PROJECT FINAL REPORT

ZERO WASTE SCHOOL AND CLEAN WATER MODEL

to Create a Healthier Education Environment for Highland Students of Viet Nam

MARCH 2025

Center for Supporting Green Development

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Students participating in a mural painting activity at the satellite campus, Phieng Luong School, Bac Me district, Ha Giang, 2024.

EXECUTIVE SUMMARY

This report provides an overview of the key activities, results, and impacts of the environmental education project implemented at Phieng Luong Primary and Secondary Ethnic Semi-Boarding School in Bac Me District. The project aimed to promote environmental awareness and sustainable practices among highland students, particularly from the Hmong ethnic community, through innovative educational tools and community engagement.

The project engaged teachers, students, and local communities in co-designing learning materials and visual aids focused on clean water and Zero Waste. Key activities included the organization of workshops for teachers, a visual learning tools competition, the development of educational resources, and the construction of a visual learning playground. Additionally, the project improved school infrastructure, organized training programs, and initiated community clean-up campaigns.

The project's approach emphasized participatory methods to ensure the materials and activities were contextually relevant and effective for the local community. Through the co-design process, a set of educational materials on clean water and Zero Waste was created, along with a 50m² interactive learning playground that combined physical activity with environmental education. These resources now serve as valuable tools for enhancing environmental education in both formal and informal learning settings.

Results from the project include increased environmental awareness among 378 students and 28 teachers, improved school infrastructure, and strengthened community involvement in waste management. The project also facilitated youth participation and fostered a sense of responsibility toward sustainable environmental practices.

Key challenges included the need to adapt educational content to the diverse learning styles of highland students and ensuring the sustainability of initiatives beyond the project's lifespan. Valuable lessons learned include the importance of involving local stakeholders in the design process and the need for continuous engagement with the community to ensure long-term success.

This project has laid a strong foundation for further environmental education efforts in highland areas, contributing to improved health, hygiene, and environmental sustainability in the region.

INTRODUCTION

Ha Giang province in the northeast mountainous region of Viet Nam, bordering China, has a multidimensional poverty rate of 49.9%, the highest poverty rate in the country. Most poor children in remote areas go to boarding schools or semi-boarding schools and this is the case in Bac Me, a poor rural district in Ha Giang province. With a population of 56,668 (General Statistics Office of Viet Nam 2022), it is 53 km from the provincial capital Ha Giang city. Its challenging terrain with many hills, mountains, and river streams makes student travel and communication difficult, hindering access to education.

The mountainous landscape surrounding ethnic minority villages in Phieng Luong Commune, Bac Me District, Ha Giang Province, 2025.

GreenHub conducted telephone interviews with the Bac Me District Department of Education and Training and some school principals in 2024. These led to identifying **Phieng Luong Primary & Secondary Ethnic Semi-Boarding School** as a priority candidate for collaboration to address environmental, educational, poverty and livelihood challenges. The school has 428 children, both primary (282) and secondary (146), with two satellite campuses located in more mountainous and remote locations to accommodate students who live far from the main campus. Approximately 90% of students come from poor families, and 99% belong to ethnic minorities, primarily the Hmong ethnic group.

Students gathering outside at the main campus, Phieng Luong School, Bac Me district, Ha Giang, 2024.

According to the Viet Nam News Agency, Bac Me district schools' conditions do not fully meet the requirements for effective learning due to student economic difficulties and travel constraints: students face the daily physical challenges of going to school due to difficult geographical terrain, resulting in low attendance rates. Towards offering some relief, Phieng Luong Primary & Secondary Ethnic Semi-Boarding School offers children lunch and a comfortable place to have a nap at lunchtime.

At the school, there is a lack of proper teaching resources, especially those customized to engage students in Ha Giang. According to the responses of the Bac Me district's Education and Training Department, learning activities focus on general knowledge education, but environmental protection education has not been paid appropriate attention. This is despite the environment's importance to personal and public health, and in the case of Ha Giang its outstanding biodiversity and nature, which need protection and serve as an important source of revenue for the province through tourism. This underscores the need for early environmental education and awareness-building among young generations.

In terms of their surrounding environment, such schools and households generally mismanage their solid waste by burning and/or dumping, but students and their families lack awareness of solid waste's negative health and environmental impacts. Most students, especially of primary school age, have not had access to the knowledge or skills needed to reduce their exposure to waste or protect themselves, and lack understanding of how improper waste management impacts air, soil, water, the living environment and their own health. This heightens their already fragile health: **about 90%** of Phieng Luong Primary & Secondary Ethnic Semi-Boarding School students do not meet the medically required weight and height standards (according to the results of regular health check-ups at the school).

Students disposing of daily waste into an incinerator located near their residential area at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

Most students are from ethnic minorities and cannot read or write fluently for their age. This situation, coupled with the lack of specialized audiovisual educational tools related to environmental issues, poses a significant barrier for highland students in acquiring knowledge important to their lives. It also impacts their attitudes toward environmental and health matters, including waste management, as many students do not yet recognize the value of protecting nature. Without proper education, they lack an understanding of the negative effects of pollution, leading to a lack of responsibility for environmental protection and sustainable waste management practices. These conditions are of great concern to students' present lives and future.

Lower secondary students assist GreenHub staff by interpreting for primary school students during a health check-up activity at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

Students drinking water directly from an unhygienic water tank at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

Students receiving health check-ups during a medical screening event organized by GreenHub at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

According to the results of Knowledge - Attitude – Practice (KAP) survey of 158 students at Phieng Luong Primary and Secondary Ethnic Day-Boarding School conducted by GreenHub in June 2024:

up to

46%

of students are not aware of the effects of solid waste to water sources and health

49%

of students reported having illnesses such as stomach aches, rashes, and eye pain when exposed to waste or water contaminated by waste

If the above problems continue, the health and physical development of these highland students will be increasingly affected, leading to a deep opportunity gap between these students and other students in urban areas in Ha Giang and the country. To address these challenges, GreenHub has initiated education activities focused on waste management, increasing access to clean water, and enhancing environmental education. These activities have directly improved the understanding and teaching effectiveness of students, teachers, and school staff in relation to environmental issues. Specifically, students and teachers gained a better understanding of how to manage waste, conserve water, and protect the environment, which they can now apply both in school and in their daily lives. Together, GreenHub and the school built a creative, unique educational platform that can be replicated in other schools in the district. Phieng Luong School also joined the national Zero Waste Schools and More (ZHub) network, strengthening their opportunities for knowledge exchange and growth in environmental education.

PROJECT DESCRIPTION

PROJECT OBJECTIVES

This project aimed to enhance environmental education and access to clean water for students at Phieng Luong Primary and Secondary Ethnic Day-Boarding School. It focused on three key objectives:

- ☑ Increasing student awareness of environmental protection and clean water.
- ☑ Improving knowledge and practices related to waste management and water pollution.
- ☑ Enhancing clean water facilities at the school.

PROJECT ACTIVITIES

To achieve these goals, the project implemented the following activities:

- ☑ Co-develop a set of learning materials on clean water and Zero Waste with students and teachers.
- ☑ Organize a competition to design an interactive visual learning tool.
- ☑ Construct the selected learning tool with community participation.
- ☑ Conduct training sessions and a handover event to ensure sustainable implementation.

The project was carried out from **September 2024 to March 2025**, with GreenHub collaborating with **Bac Me District's Department of Education and Training, Phieng Luong School, and DOW Chemical Viet Nam.** The initiative created **a replicable model** for environmental education in highland schools, fostering long-term behavioral change.

Students participate in a training session on waste segregation at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

Students and community members participating in a clean-up and waste segregation campaign at the main campus, Phieng Luong Commune, Bac Me District, Ha Giang Province, 2025.

IMPLEMENTATION METHODOLOGY

The project was implemented through **a participatory and collaborative approach**, ensuring that key stakeholders, including students, teachers, local communities, and experts, were actively involved in all stages of the project. The methodology focused on three main phases: **design, development, and implementation.**

PHASE 1: DESIGN AND CO-CREATION

Consultation workshop

A consultation workshop was held with students, teachers, and the Bac Me District Department of Education and Training. This session enabled the co-design of learning materials and visual tools on clean water and Zero Waste.
Local stakeholders' participation ensured that the materials were contextually relevant and responsive to the specific needs of students and teachers.

Design competition

A design competition was organized to engage local youth, students, and architects in creating the visual learning tool. The selected design reflected the specific needs of the school and its satellite campuses.

PHASE 2: DEVELOPMENT OF EDUCATIONAL MATERIALS AND TOOLS

Learning materials development

Following the consultation, the project developed a comprehensive set of learning materials on clean water, waste management, and environmental protection. These were tailored for primary and secondary students in highland areas.

Expert review and adaptation

A team of pedagogical experts and teachers reviewed the materials to ensure alignment with the educational needs and literacy levels of students, many of whom are from ethnic minority groups.

Interactive learning space

The selected visual learning tool design was transformed into a functional interactive learning space, promoting hands-on experiences in waste management and clean water use.

PHASE 3: IMPLEMENTATION AND CAPACITY BUILDING

Training sessions for teachers

The completed learning materials and visual tools were integrated into the school curriculum through a series of training sessions.
A Training of Trainers (ToT) event was held to equip teachers with the skills and knowledge to apply these tools effectively in their lessons.

Community-led construction

Local students and community members actively participated in constructing the visual learning tool, fostering a strong sense of ownership and collaboration.

Monitoring and evaluation

The project included monitoring and evaluation activities to assess how the materials improved students' understanding and practices regarding environmental protection and clean water.

Handover ceremony for sustainability

The project concluded with a handover ceremony, where students, teachers, and local authorities reaffirmed their commitment to sustaining the use of the learning materials and tools in future education programs.

The implementation methodology emphasized **local involvement, capacity building, and sustainability.** It empowered students, teachers, and the community to take ownership of environmental education and practice sustainable waste and water management.

PROJECT IMPLEMENTATION, RESULTS, IMPACT

1. Project Introduction Workshop and Consultation on Co-Design of the Learning Documents on Zero Waste and Clean Water

As part of the project's participatory approach, a half-day workshop and consultation session was organized at Phieng Luong Primary and Secondary Ethnic Semi-Boarding School to co-develop learning documents on the themes of Zero Waste and clean water. The event engaged **30 teachers** and educational staff, along with representatives from the Bac Me District Department of Education and Training, pedagogical experts, and GreenHub's Zero Waste specialists.

GreenHub and Phieng Luong School teachers co-design visual toolkits and learning materials on clean water and Zero Waste at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

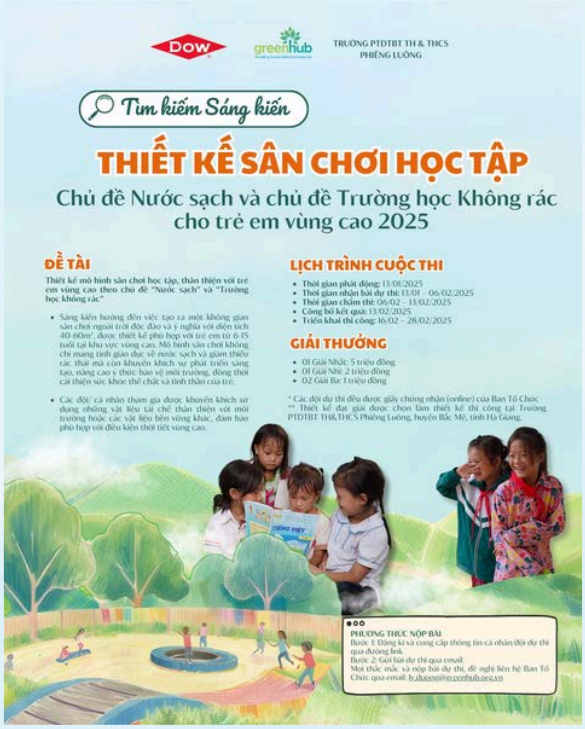
The workshop aimed to ensure that educational content would be practical, culturally sensitive, and meet the needs of highland ethnic minority students, particularly those from the Hmong community. Participants discussed current gaps in environmental and health education and explored teaching strategies aligning with students' language abilities, cognitive development, and cultural background.

Through group discussions and interactive design activities, participants contributed to shaping the structure, themes, and format of the learning materials. Special emphasis was placed on integrating visual aids, interactive exercises, and real-life applications to support comprehension and engagement for both primary and lower secondary students.

The workshop produced a draft version of the learning documents co-designed with local input, and increased teachers' understanding of how to deliver environmental and health education effectively. It also strengthened the school's commitment to incorporating the materials into regular and extracurricular learning activities. This co-design process ensured alignment with actual classroom needs and pedagogical practices, enhancing relevance and accessibility for **378 students** and **28 teachers.**

2. Visual Learning Tool Design Competition on the Theme of Clean Water and Zero Waste Schools for Highland Students

To foster creativity and gather practical ideas for environmental education through play-based learning, the project launched an online competition seeking innovative playground designs. The competition was promoted through nearly 100 social media pages, groups and online platforms related to architecture, sustainable design, education, and youth innovation, targeting youth, architecture students, and environmental enthusiasts.



A representative of the first-prize-winning team for the "Learning Playground Design" initiative delivering a thank you speech to the organizers during the online award announcement event, Ha Noi City, 2025.

The initiative received over 430 link clicks on the registration page and 40 official registrations. Nineteen creative and complete submissions were received, leading to the selection of one First Prize, one Second Prize, two Third Prizes, and 15 Green Idea Awards. An online award ceremony was held on February 17, 2025, with participation from GreenHub, the competing teams, and the Principal of Phiêng Luông School.

The competition created a pool of context-appropriate design ideas to promote environmental awareness and behavioral change. Selected designs now serve as resources for future application in schools. The activity also mobilized youth participation, engaged the community in environmental education, and raised public awareness about sustainable design.

3. Designing a Set of Learning Materials on the Topic of Clean Water and Zero Waste Schools for Children in Highland Areas

To enhance environmental education tailored to highland schools, the project designed a set of learning materials and visual aids focused on Clean Water and Zero Waste Schools. These were co-developed with local educators and education specialists to ensure relevance, age appropriateness, and curriculum alignment.

GreenHub and Phieng Luong School teachers co-design visual toolkits and learning materials on clean water and Zero Waste at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

After completion, the materials were handed over to teachers at Phieng Luong School for integration into formal lessons and extracurricular activities. A training workshop was organized for 28 teachers to strengthen their capacity in using the materials effectively.

The new resources allowed teachers to deliver more engaging environmental education, helping students better understand clean water use, waste classification, and sustainable practices. The materials now serve as reference tools for classroom instruction and environmental activities, reinforcing experiential and student-centered learning.

GreenHub officer facilitates a training session for students and teachers during the Training of Trainers program on Clean Water and Zero Waste Schools at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

4. Join Hands to Build a Set of Visual Learning Tools on the Topic of Clean Water and Zero Waste Schools for Highland Students

Following the competition, the project collaborated with teachers and volunteers to develop a **50m²** visual learning playground. The area transformed unused school grounds into an interactive environment combining physical activity with environmental education.

Students participate in extracurricular play activities at the learning playground of the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

Teacher Pham To Minh Son leads an extracurricular activity on environmental awareness for students at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

The design emphasized hands-on interaction with educational structures that convey messages about clean water use, waste reduction, and sustainability. Construction materials were selected for durability and suitability for highland conditions.

The completed playground features designs supporting fine motor skills and integrates imagery on clean water and Zero Waste schools. It now serves as a multi-use space for recreation and learning for **378 students** and **28 teachers**, reinforcing environmental education through daily engagement and practical application.

Students participating in games and learning activities at the playground at the main campus Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

5. Improving Educational Infrastructure and Learning Environment for Highland Students

To promote a safe and healthy learning environment, the project improved infrastructure at both the main school in Phieng Day village and the satellite school in Phieng Luong village. These improvements included physical upgrades and environmental education enhancements.

Volunteers and students painting murals at the Phieng Luong village school site, Phieng Luong Commune, Bac Me District, Ha Giang Province, 2025.

A total of **143m²** of educational murals were painted across both campuses, incorporating messages on clean water, Zero Waste, and environmental protection. This activity engaged seven national volunteers and five local Youth Union members to create colorful visuals that support learning through storytelling.

Students discussing the educational content depicted in the mural at the Phieng Luong school, Phieng Luong Commune, Bac Me District, Ha Giang Province, 2025.

Students using the newly installed water tap system, provided with handwashing soap and instructions on proper handwashing techniques at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

In addition, the deteriorated school gate at the satellite campus was completely reconstructed to ensure safety and accessibility. The project also repaired and replaced the clean water system at the main school site in Phiêng Đáy, ensuring reliable access to clean water for hygiene and health.

The entrance gate of the satellite campus before and after renovation, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

These integrated actions improved physical infrastructure and strengthened environmental education, fostering behavioral change and improving student well-being.

6. Training Programs and Community Clean-Up Campaigns

The project organized training sessions and a large-scale clean-up campaign to raise environmental awareness and promote Zero Waste practices among students and residents of Phieng Luong commune.

Two waste audit training sessions were held for 40 students: 20 primary students at the satellite school in Phieng Luong and 20 lower secondary students at the main school in Phieng Day. Students learned to analyze the daily volume and composition of school waste, linking personal habits to environmental outcomes.

GreenHub project coordinator guiding students in waste segregation and conducting a waste audit at the main campus Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

A community clean-up campaign in Phieng Day attracted nearly 500 participants, including students, teachers, Youth Union members, and local residents. The campaign improved school surroundings and strengthened local cooperation in waste management.

Students and community members are participating in a clean-up and waste segregation campaign in Phieng Day Hamlet, Phieng Luong Commune, Bac Me District, Ha Giang Province, 2025.

The training program increased student knowledge, changed behaviors related to waste and water use, and fostered student initiative at school and home. The clean-up event boosted community cohesion and environmental responsibility.

Students participate in an environmental-themed film screening organized by GreenHub at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

7. Handover Ceremony on the Use of Educational Materials and Visual Learning Tools on Clean Water and Zero Waste Schools

The ceremony was held at the main campus of Phieng Luong School (Phieng Day Hamlet, Bac Me District) and was coordinated by GreenHub with local authorities and volunteers. It marked the formal handover of educational materials and visual tools to the school community.

The event included demonstrations, resource presentations, and stakeholder discussions on integrating the tools into lessons and extracurricular activities. Students and teachers participated in surveys to provide feedback on the tools' usability and relevance.

GreenHub officer conducts an outdoor training session on Clean Water and Zero Waste Schools for students through interactive activities at the learning playground at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

Participants included the Bac Me District People's Committee, local education authorities, school staff, 378 students, GreenHub team members, youth volunteers, community members, and local media.

Representatives from the Bac Me District People's Committee, Phieng Luong Commune People's Committee, and GreenHub take part in the handover ceremony of educational materials and teaching kits during the project closing workshop at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

Over 400 people participated in the event, solidifying institutional support for long-term environmental education. Feedback showed improved understanding of clean water and waste practices, and stakeholders committed to integrating the materials into regular programming, fostering sustainable education for highland children.

CHALLENGES & LESSONS LEARNED

1. CHALLENGES

Difficulties in communication with ethnic minority students at Phieng Luong School

In practice, the Vietnamese language proficiency of lower secondary students at Phieng Luong School remains below the national average for the same age group. While many students in grades six and eight are able to listen and speak Vietnamese to some extent, they still face significant challenges in reading and writing.

A local volunteer supports the KAP (Knowledge–Attitude–Practice) survey of students speaking the Hmong language at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

For primary students, the limitations are more profound, with widespread difficulties in listening, speaking, and reading comprehension. Most students primarily communicate in Hmong and have very limited command of Vietnamese.

Although visual teaching aids and learning materials were designed to suit the target groups at both primary and lower secondary levels, these tools have not fully reflected the students' actual learning capacity. As a result, despite being engaging and practical in content, the teaching process still requires substantial time and effort from educators to ensure effective delivery.

Gap between knowledge and practical conditions

While students were guided in waste segregation and safe water practices using visual tools and hands-on models provided by the project, the school's current facilities do not adequately support sustainable practice. The lack of an appropriate waste management system and occasional interruptions in clean water supply create a substantial gap between theoretical knowledge and real-life application, limiting the long-term adoption of positive behaviors.

School staff transport waste to the school's incinerator as part of daily waste management at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

GreenHub officer inspects damaged water taps as part of a school facilities assessment at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

Even though the learning aids are well-designed and accessible, turning knowledge into daily habits requires consistent and adequate infrastructure. Without such practical conditions, the educational outcomes are weakened, posing a significant challenge for effective and sustainable implementation.

Impact of specific weather conditions

Phieng Luong commune in Bac Me district is situated deep within a valley, surrounded by uneven terrain and mountains. This geographical setting makes the area prone to prolonged humidity, frequent rainfall, and dense fog, especially during the rainy season from May to October. The increasingly unpredictable weather patterns, intensified by the effects of climate change, have made it difficult to plan and implement outdoor activities based on weather forecasts.

Students making their way to school after a heavy rain at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

In reality, several project activities had to be carried out under unfavorable weather conditions such as prolonged rain or high humidity, which disrupted the timeline, reduced student participation, and required additional time and human resources to achieve the intended outcomes. Adverse weather also directly impacted transportation, making it difficult for students - especially those from remote hamlets - to travel safely and consistently to school or community events. This poses a significant challenge to ensuring full and safe participation in project learning and communication activities.

Prolonged rainfall created challenges for the construction of the learning playground at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

This remains one of the most objective and pressing challenges in the implementation process, requiring flexibility and proactive planning, as well as continual adjustment to align project activities with local realities.

2. LESSONS LEARNED

Understanding Student Capacities and Local Context

One of the key lessons learned from the project implementation process is the importance of thoroughly assessing students' language proficiency, learning capacities, and the local context before designing educational content and teaching methods. During implementation, it became evident that for early primary school students—especially those who were not yet literate—**text-heavy approaches were ineffective.** Instead, prioritizing **visual tools, interactive games, and imagery-based communication** proved more impactful in engaging students on key environmental concepts. This approach not only **fostered active participation** but also **encouraged the transformation of knowledge into daily habits**.

➡ This lesson, drawn directly from hands-on experience, has significantly informed the optimization of instructional strategies and improved the overall effectiveness of environmental education in this local context.

Bridging the Gap Between Knowledge and Practice

A second lesson was the need to consider both **physical infrastructure** and **community awareness** when building a sustainable environmental education model. While visual teaching aids and hands-on demonstrations provided knowledge, the absence of adequate infrastructure such as a **reliable waste management system** and **uninterrupted clean water supply** limited students' ability to practice and maintain positive behaviors over time.

➡ For environmental knowledge, such as waste segregation and safe water use, to translate into sustained habits, consistent infrastructure aligned with the educational model is essential.

Adapting to Climate and Weather Constraints

Another key lesson from the project implementation involves the impact of extreme weather conditions in mountainous and remote areas like Phieng Luong. The commune's valley terrain and persistent humidity often disrupted activity timelines and limited student attendance, particularly for those living in remote hamlets. These challenges were further exacerbated by increasingly **unpredictable weather patterns** due to climate change.

The experience underscored the importance of integrating climate risk into planning from the outset. This includes **designing flexible schedules**, **preparing contingency plans for outdoor activities**, and **maintaining ongoing coordination with teachers, parents, and local authorities** to ensure timely weather updates and student safety.

➡ By adopting a flexible and proactive implementation strategy, the project was able to uphold its educational goals while promoting resilience and inclusivity in a challenging environment.

RECOMMENDATIONS & NEXT STEPS

Strengthen Coordination Between Schools, Families, and Communities

A successful environmental education model requires balanced participation from schools, families, and communities. This collaboration will enhance awareness and promote environmental protection actions, creating a positive learning environment for students.

Enhance Capacity for Teachers and the Community

There is a need to continue training and enhancing the capacity of teachers, staff, and the community in environmental education methods. This will not only improve the quality of education but also create a strong support network for sustainable education activities within the community.

Invest in Stable Infrastructure

To ensure sustainable environmental education, it is essential to invest in school infrastructure, including waste management systems, a stable clean water supply, and outdoor learning spaces. This will provide a platform for students to apply and maintain knowledge.

Scale Up Effective Environmental Education Models

The experiences and successful models from the project should be expanded and shared with other schools and communities in the region. Developing detailed guidelines will support other localities in implementing similar environmental education models.

Project summary

ZERO WASTE SCHOOL AND CLEAN WATER MODEL TO CREATE A HEALTHIER EDUCATION ENVIRONMENT FOR HIGHLAND STUDENTS OF VIET NAM

April 2025

The "Zero Waste School and Clean Water Model" empowered students at Phieng Luong Primary and Secondary Ethnic Semi-Boarding School (Phieng Luong School) to build resilience to environmental, personal and community health challenges. It improved waste management, access to clean water and environmental knowledge. Implemented by the Center for Supporting Green Development (GreenHub) and sponsored by DOW Chemical Vietnam Co., Ltd., the project bolstered environmental protection, safe waste management practices, and strengthened students' learning environment. Mural painting and the replacement of the school gate was also supported by Global Giving.

PRE-PROJECT SITUATION

40%

of students didn't recognize different waste types.*

Students burning rubbish generated at Phieng Luong School, Bac Me District, Ha Giang Province, 2024.

49%

of students had suffered from illnesses caused by exposure to waste or contaminated water.*

*According to the KAP (Knowledge – Attitude – Practice) survey by GreenHub in June 2024 and the School Health Check Report No. 72/BC-BV dated June 26, 2024, from Bac Me District General Hospital.

PROJECT IMPACT

1 Adoption of co-designed clean water and Zero Waste learning materials and visual teaching toolkits

GreenHub collaborated with Phieng Luong School teachers to co-design visual toolkits and learning materials on clean water and Zero Waste, including a consultation workshop with 30 teachers, experts, and education officials.

Materials and visual toolkits were designed to reflect local culture, language and needs, enabling students to access knowledge in an engaging way.

28 teachers attended a Training of Trainers session, enabling them to effectively apply materials in both core and extracurricular activities.

2 Construction of educational playground

A creative competition was promoted via nearly 100 digital platforms including websites, social media pages and groups, attracting 430+ views and 40 official registrations.

19 qualified entries were submitted, with one First Prize, one Second Prize, two Third Prizes, and 15 Green Idea Awards. Winning designs will be used for future school playgrounds.

The school collaborated with teachers and volunteers to build the 50m² educational playground based on the winning design.

The playground combines play with educational content on waste reduction, water conservation, and environmental protection.

The playground improves student physical and mental health while creatively raising awareness of environmental protection, encouraging students to learn and play.

3 Painting of 143m² educational murals at the main school and one campus

The murals creatively illustrated key knowledge on Zero Waste habits, clean water, and nature protection.

Implemented by seven national volunteers and five local youth union members, the murals create an inspiring school atmosphere.

4 Improvement of clean water system and infrastructure

The water supply system at the main school (Phieng Day) was repaired and upgraded for stable clean water access.

The entrance gate at the satellite campus (Phieng Luong) was replaced to enhance safety.

5 Hands-on waste training and extracurricular activities

Two waste audits were conducted for 40 students, who were able to apply knowledge and skills learnt in the classroom, equipping them with experience to separate and safely dispose of waste at school and home.

Seven extracurricular sessions focused on waste sorting, water saving, and personal hygiene, using interactive and age-appropriate methods.

"I liked the clean water activities and the mural paintings the most. Now, if I see someone littering in the water source, I will stop them and explain why it's wrong."

-Hoang Thao Huong

Grade Six student of Phieng Luong school

"As a local partner in this initiative, I highly value the activities at the school, which have empowered and inspired students to care for the environment. We hope to continue partnering with the project in future community programs such as plastic waste collection, awareness raising, and infrastructure support."

-Mr. Vang Mi Lenh

Secretary of the Phieng Luong Commune Youth Union

6 Community engagement through large-scale clean-up campaign

The clean-up attracted over 500 participants, including students, teachers, youth union members, and local residents.

Enhanced community awareness and improved surrounding school environment.

7 Commitment to environmental education at handover ceremony for learning tools and materials

More than 400 participants attended the ceremony, including local authorities, teachers, students, and the media.

Stakeholders reaffirmed their commitment to integrating environmental education and tools into teaching and school activities.

"Thanks to the initiative, we've integrated the content into school meetings and lesson plans to help students better understand waste treatment and environmental protection."

-Mr. Pham To Minh Son
Teacher of Phieng Luong school

LESSONS LEARNT

Early engagement and consultation with local stakeholders ensured the project addressed community needs and secured community investment in the project.

Integrating local culture and experiential learning methods made environmental knowledge accessible and engaging for ethnic minority students.

Teachers play a central role in sustaining outcomes. Empowering and training them was crucial for long-term integration into the curriculum.

Community and student participation in tool development fostered ownership and environmental responsibility both in and out of school.

Combining infrastructure upgrades with environmental education improved learning conditions, student's waste and water habits.

"What I find most meaningful is the way this initiative raised awareness among teachers, students, and the community about protecting the environment and using clean water wisely. It also contributes to improving living conditions and preventing environmental risks."

-Mr. Ma Van Toe
Vice Chairman of Bac Me District People's Committee

"As a project implementer, we feel deeply grateful that our initiative has not only been realized with the support and coordination of local authorities and mass organizations at all levels, but also with the enthusiastic participation of a wide network of volunteers from communities across the country."

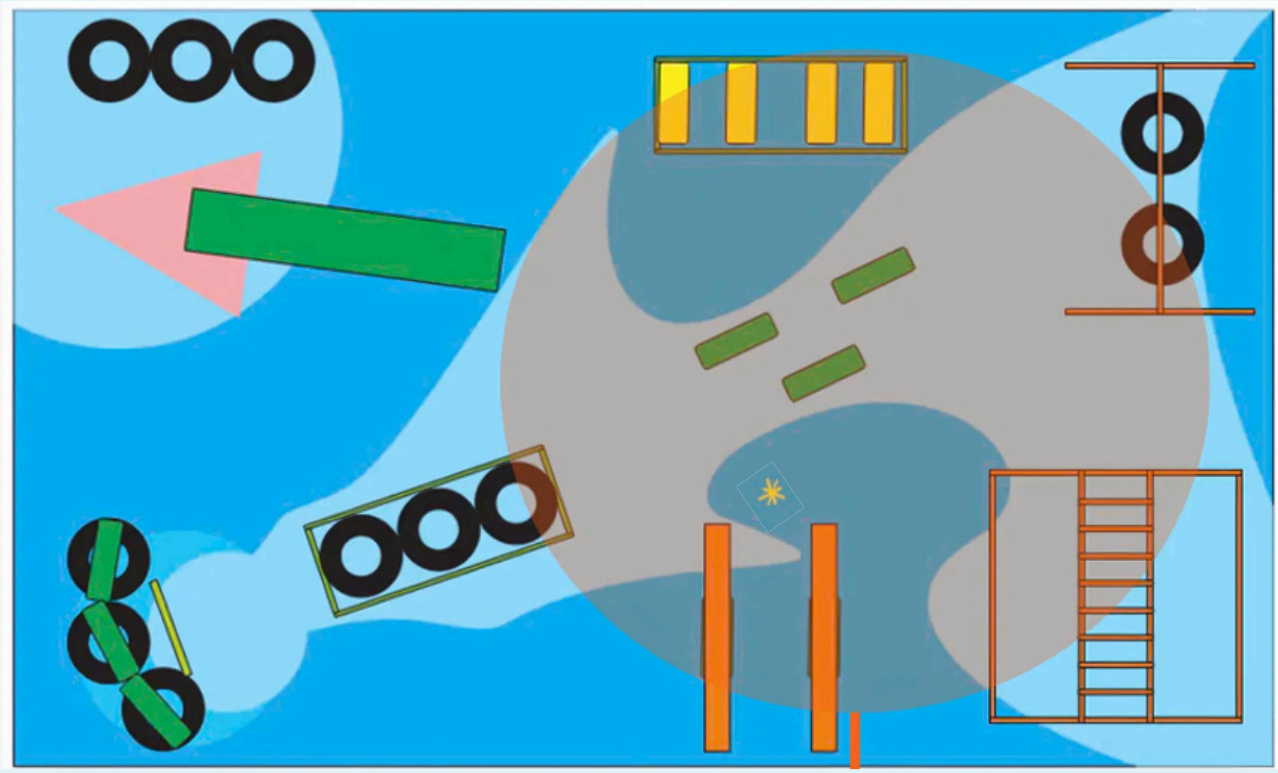
-Ms. Nguyen Bao Han
GreenHub Project Coordinator

ANNEXES

Design of the Educational Playground Clean Water and Zero Waste Schools

1. Model Name:

Educational Playground: “Clean Water and Zero Waste Schools”



2D Design of the Educational Playground on the Theme of “Clean Water and Zero Waste Schools”.

2. Core Concept:

This outdoor interactive learning space is designed to offer students the opportunity to engage in physical play while acquiring essential knowledge about water conservation, waste segregation, and sustainable living.

The model integrates environmental education with traditional games. It utilized recycled materials in its construction to inspire and promote the spirit of "Zero Waste" in schools.

3. MATERIALS USED:

Recycled Materials:

- Old tires were collected from local repair shops and community donation programs. They were thoroughly cleaned, surface-treated, and coated with non-toxic protective paint to ensure safety and durability.

Child-Safe and Weather-Resistant Components:

- Non-toxic paint helps prevent chemical exposure and reduces microplastic release.
- Painted iron components are suitable for outdoor conditions and provide weather resistance.
- Durable plastic (recycled HDPE and PP) is UV-resistant and less prone to cracking or degradation.
- Treated wood (such as pressure-treated pine) is resistant to moisture, termites, and rot. All surfaces are smoothed and sealed with child-safe coatings for additional protection.

4. DETAILED DESCRIPTION:

The playground consists of three functional zones:

4.1. Recycled materials play area

- The design emphasizes safety through the use of rounded edges, non-toxic materials, and sturdy construction. It ensures protection against sharp objects, slippery surfaces, and structural collapse, creating a secure environment for physical activity and imaginative play.

Students are participating in physical activities in the playground at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

4.2. Traditional games – Environmental education zone

- Traditional Vietnamese games such as “Ô ăn quan” (Mandarin Square Capturing), hopscotch, etc., were adapted to incorporate knowledge related to:
  - Proper water usage and conservation
  - Waste sorting and treatment practices
  - Environmental protection behaviors

Students are participating in game integrated with knowledge about the theme of “Clean Water and Zero Waste Schools” at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

4.3. Learning board and visual teaching aids zone

- Equipped with visual aids and educational cards featuring:
  - Waste classification charts
  - Illustrations of appropriate/inappropriate environmental behaviors
- Cards can be stuck, flipped, or hooked for interactive learning, and storytelling or group-based activities can be conducted in this area.

Students and teachers are using the learning board and visual teaching aids during extracurricular activities at the main campus, Phieng Luong School, Bac Me District, Ha Giang Province, 2025.

Thank you

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People's Committee of Bac Me District

Bac Me District Youth Union

Department of Education and Training of Bac Me District

Department of Agriculture and Environment of Bac Me District

People's Committee of Phieng Luong Commune, Bac Me District

Youth Union of Phieng Luong Commune, Bac Me District

Women's Union of Phieng Luong Commune, Bac Me District

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