Binh Dinh PPC

On July 15, 2022, a combine event was organized by UNDP and co-hosted with Binh Dinh PPC, with 3 main sections:

- High level meeting between UNDP Resident Representative and Chairman of Binh Dinh PPC to discuss about on-going and up-coming projects and strengthen collaboration between the two parties.
- Workshop on “Collective actions to improve solid waste and plastic management in Binh Dinh for the reduction of marine plastic pollution”, including introduction of the DWP5C phase 2 project and establishment of MRF model as a new initiative to increase the value of recyclable materials in Quy Nhon, Binh Dinh.
- Signing Ceremony of Memorandum of Understanding between UNDP and Binh Dinh PPC, including sectors on waste and plastic management, reduction of marine plastic waste and circular economy.

The event was joined by 50 participants from Binh Dinh PPC, DPI, DONRE, DARD, Quy Nhon PC, associations, universities, research institutions, waste treatment enterprises located in Binh Dinh province and 13 online participants from MONRE, VIFEP, MCD, SINTEF, and experts...

At the event, results of the Phase 1 project on socialized waste management models were introduced as a good practice to upscale in Phase 2. The formulation of MRF were highlighted as a new initiative to promote waste and plastic management in the province. At the event, [an introduction video on MRF model](#) in India was disseminated to all participants for an overview.



Photo 10 - Participants at the Launching Workshop



Photo 11 - MOU Signing Ceremony

Official launch of Viet Nam Circular Economy Hub

With supports from the project and UNDP, on June 28, 2022, within the Conference to develop National Action Plan for implementing circular economy in Viet Nam, Viet Nam Circular Economy Hub was official launched, with participation from Minister of MONRE, UNDP Resident Representative, Ambassador of the Netherland Embassy, representatives of Norwegian Embassy, development partners, ISPONRE and private sectors.



Photo 12 - Viet Nam Circular Economy Hub was officially launched

The [Viet Nam Circular Economy Hub](#) aims to raise awareness and build the capacity of all stakeholders, including public authorities, businesses, non-governmental organizations, and academia, in adopting CE principles, creating synergies, and integrating financial and technical resources to support the transition towards a low-carbon and circular Viet Nam. The CE Hub houses the latest need-to-know science and insights from leading actors and communities in the fields of circular economy CE policy, research, investment and education. There are already more than 185 articles published on the website in Vietnamese, and more than

25 members have joined our network. After the official launching, the CE Hub received a lot of interest from private sector requesting for supports and connecting businesses from private sector.

From 2023 - 2025, in collaboration with relevant projects under the UNDP CE Portfolio, the CE Hub successfully conducted a series of events (webinars, workshops, training sessions, policy dialogues, and forums) covering key topics related to accelerating the circular economy, waste management, and resource efficiency. These events attracted a total of 1,713 participants (55% female).

Table 3 - All events organized under CE Hub from 2023 to 2025

Type	Name	Time	No. participants	Male	Female	Number of Businesses
Webinar	Unlocking value for waste in circular agriculture	17-Nov-23	90	60	30	25
Workshop	Global launch of a toolbox to integrate circularity into NDCs	10-Oct-23	-	-	-	-
Policy dialogue	Bridging policy and industry to close the loop of industrial wastewater	11-Oct-23	45	25	20	19
Webinar	Role of PROs in EPR implementation worldwide and recommendations for Viet Nam	20-Sep-23	134	41	93	61
Workshop	Ecodesign: Promoting Sustainable Consumption and Production and Circular Economy in Vietnam	14-Sep-23	78	43	35	15
Webinar	Sustainable packaging in the F&B industry	7-Sep-23	81	27	54	30
Webinar	Making circularity work in cities	20-Jul-23	112	44	68	-
Webinar	Financing the CE transition in Viet Nam	29-Jun-23	70	26	44	18
Webinar	Measuring Circular Economy Policies: Frameworks and Metrics	7-Jun-23	62	21	41	27
Webinar	Boosting NDCs' Ambitions Through Circularity in the Agricultural Sectors – Introducing the CE Toolbox	16-Jan-24	95	50	45	11
Workshop	Consultation Workshop on marketplace for secondary materials	11-Apr-24	68	43	25	17
Webinar	Bioplastics - A solution to plastic pollution?	23-May-24	141	47	94	71
Training	Training on circular economy in the coffee value chain	23-May-24	85	44	41	3
Matchmaking	PREVENT Matchmaking Session: Connecting stakeholders in Viet Nam's plastic and textile recycling value chains through digital solutions	6-Jun-24	32	14	18	9
Webinar	Fostering Innovation: Addressing Plastic Pollution to Propel the Blue Economy in Viet Nam	11-Jun-24	99	63	36	15
Policy dialogue	Promoting international cooperation and multi-sectoral coordination for circular agriculture	8-Jul-24	111	47	61	20
Training	Training on circular economy in the rice value chain	10-Jul-24	67	46	21	-
Workshop	Technical discussion: Pathway for Platforms Accelerating Trade in Plastic and Textile Secondary Materials	10-Sep-24	40	19	21	18
Workshop	Plastic Talk: Enabling Refill system in Viet Nam	21-Oct-24	73	25	48	14

Technical Workshop	Shaping the Direction for Advancing Extended Producer Responsibility (EPR) framework in Viet Nam"	21-Mar-25	230	87	143	-
Total			1,713	772	938	373

In 2024, the CE Hub has curated and updated a number of showcases, studies, research, policy library and shared to the community as a learning hub on circular economy. By the end of December 2024, the CE Hub website attracted to 4,500 page views per month on average. Moreover, [Quarterly newsletters](#) have been developed and sent to the CE Hub's network members.

Innovation Day

The Innovation Day event, co-organized with Viet Nam National Plastic Action Partnership (NPAP), was held in September 2024. The event aimed to showcase the Materials Recovery Facility (MRF) and provide information about its plastic purchasing process at collection points, raise awareness about single-use plastics, encourage community members to engage in recycling activities, and empower informal waste workers by connecting them with the community and highlighting their crucial role in waste collection and management.

[The event](#) attracted 250 participants (63% female), including families, students, and the general public. There are a number of side events: 02 contests on "Plastic Recovery Solution for MRF and Low-Value Plastic Initiative" and "Recycling is fun"; "Waste-to-Gift" activity; exhibition and environmentally educational activity.



Photo 13 – Innovation Day's activities, featuring the honouring IWWs (left) and educational exhibition (right)

Approximately [11,000 posters of various sizes](#) were designed and distributed to households, restaurants, hotels, schools, and People's Committee offices, provided people with clear guidance on sorting household solid waste into three categories: other waste, recyclables, hazardous waste. Each poster detailed the specific waste types within each category, proper storage methods, the benefits of waste sorting, and contact information for support.

Communication materials

To raise awareness about the MRF, the project also designed and produced 2,000 [brochures](#). These were distributed at key events like the MRF inauguration, the Kick-off At-Source Waste Sorting Workshop, and Innovation Day. The brochures highlighted the MRF's role in processing recyclable materials, its positive impact on the community, and how residents and stakeholders like recyclers and waste aggregators could engage with the facility.

The project also created [a series of informative videos](#). These included:

- Video on at-source waste sorting: it provided engaging step-by-step guides on proper waste sorting techniques, emphasizing the environmental, economic, and social benefits of participation.
- Video about the fishing boat initiative: Showcasing the successful "Fishing Boats Bringing Waste Back to Shore" program, these videos highlighted the collaborative efforts to reduce plastic waste from fishing activities and the positive impact on the marine environment.
- Video introducing the MRF's operational process: These videos offered a behind-the-scenes look at the MRF, explaining its waste processing procedures and emphasizing its role in promoting resource recovery and a circular economy.

These videos were strategically disseminated through various channels, including websites ([CE Hub's website](#)), social media platforms ([Facebook](#)), and public events. They were produced in both long and short formats to cater to different audiences and platforms.

5. THE PROJECT'S PROGRESS AND RESULTS ACHIEVEMENT

Table 4 - Project Outputs, Indicators and Results Achieved

OUTPUTS	OUTPUT INDICATORS	RESULTS BY DEC.24	DESCRIPTION OF ACTIVITIES
OUTCOME 1: SUSTAINABLE PILOT MODELS OF WASTE MANAGEMENT THAT IMPROVE LIVELIHOODS OF WASTE WORKERS (WITH A FOCUS ON WOMEN INFORMAL WORKERS), IMPLEMENTED - Total volume of domestic waste collected and recycled across Outcome 1 activities (Source: project reports) – 331 tons of plastic and recyclables collected % increase in income of the waste workers directly benefiting from the project (Source: project survey) Target: +15-20% by the end of the project # of women waste workers who participated/ benefited from the support delivered (Source: project report - revolving funds, PPE, innovative interventions, MRF and fishery pilot): 2,061			
Output 1.1 Series of Interventions to empower IWWs, and strengthen their resilience to withstand shocks, including the impacts of COVID-19, implemented	800 of waste workers who received safety materials (including at least 60% of women)	Result achieved: 214 IWWs received set of PPEs 32 IWWs received bicycles 5 IWWs of "Waste Collection Team" received PPEs 1,200 fisherman received net bags for plastic waste collection 41 IWWs received bicycles and gifts to enhance their livelihoods	- Capacity building for IWWs with Quy Nhon WU and Binh Thuan WU, 2022 - Final Report of the Program "Fishing boats bring plastic waste back to shore", 2024 - The event "Honoring Ceremony for the Green Warriors" with Vietcycle, 2024
	# of local IWWs benefiting from financial supports through campaigns and pilot activities on waste segregation at sources and waste management in fishery sector	Result achieved: 191 IWWs participated in IWWs club 832 IWWs received training 33 IWWs benefited from the Waste sorting at source program and solid waste collection programs 50 IWWs participated in "Exchange wastes for gift" 200 fisherman sold plastic waste for the "Waste Collection Team" in Quy Nhon Fishing Port	- IWWs Club Development Report, 2024 - Report on MRF Introduction workshop, 2023 - Final Report of the Program "Fishing boats bring plastic waste back to shore", 2024 - MRF Operation Report 2025

		05 IWWs of “Waste Collection Team” in Quy Nhon Fishing Port benefited from selling plastic waste to the MRF	Decision 200/QD-CCBD issued by Management Board of Quy Nhon Fishing Port dated 21 November 2023 on establishment of the “Waste Collection Team”
	600 of beneficiaries who receive cash for work (including at least 60% of women)	Result achieved: 110 people from 55 entities, including Quy Nhon Fishing Port, wards implementing the New Rural program waste owners, supermarkets, restaurants, schools, received cash from selling plastic waste to the MRF 306 waste workers received cash from selling plastic waste to the 02 Collection Centers/MRF 17 IWWs at Long My landfill received cash from selling plastic waste to the MRF 53 IWWs from 18 aggregators received cash from joining the MRF’s network and selling plastic waste to the MRF 200 fisherman received cash from selling plastic waste for the “Waste Collection Team” in Quy Nhon Fishing Port	- MRF Fund Report, 2023 - MRF Commissioning and Operation Report, 2024 - MRF Operation Report 2025 - Final Report of the Program “Fishing boats bring plastic waste back to shore”, 2024
	1 of local level innovative interventions to support inclusion/livelihoods of women waste workers selected and implemented (incl. with EPPIC Finalists)	Result achieved: 01 IWWs club established to connect 191 IWWs in Quy Nhon to the MRF Network 01 “Waste Collection Team” established in Quy Nhon City to collect plastic wastes from fishing boats 02 Collection centers established inside Quy Nhon City to allow IWWs to sell and to exchange plastic waste for gifts - Innovation Day with 02 competitions on plastic waste collection	- IWWs Club development Report - MRF Fund Report, 2023 - Innovation Day Report
Output 1.2 Integrated waste management model in the Fishery sector established	200 actors (boats, fish farms, traders etc.) signing up to the integrated waste management model in the fishery sector	Result achieved: 200 fishing boats signed commitment to participate the program “Fishing boats bring plastic waste back to shore”	- Final Report of the Program “Fishing boats bring plastic waste back to shore”, 2024 https://vietnamnet.vn/en/people-take-action-to-protect-the-marine-environment-2329495.html
	Kg of waste brought back from the boats and transported to the	Result achieved: 3,100 kg waste brought back from fishing boats, in which 1,600 kg of plastic was transported to the MRF	Final Report of the Program “Fishing boats bring plastic waste back to shore”, 2024

	collection points and/or recycling facilities		
	3 waste collection points in Quy Nhon City established, implemented by IWWs and linked to the Material Recovery Facility	Result achieved: 01 warehouse at Quy Nhon Fishing Port developed 02 Collection centers established inside Quy Nhon City	- Report of contract package 8 with Quy Nhon PMU on “Development of warehouse in Quy Nhon Fishing Port” - MRF Fund Report, 2023
Output 1.3 An inclusive Material Recovery Facility (MRF) for Improved Local Material Value Chain, piloted and established	Tons of waste collected and recycled at the MRF facility	Result achieved: 67 tons of plastic waste collected as input materials for the MRF in 2023 61 tons of plastic waste collected as input materials for the MRF in 2024 200 tons of plastic waste collected as input materials for the MRF in 2025	- MRF Fund Report, 2023 - MRF Commissioning and Operation Report, 2024 - MRF Final Operation Report, 2025
	50 women WW collaborating with the MRF	Result achieved: 191 IWWs participated in the IWWs club 20 IWWs who are currently working in the Long My Landfill site	- IWWs Club development Report, 2024 - MRF Commissioning and Operation Report, 2024 - MRF Final Operation Report, 2025
	3 Standard Operating Guidelines of the MRF designed and adopted (including gender-responsive measures to optimize involvement in, and impact on, women)	Result achieved: 02 Designs of MRF equipment system and warehouse 01 MRF Operation procedure 01 Business Plan for the MRF's operation 01 Guideline for plastic waste segregation	- MRF Technical and Economic Report - Reports on MRF system designs - MRF Commissioning and Operation Report, 2024 - MRF Final Operation Report, 2025 - Layout of MRF Equipment Design: https://drive.google.com/file/d/1W36pNG7z3ovtS2y-qksAfMHIqdNCiGWP/view?usp=sharing

OUTCOME 2: SCALING AND TAKE-UP OF SUSTAINABLE AND INCLUSIVE WASTE MANAGEMENT MODELS AND INTERVENTIONS THROUGH REPLICATION SUPPORT, CAPACITY DEVELOPMENT AND KNOWLEDGE-SHARING

- # of regulations/ action plans and other measures on waste management promulgated (Source: project survey/ reports from MONRE/DONRE) **Target: 11 by the end of the project**
- # of WM actors (incl. municipalities) interested in and/or committed to replicating and scaling models or taking new actions to strengthen WM systems (Source: project survey) **Target: 18 by the end of the project**

Output 2.1 Replication, Scaling, Sustainability and Take-up of Outcome 1 assets developed and implemented	▪ # of technical guidance for the implementation of the pilot models, documenting modus operandi, produced	Result achieved: ▪ 01 provincial decision issuing regulations on waste management ▪ 01 provincial plan on waste segregation at source ▪ 01 technical guideline on procedure to collect plastic wastes from fishing boats ▪ 06 decisions and plans of Quy Nhon city on waste sorting at source program ▪ 01 decision on establishment of MRF operation team ▪ 01 agreement signed between MRF Operator and Duy Tan Recycling Company to purchase MRF's products	▪ Decision 76/2023/QD-UBND dated December 04, 2023, issues by Binh Dinh PPC ▪ Decision 200/KH-UBND dated December 04, 2023, issued by Binh Dinh PPC ▪ Official letter no. 299 dated January 26, 2024, issued by Binh Dinh DARD ▪ Decision 89/QD-SNN dated February 28, 2024 issued by Binh Dinh DARD on procedure to collect plastic waste back to the shore ▪ Decision 5316/QD-UBND dated August 29, 2024 issued by Quy Nhon City's PC on plan of the pilot program on waste sorting at source in Nguyen Van Cu ward and Ngo May ward ▪ Decision 5418/QD-UBND dated September 9, 2024 issued by Quy Nhon City's PC on establishment of Communication Task Force to implement the pilot program on waste sorting at source in Nguyen Van Cu ward and Ngo May ward ▪ Plan 69/KH-UBND dated September 10, 2024 issued by Nguyen Van Cu Ward PC on plan of the pilot program on waste sorting at source in Nguyen Van Cu ward ▪ Plan 75/KH-UBND dated September 18, 2024 issued by Ngo May Ward PC on plan of the pilot program on waste sorting at source in Ngo May ward ▪ Decision 265/QD-CTMT dated September 12, 2024 issued by Binh Dinh Environment JSC on establishment of MRF Operation team
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			Agreement no. 0132/2024 dated 23 September 2024 signed between MRF Operator and Duy Tan Recycling Company to purchase MRF's products
	# of policy briefs on MRF, fishery management, waste segregation at source, scaling-up and replication of the MRF	Result achieved: 01 Blog on MRF Introduction 01 MRF design and its mechanism to collect plastic waste 01 Guideline on implementation of waste-sorting at source, issued by Quy Nhon PC 01 Manual guiding fishing boats bringing plastic waste back to the shore 01 Policy review and recommendation on eco-design	https://www.undp.org/vietnam/blog/accelerating-circularity-binh-dinh-waste-management https://drive.google.com/drive/folders/1eGiuaY25WS98eq5qubfW5jw7_NDvE1qf?usp=sharing - Report "Review and identify potential intervention areas to promote sustainable production and consumption in acceleration of circular economy" https://tapchimoitruong.vn/chuyen-muc-3/thuc-day-thiet-ke-sinh-thai-huong-den-kinh-te-tuan-hoan-29500
	03 workshops to raise awareness on the interventions/pilots under Outcome 1 to solicit interest from municipalities and actors willing to deploy one or more of the models	Result achieved: 144 training sessions organized for representatives of 10,700 households in Nguyen Van Cu ward and Ngo May ward on waste sorting at source program 02 training workshops for Task Forces of Nguyen Van Cu ward and Ngo May ward on waste sorting at source program, 240 participants 02 training workshop for hotels, restaurants, schools Nguyen Van Cu ward and Ngo May ward on waste sorting at source program, 216 participants 01 training workshop for workers of Binh Dinh Environment JSC on waste sorting at source program, 60 participants 01 workshop on MRF launching and Kick-off the waste sorting at source program in Quy Nhon City, 66 participants 01 Innovation Day on plastic waste collection and IWWs, 250 participants 01 Honoring Ceremony for "the Green Warriors", 500 participants 01 concluding workshop, 80 participants	- Binh Dinh, Sep.24 - Binh Dinh, Sep.24 - Binh Dinh, Sep.24 - Binh Dinh, Sep.24 - Binh Dinh, Sep.24 (media link) - Ha Noi, Oct.24

			Binh Dinh, Jun.25
Output 2.2 Knowledge and Intelligence Generated are systematically Collected and Disseminated, to catalyse online, national and regional-level learning and support replication	01 Policy Discussion and Workshops organized	Result achieved: 03 Policy discussions organized with Quy Nhon PC, Binh Dinh DONRE, Binh Dinh Environment JSC to develop the pilot plan on waste sorting at source 01 Consultation workshop organized by Binh Dinh DAE on the regulation on plastic waste management for fishing boats 01 Technical meeting with PCD/MONRE to develop the study on national plastic waste inventory - CE Forum 2022 “Viet Nam Circular Economy Forum 2022: Net Zero Emission - From Commitment to Action” - CE Forum 2023 “Developing National Action Plan on Circular Economy in Viet Nam”	- Binh Dinh, Mar, Aug. and Sep.24 - Binh Dinh, Sep.23 - Hanoi, Aug.24 - Hanoi June 2022; https://en.vietnamplus.vn/forum-seeks-to-translate-net-zero-carbon-pledge-into-action-post231818.vnp - Hanoi Nov.2023; https://eurochamvn.org/wp-content/uploads/2023/11/202311_W12_GGSC_Presscut.pdf
	02 lessons learned/best practices on the 4-5 models designed/developed/piloted/implemented shared in Viet Nam and ASEAN	Result achieved: 02 videos on MRF operation and 02 videos on the program “Fishing boats bring plastic waste back to shore” have been developed and published widely 01 model on plastic waste management the program “Fishing boats bring plastic waste back to shore” have been shared widely in mass media 01 blog on MRF introduction in Binh Dinh have been shared on UNDP website, CE Hub 02 The journalistic work "Together Preserving the Blue of the Sea": Bringing Waste Back to Shore to Bring Fish Back to Shore. 01 article on Circular Economy Business Case Studies in Southeast Asia: Plastics Recovery from Municipal Solid Waste	https://youtu.be/ cIJ45U_No https://youtu.be/RCctIYXEa0c https://youtu.be/W12FuMh9oWc https://youtu.be/ElfKx0VPAAE https://vnexpress.net/ngu-dan-gom-rac-thai-nhua-ve-bo-bang-tui-luoi-chuyen-dung-4675786.html https://baotainguyenmoitruong.vn/e-magazine-mang-rac-ve-bo-de-mang-ca-ve-bo-bai-3-ngu-dan-phan-khoi-mang-rac-ve-bo-379869.html https://vietnamcirculareconomy.vn/binh-dinh-sets-precedent-with-first-ever-plastic-waste-rules-for-fishing-vessels/?lang=en https://www.switch-asia.eu/resource/binh-dinh-environment/ https://www.youtube.com/watch?v=2O_PqxLJ-wQ

		01 VTV4 Documentary on Informal Waste Workers – The Silent Ecosystem 01 video on Viet Nam CE Hub introduction	https://vietnamcirculareconomy.vn/wp-content/uploads/2023/07/CE-HUB-LONG-v1.0.mp4?autoplay=1
	5 of stakeholders (including GoVN officials/authorities, etc.) and WM actors reached through communication and dissemination at regional/national/ ASEAN forums/ CE Platform (gender-disaggregated)	Result achieved: - Binh Dinh PPC, Quy Nhon PC - Binh Dinh DONRE, DARD (Binh Dinh Fisheries Department, Quy Nhon Fishing Port) - MONRE, MARD - Private sector: Binh Dinh Environment JSC, Duy Tan Recycling, Vietcycle Corporation, recyclers, waste buyers - Institution: VIFEP, IWMI, HUCE, HUT, Quy Nhon University, ICISE - International organizations: TCI, AEPW, GIZ	
	2 targeted awareness/communication campaigns developed in Viet Nam	Result achieved: 02 communication programs on waste sorting at source program in Quy Nhon city and on the program on “Fishing boats bring plastic waste back to shore” at Quy Nhon Fishing Port 04 Communication materials: stickers, poster on plastic segregation and MRF, brochure on MRF introduction, MRF’s technology and operational flow 03 Videos on MRF, the program “Fishing boats bring plastic waste back to shore” and the program on Waste sorting at source in Quy Nhon City 01 Feature story on the program “Fishing boats bring plastic waste back to shore” 01 Video summarizing the project’s achievement	https://drive.google.com/drive/folders/1e3NB6C_D9kkfA72ajlsMDKIFpgyH8deg?usp=sharing https://drive.google.com/drive/folders/1yzbzapAiUFFRHEfBoTrF_pTCUDHtXew1?usp=sharing https://www.youtube.com/watch?v=twvtxl2Kdq4 https://www.undp.org/vietnam/press-releases/kick-waste-sorting-source-program-and-inauguration-material-recovery-facility-mrf-quy-nhon-city https://drive.google.com/file/d/1RJUJbtGORIZq0SC4R78GB9F5613VwbZ/view

6. THE PROJECT'S SUSTAINABILITY AND RISK FACTORS

6.1. The project's sustainability

To ensure the sustainability of the waste management models developed and their long terms impacts to environmental and social aspects, UNDP together with its partners, have conducted the following strategies:

The Material Recovery Facility in Long My:

The following solutions collectively contribute to the long-term sustainability and circular economy integration of the MRF by:

- Improving material quality and reducing operational losses
- Enhancing workforce capacity and operational efficiency
- Strengthening financial viability through diversified markets; and
- Expanding the range of recoverable plastics in line with circular economy principles.

These interventions will position the Binh Dinh MRF as a critical model in the provincial and regional plastic recycling value chain, contributing to reduced landfill disposal, plastic marine litter and improved livelihoods for waste workers.

1. Strengthening the Stability and Quality of Input Materials

Currently, a significant proportion of plastic waste processed by the MRF is sourced from landfill sites, resulting in high levels of contamination, substantial material loss during pre-processing, and low-value outputs. To improve both the stability and quality of input materials, the following solutions are proposed:

- Diversification of collection sources: The MRF operator should actively expand and diversify procurement channels by prioritizing cleaner, source-separated plastic waste. This includes establishing long-term contracts with restaurants, food outlets, schools, supermarkets, commercial centers, and scrap dealers.
- Formalized partnerships with collectors: Develop incentive and support schemes for both formal (waste workers) and informal waste collectors, such as guaranteed purchase prices, minimum volume commitments, provision of basic equipment, and occupational safety guidance. These measures will help secure a more stable and predictable supply of recyclable plastics.
- Promotion of source segregation: Coordinate with local authorities and community-based initiatives under the UNDP project and other supports from state-owned budget programs, to strengthen waste sorting at source, thereby reducing contamination levels and improving processing efficiency at the MRF.

2. Optimization of Operational Processes and Human Capacity

Efficient operation is critical to the long-term financial and technical sustainability of the MRF. Key solutions include:

- Capacity building for staff: Continue and institutionalize training programs for MRF employees, focusing on equipment operation, routine maintenance, quality control, and occupational health and safety.
- Standardized operating procedures (SOPs): Develop and apply SOPs for sorting, pre-treatment, storage, and equipment maintenance to minimize downtime, reduce material loss, and improve product consistency. Especially for additional materials such as PE bags, PP woven bags, multi-layers bags.
- Preventive maintenance planning: Strengthen preventive maintenance schedules to extend equipment lifespan and reduce unexpected operational disruptions.

3. Diversification of Output Markets and Sales Channels

To reduce dependence on a single buyer and enhance financial resilience, the MRF should diversify its product off-take channels:

- Expansion beyond existing buyers: In addition to Duy Tan Recycling, the MRF should actively seek partnerships with plastic manufacturers and recycling enterprises, particularly those located in Gia Lai province and neighboring localities. Taking into consideration that the receiving volume of plastic waste in Long My landfill is about 50-52 ton/day⁷, there are several options to enhance sorting such plastic waste and connect with recyclers and projects who are willing to purchase low value plastic wastes such as nylon bags, ie Lam Tran, VietCycle, A Chau Company.
- Flexible product offerings: Adjust output specifications (e.g., bale size, material purity, moisture levels) to meet the requirements of different buyers, thereby improving market access and price competitiveness.
- Market intelligence and networking: Regularly monitor regional recycling markets and participate in business-matching activities facilitated by UNDP and provincial authorities. UNDP is collaborating with Alliance to End Plastic Waste (AEPW) to develop Feasibility study to develop MRFs in cities such as Hai Phong, Binh Duong (HCMC) and Hue, in which mapping off takers in Viet Nam will create opportunities for the MRF in Binh Dinh to expand its network of recyclers.

4. Investment in Technology to Expand Material Coverage

At present, the MRF mainly processes PET and HDPE bottles, while other plastic streams such as plastic bags, flexible plastics, rigid plastics, and mixed plastics remain underutilized due to technical and economic constraints. To address this challenge:

- Equipment upgrade: Invest in shredding, washing, and drying systems to enable on-site pre-processing of bulky HDPE items (e.g., tables, chairs, containers) and low-quality plastics such as plastic bags and films.
- Production of plastic flakes: By producing cleaned and dried plastic flakes, the MRF can significantly increase the value of recovered materials and reduce transportation and storage costs for bulky waste.
- Inclusive material acceptance: With upgraded equipment, all plastic waste streams can be accepted for initial processing at the MRF and sold to specialized recycling facilities, thereby improving overall recovery rates and supporting circular economy objectives.

The program “Fishing boats bringing plastic waste back to the shore”:

The program has been expanded to former Bình Thuận, Nam Định, and targeted 2026 pilots at Ninh Cờ, Phan Thiết, and Hòn Rớ Fishing Ports. Collectively, these sustainability solutions will:

- Institutionalize the program within provincial governance and fisheries management systems
- Ensure stable participation by fishermen through incentives and awareness
- Strengthen linkages between marine plastic waste collection and recycling value chains; and
- Provide evidence-based inputs for policymaking and scaling up.

1. Institutionalization through Policy and Awareness Raising

To ensure long-term sustainability beyond the project lifecycle, the program “Fishing boats bringing plastic waste back to the shore” needs to be embedded in provincial policies and supported by sustained behaviour change among key stakeholders:

- Scaling up based on existing regulations: Program implementation should be aligned with Decision No. 89/2024 of the Department of Agriculture and Environment, which stipulates regulations on

⁷ UNDP Report on Inventory of Waste Composition in Long My Landfill, 2023

plastic waste collection for fishing vessels. This decision provides a legal basis for scaling up and standardizing implementation across fishing ports of the province.

- Continuous awareness-raising and communication: The Department of Agriculture and Environment (DAE) of Binh Dinh Province, in coordination with the Provincial People's Committee (PPC) and stakeholders, should continue targeted communication campaigns to raise awareness among fishing communities, fisheries stakeholders, boat owners, and crew members. Communication activities should emphasize health and environmental impacts due to marine litter, compliance responsibilities, and the economic and social benefits of bringing plastic waste back to shore.
- Integration into fisheries management practices: Awareness activities should be mainstreamed into routine fisheries management, the port management operations, and training programs for fishermen to ensure consistent messaging and long-term behavioral change. [The Manual on plastic waste management for fishing boats](#), which provide comprehensive info on types of plastic waste, responsibility of stakeholder and the procedure to bring and declare plastic waste back to the shore, will be helpful for both local authorities and fisherman to continue this exercise.
- Standard operating procedures (SOPs): Although this SOP has been initially indicated in Decision No. 89/2024 , the procedures should comprehensively define roles and responsibilities, waste handling requirements, reporting obligations, and coordination mechanisms between fishing vessels, port authorities, and waste management service providers.
- Compliance and enforcement mechanisms: Integrate monitoring and compliance checks into port inspection and vessel management systems.

2. Mobilization of Resources and Expansion of Program Coverage

The sustainability of the program depends on stable financial and institutional support:

- Mobilization of financial and technical resources: Provincial authorities should mobilize public funding, private sector contributions, and development partner support to continue and expand the plastic waste collection program at Quy Nhon Fishing Port and other fishing ports across Binh Dinh Province.
- Monitoring and evaluation (M&E): Establish regular monitoring, tracking, and evaluation mechanisms to assess compliance, effectiveness, volumes of plastic waste collected, and environmental impacts, ensuring transparency and accountability.
- "Waste-for-rewards" schemes: Organize incentive programs that allow fishermen to exchange collected plastic waste for practical goods (e.g., fuel vouchers, fishing gear, daily necessities) or other non-cash rewards, ensuring that incentives are attractive and context-appropriate.
- Strengthening linkages with recycling infrastructure: Enhance project-supported connections between the program, Material Recovery Facilities (MRFs), and licensed recycling and material recovery enterprises. These linkages help ensure that collected plastic waste is properly treated and recycled, reinforcing the circular economy approach.
- Incentives for port collection teams: Develop tailored incentive mechanisms for port-based waste collection teams to maintain motivation and operational efficiency.

3. Development of a Marine Plastic Waste Data System

Data-driven management is a cornerstone of long-term sustainability:

- Establishment of a provincial database: Develop a comprehensive database on marine plastic waste collected from fishing vessels in Binh Dinh Province, including waste types, quantities, sources, and treatment pathways.
- Support to planning and policymaking: The database should be used to inform provincial planning, policy adjustments, reporting to national authorities, and resource mobilization.
- Alignment with national and international reporting: Ensure compatibility with national marine litter monitoring frameworks and international commitments on marine plastic pollution.

Official establishment of Viet Nam Circular Economy Hub, by MAE:

The Viet Nam Circular Economy Hub (CE Hub) demonstrates strong sustainability prospects through its institutional anchoring, diversified financing, and clear national value proposition. The Hub is formally recognized as a stakeholder platform under the National Action Plan on Circular Economy (Decision No. 222/QD-TTg, January 2025), ensuring long-term policy relevance amid expanding, cross-ministerial circular economy agendas. Phase 2 support from the Government of Norway, together with continued co-financing commitments from the Norwegian and the Dutch Governments, secures short- to medium-term operational continuity. Concurrently, UNDP and ISPAE (MAE) are developing a proposal for the official establishment of a National Circular Economy Hub, enabling mobilization of state budget resources under a long-term work plan. This transition from project-based support to institutionalized government ownership positions the CE Hub as a sustainable national platform for policy coordination, knowledge sharing, and multi-stakeholder engagement in Viet Nam's circular economy transition.

The table below shows solutions for the CE Hub's sustainability.

Table 5. Sustainable solutions for the Viet Nam CE Hub

Sustainability Dimension	Key Solutions	Expected Outputs
Institutional sustainability	Recognition of the CE Hub as a stakeholder platform under Decision 222/QD-TTg; development of proposal for official establishment of a National CE Hub	Output: National circular economy coordination mechanisms and platforms institutionalized and operational
Financial sustainability	Phase 2 budget support from the Government of Norway; continued co-financing from Norwegian and Dutch Government (the ACE-Biz Project); mobilization of state budget upon official establishment of the Hub	Output: Sustainable financing mechanisms and cost-sharing arrangements for CE initiatives established
Governance and operational sustainability	Defined hosting arrangements and mandates; multi-stakeholder governance model; adaptive operational framework	Output: Functional multi-stakeholder platforms enabling cross-sectoral coordination and implementation
Programmatic sustainability	Knowledge sharing, policy dialogue, capacity building, and partnership facilitation through the CE Hub	Output: Knowledge products, policy dialogues, and capacity development activities delivered through the CE Hub
Scaling and long-term impact	Alignment with national priorities; hybrid financing model; expansion across sectors and ministries	Output: Replicable CE models, policy pilots, and partnerships supported at national and sub-national levels

6.2 Gender equality, environment, and climate change

Gender equality

Implementation		
1	Whether this project directly, or indirectly resulted / would result in the promotion of	- The project Output 1.1. directly contribute to increase economic empowerment of 191 female IWWs through trainings on OHS, solid

	gender equality, such as promoting women's advancement, strengthening women's decision-making role, assisting women with caring responsibilities in taking care of her families etc.?	waste and plastic waste management campaigns, pilot activities on waste segregation at sources and waste management models. - Members of the IWWs Club reported feeling seen and appreciated because local leaders or representatives from the Women's Union participated in club activities and meetings. - Quy Nhon City 's PC has decided to include the IWWs Club in the city' s pilot plan on waste sorting at source as a "formal worker" to collect recyclable materials from waste owners (Decision 5316/QD-UBND dated August 29, 2024) - 20 IWWs received benefits from selling plastic waste to the MRF - 1200 fisherman in Quy Nhon Fishing Port received equipment, trainings on procedure to bring plastic waste back to the shore, and incentives from selling plastic waste to the MRF
2	Whether part of the resources has been allocated in a manner that intentionally, or unintentionally addressed/ would address the identified needs of women and men?	Part of the project's resources has been allocated intentionally to address the identified needs of informal waste workers, both woman and man, because the project has carried surveys and needs assessments to IWWs before designing the waste management models, including the needs on capacity building and awareness building, the needs on livelihood improvements. References: - Report on Informal Waste Worker in Quy Nhon City, 2023 - Report on Waste and Plastic Management in Quy Nhon Fishing Port, 2023 - Survey on Waste Composition in Long My Landfill Site - MRF's Business Plan
3	Have women and men been equally involved in program/project activities? Please indicate the representation rate of women in each activity of the program /projects; and also briefly explain if the project is taking measures to increase women participation.	While the project encourages equal participation from women and men, the gender ratio varies across different activities due to their varying target audiences. For example: - IWWs Club: 97% female / 3% male - Innovation Day: 63% female / 37% male - CE Hub knowledge-sharing activities: 49% female / 51% male The project collects sex-disaggregated data to track the number of women participating and measure project outcomes. The project's studies are analyzed with a gender lens to understand the social context and specific barriers faced by women working in the informal waste sector.
Human Resources		

4	Has gender expertise/knowledge been included in TORs for projects' consultancies, reviews, procurements, consultancy teams, etc.?	Yes. Including TOR to assess IWWs in Quy Nhon City, the TOR on IWWs Club establishment
5	Have all project staff (incl. project manager) responsible for the different stages of work (design, implementation, monitoring and evaluation) been briefed or given training on gender issues?	Yes. All project staff have been briefed on gender issues during design and implementation of project activities, through direct consultations with gender officer, CO's trainings on gender responsive budgeting.
Monitoring & Evaluation		
6	Have gender-disaggregated data and indicators (qualitative or quantitative) been collected or compiled to monitor the process and outcome of this project?	Yes. By number of IWWs supported through the project's interventions.
7	Have relevant gender issues been raised at project meetings, ensuring discussion of the impact of the project on gender equality in the country?	Yes. IWWs and their working conditions have been discussed with the project's partner during development of the IWWs Club in Quy Nhon City.
Communication		
8	Are both women and men represented and visible in the communication products? Are gender stereotypes avoided (avoid portraying childbearing as the sole responsibilities of mother), and women's needs are reflected, and voice supported?	Figures in communication materials were carefully chosen to ensure gender balance, with both genders well-represented. Project publications (including posters and videos on waste sorting, brochures and videos showcasing interventions like the MRF and the "Fishing Boats Bringing Waste Back to Shore" program) all feature images of both women and men or maintain gender neutrality. This approach promotes shared responsibility between genders in activities like at-source waste sorting and avoids stereotypes that portray it as solely a woman's role.

7. FINANCIAL OVERVIEW

The detailed financial report of the project is presented in Annex 2.

8. COLLABORATION WITH OTHER PROJECTS AND WAY FORWARD

Under the Circular Economy Portfolio of UNDP, the Phase 2 project has demonstrated signification in coordination with other projects and programs:

- (i) Accelerate Circular Economy for Business (ACE-Biz) Project:

With support from the Dutch government, UNDP has implemented the Accelerate Circular Economy for Business (ACE-Biz) project since October 2023. The overall objective of ACE-Biz project is to contribute to Viet Nam's low-carbon and circular development, by transforming business, through formulating circular guidelines, delivering capacity-building programs and fostering technology transfer, and demonstrating the certification scheme to promote exchanges of secondary materials and reusable goods through an online

marketplace. The project was built based on the Joint Statement signed between the Ministry of Foreign Affairs of the Netherlands and the Ministry of Industry and Trade (MOIT), which articulating areas for cooperating in reducing emissions in production and consumption towards the CE, through developing a capacity-building program and supporting technology transfers and providing technical support in the fields of industrial wastewater, circular design, eco-innovation, recycling plastics and minimizing primary plastic materials.

There are synergies between the Phase 2 project and the ACE-Biz project on promoting circular economy transition, especially in plastic and waste sectors. Furthermore, after completion of Phase 2 project, the ACE-Biz project has continued to provide financial support to maintain the operation of Viet Nam Circular Economy Hub.

(ii) Viet Nam National Plastic Action Partnership (NPAP)

In 2019, Viet Nam was one of the first countries in the world to join the Global Plastic Action Partnership, an initiative hosted by the World Economic Forum. The country then established a National Plastic Action Partnership (NPAP), which is led by MONRE. The initiative was previously hosted by the WWF in Viet Nam. Building on UNDP's long-standing partnership with MAE and extension portfolio on CE and plastic, UNDP was approached to support the hosting of the Secretariat of the National Plastic Action Partnership Viet Nam. This illustrates the prominent role taken by UNDP in the field in Viet Nam. As UNDP becomes the new host organization of the NPAP, a number of synergies and entry points have been identified to deliver impactful results and accelerate action. Three key areas are particularly relevant for this project:

- Development of the Viet Nam NPAP multi-stakeholder action roadmap.
- Promote inclusivity through the design, dissemination, and implementation of the Gender and Social Inclusion Strategy (GESI) and the set-up of the Task Force.
- UNDP will work closely with national and international members of NPAP Viet Nam and other stakeholders to catalyze and accelerate the plastic circular economy across key sectors.
- Accelerate and facilitate increased partnerships among the plastic ecosystem actors through the convening of over organizations national and international operating in the field.

(iii) Partnership between UNDP and International Water Management Institution (IWMI) under the Viet Nam Circular Economy Hub

The partnership between UNDP and IWMI aim develop a subsection on CE in agriculture under the CE Hub and organize capacity building and dissemination of circular bioeconomy models in coffee and rice value chain in Son La/Dak Lak and Can Tho. Under this project, Rice and Coffee value chains are prioritized to support the governmental commitment in "The 1 million ha high quality and low carbon rice program towards green growth in the Mekong Delta" and the EU Deforestation-free Regulation (EUDR). Three key actions have been implemented since December 2023:

- Design layout and develop a subsection on CE in agriculture sector with visual design that aligns with CE Hub's website overall theme; knowledge and information are curated to post on the subsection
- Organize Capacity building, and dissemination of circular bioeconomy models in selected sites in Viet Nam, including Son La/Dak Lak and Can Tho, including training need assessment, at least 01 training for each value chain, 03 days/training
- Upgrade circular business models for selected value chains, including feasibility for at least 02 potential business models and technical advisory service

Way forward / Next steps

Building on the strong policy foundation and proven waste management models developed under Phase 2 in Binh Dinh, the way forward will focus on scaling, replication, and system integration across new geographies and waste streams, including:

- The Norwegian-supported Phase 3 project, approved for implementation in Quang Ninh and Phu Quoc, will capitalize on lessons learned from Binh Dinh by further strengthening policy frameworks, fostering innovation, improving waste collection and source segregation, promoting recycling markets, engaging both private and informal sectors, and advancing co-processing as an alternative to landfilling. A key reference point is the integrated waste management model piloted in Quy Nhon City, where a Material Recovery Facility (MRF) and waste sorting at source were successfully established in close collaboration with local authorities and private sector.
- Moreover, building on this MRF model, UNDP is partnering with the Alliance to End Plastic Waste (AEPW) to undertake feasibility studies for the development of MRFs in strategic urban centers such as Hai Phong, Binh Duong (HCMC), and Hue, with a view to attracting investment and enabling replication at scale.
- In parallel, under the UNDP-TCCF project⁸, the “Fishing Boats Bringing Plastic Waste Back to the Shore” programme will continue to expand geographically, with pilots planned in 2026 at Ninh Co, Phan Thiet, and Hon Ro Fishing Ports, further strengthening circular solutions for marine plastic pollution and reinforcing linkages between coastal waste collection, recycling infrastructure, and inclusive value chains.

⁸ The Project “Management of Plastic Waste and Circular Interventions on Plastics in South, Southeast Asia and the Pacific” supported by The Coca Cola Foundation (TCCF), 2024-2027

Annex 1. Co-financing table provided by Binh Dinh Provincial People's Committee

No.	Sources of co-financing	Items	Type of co-financing	Amount in VND	Amount in USD
Co-financing in cash				3,785,624,760	159,261
1	People’s Committee of Quy Nhon City	Project operating costs (labor, office rental, office supplies, etc.)	Cash	886,424,760	37,292
		Costs for organizing events and technical meetings with municipal departments and specialized divisions of the City People’s Committee to provide direct support to the Project	Cash	360,000,000	15,145
		Costs for organizing meetings at grassroots localities (21 wards and communes) to provide direct support to the Project	Cash	403,200,000	16,963
		Travel and study visit costs	Cash	420,000,000	17,669
2	Management Board of Quy Nhon Fishing Port	Costs for organizing events and technical meetings to provide direct support to the Project	Cash	72,000,000	3,029
3	Binh Dinh Environment JSC.	Costs for organizing events and technical meetings to provide direct support to the Project	Cash	144,000,000	6,058
		Costs for constructing facilities for the Material Recovery Facility (warehouse, material storage yard, and construction of processing buildings)	Cash	1,500,000,000	63,105
Co-financing in kind				11,382,238,000	478,849
1	People’s Committee of Quy Nhon City	Costs for providing household waste bins and public waste bins; organizing waste collection and transportation to implement the waste segregation at source model	In-kind	710,000,000	
		Communication events in communes on waste management	In-kind	200,000,000	
2	Binh Dinh Environment JSC.	Land and construction costs for two communication and collection points inside the city	In-kind	2,872,238,000	
		Land for the Long My Material Recovery Facility	In-kind	1,200,000,000	
3	Management Board of Quy Nhon Fishing Port	Land for the construction of collection points/warehouse for waste sorting and recycling	In-kind	2,400,000,000	
4	Private sector in fisheries sector	Fishing vessels participating in the pilot program for the collection of plastic waste from the fisheries sector (100 vessels)	In-kind	4,000,000,000	
Total					638,109

Annex 2. Financial Report