



Thành phố Huế cùng phối hợp hành động với WWF để giảm 30% lượng rác thải nhựa thất thoát ra ngoài môi trường vào năm 2024.

PLASTIC SMARTCITIES



WORLD WIDE FUND FOR NATURE IN VIET NAM

# PLASTIC REDUCTION SCHOOL HANDBOOK



Cùng hành động  
để giảm thiểu  
rác thải nhựa



PLASTIC  
SMARTCITIES



World Wide Fund for Nature in Viet Nam

# PLASTIC REDUCTION SCHOOL HANDBOOK

Thua Thien Hue, 2024

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“**Plastic Reduction School Handbook**” was compiled under the scope of the project “Hue- A Plastic Smart City in Central Vietnam” (hereinafter referred to as TVA project) funded by WWF-Norway through WWF-Vietnam.

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**Source:** WWF-Vietnam (2024). Plastic Reduction School Handbook.

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This handbook is the result of close collaboration and persistent efforts from various parties, aimed at creating a practical and easily applicable handbook to raise awareness about reducing plastic waste specifically, and environmental protection in schools more broadly. The active participation and valuable contributions from schools and experts have not only helped us refine this useful handbook but also opened opportunities to promote the movement for reducing plastic in future generations.

The Editorial Board hopes that, through these contributions and support, students will be inspired to become environmentally responsible citizens, both within the school setting and in their daily lives. Once again, we acknowledge with thanks to everyone who has joined us in realizing the goal of creating a sustainable, clean, and plastic waste free school atmosphere 🌱.

## PREFACE

The "**Plastic Reduction School Handbook**" has been developed to assist schools in minimizing plastic use and promoting a green, clean, and sustainable learning environment. Featuring practical methods and specific activities, this handbook provides basic knowledge about plastics, plastic waste (PW), and the serious harm they pose to the environment and human health.

The handbook is divided into three main chapters. **Chapter 1** introduces plastics and plastic waste, helping students and teachers understand the nature of the issue and the problems caused by plastic waste. **Chapter 2** describes the Plastic Waste Reduction School model, with specific principles and implementation processes. **Chapter 3** offers a variety of practical activities within this model scope, making it easier for schools to adopt and spread awareness about environmental protection.

Notable activities include: **Conducting waste audits** at schools, **Developing plans to integrate** plastic reduction into curricular activities, and **implementing extracurricular Activities** such as flag-raising ceremonies, youth radio broadcasting about the harmful effects of plastic waste, **Greenhouses Model**, **painting/drawing competitions** on environmental protection, and **Green Living Festivals**.

We hope this handbook serves as a valuable resource to encourage schools to adopt plastic reduction models while raising student awareness about the importance of environmental protection. The collective efforts of students, teachers, and school leaders are key to establishing a plastic-free future and contributing to the protection of our green planet 🌎.

**Editorial Board**

## Chapter 1.

# PLASTIC AND PLASTIC WASTE



# Chapter 1. PLASTIC AND PLASTIC WASTE

## 1.1. Understanding plastic



fossil materials (coal, natural gas, etc.).

Plastic, also known as synthetic resin, is a type of material derived from high - molecular - weight compounds (polymers), primarily produced from petroleum or other

## 1.2. Why are plastics so common in our lives?

Plastic is a very special material, with many features that other materials do not have:

- ☑ Easy to process and create diverse products.
- ☑ Waterproof and insulating.
- ☑ Lightweight, durable and low production cost.



### SOME TYPES OF SINGLE-USE PLASTICS (SUPs) ARE NECESSARY

- ☞ In healthcare: gloves, syringes, test tubes, etc.
- ☞ In protective gear: masks, protective clothing, etc.
- ☞ Food packaging: vacuum-sealed bags, candy wrappers, food containers, drink bottles, etc.
- ☞ Food bags for disaster or disease relief situations.

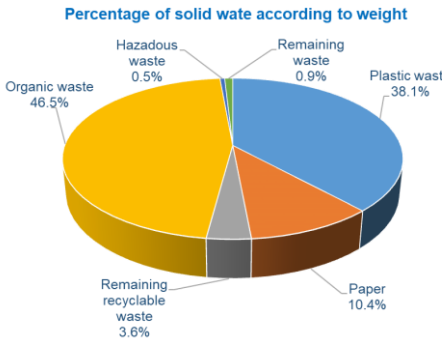
### 1.3. Understanding symbols on plastic products

<p>Recycling codes</p>	 <p>Polyethylene terephthalate</p>	 <p>High-density polyethylene</p>	 <p>Polyvinyl chloride</p>	 <p>Low-density polyethylene</p>	 <p>Polypropylene</p>	 <p>Polystyrene</p>	 <p>Others</p>
<p>Common products</p>	<p>Bottles for drinking water and cooking oil, containers for processed foods, etc.</p> 	<p>Bottles for household detergents, shampoos, some food containers i.e. fresh milk, packaging materials, etc.</p> 	<p>Water pipes; chemical or shampoo bottles, children's toys, construction materials, etc.</p> 	<p>Thin plastic bags, cling film, zip bags, disposable gloves, etc.</p> 	<p>Straws, food containers, bottle caps, butter, or yogurt containers, etc.</p> 	<p>Styrofoam containers for fast food; or plastic cups, bowls, plates, spoons, and trays, etc.</p> 	<p>Toothpaste tubes, car interiors, electrical appliances, etc.</p> 
<p>Recyclability</p>	<p>Easy</p>	<p>Easy</p>	<p>Difficult</p>	<p>Recyclable</p>	<p>Recyclable</p>	<p>Very Difficult</p>	<p>Very Difficult</p>



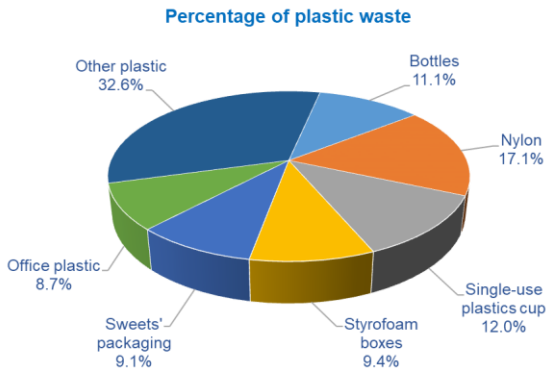
## 1.4. Plastic waste generation in schools

Results of two waste audits conducted at 46 schools (25 primary schools and 21 secondary schools) in Hue City during the 2023-2024 school year:



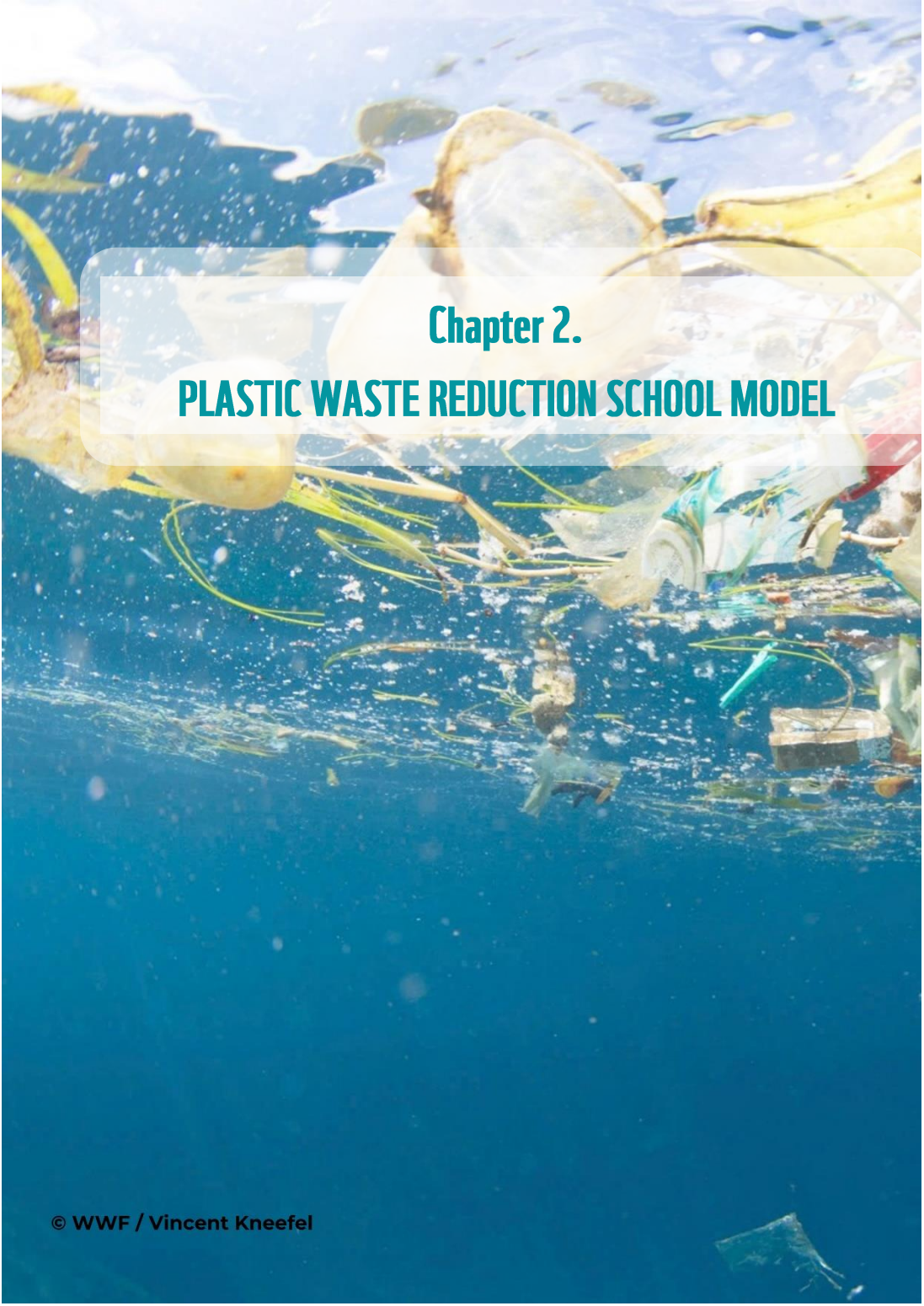
Total amount of generated waste:  
**1,611.5 kg/day**

Total amount of generated plastic waste:  
**649.6 kg/day**



Waste generation rate:  
**24.6 g/person/day**

Plastic waste generation rate:  
**9.9 g/person/day**

An underwater photograph showing a large amount of plastic waste floating in the ocean. The water is a deep blue, and the sunlight filters down from the surface, creating a shimmering effect. The waste includes a large, clear plastic bottle, a white plastic cup, a green plastic bottle, and various pieces of plastic and debris. The scene is a stark illustration of marine pollution.

## Chapter 2.

# PLASTIC WASTE REDUCTION SCHOOL MODEL

# Chapter 2. PLASTIC WASTE REDUCTION SCHOOL MODEL

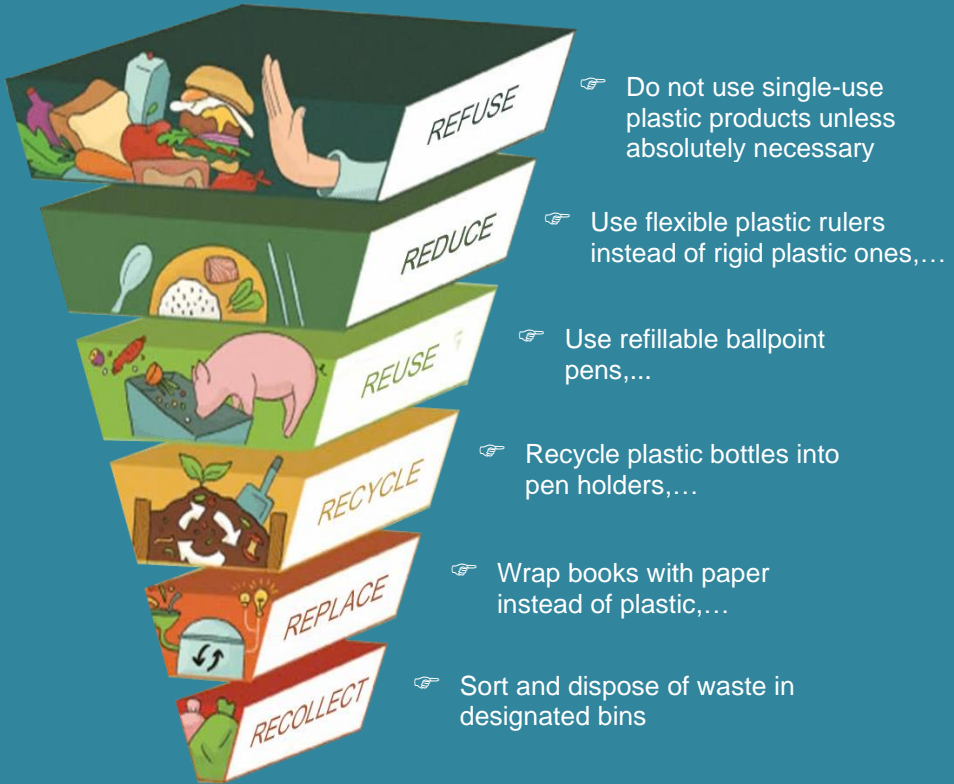
## 2.1. The significance of implementing the Plastic Waste Reduction School model

Implementing the Plastic Waste Reduction School model brings numerous important benefits. It helps students develop sustainable consumption habits from a youthful age, learning how to refuse unnecessary single-use plastic products, reuse plastic items, and sort waste. This not only reduces the amount of plastic waste (PW) released into the environment but also raises awareness about the negative impacts of PW on ecosystems and health. Early education on consumption and disposal behaviors is crucial for fostering positive habits from a youthful age. These habits will serve as the foundation for sustainable and environmentally responsible consumption, minimizing negative impacts on both the environment and public health. Furthermore, implementing the Plastic Waste Reduction School model contributes to raising community awareness and encourages the involvement of families and societies in environmental protection. The commitment of students, initiated within the school, can extend beyond its walls, and positively influence the surrounding communities, fostering a more conscious and responsible society regarding environmental protection issues.



## 2.2. 6Rs principles for reducing plastic waste

### LET'S FOLLOW THE 6Rs PRINCIPLES



Before discussing on PW treatment, it is important to refuse unnecessary single-use plastic items, replace plastic products with alternatives, and enhance the reuse and recycling of PW.



## HUE - A PLASTIC SMART CITY IN CENTRAL VIETNAM



CONSUMERS SAY NO TO SINGLE-USE PLASTIC PRODUCTS.

BE A RESPONSIBLE TOURIST, REDUCE PLASTIC USAGE WHEN VISITING HUE



### DON'T

Ordering soft drinks or milk tea in plastic bottles or cups



### DO

Bring your personal water bottle and ask vendors to fill it for you



### DON'T

Shopping with plastic bags to carry groceries



### DO

Bring reusable bags to the market, reuse available/used plastic bags, and refuse new plastic bags if unnecessary



### DON'T

Plastic straws



### DO

Use bamboo straws, metal straws, or not use straws entirely



### DON'T

Buying food in plastic containers with plastic spoons and forks



### DO

Bring your personal lunch box, spoons, and forks

## 2.3. Raising awareness and changing student behavior through the implementation of plastic reduction activities in schools

Plastic reduction activities in schools are implemented with aims of:

- ✓ Raising awareness among students, teachers, and parents about the impact of PW and promoting a green lifestyle.
- ✓ Improving waste management practices in schools.
- ✓ Reducing the amount of PW generated in schools.



### **What is the Plastic Waste Reduction School Model?**

The Plastic Waste Reduction School model is an educational and environmental initiative aimed at minimizing the use of single-use plastics (SUPs) in schools. The goal of this model is to foster environmental awareness among students, teachers, and the surrounding communities while promoting sustainable practices within the school environment. Schools participating in this model will implement specific measures such as:

- ✓ Reducing and eliminating the use of SUPs such as water bottles, nylon bags, and plastic boxes, etc.
- ✓ Replacing with eco-friendly products like reusable water bottles, stainless steel lunch boxes, and fabric bags, etc.
- ✓ Organizing educational activities to raise awareness about plastic pollution and its environmental impact.
- ✓ Encouraging students and teachers to participate in recycling, waste sorting at source, and environmental protection projects.

## **Why is the Plastic Waste Reduction School Model implemented?**

This model is being implemented to address the growing issues of plastic pollution and its negative impact on the environment and human health. The specific reasons are as follows:

### **1. Negative impact of PW on the Environment:**

PW, particularly SUPs, poses a severe threat to ecosystems, especially marine environments. More than 8 million tons of PW are discharged into the oceans each year, harming marine life and posing risks to human health as it enters the food chain.



### **2. Educating environmental awareness for the younger generation:**

Schools play a crucial role in shaping students' basic habits and values. Implementing the Plastic Waste Reduction School Model helps students better understand the impact of plastic waste on the environment, fostering environmental awareness and encouraging them to spread positive actions to their families and communities.

**3. Changing consumption habits:** This model promotes a shift away from the use of single-use plastic products. Students and teachers are encouraged to use environmentally friendly alternatives, such as reusable water bottles, cloth bags, and non-plastic lunch containers, contributing to a greener lifestyle.

**4. Encouraging creativity and practical application:** While implementing the model, schools and students have the opportunity to develop creative environmental protection projects, such as creating recycled products, establishing waste sorting systems in schools, and building green spaces on campus.

### Which provinces and cities have implemented the model?

The Plastic Waste Reduction School model has been implemented in several provinces and cities across Vietnam, including:

1. **Ha Noi:** Some schools in Hanoi have adopted the Plastic Waste Reduction model with activities such as banning the use of single-use plastic bottles, launching the "*Say No to Plastic Waste*" campaign, and encouraging students to bring their own reusable water bottles.
2. **Ho Chi Minh City:** Schools in Ho Chi Minh City have participated in the Plastic Waste Reduction campaign by implementing regulations to limit the use of plastic straws and plastic bags, replacing them with environmentally friendly alternatives. Some schools have also organized extracurricular activities on environmental protection.
3. **Da Nang:** Schools in Da Nang have implemented the Green School model, where plastic waste reduction plays a significant role. Many schools have set up "*Recycling Corners*" to encourage students to sort and recycle PW.
4. **Quang Ninh:** Students in Quang Ninh schools are involved in environmental protection projects, including campaigns to collect PW from beaches and public areas.
5. **Hue City:** Hue City has hosted various programs to promote plastic waste reduction in schools, such as "*Green Living Festival*" and creative plastic recycling contests..

The Plastic Waste Reduction School model is an important step in educating the younger generation about environmental responsibility and promoting sustainable consumption behaviors. Its implementation in various provinces and cities reflects the community's growing concern over plastic pollution and creates a sustainable educational foundation, spreading green living habits throughout society.





# Chapter 3.

## ACTIVITIES IN THE PLASTIC WASTE REDUCTION SCHOOL MODEL



# Chapter 3.

## ACTIVITIES IN THE PLASTIC WASTE REDUCTION SCHOOL MODEL

### 3.1. Curricular activities

#### *(1) Establishing PW Reduction Regulations in Schools*

Plastic reduction regulations are rules for handling plastic waste in schools that are agreed upon by staff, teachers and students.

#### **Objectives:**

- ✓ Raising students' awareness on the impact of plastic waste and promote actions of refusal, reduction, reuse, recycling of waste, and green living;
- ✓ Improving solid waste management (SWM) in schools;
- ✓ Helping students form the habit of limiting the use of SUPs in schools;
- ✓ Contributing to reducing plastic in school activities.



**Steps for Implementation:**

- ✓ **Step 1.** School drafts the Plastic Reduction Regulations;
- ✓ **Step 2.** Organizing a meeting to discuss the draft **"Plastic Reduction Regulations in Schools"** with all staffs and student representatives;
- ✓ **Step 3.** Finalizing the draft and issuing **"Plastic Reduction Regulations in Schools"**.

School regulations may include compliance with the following recommendations:

**✔ 6 things to do:**



Figure 1. Actions students can take to reduce plastic.

**✘ 3 things to avoid:**



*Figure 2. Actions students can refuse to reduce plastic.*

**Expected outcomes:** Students will understand and comply with school regulations, understand the harmful effects of SUPs on the environment. This will help them develop good habits, such as sorting waste, disposing of trash in designated areas, and limiting the use of SUPs.

**(2) Integrating plastic waste reduction content into lessons**

Integrating PW reduction content in school lessons involves embedding PW reduction and environmental protection topics into regular class sessions. Teachers select relevant content, prepare sample lessons, and plan how to integrate it into their teaching. This integration can be a short activity of 5-10 minutes or extended to cover an entire lesson.

**Objectives:** Through regular lessons, teachers incorporate environmental protection topics to raise awareness and encourage behavior change regarding waste disposal, recycling, reusing plastic waste, plastic pollution, and sorting waste at the source. This aims to help students deeply understand the importance of environmental protection, develop recycling and waste-sorting skills, and form habits and behaviors that reduce plastic use, gradually influencing their families and communities.

**Steps for Implementation:**

✓ **Step 1.** The school develops an integration plan, and subject

teachers choose lessons to incorporate PWR content.

- ✓ **Step 2.** Teachers choose lessons to implement the integration. The content is incorporated into the following subjects:

- ✓ English: Keeping the classroom clean, disposing of trash properly, waste sorting, reading instructions on waste segregation, etc.
- ✓ Experiential Activities - Career Guidance: Dos and don'ts for reducing plastic waste, reading waste segregation signs, sorting waste, participating in the Green Sunday movement, or the Green House model, etc.
- ✓ Vietnamese: Reading and understanding articles about plastic waste and its impact on the environment, writing or presenting an environmental protection activity, etc.
- ✓ History and Geography: The state of plastic waste, causes of plastic pollution, and solutions for reducing PW, etc.
- ✓ Natural Science: Learning about the characteristics of plastics, the plastic pollution crisis, and measures to reduce PW, etc.
- ✓ Civics Education: Teaching plastic waste reduction to instill awareness, attitudes, and behaviors in students, which also serves as a basis for assessing student conduct.

- ✓ **Step 3.** Incorporate relevant integrated content and themes into the lesson plan to teach students.

Teachers should use a variety of activities and teaching methods to achieve lesson objectives through:

- ☞ Showing a short film.
- ☞ Organizing a game.
- ☞ Conducting a recycling activity.



☞ Performing a short play, etc.

✓ **Step 4.** Lesson conclusion.

At the end of the integrated content, the teacher will draw conclusions and convey messages related to the integration to help students better understanding environmental protection and PW reduction.

Teachers can refer to the document "*Guidelines for Integrating Plastic Waste Reduction into the General Education Curriculum,*" compiled by WWF-Vietnam (scan the QR code at the end of the Handbook to download the document).



*Figure 3. A lesson integrating PW reduction contents at Nguyen Khoa Thuyen Secondary School (Photo: WWF-Vietnam, 2024).*

**Expected outcomes:** Through integrating environmental protection and plastic waste reduction content into various subjects, students will enhance their awareness of the harmful effects of plastic waste. This will encourage them to adopt environmentally friendly behaviors, such as not littering, properly sorting waste, and developing initiatives for recycling and reusing plastic wastes.

## 3.2. Extracurricular activities

### 3.2.1. In school

#### (1) A Waste Audit in School

A Waste Audit in Schools involves inventorying the volume and composition of waste generated on campus.

**Objectives:** To identify the volume and composition of various waste types, especially plastic waste generated in the school. The audit results help students recognize different waste types and understand the daily waste generation for each



type at their school. Additionally, by participating in the waste audit, students learn about the sources of waste, how to sort waste, and understand the disposal process for each waste type. For the school, the audit results provide guidance for solid waste management plans at school.

The waste audit process in schools is carried out through following steps:



Figure 4. Steps of waste audit process in school (Source: WWF-Vietnam, 2023).

**Implementation Steps:**

Activities will take place over 5 days.

- ✓ Day 1: Collecting all the waste from the school and practice sorting it.
- ✓ Day 2 → Day 4: Sorting and weighing the different types of waste.
- ✓ Day 5: Summarizing the results of the audit.

**Step 1.** Preparing tools and space for audit.

- ✓ Human resources: 5 to 10 students and 1 supervising teacher.
- ✓ An area of approximately 10 to 20 m<sup>2</sup>.

Necessary tools: blue tarpaulin, gloves, masks, waste grabbers, scales, recording sheets, and a first aid kit.



*Figure 5. Necessary tools for the waste audit.*

**Step 2.** Collecting waste samples.

- ✓ Taking samples of waste from all areas of the school. If the total weight is over 50 kg, the audit volume will be reduced according to the divide by 4 rules (see Figure 6).
- ✓ Recording and label waste from different sources: classrooms, kitchen, canteen, etc.





Figure 6. Reduce the Audit sample volume using the Divide by 4 Rules.

**Step 3.** Sorting waste.

Using gloves and waste grabbers to sort the waste into different categories. Waste should be sorted according to the sorting tree as shown in Figure 8.

**Step 4.** Counting and weighing waste.

After sorting, weigh the weight and count the number of items for each category.



$$\begin{array}{cccc} \square & \square & \square & \square \\ \diagdown & \diagdown & \diagdown & \\ 5 & 5 & 5 & 3 \end{array} = 18$$

Figure 7. Weigh, count and record audit results.

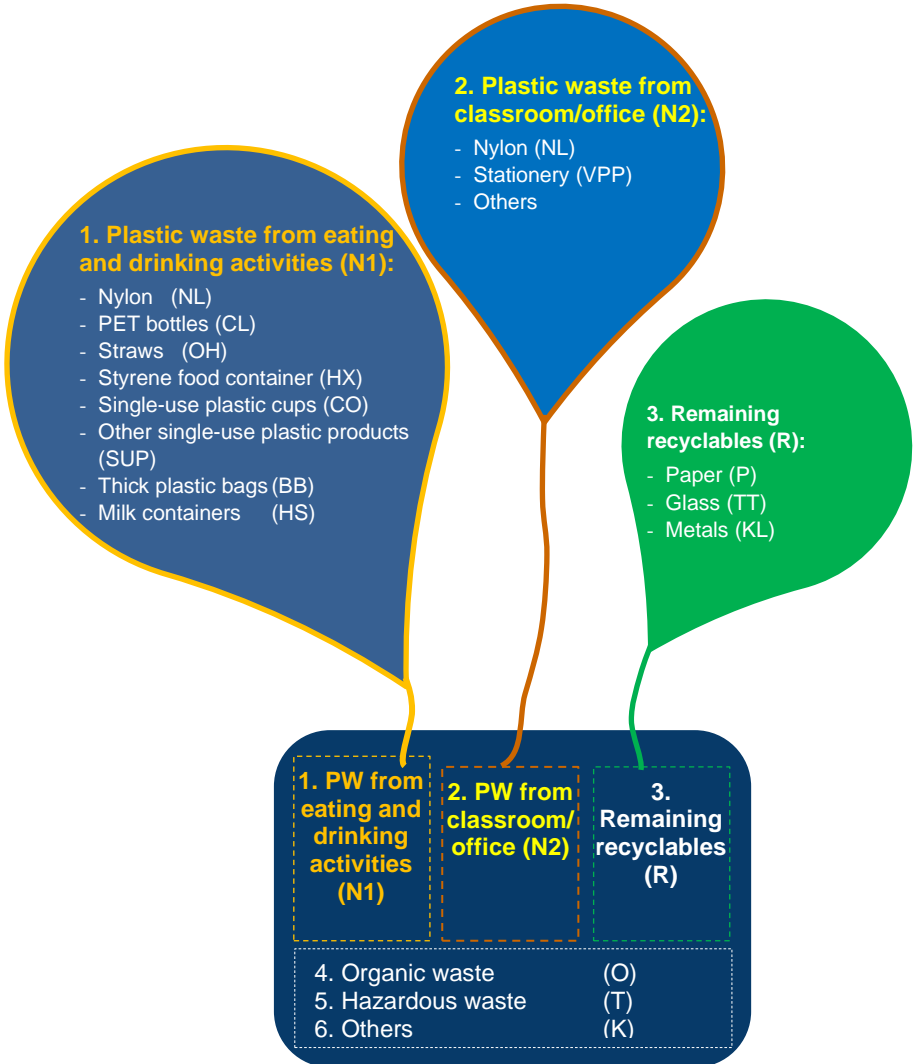


Figure 8. Sort waste according to the sorting tree principle.

### Step 5. Recording results and reporting

The audit results will be entered into a form for statistical analysis, and an audit report is written.



Figure 9. Waste audit activities at (a) Nguyen Khoa Thuyen Secondary School; (b) Phu Duong Secondary School (Photo: WWF-Vietnam, 2023).

### (2) The "I Love the Environment" Club model in schools

The "I Love the Environment" Club is an extracurricular activity that is easy to organize in schools. It serves as a space for students with a shared love for the environment to engage in games, and group activities, and learn about environmental topics.

**Objectives:** To create a playground for students who love nature and the environment, encouraging them to participate in environmental protection activities. They will promote awareness among their families and communities about reducing PW. These activities help students better understand the importance of taking action to minimize PW.

#### Number and participants:

- ✓ Club scope: 20 - 30 students.
- ✓ For primary school students: Parents s will accompany them
- ✓ For secondary school students: five students per class will be selected to join the club.



*Figure 10. Launching ceremony of "I Love the Environment" club of Dang Van Ngu Secondary School (Photo: WWF-Vietnam, 2023).*

**Main activities of the Club:**

- ✓ **Session 1.** Launch the club, provide guidance on waste sorting at source, learn about PW, and introduce the Participatory Action Oriented Training (PAOT).
- ✓ **Session 2.** Share the results of the waste audit (for schools that conducted one); implement games related to plastic and PW.
- ✓ **Session 3.** Share the results of implementing the Club's PAOT and distribute Green Passports (for primary students), and reward groups that have effectively reduced plastic (for secondary students); Launch a paper bag-making activity to give to nearby vendors and businesses.
- ✓ **Session 4.** Organize an extracurricular activity by distributing paper bags and raising awareness among nearby businesses.
- ✓ **Session 5.** Organize an "Day in the Life of an Environmental Worker.

- ✓ **Session 6.** Summarize the plastic reduction actions and organize games related to plastic reduction activities.

***Expected outcomes:***

- Increase students' awareness of the harmful effects of PW.
- Encourage students to implement 6Rs principles for PW in schools.
- Change behaviors and habits regarding plastic use and disposal plastics.



***(3) Communication for PW reduction using the Participatory Action Oriented Training method***

The Participatory Action Oriented Training (PAOT) has been researched, developed, and applied by the International Labour Organization (ILO) in the fields of safety, health, and labor. PAOT is a participatory approach to learning that involves the active engagement of everyone. This method leads to specific behavioral changes through actions, solutions, and practical improvements tailored to local contexts. When applied in schools, the approach relies on the direct student participation with support from families and the school in a three-month campaign. Each participating student becomes an ambassador who observes, guides, and reminds their classmates and family members to practice waste sorting at source and reduce plastic waste.

**Objectives:** Helping students change their awareness and behavior by engaging in specific activities aimed at reducing plastic waste, with repeated actions over the three-month duration of the PAOT.

By applying the PAOT method, students will enhance their understanding of the impacts of plastic waste, while developing and maintaining practices of refusing, reducing, reusing, recycling waste, and adopting a green lifestyle.

To achieve these goals, two tailored toolkits for primary and secondary schools have been developed by the TVA Project in collaboration with experts in the PAOT method, after consulting with teachers from participating schools. The toolkit includes checklists, notebooks, and online



data entry templates, which have been trained for use in several schools in Hue City (*scan the QR code at the end of this Handbook to download the materials*).

**Activity contents:**

**Step 1.** Establish the Club with a size of 20 to 30 students, as follows:

- ✓ Primary School: Select students whose parents actively participate in classroom activities.
- ✓ Secondary School: Choose five students per class (4 group leaders and one member of the Red Star team).

**Step 2.** The club supervisor presents the significance and provides guidance on how to use the checklist, conveying the content and explaining the actions in the checklists (for both primary and secondary schools).

**Step 3.** Club members use the checklist to monitor and encourage their group members (in secondary schools) or family members (in primary schools) to participate.

**Step 4.** Students will record and compile monthly data on their groups or family's actions to enter the data into the system.

**Step 5.** Summarize and reward the classes/individuals who excel in waste sorting at source and reducing plastic waste, based on the data submitted to the system.

***Expected outcomes:***

- Foster a competitive spirit among students, contributing to a shift towards greener behaviors and environmental protection. Additionally, the activities of primary school students will help spread awareness about environmental protection and plastic waste reduction to other family members.

- For secondary school students, enhance awareness and behavioral change regarding PW reduction and environmental protection for the whole group through encouragement and mutual support among actively engaged classmates.

**Project Results:**

*According to the project statistics, the activity has engaged 1,841 students from 25 schools (15 primary schools and 10 secondary schools) from October 2023 to May 2024.*

- ✓ *For the 15 primary schools: The campaign successfully reduced over 160.6 kg of single-use plastic (equivalent to 8,581 cups, 7,180 foam boxes, and 7,711 plastic bags based on recorded behaviors).*
- ✓ *For the 10 secondary schools: The campaign achieved a reduction of 668.5 kg of single-use plastic (equivalent to 27,436 plastic cups, 22,044 foam boxes, 26,279 plastic bags, 27,834 plastic straws, and a total of 24,492 notebooks and books covered with paper and cardboard based on recorded behaviors).*

#### **(4) “Day in the Life of an Environmental Worker ” experience**

For the students to walk to school on clean and beautiful roads, and for the city to always remain fresh... we must recognize the dedicated work of environmental workers.

##### **Objectives:**

- ✓ Helping students understand the economic benefits of waste sorting at source.
- ✓ Raising students' awareness about the importance of protecting and using resources wisely.
- ✓ Helping students understand the work of environmental sanitation workers.



##### **Activity contents:**

School collaborates with Hue Urban Environment and Public Works Joint Stock Company (HEPCO) to organize an exchange event between workers and students.

Students will participate in a waste sorting game under the guidance of the workers.

The workers will share insights about their profession.

##### **Expected outcomes:**

- ✓ Students are more aware of waste sorting at source.
- ✓ Understanding the value of waste sorting at source.
- ✓ Developing the habits of waste sorting both in school and in the community.

#### **Highlights of the Experience "Day in the Life of an Environmental Worker" at Hoang Kim Hoan Secondary School**

- ✓ Hoang Kim Hoan Secondary School collaborated with HEPCO to organize the experience "Day in the Life of an Environmental Worker" for 30 students who are members of the "I Love the Environment" Club and those passionate about the topic of plastic waste.



- ✓ During the experience, students were provided with knowledge about waste sorting at source and participated in a game focused on sorting plastic waste.
- ✓ Students had discussions about the challenges faced by environment workers and shared specific actions they could take to make the workers' jobs easier, such as not littering, disposing of waste in designated areas, and sorting waste properly, etc.



*Figure 11. Experience "Day in the Life of an Environmental Worker" by the "I Love the Environment" Club at Hoang Kim Hoan Secondary School (Source: WWF-Vietnam, 2023).*

### ***(5) Organizing a painting contest on environmental protection and plastic reduction in schools***

**Objectives:** To raise awareness among students and the community, aiming to change habits of using single-use plastic and to limit the use of non-biodegradable plastics, thereby decreasing the risk of PW pollution in daily life and contributing to environmental protection.

**Activity contents:** Students participate in a painting contest focused on promoting environmental protection, waste reduction, especially PW.

**Achieved results:** Through the Plastic Waste Reduction School Model" under project "Hue - A Plastic Smart City in Central Vietnam" funded by WWF-Vietnam, primary schools proactively organized preliminary painting contests for their students. Approximately 4,685 out of 7,270 students (representing 64.4% of the total) participated in the preliminary round of the contest on the themes of environmental protection and PW reduction.

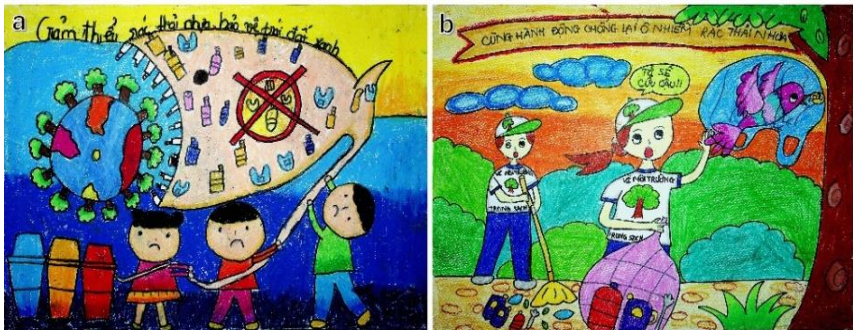


Figure 12. The artwork "Reducing Plastic Waste - Protecting a Green Earth" by Dang Thi Kim Anh from Thuan Hoa 1 Primary School (a) and the artwork "Let's Take Action Against Plastic Waste Pollution" by Nguyen Hoang Khanh Linh from Le Loi Primary School (b).

### (6) Integrating plastic waste and its impact into School Flag-Raising Ceremonies and Student Radio Programs

**Objectives:** To raise awareness and responsibility among students and the community regarding the use of SUPs, guiding students on how to protect the environment and reduce PW in their daily lives. This activity aims not only to change individual behaviors but also to spread a message of protecting our green planet to society as a whole.

#### Activity contents:

- 🗑️ Disseminating the harmful effects of PW on the environment and human health to raise awareness on reducing PW among students.
- 🗑️ Guiding students in sorting PW and dispose of it into the Greenhouse. For other types of waste, instruct them not to litter but to dispose of waste properly in designated bins.
- 🗑️ Encouraging students to sort plastic, metal, and other types of waste at home.
- 🗑️ Organizing Q&A sessions on the topic of PW impacts of PW and waste sorting using a set of questions.

**Achieved results:** The Plastic Waste Reduction School Model under project "Hue - A Plastic Smart City in Central Vietnam" funded by

WWF-Vietnam has developed two key communication topics on reducing PW, consisting of two modules:

- (i) Plastic Waste and Its Impacts: refers to related concepts, the current situation, effects, and various measures for reducing plastic waste.
- (ii) Source Waste Segregation: refers to related concepts, information about the waste sorting program, its significance, and the students' readiness to participate in source waste sorting.



*Figure 13. Awareness-raising activities under the flag at (a) Nguyen Van Linh Secondary School and (b) Le Loi Primary School (Photo: WWF-Vietnam, 2023).*

### ***(7) Waste and plastic management activities in schools: The Greenhouse model***

**Objectives:** The model aims to reduce PW in schools by effectively managing and reusing materials. Through this, students enhance their awareness on waste sorting and encourage the use of sustainable alternative products. Such activities help create a green and clean learning environment, reduce waste management costs, and generate funds to support the school. Promoting recycling also aids in resource conservation, reduces pollution, and fosters good habits among students, contributing to the sustainable development of the environment.

#### **Activity contents:**

- Providing and set up Greenhouses in schools.

- ✓ Providing guidance on properly disposing of different types of waste in the Greenhouses.
- ✓ Conducting audits of the amount of PW collected in the Greenhouses each quarter.

**Achieved results:** The Plastic Waste Reduction School Model under project “Hue - A Plastic Smart City in Central Vietnam” funded by WWF-Vietnam has achieved several results, including:

- ✓ 72 Greenhouses were provided to primary and secondary schools in Hue City.
- ✓ A total of 812 kg of plastic waste was collected in the Greenhouses after four quarters of implementation.



Figure 14. Green House model at (a) Phu Thuong Secondary School and (b) Phu Thanh Secondary School (Photo: WWF-Vietnam, 2023).

### **(8) Trash for Gifts Festival in schools**

**Objectives:** The activity of sorting and bringing recyclables to school for gifts exchange helps educate students about environmental protection. Through this, students learn how to effectively manage waste and reduce waste generation. "Trash for Gifts" events create excitement and encourage students' participation, fostering recycling habits and appreciation for resources. Additionally, this activity contributes to creating a green, clean, and sustainable learning environment.

**Activity contents:** Organizing the campaign "Trash for School Supplies" for the school students.

**Achieved results:** The Plastic Waste Reduction School Model under project “Hue - A Plastic Smart City in Central Vietnam” funded by WWF-Vietnam has organized numerous “Trash for Gifts” events at primary and secondary schools in Hue City.

*Quang Trung Primary School launched a week-long campaign to collect recyclable waste, engaging 1,598 participants, including students and staff. The activity "Trash for School Supplies" attracted significant student participation. A total of 2,966.5 kg of waste was collected, with 136.5 kg classified as plastic waste.*



*Figure 15. A Recycling Fair held at Quang Trung Primary School (Photo: WWF-Vietnam, 2024).*

### **(9) Green Living Festival**

**Objectives:** To encourage students to actively explore, collaborate, and develop ideas for participating in the event, thereby enhancing their awareness of PW.

**Activity contents:** This is an activity for the school and students to work together toward reducing plastic use both on campus and in the community. The "Green Living Festival" can be a standalone event or integrated into other school events such as the March 26 Camping Day, the Spring Lottery Festival, or other school events.

*Steps to Implement:*

- ✓ **Step 1.** Incorporate the "Green Living Festival" into the school's activity plan at the beginning of the academic year.
- ✓ **Step 2.** Establish an organizing committee for the "Green Living Festival" or integrate it into the school's general activities.
- ✓ **Step 3.** Develop detailed plans for the "Green Living Festival," including the organization format, schedule, and competition rules, etc.
- ✓ **Step 4.** The organizing committee informs students and teachers the Festival's content, schedule, and detailed plan to encourage their participation.
- ✓ **Step 5.** Carry out the activities.

Some images from the Green Living Festival activities at Nguyen Khoa Thuyen Secondary School, integrated with celebration of the founding day of Ho Chi Minh Communist Youth Union on March 26.



*Figure 16. Green Living Festival at Nguyen Khoa Thuyen Secondary School: (a) a recycled fashion show and (b) a competition for recycled plastic products (Photo: WWF-Vietnam, 2024).*

**Expected results:** Such collective activity was designed to attract the participation of many students. Through their involvement, students will engage more directly with the messages promoted by the event, such as recycling competitions, exchanging PW for gifts, and cleaning public areas, etc. As a result, they will enhance their awareness of environmental protection and reduce PW in schools.

### **(10) Organic composting activities in schools**

**Objectives:** To utilize biodegradable organic waste such as leaves, small branches, food scraps, and leftovers from the kitchen. This activity aims to reduce waste, create natural fertilizer, and improve soil quality within the school grounds. This activity not only saves on waste disposal costs but also educates students about environmental protection, recycling, and cultivating green habits.

**Activity contents:** The organic composting activities at school include: Collecting organic waste, including leaves, small branches, and food scraps from the cafeteria and school grounds. Sorting and pre-processing to remove non-biodegradable materials and cutting the organic waste into smaller pieces. Preparing a composting area that is well-ventilated using bins or pits composting. Layering organic waste with soil and periodically mixing the contents. Integrating educational content and encouraging student participation. Using the compost to fertilize plants in the school and monitoring the process for improvements.



*Figure 17. Composting activities at Phu Thuong 1 Primary School  
(Photo: WWF-Vietnam, 2023).*

#### **(1) Preparation of Materials and Tools**

The materials prepared for the composting process include:

- ✓ Organic waste: Leaves, grass, spoiled vegetable scraps, fresh fruit peels, banana leaves, trimmed branches, etc.

- ✓ Composting agent: Trichoderma CNX or a similar product.
- ✓ Additives: rice husks, peanut shells, coconut coir, clean soil, and phosphate fertilizer (optional) to enhance the decomposition process.

Tools: compost bin, spray bottle for the composting agent, Tarpaulin for mixing materials.

*(2) Steps for composting:*

**Step 1.** Gathering and pre-process organic waste: after collecting organic waste, moisten it, and let it sit overnight before composting.

**Step 2.** Mixing materials.

Mixing according to the formula: 200 g of composting agent + 1 kg of phosphate fertilizer + 5 kg of clean soil/rice husk/coconut coir/peanut shells for every 100 kg of organic waste. Dissolve the composting agent in water and evenly spray it over the compost pile until adequately moist (you can check by squeezing a handful of waste; if water drips through your fingers, it is ready).

**Step 3.** Placing waste in the compost bin.

After being mixed with other ingredients, the waste is put into the compost bin (up to 20 cm from the top of the bin) and the lid is tightly closed.

**Step 4.** Checking the compost bin.

After 7-10 days, check the temperature (insert a wooden or bamboo deeply into the pile; if it feels warm after 10 minutes, the temperature is quite good) and check the moisture (squeeze a handful; if water flows out, the moisture is good). Continue adding the mixed materials as in Steps 1 and 2 until the waste is about 20 cm below the cover. Repeat these checks every 7-10 days. After 50 days, you can start using compost from the bottom layer.





**Step 5.** Harvesting and use the compost.

The compost can be harvested after 45-50 days. The finished compost is usually brown and odorless. The compost should be left for 01 - 3 days before use.

***Typical model of organic compost combined with a clean vegetable garden at Phu Thuong 1 Primary School.***

Phu Thuong 1 Primary School has implemented an organic waste processing model as follows:

- ✓ Number of compost bins: 4 bins.
- ✓ Main sources of organic waste: Vegetables, garden leaves, and biodegradable waste from the school canteen.
- ✓ Amount of biodegradable organic waste processed: 160 kg.
- ✓ Amount of compost produced: 80 kg.
- ✓ Garden area designed to grow vegetables using compost: 96 m<sup>2</sup>.
- ✓ From August to October 2023, the school's nutrition department achieved the following initial results: 12 kg of Water Spinach, 3 kg of Okra, 6.5 kg of Mustard Greens, 3.8 kg of Malabar Spinach.



*Figure 18. Planting vegetables utilizing the organic compost produced at Phu Thuong 1 Primary School (Photo: WWF-Vietnam, 2023).*

**Expected results:**

- ✓ Reducing the amount of waste generated in schools helps reduce the cost of waste collection, transportation and treatment.
- ✓ Raising students' awareness on creating useful products from waste, generating organic fertilizer for agricultural activities at the school.
- ✓ Minimizing environmental pollution from organic waste.
- ✓ Helping students understand the meaning of waste sorting at the source.
- ✓ Helping students practice waste sorting at the source, creating long-term changes, forming the habit of waste sorting both in and out of school.
- ✓ Understanding that not all waste is disposable and learn how to enhance the value of waste.



### 3.2.2. Outside of School

#### (1) Raising awareness about plastic waste reduction among vendors at the market and local businesses

*Highlight of the awareness campaign by Thuan An Primary School:*



"I Love the Environment" Club has implemented activities to promote plastic waste reduction among vendors at the nearby market and business establishments.

#### **Activities:**

- ✓ Students actively learn how to make paper bags, then discuss and develop plans to create these bags.
- ✓ They make paper bags to replace plastic bags during extracurricular activities.
- ✓ Together, they deliver their paper bags to vendors at the nearby market and businesses. Thus, each student is a propagandist to communicate to vendors at the market and businesses about the harmful effects of plastic waste as well as ways to reduce the use of plastic bags and single-use plastic.

#### **Positive impacts from the activities:**

- ✓ Helping students develop teamwork and discussion skills to develop plans.
- ✓ Encouraging students to actively learn more about the harmful effects of PW.
- ✓ Help students develop presentation skills regarding plastic pollution to their families and communities.

Some images of student awareness-raising activities with vendors and local businesses:



*Figure 19. Students from Thuan An Primary School participated in raising awareness about reducing plastic waste with vendors at the nearby market and local businesses (Photo: WWF-Vietnam, 2023).*

## **(2) Ru Cha clean-up experience**

Ru Cha mangrove forest, located in Huong Phong Commune, Hue City, is one of the few remaining mangrove forests in Thua Thien Hue province, covering an area of about five hectares. It is covered by Gia tree (*Excoecaria agallocha*), a characteristic mangrove species that plays a crucial role in protecting the Tam Giang - Cau Hai lagoon ecosystem. Ru Cha is home to many rare species of flora and fauna, from fish and shrimp to various bird species.

In addition to being an ideal destination for nature lovers and ecotourism, Ru Cha holds significant educational value for students regarding biodiversity conservation and environmental protection. Through field trips, students can learn about the importance of mangrove forests and raise awareness about protecting coastal ecosystems.

**Objectives:** The school organized a garbage collection activity at Ru Cha, a unique mangrove forest in Huong Phong commune, Hue City. This experiential activity helps students recognize the current waste situation in the Ru Cha and feel more excited once Ru Cha becomes cleaner and more beautiful thanks to their meaningful efforts.

*Highlight of the clean-up experience at Ru Cha organized by Nguyen Khoa Thuyen Secondary School*

**Activity contents:** Students were divided into groups by class and were provided with gloves, trash pickers, masks, and trash bags to ensure their safety during the activity. The trash was collected and sorted by group. At the end of the clean-up, the students weighed the amount of waste and plastic collected. Each class then selected a representative to share their feelings about the experience, assess the sources of waste generation, and suggest ideas to help reduce waste in general, with a particular focus on single-use plastic. Based on the amount of waste collected and each class presentation, supervising teachers evaluated and awarded encouraging prizes to the participating classes. The results showed that a total of 50 kg of waste was collected, including 30 kg of PW.



*Figure 20. The clean-up activities at Ru Cha were organized by Huynh Thuc Khang Secondary School (a-b) and Nguyen Khoa Thuyen Secondary School (c) (Photo: WWF-Vietnam, 2024).*

### ***(3) Free visits to the Environmental Information Center***

The World Wide Fund for Nature in Vietnam (WWF-Vietnam) has partnered with the Hue Urban Environment and Public Works Joint Stock Company (HEPCO) to establish and operate the Environmental Information Center at 46 Tran Phu, Hue City. The center serves as a hub for providing information and raising awareness among the public, as well as students, about reducing PW and waste sorting at source, contributing to the success of the waste sorting at source program in Hue.

Schools can organize free visits and experiential tours for students at the Environmental Information Center, thereby helping them experience the reality more vividly through information boards, images, 3D models, documentary images, and video presentations.



*Figure 21. Students from various schools visit the Environmental Information Center for learning and exploration (Photo: WWF-Vietnam, 2023)*

## **APPENDIX**

### **I. REFERENCE MATERIALS FOR INTEGRATED ACTIVITIES**

- ✓ Guidelines for Integrating Plastic Waste Reduction into the National Education Program in Hue City.
- ✓ Communication Templates for Reducing Plastic Waste Using the Participatory Action Oriented Training.

### **II. TEMPLATES FOR INTEGRATED ACTIVITIES**

- ✓ Waste Audit Data Entry Template.
- ✓ Waste Audit Form for Schools.
- ✓ Waste Audit Report Template for Schools.



Scan the QR code to download the documents and templates.

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