SUMMARY REPORT

MITIGATING MARINE PLASTIC DEBRIS IN VIET NAM PROJECT

(2020-2025)

GENERAL INFORMATION

The Summary Report for the Project "Mitigating marine plastic debris in Vietnam" Project has been developed based on the compilation of implementation results across 10 provinces/cities and 3 marine protected areas during the period 2020–2025. The report encompasses: (i) an overview of the Project; (ii) a summary of activities and key achievements under each component, including Communication; Solid waste management policy and extended producer responsibility (EPR); Plastic Smart Cities; Fisheries and marine protected areas; (iii) implementation results according to the Project's indicators; and (iv) conclusions and recommendations.

The analyses, data, and assessments within this report are formulated from a process of document review, field surveys, expert interviews, and qualitative-quantitative analysis at the local level, and do not necessarily reflect the official views of the Vietnam Agency of Seas and Islands (VASI), the World Wide Fund for Nature in Vietnam (WWF-Viet Nam), the donor, or co-implementing partners.

This report is produced within the framework of the "Mitigating marine plastic debris in Vietnam" Project funded by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection of the Federal Republic of Germany and implemented in collaboration with the Vietnam Agency of Seas and Islands and WWF-Vietnam.

ACKNOWLEDGEMENT

The "Mitigating marine plastic debris in Vietnam" Project (hereinafter referred to as the Project) was implemented to contribute to addressing one of the most pressing environmental challenges today—marine plastic pollution. The success of the Project is the result of close collaboration and partnership among various stakeholders at international, national, and local levels.

First and foremost, we would like to express our sincere gratitude to the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection of the Federal Republic of Germany (BMU)—the donor of the Project—for their financial support and companionship with Vietnam throughout the implementation process. This invaluable support not only demonstrates a strong commitment to global environmental protection efforts but also serves as a significant driving force for Vietnam to effectively deploy solutions to reduce marine plastic waste. At the same time, we extend our deep appreciation to the Ministry of Agriculture and Environment of Vietnam—the Project's governing body (formerly the Ministry of Natural Resources and Environment)—along with its affiliated units and the People's Committees of the 10 participating provinces/cities, for their continuous guidance, support, and facilitation of all Project activities.

This success also bears the profound imprint of state management agencies from central to local levels, social organizations, research institutions, the business community, and residents in 9 provinces/cities and 3 marine protected areas. Beyond providing support, these partners have directly implemented numerous specific solutions—from developing mechanisms and policies for solid waste management and extended producer responsibility (EPR) to organizing communication campaigns for behavior change and piloting local waste management models.

This report consolidates the key achievements and practical lessons learned throughout the implementation process. We hope that it will serve as a valuable reference for ministries, sectors, localities, and organizations in formulating policies and implementing initiatives to mitigate plastic pollution in the future.

See the full text of the Project's activity report at the link: https://bit.ly/BCToanvanBMU

To view the products and communication tools that the Project has developed and built, please visit the following link: https://bit.ly/TLTruyenthongGiamnhua.

CONTENT

I. PROJECT OVERVIEW

The "Mitigating marine plastic debris in Vietnam" Project is a key initiative launched to address the state of marine plastic debris pollution, an increasingly severe environmental issue. The Project was approved under Decision No. 1462/QD-BTNMT dated July 2, 2020, and was adjusted by Decision No. 3682/QD-BTNMT dated November 15, 2024. This serves as the critical legal basis for implementing activities that support the National action plan for marine plastic debris management until 2030, in alignment with the sustainable development orientation of the government of Vietnam.

The Project was assigned by the Ministry of Natural Resources and Environment (now the Ministry of Agriculture and Environment) to the Vietnam Agency of Seas and Islands (VASI) to implement in collaboration with the World Wide Fund for Nature in Vietnam (WWF-Viet Nam) during the 2020–2025 period. The Project's objective is to effectively support plastic waste management, contributing to the mitigation of marine plastic pollution and promoting the achievement of national environmental goals. The Project is designed with four key components: improving the policy framework and guiding documents; organizing communications and education to raise awareness and change consumer behavior; building the Plastic Smart City model; and enhancing plastic waste management in the fisheries sector and at three marine protected areas (Con Dao, Cu Lao Cham, Phu Quoc).

The Project's implementation scope covers 7 cities/districts across provinces/cities from the central to the southern regions, along with 3 marine protected areas. The Project focuses on promoting close coordination among local authorities, management agencies, businesses, and communities, with the aim of building pioneering and replicable models and creating a solid foundation for sustainable plastic waste management.

The project's implementation scope includes the cities/districts of Ha Tinh (Ha Tinh province), Dong Hoi (Quang Binh province), A Luoi (Thua Thien Hue province), Thanh Khe (Da Nang city), Phu Yen, Tan An and Vinh Hung (Long An province), Rach Gia (Kien Giang province), with the addition of Dong Ha and Con Co (Quang Tri province) from 2024, along with three marine protected areas: Cu Lao Cham (Quang Nam province), Con Dao (Ba Ria Vung Tau province), and Phu Quoc (Kien Giang province). The project emphasizes the close coordination of local authorities, management agencies, businesses, and communities to develop, replicate, and expand effective models and create a foundation for sustainable marine plastic waste management.

The project expects to build a modern communication platform; implement large-scale communication programs; enhance capacity for thousands of households and business establishments; establish a synchronized plastic waste monitoring system; and support national and international policy negotiation processes. Concurrently, the marine protected areas will be developed into model examples of plastic waste management and reduction, thereby actively contributing to the protection of Vietnam's marine environment.

II. SUMMARY OF ACTIVITIES AND OUTSTANDING RESULTS BY COMPONENT

The Project “Mitigating marine plastic debris in Vietnam" has been developed with a multidimensional approach, integrating policy, technical, and communication strategies to promote behavioral change and improve plastic waste management systems in coastal localities. During the implementation process, the Project is organized into specialized components—including communication, solid waste management policy and extended producer responsibility (EPR), Plastic Smart Cities, and Fisheries and marine protected areas—with specific objectives, target groups, and solutions. Each component functions independently within its area of expertise while forming a cohesive whole, mutually supporting one another to amplify impact on a broad and sustainable scale.

The subsequent sections of this report provide an overview of the main activities and notable achievements of each component within the framework of the Project.

1. Communications Component

Within the scope of the Project, communication is not only a separate component but also plays a crucial role in supporting policy implementation, technical deployment, and mobilizing community action. At the community level, communication helps connect information, emotions, and actions, and proves especially effective when integrated into practical models such as markets, schools, fishing ports or supermarkets. Through this approach, people are equipped with knowledge (K), enhanced awareness and a sense of responsibility (A), and develop sustainable consumption behaviors (B) according to the KAB model[1].

The 2025 sociological survey conducted in 09 localities and a control site (Hanoi City) revealed significant improvements: the proportion of individuals with "fair" knowledge tripled. The behavior of refusing single-use plastic products increased from 47.1% to 97.0%, reflecting a marked change in practice. A net impact analysis of the communication activities, using the "Difference-in-Differences" (DiD) method, recorded an increase of +10.3%. The Standardized Behavioral Progress Index (BPI) also rose from 45.67 in 2020 to 59.67 in 2025. These results demonstrate that the communication activities made an effective contribution to enhancing community awareness and behavior change.

To develop effective messaging, the Project implemented a series of behavioral surveys, beginning in 2020. The initial findings showed that while people clearly recognized the harm of plastic waste, they often expected policy interventions rather than changing their own behavior. A rapid survey in Hanoi and Ho Chi Minh City noted a trend of increased plastic packaging use due to the COVID-19 pandemic, despite a desire from both businesses and consumers for more eco-friendly solutions. Based on this, the Social and Behavior Change Communication (SBCC) strategy was developed in consultation with over 50 communication experts and was continuously adjusted through periodic surveys to suit each target audience and local context.

On this foundation, numerous national-scale communication campaigns were launched, contributing to the dissemination of messages and a shift in community awareness. The Earth Hour 2020–2021 campaign, themed "Refuse and reduce single-use plastic products," garnered over 5 million impressions nationwide. The "Mitigate marine plastic debris" Fanpage and the website www.giamracnhua.vn have become sustainable online communication platforms with hundreds of thousands of interactions and regularly updated content. At the 31st SEA Games, the "Green SEA Games" campaign reached over 1 million people while directly collecting nearly 1 ton of recyclable plastic waste. The nationwide "Kieng Nhua" ("Plastic Pledge") campaign, combined with the plastic reduction campaign for tourists in Con Dao and Phu Quoc via the website www.kiengnhua.vn, has rolled out a variety of rich activities, thereby helping to establish green consumption standards for residents and tourists.

Figure 1: The activity of exchanging trash for gifts was implemented by the Project in the Green SEA Games campaign.

[1] The KAB model—Knowledge, Attitude, Behavior—is a widely used theoretical framework adopted by UNICEF, WHO, and many programs for communication and behavior change.

In the fisheries sector, plastic reduction communication campaigns were organized at key fishing ports using diverse formats such as panels, banners, leaflets, handbooks, and notably, the thematic report "Eradicating Ghost Gear," creating a widespread impact on fishing communities and fisheries management agencies. In the localities, practical communication models were implemented, yielding concrete results. In Quang Binh, a communication model combining the distribution of reusable plastic baskets and paper bags to small merchants and marketgoers contributed to forming a habit of limiting nylon bags. In Con Dao, the "Con Dao says no to nylon bags" and "Arrive without plastic – Leave with love" campaigns, which combined direct and online communication, reached nearly 2 million impressions, creating a strong ripple effect among residents and tourists. The "Waste separation for humanity" campaign in Tan An City, Long An province, utilized everyday communication materials and language to convey a modern message, attracting over 300,000 impressions and 125,000 video views.

OME IMPRESSIVE FIGURES AFTER TWO IMPLEMENTATIONS OF NYLON BAG-FREE DAY

16 partnering units
200,000 nylon bags reduced
~15,000 social media interactions
~2,500 visitors participating in event booths
~2,000 stories and environmental protection messages shared directly and online
~200 entries in the "Fewer nylon bags, more sprouts of life" contest; with 66 entries awarded prizes.

Parallel to community communication activities, the Project placed special emphasis on capacity building for relevant stakeholders. Numerous training programs were organized for state management officials, mass organization staff, teachers, journalists, and businesses, focusing on topics such as: behavior change communication skills, the use of digital tools in communication design, administrative education methods, and guidance on implementing the extended producer responsibility (EPR) mechanism. Additionally, contests like "Green consumption initiatives," "Action for a green ocean," and beach cleanup activities in Nghe An and Ha Tinh have created practical forums, helping to mobilize voluntary participation from residents and the business community in environmental protection efforts.

The project emphasized communication within the press and media—an important channel for raising community awareness and promoting policy. The "Reducing marine plastic pollution" Journalism Award attracted hundreds of entries from national and local press, with many high-quality professional articles vividly reflecting the current situation and innovative reduction initiatives.

The project also organized in-depth training for over 120 journalists and editors, focusing on environmental investigation and behavioral communication skills. Field trips to Long An, Phu Yen, Con Dao, and Phu Quoc helped journalists access effective models, thereby disseminating them to the public. The 2021–2024 period recorded over 500 news items, articles, and reports being broadcast, contributing to creating positive public opinion and supporting the policy process.

In the private economic sector, the Project pioneered and promoted the "Plastic Bag-Free Day" campaign (July 3rd) at over 50 supermarkets and shopping centers nationwide, especially in major cities like Hanoi, Da Nang, and Hue. Many retailers such as GO!, AEON, and Lotte Mart have maintained nylon bag reduction policies and made long-term commitments. The “river to tell plastic stories" and "A thousand years of plastic waste" campaigns, along with research in the e-commerce sector, have contributed to promoting sustainable consumption. In Hanoi City, over 30 service establishments have joined the "Say no to single-use plastics" movement, with 15 units officially signing commitments, while the remainder agreed to participate and have gradually implemented plastic reduction measures suitable for their operational conditions.

Additionally, the Project continuously organized and participated in many conferences, forums, and talks to connect relevant stakeholders and disseminate initiatives for plastic waste reduction. A typical example is the conference "Models and solutions for municipal solid waste management and plastic waste reduction" (Hanoi, 10/2023) and a talk on the same theme organized in March 2023, which were highlights attracting hundreds of delegates.

Figure 2: Delegates share in-depth content, concurrently helping to shape awareness and action from the central to the local level at the online talk "Models and solutions for municipal solid waste management and plastic waste reduction" held in March 2024.

Additionally, the Project also participated in international forums such as "Seas of Solutions" and the ASEAN Maritime Forum, contributing to bringing Vietnam's plastic smart city model to the region. Concurrently, the annual summary conference series was also organized, serving as a forum for exchanging practical lessons and experiences, creating opportunities for localities, management agencies, and civil society organizations to review implementation results, share effective models, and propose future directions for the Project's implementation process.

In education, the Project developed a set of environmental education materials for primary and lower secondary students, integrating them into both formal curricula and extracurricular activities. Together with the Plastic Smart Cities Component and the Fisheries and Marine Protected Areas Component, the Project supported 114 schools in implementing creative educational activities to help form correct awareness and positive behaviors among students. Notably in 2024, the Project organized 03 regional TOT (Training of Trainers) programs for over 150 teachers and staff from coastal provinces in the Northern, Central, and Southern regions. At the same time, the Project coordinated with Hanoi National University and Hue University to integrate content on plastic waste management into 05 bachelor's degree programs, through course modules, thematic workshops, and extracurricular activities aimed at enhancing the capacity of students – the future workforce in the environmental sector.

Figure 3: Participants of the TOT (Training of Trainers) course in the Central coastal region on a field trip to the Ru Cha mangrove forest, part of the Tam Giang – Cau Hai lagoon system, Thua Thien – Hue province.

The Project also invested in developing specialized communication materials for each target group, including: fishermen, businesses, management officials, consumers, and social organizations. The material system, comprising leaflets, videos, infographics, panels, handbooks, etc., has actively supported local agencies, schools, and mass organizations in organizing communication and behavior change activities within the community. This set of products is one of the Project's key initiatives aimed at building a foundation of sustainable awareness and behavior for the younger generation – the future citizens responsible for the environment.

2. Solid Waste Management Policy and Extended Producer Responsibility (EPR) Component

From the inception stage, the Policy Component was identified as a strategic pillar, playing a fundamental role in supporting Vietnam in plastic lifecycle management and circular economy, including marine plastic pollution management. With the objectives of supporting the development and improvement of legal frameworks, enhancing enforcement capacity and positioning Vietnam's role on the international stage, this component goes beyond providing technical assistance. It also plays an advisory and advocacy role in fostering an open, flexible, and context-appropriate policy space—helping to translate commitments into concrete, wide-reaching actions.

Key outcomes delivering valuable impacts include:

- 34 research/survey programs have been developed;
- 15 publications have been released, providing analysis, synthesis, and policy recommendations for effective plastic, and packaging management, including insights and guidance on implementing Circular Economy approaches and Extended Producer Responsibility (EPR) in Vietnam. The Project has also supported Vietnam's participation in, and provided advisory inputs to, regional and international forums on transboundary plastic pollution issues, including Vietnam's preparation for engaging in the development and negotiation of a legally binding global treaty on plastic pollution, covering marine plastic pollution as well.
- 28 national-level technical consultation workshops were organized, engaging domestic and international experts; representatives from regulatory agencies of relevant ministries and sectors; civil society organizations; national and international development partners; and businesses operating in the fields of plastics, packaging, Extended Producer Responsibility (EPR), and the Circular Economy. The workshops aimed to consult on research findings, facilitate exchanges, and propose recommendations and guidelines for the management and enforcement of regulations related to plastics and packaging.
- Connecting the ambitions of 145 policy makers and senior leaders at the central and local levels.

Figure 4: WWF-Vietnam received a certificate of merit from the Ministry of Natural Resources and Environment.

The first and foundational milestone was the signing of strategic Memorandums of Understanding (MoUs) between the Ministry of Natural Resources and Environment (now the Ministry of Agriculture and Environment) and WWF in 2019 and 2022. These agreements established a long-term cooperation mechanism to advance policy priorities in plastic waste management, biodiversity conservation, and climate change response. Building on this foundation, the project implemented a series of activities, including high-level workshops, technical roundtables, the formation and engagement of thematic working groups, policy research support, and a range of capacity-building programs for government officials and the technical community.

Through 34 research and survey programs and 28 national-level consultation workshops, the project provided scientific evidence, analytical findings, synthesis reports, and practical policy recommendations to inform policy formulation and implementation. The project also supported the development of key legal and regulatory documents, notably the Law on Environmental Protection (2020) and Decree No. 08/2022/ND-CP, which introduced pioneering provisions on source separation of waste, Extended Producer Responsibility (EPR), and marine plastic pollution control. Strategic documents supported include the National Environmental Protection Strategy to 2030, the National Action Plan on Circular Economy, the Proposal on the International Treaty on Plastic Pollution (Decision No. 1407/QD-TTg), and technical sectoral guidelines such as household solid waste separation (Official Letter No. 9368/BTNMT/KSONMT) and the national index for marine plastic pollution control.

As part of efforts to support the development of the EPR mechanism, in addition to foundational studies—such as plastic waste flows from source to sea, effectiveness assessments of the EPR mechanism, surveys on urban and coastal waste collection and treatment systems, the role of the informal sector, and recommendations for eco-design criteria for e-commerce packaging—the project also worked closely with the Ministry of Natural Resources and Environment to establish the National EPR Task Force (under Decision No. 1612/QD-BTNMT). This included support for the development of organizational regulations, implementation guidelines, data system development, and the operation of the National EPR Portal.

Figure 5: Consultation workshop on technical guidelines for classification of household solid waste in Hanoi.

The Project also played a proactive role in fostering connections and building a cross-sectoral partnership network**.** Collaboration with organizations such as the World Economic Forum (WEF), PRO Vietnam, VBCSD-VCCI, the Vietnam Plastics Association, and the Vietnam Recycled Plastics Association, among others, not only brought diverse perspectives to the table but also helped promote consensus among regulators, businesses, and civil society in policy development and implementation. Through roundtable discussions, public–private dialogues, and pilot initiatives, the project worked alongside these partners to contribute policy feedback, advocate for plastic reduction commitments, and provide real-world insights from production and consumption practices. The expansion of this partnership network enhanced the feasibility and coherence of policy design and implementation—especially in emerging areas such as eco-friendly packaging, EPR, and circular economy models.

Notably, in preparation for and during the international negotiations on the Global Plastics Treaty**,** the project organized a series of technical workshops, policy studies, and provided in-depth inputs to strengthen Vietnam's negotiation capacity. This support included: impact assessments on businesses, reviews of international best practices, identification of PUAs[2], and the development of scenario options tailored to Vietnam's context. In

---

[2] PUA**,** short for Problematic and Unnecessary Applications of plastics, is a concept introduced in the context of negotiations on a global treaty on plastic pollution. It aims to identify types of plastics or plastic products that should be restricted, phased out, or replaced due to their harmful environmental impacts and lack of essential function.

parallel, the project also coordinated support for Vietnam’s delegation to fully participate in all negotiation rounds of the Intergovernmental Negotiating Committee (INC-1 to INC-5), underscoring its strategic role in helping bring Vietnam’s voice into global commitments.

Research findings have also been incorporated and recognized as recommendations in more than 15 technical publications, including: waste separation guidelines, plastic waste generation reports, a marine plastic pollution monitoring indicator framework, and EPR implementation guidance for businesses. Many of these materials have been utilized in the development of provincial action plans, source separation schemes, and training programs. Through this process, the knowledge system has been effectively transformed into decision-support tools, contributing to the advancement of the circular economy and sustainable plastic management.

A total of 28 national-level technical workshops (and over 40 technical dialogues at the local level), involving nearly 2,000 participants, have gone beyond consultations on draft laws and implementing regulations. These events have served as interregional learning platforms for sharing experiences on source separation models, pilot EPR mechanisms, marine plastic management, and private sector engagement. As a result, over 145 policymakers and senior leaders have been connected, forming a national coordination network for plastic policy - bridging central and local levels and promoting coordinated action and two-way policy feedback.

Figure 6: The “Ocean plastic waste profile” is used as a source of knowledge and useful overview information on ocean plastic waste to enhance the capacity of state management agencies. See at

In terms of capacity building, the Project has delivered intensive training programs for more than 300 participants, including environmental management officials, technical experts, business representatives, and journalists. Training topics covered a wide range, from waste separation techniques and EPR mechanism design to the development of local circular economy plans and international policy negotiation skills. Several provinces such as Long An, Phu Yen, and Quang Nam have proactively applied these trainings in practice, integrating them into the development of waste separation schemes, plastic reduction plans, and local policy communication. Some localities have even proposed incorporating Circular Economy and EPR content into their long-term socio-economic development strategies.

Overall, the Policy Component has played not only a technical advisory role but also served as a coordinator in the consultation process—providing recommendations and mobilizing the participation of businesses and local authorities to ensure the feasibility of policies. It has contributed to the establishment of a solid institutional foundation and implementation network, fostered multi-stakeholder consensus, and helped translate anti-plastic pollution initiatives into practice through systematic policy mechanisms. These outcomes have elevated Vietnam’s position in the international environmental arena and reaffirmed the central role of policy in driving systemic change in plastic waste management**.** The development of a comprehensive legal framework and a broad partnership network lays the groundwork for sustaining Vietnam’s long-term efforts to combat plastic pollution—moving towards sustainable development goals and deeper integration with the international community.

3. Plastic Smart Cities Component

The Plastic Smart Cities component is part of WWF's global initiative calling for cities to commit to reducing plastic pollution, aimed at engaging 1,000 Plastic Smart Cities by 2030. Viet Nam is one of six Asian countries participating in the initiative, alongside Indonesia, the Philippines, Thailand, Malaysia, and China.

This project inherited the foundation of the previous program (2018–2021) funded by the Norwegian Development Cooperation Agency (NORAD), which was previously implemented in Da Nang, Phu Yen, and Rach Gia. Moreover, the project has expanded to include Ha Tinh, A Luoi, Dong Hoi, and Long An, aiming to strengthen plastic waste management capacities across urban, coastal, and mountainous areas.

Key activities included: waste management – collection – sorting- treatment; increasing recycling rates; public communication and education; addressing pollution hotspots; and promoting public–private partnerships. Several notable models have been scaled up, including plastic bag-free markets, waste separation and treatment at source, hotspot elimination with recontamination prevention interventions, plastic-free schools, fishermen bring-back-waste to shore model, and the Green House, etc.

Once localities committed to participation, the project conducted baseline studies to assess current waste management practices, identify sources of waste emissions and hotspots. The research findings, particularly the waste flow diagrams, supported the development of Local Plastic Waste Management Action Plans tailored to each locality, aligning closely with the National Action Plan (Decision No. 1746/QD-TTg).

Despite disruptions due to COVID-19, by November 2021, 6 out of 7 localities had signed commitments to join the initiative. By May 2024, all 7 localities had issued their Action Plans to 2025, with a vision to 2030, and are now implementing specific activities. In 2024, Quang Tri province proactively proposed joining the program, expanding to include Dong Ha city and Con Co island district through an amended Project Document (Decision No. 3682/QD-BTNMT dated November 15, 2024).

3.1. Activities in Phu Yen Province

From 2018 to 2024, Phu Yen emerged as a spearheading locality in implementing plastic reduction initiatives within two key projects: "Plastic Smart Cities" and "Mitigating marine plastic waste in Vietnam". The Province issued its Plastic waste management action plan to 2030 (Decision No. 2179/QD-UBND) along with detailed annual plans focusing on raising awareness, collecting – classifying - treating waste, controlling marine pollution, strengthening research and cooperation in ocean plastic waste management.

The campaign "The invasion of trash" garnered strong public attention via media, social networks, and supermarkets. The Phu Yen Women's Union has played a key role in training communication skills, mobilizing plastic reduction commitments, and integrating plastic reduction content into major events. A highlight was Hon Yen Mural Village, which hosted a series of activities including: training sessions, mural painting, and provided waste collection equipment.

The Plastic free school model was piloted at 13 schools, integrating plastic reduction content into both lessons and extracurricular activities. The Department of Education and Training has issued a plan to scale up the "Zero-Waste, Green, Clean, Safe Schools" initiative for 2023–2025 and trained over 150 teachers.

In addition, the Project also supported several local initiatives, including the production of plates and bowls from sea almond leaves (Tuyen Mo Cau group), a vermicomposting model at An Phu Market, and effective waste sorting models at Phuong 7 Market and within households.

Regarding hotspot elimination: over 300m³ of waste was processed at Hon Yen, and a sustainable waste collection system was established, with landscaping efforts to improve the area. During the COVID-19 period, more than 120 large waste bins were supplied for quarantine zones, contributing to the effective management of medical waste.

The waste gathering points at An My and Xuan Hai were also comprehensively upgraded to improve operational capacity and reduce waste leakage into the environment.

Figure 7: Separate collection and organic waste treatment activities at Tho Vuc Landfill, Phu Yen Province

Communication activities and documentation have been highly effective through reports and 5 video clips, garnering over 250,000 views and widely spreading the exemplary models.

The beach cleanup campaigns at Vung Ro and An Hoa Hai attracted over 400 participants, collecting nearly 30 tons of waste and generating significant positive attention within the community. The model has successfully mobilized 450 raft owners to commit to bringing waste back to shore, collecting 500–600 kg of plastic waste per day in 2023, and extending outreach to 154 new aquaculture households in 2024.

Notably, the fishermen bringing waste back to shore model, with nearly 500 fishing vessels participating, collected over 5.3 tons of waste in 2024, contributing to sustainable marine environmental protection.

Concurrently, the province collaborated on developing a solid waste management proposal for Tuy Hoa City and studied a roadmap for reducing plastic bags in supermarkets, laying the crucial groundwork for the gradual implementation of sustainable environmental policies in the coming years.

3.2. Activities in Ha Tinh City, Ha Tinh Province

From 2020 to 2025, Ha Tinh City has closely collaborated with the Project on plastic waste reduction and management. A 2020 baseline survey recorded an estimated leakage of around 108 tons per year, mainly from riverside dumping, local markets and spillage during transportation. The city has issued an Action Plan for the 2022–2025 period, focusing on five key tasks: policy development, communication and awareness raising, waste separation and collection, recycling and green consumption, and monitoring of plastic leakage.

A highlight is the plastic-free school model implemented in 6 schools, engaging 180 teachers and over 2,000 students with a series of activities: training sessions, waste audits, knowledge and behavior surveys, extracurricular activities, and a summary workshop (2023).

With support from the Project, the Ha Tinh City Women's Union has also played an important role in environmental protection in the city and has strongly implemented various models, such as:

- Waste sorting and composting (60 households);
- Indigenous microorganisms production IMO (240 members across 15 communes/wards, distributing composting bins and tools);
- Eco-saving houses (30 sub-unions, with regular monthly fundraising);
- Markets reducing plastic bags at Ha Tinh market and then replicated at Cau Dong and Trung Dinh markets;
- The widespread "Women hand in hand for environmental protection" competition.

The Ha Tinh City Youth Union also effectively implemented several activities:

- Eliminating waste hotspots at Do market (collecting 60 tons, and planting landscape trees);
- Constructing two recycled playgrounds (opening in 2023 and 2025);
- Organizing the "Green Revolution" video competition with 87 entries, raising awareness among youth.

Additionally, the Project has supported the construction of pesticide packaging collection tanks in 8 communes/wards, collecting about 1,300–1,500 kg per year. A pilot model for organic waste separation and treatment was also implemented at Binh Huong Market. Despite facing challenges, this model has provided valuable lessons.

In terms of overall management, Ha Tinh City and the project have completed the solid waste management plan (2024) and piloted data digitalization and waste management software, laying the groundwork for improving long-term urban management effectiveness.

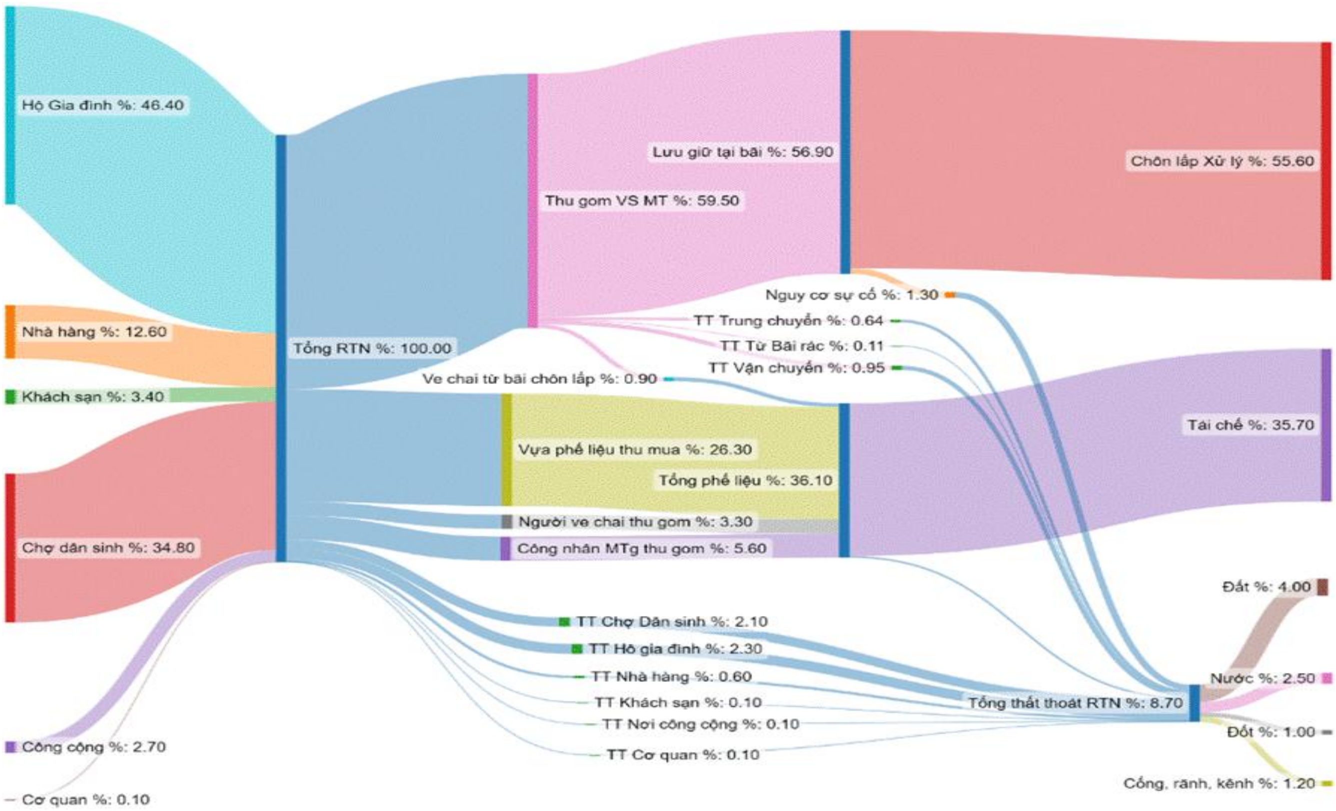


Figure 8: Waste flow summary and assessment of plastic leakage sources in Ha Tinh City

3.3. Activities in Dong Hoi City, Quang Binh Province

In 2021, the Project began engaging Dong Hoi City. However, full-scale activities were only officially implemented in 2024–2025 after the City People’s Committee signed a commitment to join the Plastic Smart Cities program on May 3, 2024. A survey recorded a waste collection rate of 95.5% (in 2019), with a target of reaching 98.5% by 2025. It also revealed that the city generated over 100,000 tonnes of waste annually, with plastic accounting for nearly 12%. In response, the city issued Action Plan No. 174-KH-UBND on April 16, 2024, aiming to strengthen source separation, promote recycling, raise public awareness, and control plastic pollution hotspots.

The Plastic Reduction School model was implemented starting in 2021 at 7 pilot schools, including training, communication, waste sorting and recycling activities. In 2024, nearly 120 teachers from 36 schools received further training on integrating plastic reduction content into their lessons, combined with communication skills, recyclable waste separation, and piloting leaf composting. The project has provided equipment, materials, and coordinated communication support.

One of the Project’s most successful models is the Fishermen bringing waste back to shore” initiative, which has been implemented in Dong Hoi:

Phase	Activities	Number of Participating Vessels	Volume of collected waste (kg)
Phase 1 (8/2021-3/2021) *Bao Ninh Commune*	Conducted plastic reduction outreach to nearly 3,000 members of the Women's Union. • Training on making recycled net bags for core groups, providing 100 waste collection bags for fishing boats, and 100 shopping bags. • 100 fishing vessel owners from the Fisheries Cooperative committed to and implemented the practice of bringing waste back to shore.	100	1.325
Phase 2 (9/2022-12/2022) *Bao Ninh Commune* *Hai Thanh Ward* *Quang Phu Commune*	• Organized 3 communication skills training sessions on plastic waste for core members and grassroots officials from 3 localities, reaching 320 key participants. • Conducted 2 technical training courses on making recycled net bags for 50 participants in Quang Phu and Hai Thanh. • Produced 100 recycled shopping net bags and 700 waste collection net bags. • Mobilized at least 300 additional boats to join the model, increasing the total number of 400 vessels to commit and implement bringing waste to shore. • Supplied 10 waste bins (240L). • Organized a summary workshop on the model, lessons learned, and future direction for sustaining model development.	300	2.224
Phase 3 (6/2023-8/2023) *Bao Ninh Commune* *Hai Thanh Ward* *Quang Phu Commune*	• Installed 6 propaganda panels on plastic reduction and bringing waste back to shore across 3 localities. • Supported and operated 8 "Green Houses" in crowded residential/tourist areas. • Held 3 ward/commune-level dialogues on "Solutions to Sustain Marine Waste Collection Efforts," garnering valuable feedback for ongoing effective implementation. • Conducted 12 "Green Sundays" campaigns within four months. These activities continued beyond Phase 3. • Organized a provincial-level summary workshop to share experiences in bringing waste to shore.	Continuously monitor and measure data for 400 boats across phases 1 and 2	7.988
Phase 4 (11/2023-6/2024) *Bao Ninh Commune*	• Mobilized an additional 200 fishing vessels in Bao Ninh and Quang Phu to commit to and implement bringing waste to shore. • Strengthened communication on plastic reduction and environmental protection in the community of 3 communes through 22 integrated propaganda sessions.	200	9.968

Hai Thanh Ward Quang Phu Commune	• Increased recyclable waste collection in the 3 communes through the installation of 18 additional Green Houses.		
Total (4 Phases)	• 600 fishing vessels committed to bringing waste back to shore. • Raised community awareness in all 3 coastal areas (Bao Ninh, Hai Thanh, Quang Phu). • Enhancing recycled waste collection and fund-raising activities (24 Green Houses).	600	21.050

Table 1: "Mobilizing fishermen to bring waste back to shore" model in Dong Hoi City, Quang Binh Province

Dong Hoi City Youth Union conducted communication skills training for 50 core union members; organized a series of plastic reduction propaganda in 15 wards/communes with over 7,000 participants; launched a communication competition on plastic waste; carried out cleanup campaigns after the storm at beaches, collecting over 10 tons of waste; and improved waste hotspots at Dong Hoi market through communication and the installation of trash bins and propaganda panels. Additionally, the City Youth Union built a recycled playground in Duc Ninh commune and mobilized 3 pilot stores in plastic bag reduction.

The City Women's Union implemented TOT training on communication for 60 members; expanded the waste sorting and IMO production model to 1,375 households; scaled up the "Green House" model to 98 locations, collecting over 2.4 tons of recyclable waste; and sustained the plastic bag reduction market model at Dong Hoi and Nam Ly markets with communication activities, reuse cabinets, and efforts to change local vendors' behaviors.

The project also supported additional waste collection equipment, including: 50 240L waste bins, 30 beach cleanup devices, the renovation of waste classifying machines, and 10 carp-shaped recycling bins installed at the city's beaches. With the support of the project, the Solid Waste Management Plan for Dong Hoi City with the synchronous classification, collection, treatment orientation, aligned with 2020 Environmental Protection Law, was completed and handed over to the City People's Committee.

By the end of 2024, a model for collecting pesticide packaging was implemented with 99 small tanks, 5 concentrated tanks, 7 pushcarts, and 30 sets of protective equipment, contributing to the safe procession of this hazardous plastic waste.

3.4. Activities in Rach Gia City, Kien Giang Province

Rach Gia City, is one of three localities to continuously receive two projects on Plastic Smart City Project (2019-2021) with funding from the Norwegian Agency for Development Cooperation (NORAD) and the "Mitigating marine plastic debris in Vietnam" (2020-2023), built a solid foundation for sustainable waste management. A key highlight is the issuance of the Plastic waste management action plan to 2025 and detailed annual plans, focusing on: awareness raising, waste collection and separation, controlling plastic waste leakage into the ocean, and fostering research cooperation. The Project has supported the development, reviewing, and tailoring of the annual plans to ensure effectiveness and practical relevance.

Rach Gia also pioneered the implementation of the plastic waste reduction school model, including teacher training, school waste audits, developing plastic reduction regulations, and organizing many extracurricular activities at 5 key schools. From 2023, this model was expanded city-wide, integrating plastic reduction content into core courses. Prominent communication activities include "The Invasion of Trash" campaign, propaganda film to reduce plastic waste and promote tourism for the city, and events in response to World Environment Day in 2023 and 2024, with many experiential activities and environmental cleanup events. The project also conducted TOT training sessions for teachers, youth union members, and women's union members to build a core propaganda team.

Figure 9: Results before and after hotspot cleanup in Vinh Quang, Rach Gia City, 2021

Regarding plastic reduction models, Rach Gia simultaneously implemented initiatives such as: the School Environmental Club (Saving Green), 3T flower vases for collecting recycled waste at agencies, making bags and recycled products from old banners, and processing water hyacinth into organic fertilizer. Notably, the waste sorting and IMO application model was promoted with engagement of over 1,200 households, training sessions for commune/ward People's Committees, and pilot waste composting activities at supermarkets, contributing to lay the groundwork for implementation of the 2020 Law on Environmental Protection.

Hotspot elimination activities were robustly implemented in many areas with long-term residual plastic waste, alongside the installation of surveillance cameras and tree planting for greener. The Project also supported the establishment of green collection points, handed over public trash bins, and upgraded the waste collection system in rural areas.

With the riverine characteristics, Rach Gia also piloted waste collection by boat, which showed initial success and was proposed for integration into public services. The project also supported the construction of pesticide packaging collection tanks and implemented the "Fishermen bringing waste back to shore" model with waste storage houses, mesh bags, and propaganda murals at fishing ports, contributing to reducing plastic waste emissions from aquaculture activities.

3.5. Activities in A Luoi District, Thua Thien - Hue Province

During the 2021-2025 period, A Luoi District received support from the Project to improve waste management and plastic waste reduction at many levels, including surveying, developing the action plan, upgrading the collection system, communication, and piloting models. Initial surveys recorded a low centralized waste gathering rate (only 85% in the center, with most other areas self-processing waste), and a plastic leakage rate of nearly 38%. Based on this, the Plastic Waste Management Plan 2021-2025 (Decision No. 1269/QD-UBND) was issued, providing a basic framework for the synchronized implementation of activities: raising awareness – improving collection – monitoring waste leakage.

A key highlight was the Plastic Reduction School model implemented in five schools, attracting over 2,000 students and 150 teachers. Activities included training teachers, developing school regulations, purchasing waste classifying bins, implementing waste audits, and extracurricular activities, creating meaningful behavioral change. The contest "Green – Clean – Bright – 4 seasons of flowers" spread the green model throughout the education system and offices.

Capacity-building training was prioritized with training courses for mass organization officers, community-based tourism groups, and local officials. Community-based tourism groups in five communes applied the knowledge learned in treating organic waste using the IMO method and promoted green tourism communication.

Many diverse community-driven communication activities were carried out: the recycling festival, electronic posters, murals, pano check-in model at tourist spots, and a promoting green tourism film, helping to raise comprehensive awareness.

Figure 10: Tourists take check-in photos at plastic reduction communication panos in famous tourist destinations of A Luoi District (January-March 2023)

Many community driven models are operating effectively: over 320 Women's Union members engaged in the waste separation and organic waste treatment model at the source; 18 "Green Houses" collected recyclable waste, contributing to raise funds for social welfare; the plastic reduction market at Bot Đo and A Luoi markets attracted over 30 vendors; the recycled playground model expanded to 7 locations across the district. Additionally, more than 60 pesticide packaging collection tanks were installed in fields, helping to reduce hazardous waste, and the green market events attracted the participation of many local residents and tourists.

One of the important activities in A Luoi was the structured expansion of the waste collection system in 2 communes, Hong Thai and Hong Bac. Activities included supplying trash bins, handcarts, waste gathering points, piloting waste separation at source, and operating self-management groups for waste collection, laying the foundation for district-wide expansion.

The Project also accompanied the district in promoting pollution treatment at the Hong Thuong landfill through surveys, advocacy workshops, and proposing "co-processing method in cement kilns" method. In parallel, a centralized waste treatment site was constructed in Dong Son, enabling the district to gradually develop a sustainable waste management system.

These results demonstrate a significant transformation in waste management activities in A Luoi, laying a solid foundation for long-term operation and compliance with the 2020 Environmental Protection Law.

3.6. Activities in Thanh Khe District, Da Nang City

From 2020 to 2025, Thanh Khe District, Da Nang City, is one of three leading localities continuously collaborating with two projects on plastic waste reduction, including “Plastic Smart Cities” and “Mitigating marine plastic debris in Vietnam” in Viet Nam. The district was among the first to sign early a commitment and issued its Plastic waste management action plan (Decision No. 4051/QD-UBND dated December 10, 2020). It then proactively developed annual detailed plans and collaborated closely with the Project and relevant stakeholders.

Figure 11: Thanh Khe District Women's Union implementing the "Social Security Flower Vase" initiative since 2022

Communication activities have been a prominent highlight with a series of programs: a launching ceremony to launch the month of action for the environment at the district level; over 1,500 officials and residents participating in propaganda training on waste separation; events for Youth Union members, and teenagers; a series of training sessions for the Women's Union; the construction of 13 panos/communication stations, murals at Tam Thuan market, etc. These activities created a widespread impact, contributing to raising awareness and behavioral changes in the community.

The "Plastic waste reduction school" model was systematically implemented in six schools with many integrated activities, waste audits, training, and extracurricular events. Thanh Khe's education sector proactively replicated this model and integrated plastic reduction content into the official courses.

In terms of waste management, the Project and Thanh Khe District successfully transformed spontaneous waste hotspots into “Green gathering point”, conducted many surveys and river cleanups on the Phu Loc River (collecting a total of nearly 18 tonnes of waste), as well as maintained monitoring and handling violations through the surveillance cameras network and community monitoring teams.

Another outstanding model implemented in Thanh Khe is the "Social security flower vases" model (trash bins to collect recyclable waste in the community), initiated and operated by the Women's Union, with a total of 384 social security flower vase models across the district (the project supported with 155 models). Additionally, the Project supported Thanh Khe in implementing models such as encouraging fishermen to bring waste back to shore and proactively collecting waste from rivers/sea, piloting waste classification, and processing waste from food into compost.

At the city level, the Project actively researched and implemented a roadmap for reducing plastic bags at supermarkets and shopping centers. Consultation workshops (April 2023) and large-scale communication events on International plastic bag free day (July 2024) contributed to completing the policy framework and spreading plastic reduction actions across Da Nang city.

Furthermore, the Han Market plastic waste reduction model was systematically implemented in 2 phases with diverse and practical activities such as: eco-friendly stalls, a reusable plastic bag supply station, green sunday clean-up activities, communication activities with multilingual products (Vietnamese-English-Korean), training for small traders, and broadcasting plastic reduction content... all aimed at reducing plastic waste generated in trade and tourism activities.

With persistent support from the Project, Thanh Khe District has established a robust plastic waste management foundation, effectively scaled community-driven models/initiatives, and continues to make steady progress toward becoming a greener, cleaner, and more sustainable urban area.

3.7. Activities in Dong Ha City and Con Co District, Quang Tri Province

Despite officially joining the Project in early 2024, Dong Ha City and Con Co Island District have demonstrated clear proactivity, determination, and political commitment in plastic waste management. With technical support and resources from the Project, both localities quickly developed and issued their Plastic waste management action plans, while also implementing numerous practical activities tailored to their specific conditions and long-term development orientations.

In Dong Ha City, many outstanding initiatives have been implemented synchronously, such as: providing additional equipment and upgrading the collection system for domestic and recycled waste; replicating the "Green House" model for collecting recycled waste to raise funds; organizing plastic reduction communication campaigns at traditional markets and communities; piloting organic waste sorting and treatment models at household level; and supporting the development of a "Plastic reduction school" model linked with green spaces and environmental education activities. Notably, the large-scale communication event "Dong Ha Youth join hands to reduce plastic waste" contributed to spreading the message and inspired youth leadership and community responsibility in environmental protection activities.

In Con Co Island District, activities have focused on strengthening waste management facilities and equipment (providing trash bins, electric waste collection vehicles, water filtration systems, etc); organizing a series of communication events combined with cleanup campaigns for the marine and island environments; developing a communication plan to promote eco-friendly tourism; and carrying out campaigns to collect marine plastic waste and ghost nets in coral reef areas to protect the marine ecosystem – a valuable asset of the locality.

Figure 12: Handover of the eco-friendly playground and supporting equipment for the Plastic-Reducing School initiative at Ward 4 Primary & Secondary School, Dong Ha (January 2025)

The close coordination between the Project and local agencies has maximized the role of core forces such as the Women's Union, Youth Union, grassroots monitoring teams, etc. This involvement ensured effective outreach and fostered visible changes in community awareness and behavior. These initial achievements have significantly improved the local living environment and laid a strong foundation for Dong Ha and Con Co to sustain and replicate successful plastic reduction models/initiatives in the future, aiming to build green cities, green – clean – beautiful islands, and achieve sustainable development, in line with the environmental protection strategy of Quang Tri province and the entire country.

3.8. Activities in Long An Province

Rivers are the main routes for trash, especially plastics, to flow into the ocean, either transported from canal systems or leaked from landfills. The root cause is an inadequate land-based waste management system, combined with the widespread use of single-use plastics. The Mekong Delta, with its dense network of canals, is a high-risk area, and the Mekong River is ranked among the top 10 most plastic waste polluted rivers in the world. Before the Project, household waste was not classified into organic waste, recyclable waste and residual waste. Mixed waste is buried in open landfills or burned. Long An was selected as a pilot area to answer the following questions: how to build an efficient waste sorting and collection system, what regulations need to be implemented to achieve high efficiency in waste classification at source, how to achieve high levels of community participation, and Can such approaches make a significant contribution to reducing marine litter.

The objective of the Project in Long An Province is to reduce the amount of waste dumped into the sea, especially plastic waste, from canals and rivers by improving solid waste management in the Mekong Delta Region.

The Project funded and conducted primary research on the current state of waste management and then developed a waste management project for Long An province in urban and rural areas. The pilot model was first implemented in urban areas, then lessons learned were applied to rural areas to that the project is suitable for actual local conditions, as a basis for replicating the project throughout the province.

Implement the model in urban areas:

The model of waste separation at source, The pilot model for source separation, collection, and separate transportation of waste after sorting in the selected area was implemented in two phases, including:

- Phase 1: Neighborhood scale (in Binh Dong 2 neighbourhood) with the number of households participating in the pilot is 425 households within two months.
- Phase 2: Ward 3 scale with the number of households participating in the pilot is 4,800 households within eight months.

Pilot Phase - Small-Scale Pilot (425 Households) for 2 Months (August 2020 - October 2020)	Expanded Pilot to 4,800 Households, over 8 months (November 2020 - June 2021)

• Preparation: Purchase 2 trucks, 3 one-ton waste scales, distribute trash sorting bins and leaflets to households, organize training sessions, and held meetings with stakeholders.
• Implementation: Implement the pilot model in Binh Dong 2 neighborhood, Ward 3, Tan An City, for 2 months.
• Workshop: Organize a workshop on the results of the model implementation after 2 months, with the participation of stakeholders and decision-makers, and receive approval to expand the model to the entire Ward 3.
	• **<u>Preparation:</u>**
	  • Collect database on population and waste of the entire ward.
	  • Distribute nearly 10,000 trash bins to households, 80 waste collection pushcarts, and waste sorting leaflets to 4,775 households.
	  • Establish a local waste sorting monitoring team with direct support from 2 WWF-Vietnam officers in Tan An.
	• Implement the pilot model across the entire Ward 3, Tan An City, from November 2020 to June 2021.
	• Organize a workshop to summarize the results of the model implementation after 8 months

	with the participation of stakeholders and decision-makers.

Figure 13: Summary of pilot model implementation in urban areas

Implemented model in rural areas:

After the model's success in urban areas, WWF continues to support Long An province to pilot the model of waste separation at source and high-quality compost production for a total of 3,400 households, of which 2,710 are in Vinh Hung town and 690 households in Thai Tri commune (including 185 households in the area currently accessing waste collection services and expanding waste collection to 505 households) from July 24, 2023. In addition, the rural model will add a new item that cannot be done in the urban model: producing compost from organic waste after classification on a commercial scale. Furthermore, the effectiveness of compost on typical crops such as rice and vegetables will be tested to help the commercialization of compost when regulations on waste separation at the source take effect.

The pilot project creates a basis for optimizing collection and deployment plans to other city areas and throughout Long An province.

Figure 14: Organic waste is separated and collected, then used to produce compost suitable for both rice and vegetable crops, helping to improve soil and reduce chemical fertilizer use.

Outcomes of model implementation:

In Long An, the urban model piloted in Ward 3, Tan An City, was successfully implemented. After only two weeks, more than 85% of people in the Binh Dong 2 neighbourhood practice better waste separation at source. In 10 months, nearly 980 tons of high-quality organic waste were collected exclusively, estimated to divert more than 60% of the total waste from landfills. The separate collection of household waste uses much labour and directly controls the quality of waste classification and reclassification. Separate collection and transportation significantly increased costs compared to unsorted and co-mingled collections. In total, the cost savings that can be achieved and the contribution to cost recovery through recycling are 30 – 35% compared to the current system.

However, these costs could be offset by diverting 30-35% of organic waste from landfills or incinerators and using it for compost production and sale to the market. The results show that this method met current standards (except for nutrient content).

With the encouraging results of the pilot project, the People's Committee of Long An province directed to continue maintaining the classification of household waste at source in Ward 3, develop appropriate plans and roadmaps to deploy and replicate the model throughout the city. The Project has supported training more than 1,000 resource officers to serve as communicators and guides for residents, contributing to the city officially expanding the model throughout Tan An from July 2023.

In rural areas, the pilot model in Vinh Hung town and parts of Thai Tri, Vinh Binh, and Tuyen Binh Tay communes collects approximately 1.1 - 1.6 tons of organic waste per day for centralized compost production at the factory, while also implementing on-site organic waste treatment at households and schools. About 60–70% of households participated in waste sorting and delivering waste correctly according to regulations. Many residential areas self-operated compost models and green vegetable gardens to promote communication on environmental protection. Additionally, models for straw composting in household gardens or rice fields, as well as vermiculture systems using water hyacinth and agricultural by-products, have demonstrated strong potential for replication. These models not only enable effective organic waste treatment but also help reduce greenhouse gas emissions and promote a circular economy.

Despite some limitations in infrastructure and human resources, key activities in solid waste management have been effectively implemented. These include training and capacity building for waste separation at source, reducing plastic waste leakage into the ocean, and organizing source classification systems tailored to the population distribution and waste collection infrastructure in both urban and rural areas. The efforts have also been made in compost production, identifying markets for compost and vermicompost, and preparing for plastic reuse and recycling processes. The composting and vermiculture models have not only proven effective in treating large volumes of organic waste but also contributed to addressing the issue of water hyacinth overgrowth in rivers, reducing greenhouse gas emissions, promoting a circular economy, and creating livelihood opportunities for local communities.

3.9. General implementation activities for plastic smart cities areas

During the project implementation phase, the Project organized a variety of capacity-building activities, experience sharing, and study tours to enhance implementation effectiveness in localities. Notably, the training program for officials starting from 2020 helped consolidate management knowledge and skills, combined with fieldwork in Hoi An, laying a foundation for networking and exchange activities. Subsequently, delegations from various localities participated in a study tour of the waste separation - collection and treatment model in Hai Phong (March 2022), thereby promoting pilot implementation in Phu Yen, Ha Tinh, and Rach Gia.

Seminars in Phu Yen (2022) and Rach Gia (2023) focused on sharing women's experiences and the IMO application in organic waste treatment, contributing to spreading models from household scale to the entire city. The workshop summarizing the plastic reduction school model (December 2023, Da Nang) recorded results from localities and shared effective methods for integrating environmental education.

The Project also organized a study tour program in Long An and Ho Chi Minh City (July 2024), helping localities access advanced waste classification models and enhance technology application into waste treatment. The campaign to reduce plastic bags at supermarkets and shopping centers in Phu Yen, Da Nang, and project areas (July 2024) achieved positive effects, with tens of thousands of customer participation and tens of thousands of plastic bags reduced.

In addition, the Project conducted research evaluating the effectiveness of 10 pilot models in 6 localities, using multi-criteria analysis and providing tailored policy recommendations. The findings were shared at a technical workshop held in Phu Yen (October 2024), attracting enthusiastic participation and discussion from localities. These results contribute to strengthening the Plastic Smart Cities network and lay the groundwork for replicating solid waste management models in Vietnam.

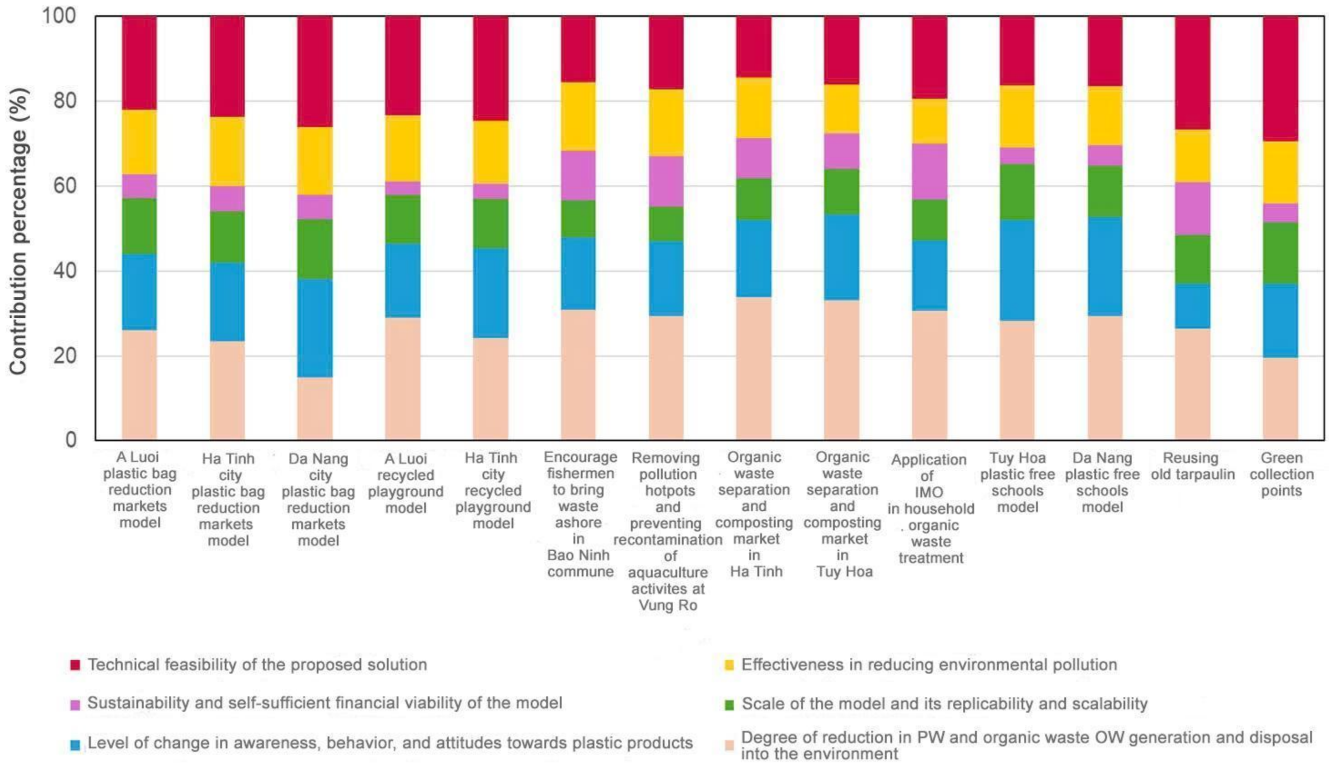


Figure 15: Research results evaluating the effectiveness of pilot models implemented under the Plastic Smart Cities program.

4. Fisheries and Marine Protected Area Component

The Fisheries and Marine Protected Area component focuses on plastic waste management across three key Marine Protected Areas: Phu Quoc, Con Dao, and Cu Lao Cham. Through three main programs, including plastic waste reduction within the fisheries sectors, marine debris monitoring and management, and Plastic Smart Cities, the component achieved many outstanding results:

- Supported the development and implementation of the Marine plastic waste management action plan for the fisheries sector, 2020–2030 (Decision No. 687/QD-BNN-TCTS dated February 5, 2021, issued by the Ministry of Agriculture and Rural Development), and piloted the fishing vessel-port plastic waste management model aligned with MARPOL Convention.
- Collected over 10,600 m^3 of plastic waste between 2021–2024, of which marine debris accounts for 3,500 m^3; organized beach cleanups involving 28,000 participants, collecting 642 tons of garbage and 313 tons of plastic waste from coral reefs.
- Conducted regular plastic waste monitoring twice annually at beaches in Con Dao, Cu Lao Cham, and Phu Quoc, contributing to the successful implementation of the plastic waste monitoring and assessment Program in Vietnam for the 2019-2023 period.
- In the three MPAs alone, over 1,000 fishermen were engaged in outreach activities, with more than 100 fishing vessels committing to bringing waste back to shore.
- Trained nearly 300 tourism businesses, with 178 establishments signing commitments to plastic waste reduction; almost 3,000 households participated in waste separation training, with over 60% demonstrating effective practices.
- Deployed organic waste treatment and MRF models in Cu Lao Cham and Con Dao; the Cu Lao Cham MRF treated organic waste from 200 households (around one-third of the island population), while the Con Dao model processed approximately 3 tons of waste per month.
- All three MPAs, Phu Quoc, Con Dao, and Cu Lao Cham joined the Plastic Smart Cities initiative, developing action plans, piloting solutions, and conducting regular monitoring. Notably, plastic leakage reduction results by the end of 2023 compared to 2020 baseline surveys showed clear improvements: Cu Lao Cham reduced by 139%, Con Dao by 96.7%, and Phu Quoc by 21.6%.

This component has laid a solid foundation for protecting marine ecosystems, improving waste management in the fisheries sector, and scaling up green, clean, and beautiful urban models in key areas.

4.1. Con Dao – A Plastic Reduction Destination

On March 26, 2022, the Con Dao District People's Committee and the Project officially signed an agreement to join the "Plastic Smart Cities" network, affirming a strong commitment toward making Con Dao a model locality free of plastic waste in the natural environment. This marked an important milestone, making Con Dao the nineth locality in the country to join the program—and one with exceptional potential in plastic reduction efforts, thanks to strong support and consensus from both local authorities and the community.

In Con Dao District, completing a robust legal framework was prioritized. The District People's Committee issued Plan No. 218/KH-UBND (July 2022), along with other key directives to detail plastic reduction targets by 2025, with a Vision to 2030. Key priorities include minimizing single-use plastics, implementing waste separation at source, developing the circular economy, and raising community perception. In the term of environmental education, 180 teachers from six schools were trained to implement the "Plastic Reduction School" model from kindergarten to high school. Notable activities such as "Green canteens," the "Green debate" contest, waste audits, and flag-raising awareness campaigns are regularly organized. A milk cartons collection model at four schools collected over 141,000 cartons, equivalent to more than one ton, within the first academic year, fostering early environmental protection awareness among students.

Figure 16: Youth Union members participating in marine debris monitoring training in Con Dao District (May 2023)

Community-driven activities were diverse and impactful, including the “Plastic Reduction Week,” “Green Offering Basket” contest, “Exploring the plastic sea” exhibition, and the “Trash for Gifts Festival”. Notably, the “Green Offering Basket Saturday” campaign at Hang Duong Cemetery achieved a compliance rate of over 98%. The online “Green Handprint Challenge” campaign reached over 1.4 million reaches and 27,000 interactions, spreading the message of plastic reduction widely. The project also engaged 145 tourism and transport businesses to sign commitments to reduce single-use plastics and sort waste at source. A guideline for restricting plastics was piloted in 10 businesses, paving the way for scale-up from 2025 to ensure sustainability across the entire service sector.

In recycling and waste management, over 240 households received training, with more than 50% sustaining regular source separation practices. The “Green House” model deployed across 10 residential areas collected over 8.5 tons of recyclable plastics and 1.6 tons of cans, raising nearly 40 million VND to support women in need. The Q15 organic waste treatment model is operating stably at a capacity of approximately 3 tons per month, while piloting methods for making cleaning enzymes from fruit peels and farming earthworm, aiming to build a closed-loop waste treatment system.

In terms of infrastructure, the district successfully completed Phase 1 of the project to expand and install waste barriers at Bai Nhat landfill, increasing its storing capacity by an additional 23,000 m³, contributing to reducing the risk of plastic waste leakage into the sea while improving solid waste management conditions. In marine debris collection and ecosystem protection, over 1,400 m³ of waste (approximately 120 tons) were collected from beaches and coral reefs from 2022 to 2024. A core volunteer group was established to monitor marine waste and support data collection for management. Notably, the project promoted direct outreach solutions and distributed trash bags to boats in Ben Dam Bay, and supported the district in drafting regulations to reduce plastic on passenger transport vehicles and fishing vessels, effectively controlling waste emissions from the ocean.

After more than two years of decisive implementation, Con Dao has recorded several notable results: more than 50% of households now practice waste separation; plastic waste collection and recycling rates reached 85%; plastic reduction education, community, and tourism models have been developed in parallel. Moreover, the awareness and actions of residents, businesses, tourists, and stakeholders have demonstrated a clear transformation, gradually building Con Dao's image as a green, clean, and beautiful destination, leading efforts in plastic reduction and marine environmental protection.

4.2. Cu Lao Cham – Plastic-Free Island

Cu Lao Cham is an island cluster belonging to Tan Hiep Commune (Hoi An City), covering an area of 15.49 km² and has a population of approximately 2,500 residents. Since being recognized as UNESCO-recognized World Biosphere Reserves in 2009, the locality has enacted a series of pioneering policies such as banning plastic bags on the island and launching plastic reduction campaigns (eliminating plastic straws, plastic-free offices, etc.). These efforts have laid a solid foundation for raising awareness and fostering behavioral change in the community for over a decade.

In Cu Lao Cham – Hoi An, the development of a core force was initiated early to ensure sustainability and community engagement. In 2020, the "Marine Environment Action Group" was established with 35 members, including community representatives, volunteers, and local officials. The group plays a pivotal role in waste monitoring, supporting the organization of environmental events and on-site communication activities. To date, the group has participated in over 30 waste monitoring sessions, supported various communications campaigns and local environmental education programs.

In terms of waste collection and recycling activities, the two Material Recovery Facility (MRF) models in Bai Ong and Bai Huong have supported waste management for over 200 households, equivalent to 33% of the island’s total population. By 2024, these MRFs have collected and processed more than 44 tons of waste, of which 40% is organic waste processed on-site into compost and bio-cleaning solutions. The "Green Saturday" campaign has been regularly implemented, with an average participation of 30-40 people per session, collecting around 400kg of recyclable waste each year. Beyond its waste processing function, the MRF has become a practical learning center, attracting students, work groups, and tourists, contributing to the establishment of an environmental education model within the community.

Figure 17: At the MRF facility, organic waste is classified into dry waste for composting, wet waste for microbial composting, and fruit peels for recycling into cleaning liquid. Inorganic waste is divided into recyclables, low-grade plastics sent for recycling, and the remainder transferred to the processing facility at Eo Gio.

Communication and education activities have been deployed in a comprehensive and creative manner. A total of 12 communication sessions were organized with the participation of over 600 delegates from Cu Lao Cham and

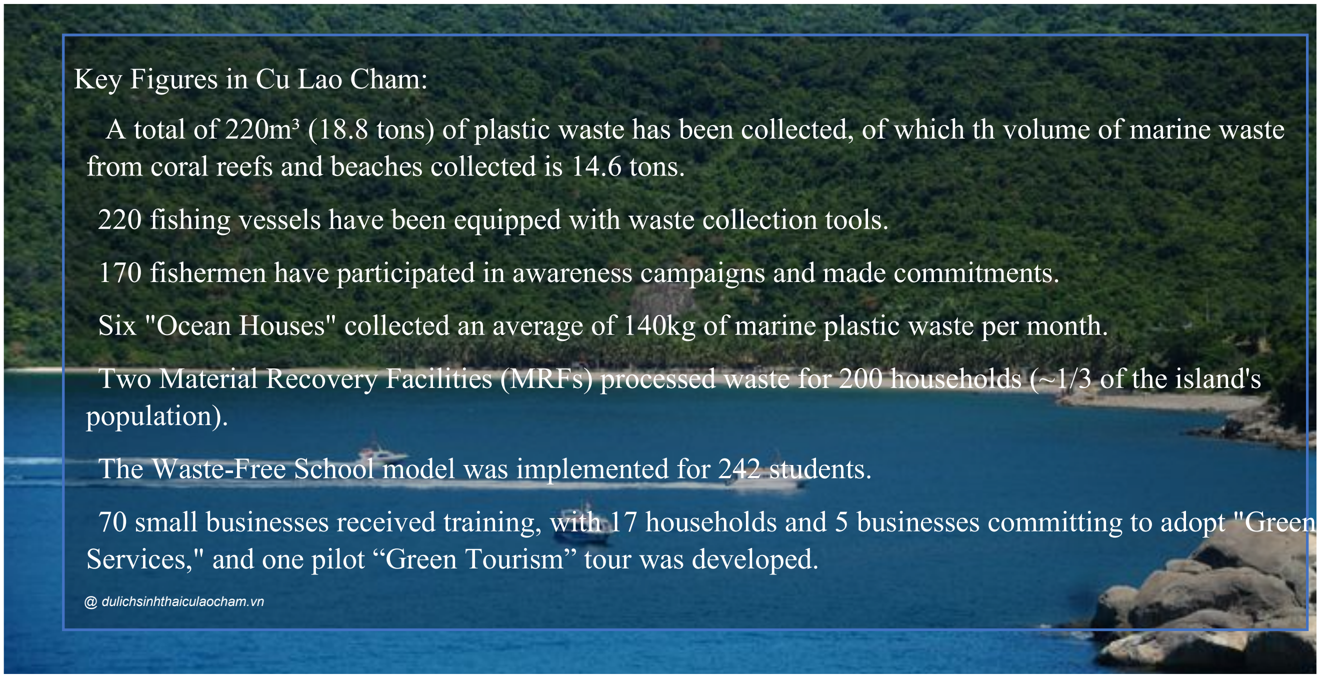
Hoi An, focusing on disseminating knowledge on the impacts of plastic pollution and introducing local solutions. Competitions such as "Golden bell ring" (2021) and "Secrets Beneath the Ocean" (2024) were organized to spark student interest and spread the spirit of marine environmental protection. The "Plastic-Free School" model implemented at Quang Trung Primary and Secondary School integrated environmental protection content into the school curriculum and operated the "I Love My Green Island" Club to sustain awareness and plastic reduction behaviors among students. Additionally, creative communication initiatives like making recycled paper bags to give to small traders at the market and installing "Ca mo" waste bins at schools have garnered attention and strong support from the community.

In the tourism services sector, 70 businesses on the island have signed commitments to reduce single-use plastic. The project piloted the "Green Services" model at cafes, homestays, and restaurants by providing alternative products and conducting regular surveys to assess effectiveness. The "Green Tourism (Zero Waste)" tour, designed to integrate cultural, conservation, and environmental activities, has garnered significant recognition from stakeholders. In 2024, the "Consignment Water Bottle" and "Consignment Fruit Container" models were launched to significantly reduce single-use plastic consumption from tourists.

In the area of marine environmental protection and local fishermen, over 220 fishing vessels and tourism boats have committed to waste reduction. The "Ocean House" model, with six collection points installed around the island, has collected an average of 140kg of waste per month, mostly inorganic waste. The "Waste for Fuel" campaign held in 2024, mobilized over 170 fishermen, collecting about 2.4 tons of plastic waste and old fishing gear. This effort not only provided fuel support for production activities but also fostered environmental awareness among coastal communities.

According to a 2024 survey, the “No Single-Use Plastic” movement on Cu Lao Cham has achieved significant results: about 70–80% of single-use plastic items have been replaced with eco-friendly alternatives, with the largest reductions seen in plastic straws and foam containers (over 85%). 100% of agencies and schools have completely eliminated plastic water bottles in meetings, using personal bottles or communal filtered water stations instead.

Public awareness has reached a high level: over 80% of residents understand the harmful effects of plastic waste and more than 92% are aware of the plastic reduction campaign. Most households have adopted specific solutions such as using shopping baskets and separating waste at source. The business community has actively embraced the movement, with nearly all service businesses committing to and implementing plastic reduction. This effort contributed to amplify the image of green tourism and advance the goal of making Cu Lao Cham a plastic-free island.



4.3. Phu Quoc – Plastic Free Island City

Phu Quoc is Vietnam's first island city, established on the basis of Phu Quoc district. Phu Quoc city has a total natural area of 589.27 km2 , including 01 large main island and 35 small islands, divided into 9 commune-level administrative units. As a key national-level coastal tourism hub, Phu Quoc attracts millions of tourists annually, along with rapid economic, infrastructure, and tourism services development. However, this rapid growth also places significant pressure on the environment, particularly regarding plastic waste – an increasingly urgent challenge for the island's marine ecosystems.

Inheriting the results from the 2018–2020 phase (the Project "Phu Quoc – Towards a Plastic-Free Island" Project), the city proactively joined the "Mitigating marine plastic debris in Vietnam" project from 2020–2024, with the goal of reducing plastic waste released into the environment by 30% by 2025. Notably, Phu Quoc is one of the first three cities in Southeast Asia to commit to WWF International's Plastic Smart Cities initiative, affirming its pioneering role in the region.

In Phu Quoc City, the City People’s Committee established a Steering Committee for marine plastic waste management, as well as issued specific annual action plans. Tho Chau Island’s Plastic-Free Initiative was conducted based on field surveys and extensive consultations. Notably, Phu Quoc is a pioneering locality in deploying a plastic waste surveillance camera system on Duong Dong River – a key urban waterway and plastic waste hotspot.

The city has also replicated the "Green Collection Point" model across all nine communes/wards, with each point collecting an average of 8–12 tons of plastic waste each year. A new waste collection route was established in hard-to-reach residential areas, supporting over 300 households accessing public waste collection services for the first

time. Additionally, over 300 waste bins and two free drinking water stations have been installed in public areas and tourist attractions such as Bach Dang - Dinh Cau park.
The "Phu Quoc Environment Day" initiative has been maintained since 2019, attracting over 60,000 participants and collecting over 724 tons of waste, of which over 120 tons were plastic. Creative activities such as "Golden Hour – Exchange Waste for Gifts," recycled fashion show contests, and environmental photo exhibitions are regularly organized, contributing to raise awareness and encourage participation from businesses, communities, and tourists.

Figure 18: The Project supported the installation of public drinking water fountains (left) and combined trash bins with information boards (right) at Bach Dang Park, Phu Quoc City.

The "Action Education" model has reached over 1,600 households, fostering regular waste sorting habits, with 90% of households maintaining these habits, and 85% adopting plastic reduction measures. At Nguyen Trung Truc Primary and Secondary School, the "Plastic-Free School" model has cut 95% of plastic waste, creating a ripple effect in other schools. Over 2,000 students from 13 schools engaged in extracurricular programs on plastic reduction, and more than 200 youth union members received training in environmental communication skills.
The "Plastic-Free Tourism" communication campaign at ports, airports, and tourist areas successfully reached tens of thousands of tourists each year with plastic reduction messages. Key tourist destinations have also been equipped with waste sorting bins and public amenities to enhance Phu Quoc's image as a green destination.
Regarding sea-based activities, the city mobilized over 500 fishing vessels and tourist boats to sign commitments not to dump waste into the sea, while simultaneously implementing the "Fishing Fleet to Combat Marine Plastic Waste" model. This model collected over 17 tons of garbage brought back to shore after each trip to the sea and is being replicated at major fishing ports such as An Thoi, with increasingly active participation from fishermen and seafood businesses.
After nearly five years of implementation, activities in Phu Quoc have brought clear transformations. Over 92% of residents are aware of the "No Single-Use Plastic" campaign, and more than 80% of households agree to sort waste and reduce plastic. Among those engaged in ToT training classes on action education methods, 90% consistently separated waste and over 85% have adopted plastic reduction practices. Additionally, the "Bring Your Basket to the Market" movement has achieved 60–80% participation in many areas. Technically, the camera monitoring system and the floating platform for waste collection on Duong Dong River collected over 2.6 tons of waste in a few months, while the "Green Collection Stations" and "Waste Collection Routes" prevented tens of tons of plastic waste from spreading to the environment each year. These results contribute to making Phu Quoc a green, clean, and sustainable destination, moving towards the objective of becoming a "Plastic-Free Island City".

Some key figures in Phu Quoc:

A total of 751 tons of plastic waste collected, including 142 tons from Phu Quoc Marine Protected Area.

1,000 fishermen received communication and were equipped with tools, signing commitments to bring waste to shore.

"Fishing Fleet to Combat Marine Plastic Waste" model helps collect nearly 31 tons of plastic waste each year.

Nearly 59,000 participations in the "Phu Quoc Environment Day" movement, collecting 123 tons of residual plastic waste.

50 % of the island's population have been raised awareness of waste separation and plastic reduction at source.

A total of 1,671 households practiced waste separation at source, helping to reduce 5.2 tons and recycle 102 tons of plastic waste annually.

Nine green collection points were installed across all communes/wards, including Tho Chau Island Commune.

11 training sessions were organized for 464 officials, members, teachers, and students.

2. RESULTS BY PROJECT INDICATORS

The following section presents the outstanding results achieved throughout the implementation of the project, based on planned monitoring and evaluation indicators. These results reflect the level of objective achievement, the effectiveness of execution, and the practical impact of each component.

Communication Component

An online platform for sharing information regarding marine plastic pollution was launched in Q3 2020 at www.giamracnhua.vn and handed over to the Vietnam Administration of Seas and Islands in Q4 2024.

03 nationwide communication programs were carried out to raise awareness of marine plastic pollution.

More than 60% of randomly selected respondents each year recalled the content of WWF's communication program on plastic waste reduction and its key messages

The number of surveyed consumers who reported avoiding single-use plastic (SUP) products increased by 10.3%, after eliminating external factors.

114 schools across the Project sites have deployed curricula materials on plastic waste reduction for students.

Lectures and learning materials on marine plastic pollution have been developed and officially integrated into five undergraduate programs at the Hanoi University of Law, Vietnam National University, and the University of Sciences, Hue University.

Solid Waste Management Policy and EPR Component

15 publications have been released, providing synthesized information and recommendations for effective management of plastic and packaging waste, including guidance on implementing EPR and the Circular Economy in Viet Nam.

Numerous research findings from the project have been incorporated into key legal documents such as Law on Environmental Protection, and regulatory documents and guidelines on plastic waste management, EPR, and CE implementation. The EPR framework was officially introduced in the 2020 Law on Environmental Protection and Decree No. 08/2022/ND-CP dated January 10, 2022.

The project has compiled and provided relevant documents, offered consultation and recommendations, and supported the organization of domestic workshops before and after the INCs sessions to discuss key information and concerns in the negotiation process and to share outcomes of the sessions. It also provided funding support for some members to attend negotiation sessions. The project also provided financial support for several delegates to attend the negotiations.

A total of 145 participating policymakers and senior leaders participated in policy consultations through workshops on research findings, EPR, CE, waste separation at source, single-use plastic reduction, and the global treaty's elements negotiation.

Plastic Smart Cities Component

By 2024, nine cities and districts had completed the development of their plastic waste management plans, with six of them actively implementing various activities outlined in their plans.

By December 2024, two additional localities had joined the project, developed their own plastic waste management plans, and begun implementation.

Among these, eight participating cities and districts had carried out plastic waste management activities, focusing on solutions such as reducing single-use plastic waste, waste separation at source, and improving the efficiency of waste collection and treatment by 2025.

Each locality had identified at least three key sustainable and feasible solutions suitable for scaling up or replication.

Thousands of equipment items have been added to local collection systems, and over 10,000 tons of waste have been collected and properly treated, preventing plastic waste leakage into the environment.

By December 2024, a total of 153 households received training on waste separation.

Fisheries and Marine Protected Areas (MPA) Component

A total of 10,631m³ of plastic waste was collected from 2021 to March 2025, and properly treated, beginning from the project's second year.

Three Marine Protected Areas committed to becoming plastic pollution free cities/destinations.

All three Marine Protected Areas have issued and executed their plastic waste management action plans.

Each year, plastic litter monitoring in shorelines and coral reefs clean-up is implemented twice a year in the 3 MPAs.

A total of 2,951 households received training on waste separation.

High quality of compost being produced from organic waste and utilized to meet local needs in Cu Lao Cham and Con Dao.

Over 100 core fishing vessels in the three marine protected areas participated and committed to bringing waste back to shore (compared to the initial plan of 25 vessels).

A total of 293 tourism service businesses (including hotels, restaurants, and travel agencies) received training on plastic waste reduction, of which 178 officially committed to implementing plastic waste reduction measures.

Supported Con Dao in drafting regulations to restrict single-use plastics and non-biodegradable bags at local attractions, as well as helped the Con Dao Historical Site Management Board successfully implement a ban on burning votive papers at historical sites and adopt a "Green Offering Basket" policy without plastic waste.

3. CONCLUSION AND RECOMMENDATION

1. Conclusion

The achievements level of Project objectives:

- The project met its initial design objectives, achieving most of the planned goals and indicators.
- The project was implemented in the context in which plastic waste was receiving attention at global, national, and local levels. This significantly supported the development of a robust policy framework for solid waste management in general, and plastic waste management in specific. In addition, it strongly encouraged local practices and promoted effective synergies, and contributed to building a positive image of Vietnam.

Social and behavioral impacts:

- Public perception of plastic pollution and individual responsibility has improved significantly.
- Behavioral change communication activities demonstrated practical effectiveness, helping to shape attitudes and promote green consumption practices in the community's efforts.
- A more proactive attitude among both the public and businesses to engage in plastic reduction efforts.

Sustainability and potential replication:

- Many project models and outcomes are highly practical and can be widely replicated to other cities/ sites.
- Certain tools (e.g., website, teaching materials, communication resources) handed over to government agencies for continued maintenance.
- The project has successfully connected a wide spectrum of stakeholders, including central governmental bodies, local communities, businesses, and civil society.

Some challenges and limitation:

- Consumption behavior remained to be influenced by convenience and the low cost of single-use plastics: While awareness increased significantly, shifting consumer behavior remained a challenge due to the limited access to alternative products.
- Difficulty in assessing specific impacts, as many interventions and social trends occurred simultaneously.
- Some localities still rely on project support, therefore need to enhance proactiveness after closure.

Conclusion on project effectiveness:

The project has achieved high effectiveness, both in quantitative indicators and social impact:

- Wide-ranging and profound impact, leading to significant changes in public awareness and behavior.
- Effective multi-sectoral coordination, from central to local levels.
- Contributed to laying the groundwork for policies and practical models for the next phase of marine plastic waste management in Viet Nam.
- The project has demonstrated outstanding effectiveness in reducing pollution, raising awareness, and engaging the community in environmental protection efforts. These improvements not only enhance the current quality of the environment but also establish the groundwork for future sustainable development initiatives.

2. Recommendations

Based on the results and lessons learned from the project, several recommendations are proposed to sustain and scale up the impact:

- Institutionalize plastic reduction models into long-term policies, integrating them into urban development, sustainable tourism, and environmental education programs.

- Increase budget allocations and establish stable financial mechanisms to enable localities to continue implementing the models after the project ends.
- Expand the Plastic Smart Cities model to major cities and coastal areas under high waste pressure, such as large urban areas and coastal cities, etc.
- Encourage business participation through Extended Producer Responsibility (EPR) and financial incentives for alternatives to single-use plastic products.
- Implement a comprehensive waste separation at source program to promote a Circular Economy.
- Continue maintaining and updating online communication platforms to raise public awareness and drive long-term behavioral change toward reducing plastic waste within communities.