



Norwegian Ministry  
of Foreign Affairs



Norad



ENDING PLASTIC POLLUTION  
INNOVATION CHALLENGE

Ending Plastic Pollution Innovation Challenge 2023

# Top 7 Finalists



Target site: Savannakhet province  
Lao PDR





# ABOUT EPPIC

The **Ending Plastic Pollution Innovation Challenge (EPPIC)** is an ASEAN-wide competition aiming to beat plastic pollution in coastal cities in Vietnam, Thailand, Indonesia, the Philippines, Lao DPR, and Cambodia by selecting innovative solutions and helping them to grow and scale up.

Over **25 teams** from different parts of Laos and neighboring countries have applied to EPPIC 2023 in two months. They came up with a broad range of solutions to tackle plastic pollution with upstream and downstream innovations. In September 2023, **07 teams** were selected as EPPIC finalists and undertook a 2-month incubation programme, including two field trips to Savannakhet province.

In the Final Pitching Competition, which will take place on 25 January 2024, **02 winners from Lao PDR** will be awarded seed funding of up to **USD 18,000** each and start a 9-month impact acceleration programme.

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# Eco Machine

*We will have clean water as well as save aquatics, and maintain our human health if we turn to use Eco machine*

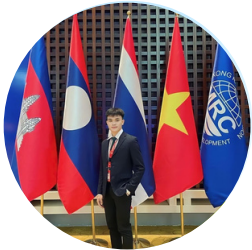


## Team



**Mr. Sounthone Ontaindala**  
*Project manager*

Passionate about engineering  
3 years of experience in building machines



**Mr. Bounphick Sonthone**  
*Engineer*

JENESYS 2022  
Runner up with a revert monitoring technology



**Ms. Viphavady Singhaphanh**  
*Marketing*

Winner of the LangXang Project,  
Bangkok, Thailand



**Ms. Alanya Delueth**  
*Finance*

3 years of volunteering experience  
as MC and coordinator

## Plastic Pollution Challenge

The plastic pollution challenge that our project is tackling is the excessive use and improper disposal of single-use plastic products, particularly their rampant discarding into rivers, leading to significant plastic waste accumulation.

## Solution

Our groundbreaking Eco Machine is a revolutionary device that harnesses the power of solar energy to effectively capture and remove a wide range of waste materials, including plastic, foam, leaves, and other debris, from flowing water sources.

## Innovation

We have an environmentally friendly approach to tackling the growing challenge of waste pollution by leveraging solar energy and integrated IT systems.

## Business Model

### Phase 1: Business to Business



### Phase 2: Sell to the Public organization, NGO, ...



Promote and awareness

### Phase 3: B2C



## Market

**Total Available Market:** The Lao PDR has estimated market demand for 4,550 garbage collectors, which is valued at USD 1,984,000.

**Serviceable Available Market:** A preliminary estimate of how much money has been spent on removing waste from the surface of the water in the past 10 years is USD 829,500.

**Serviceable Obtainable Market:** We estimate that our machines will be on the market within the next 2-3 years. We will be able to build about 228 machines, targeting to capture about 10-15% of the total market. This could potentially generate an annual revenue of USD 99,385 within the initial 2-3 years of operation in Laos.

## Impact Statement

- Social Impact:
  - The society will live in an area that is free from garbage from water sources.
  - People will have access to cleaner water for living.
  - Reduced health risks. People are healthy and have a good quality of life.
  - Economic boost in various sectors including industry, agriculture and tourism.
- Environmental Impacts:
  - Help reduce water pollution.
  - Promote aquatic ecosystems because clean water sources are home to numerous species.
  - Promote quality water for human use.
  - Promote natural tourism, enhancing local economic tourism.
  - Improve the overall environmental quality, especially in aquatic habitats.
- Economic Impacts:
  - Agricultural enhancement, as water is vital for crop growth.
  - Industrial benefits, with water serving as a key raw material and energy source.
  - Boost in tourism, with clean water sources attracting more visitors.

## Investment

Upon calculating the required investment for our project's implementation, we have estimated the total cost to be approximately USD 18,000.

## Traction & Key Metrics



Oudomsouk Company will collect waste that our machines suck up.



Ministry of Natural Resources and Environment will fund and purchase our machines in the future.



Makerbox provides a space to build and test the machine, supports with initial capital, tools and equipment, provides advice on making the machine and marketing.



Professor Mr. Konemany Kanlaya guides the creation of engineering machines. Professor Mr. Keonakhone Khounvilay supports awareness-raising activities.

## Call for Action

To make our vision a reality we need:

- Initial funding from investors.
- Access to storage & office space.
- Collaboration with UNDP for expert guidance and pilot project funding.
- Support from the Ministry of Natural Resources and Environment for easier promotion and implementation of our Eco Machines.

## Contact

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# Econatural

*Reduce the use of foam boxes and plastic for a sustainable future*



## Team



**Mr. Phonepasert keodouangdy**  
*Project Manager*

Founder of Eco-natural since 2021  
USAID business project competition



**Phatthana Phommavongsa**  
*Marketing & Finance*

Market Research and Product Development



**Ms. Phimmasone Inthisan**  
*Planning & Design*

Co-founder and Inventor

## Plastic Pollution Challenge

Our project aims to reduce plastic waste, particularly from food packaging such as Styrofoam boxes by converting agricultural waste into useful products.

## Solution

Eco-natural is a natural food packaging product made from natural plants, processed and transformed into food containers, adding value to agricultural waste.

## Innovation

- Transforming agricultural plant waste into marketable products.
- Empowering farmers to generate income by selling plant residues and adding value to plant residues.
- Reducing expenses for Food & Beverage businesses through local production, as opposed to relying on imports.
- Producing easily biodegradable and environmentally friendly packaging.

## Business Model

**B2B:** Direct sales to restaurants, café, hotels, shops and convenience stores.

**B2C:** Lao Cha Lern Night market, social media



## Market

USD 200M/year

- The food packaging market in Laos is a large market with a demand, mostly for imported plastic and foam containers. Savannakhet province discards 60–70 tons of food containers per month.
- Annually, Lao PDR imports approximately 173,000 tons of plastic, mainly from China, Thailand, and Vietnam.
- This represents an estimated value of USD 200M/year.

## Impact Statement

Our product is eco-friendly, and safe for health. Made from 100% natural materials, it offers an environmentally responsible alternative to plastic packaging, preventing non-biodegradable waste in rivers and protecting aquatic ecosystems. Additionally, it transforms agricultural leftovers into valuable products, enhancing their utility.

## Investment

We need USD 14,000 to start the project.

### Contact

**Mr. Phonepaseuth Keodouangdy**

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## Traction & Key Metrics

There is a high demand for food containers in the market, yet there's a notable absence of natural options. More people are prioritizing health and seeking products that are safe and beneficial for the body.



Now we have partners with sugar factories and farmers.



Customers: convenience stores, restaurants, and cafés

## Call for Action

We are seeking investment and expertise to further refine and develop our product. "Laos can do it, Laos can use it, Laos will prosper."



# Nature Ware

*Nature will always be with us if we turn to using plates from leaves*



## Team



**Mr. Xaysomphone Kongmany**  
*Project Manager*

Studying at the National University of Laos, Faculty of Law and Political Science, majoring in Business Law  
Winner of Young Scientists Technology and Innovator Forums, 2022  
Appreciate Award Digitization Solution, Hanoi, Vietnam, 2023

**Ms. Siamphai Boutdy**  
*Planning*

Studying at the National University of Laos, Faculty of Economics and Business Management, majoring in Marketing  
Volunteer at Zero Waste Laos

**Ms. Souphansa Pasakham**  
*Marketing*

Studying at the National University of Laos, Faculty of Law and Political Science, majoring in Business Law  
Volunteer for UNFPA, 2023

**Ms. Lodchana Boulaphan**  
*Finance*

Bachelor degree in Customs and Taxation, Faculty of Economics and Business Management, National University of Laos  
PWC Laos  
Volunteer for ASEAN Youth Organization, 2023

## Plastic Pollution Challenge

- The excessive presence of foam and plastic in tourist areas tarnishes the beauty of these destinations in Laos. Currently, there are no viable alternatives to Styrofoam and plastic containers.
- Using foam containers for hot food (above 70°C) can lead to chemical leaching and potential health risks, including cancer.
- The environmental impact is significant, with 80 tons of foam and plastic waste generated daily. These materials, especially prevalent in tourist spots and marketplaces, take 500 years to decompose. Recycling and proper disposal of these materials require substantial investment.

## Solution

Nature Ware's business model focuses on creating and selling eco-friendly and sustainable products made from natural materials. The company also attaches importance to social responsibility, collaborating with the community and providing fair wages and working conditions to employees.

## Innovation

- Nature Ware products, made from natural, eco-friendly materials, decompose quickly, transforming into nutrient-rich compost.
- Our mission is to foster environmental consciousness and promote clean surroundings, particularly in tourist areas, parks, and workplaces. We cater to environmental organizations, community groups, and food stalls across diverse locations. Many organizations still rely on plastic plates or foam for events, compromising their image and credibility.



## Business Model

**Business to Business:** Selling to restaurants, hotel, cafe, shops and convenience store.

**Business to Customer:** Selling to street food restaurant, night market in Kaysone Phomvihane City



## Market

In Lao PDR, approximately 2,400 tons of foam packaging products are imported annually, equating to a market value of around USD 9,000,000 per year.

For the Serviceable Obtainable Market, capturing just 5% of this market within the first year would represent a revenue of USD 450,000.

Source:

<https://tradingeconomics.com/laos/exports/plastics>

## Impact Statement

- To address these issues, we propose "Nature Ware or Green dishes" – a concept focusing on natural raw materials for food containers as alternatives to foam and plastic. Our leaf plate product offers a sustainable, eco-friendly option, aligning with our mission to promote environmental sustainability. This initiative has received positive customer feedback and has shown potential for market growth.
- Economically, this will provide income opportunities for local communities as we plan to source leaves directly from them.
- Socially, our products, made from leaves, will have no adverse health impacts, offering a safer option for consumers.

## Investment

Our project needs approximately USD 18,000 for implementation.

## Traction & Key Metrics

Nature Ware is making significant strides in the eco-friendly tableware industry, driven by innovative product development, expanding customer adoption, and community engagement.

### Customer Adoption:

Secured initial customers in Vientiane Capital, including **389 Watnak and Lao Telecom**.

Engaged in discussions with potential customers, indicating growing interest in eco-friendly tableware solutions.

### Community Engagement:

Partnered with the Makerbox Laos to co-create and develop innovative products.

Established a sustainable supply chain by sourcing quality leaves from local communities, fostering economic empowerment.



## Call for Action

Join our mission to revolutionize local packaging waste issues in Kaysone Phomvihane City, Savannakhet Province, and beyond. We seek:

- Angel investors to support our innovative solutions.
- Business partners, including local engineers, sellers, and distribution networks, to extend our reach.
- Experts in product quality inspection to ensure the highest standards.

Together, we can create a sustainable future for Laos.

### Contact

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# Recycle Art

*New choice sustainable for plastic to products*



## Team



**Ms. Malavong Maniseng**  
*Operations and Marketing*

World Bank STEPS Program  
Award  
Circular Economy Innovation  
UNDP  
ECOTHON Finalist



**Ms. Wadsana Samluamluam**  
*Head of Product Development*



**Mr. Zoh Buathavikhoun**  
*Head of Manufacturing and  
Mechanical Engineering*

14 years of experience

## Plastic Pollution Challenge

Plastic bottles in the rivers are difficult to decompose. We have taken it upon ourselves to create more durable and cheaper nets and fencing products from plastic bottles. These products are designed to aid Lao PDR's agricultural sector, offering a sustainable solution to manage agricultural waste.

## Solution

Upcycling plastic bottles into fencing products, nets and ropes for farmers. We make products that are not only environmentally friendly but also minimize plastic bottle waste in the environment.

## Innovation

- We develop unique techniques, equipment, and machines for our sustainable solution.
- Utilizing solar cells to minimize our production's environmental impact.
- Our team has 10 years of experience in recycling business management in Lao PDR.

## Business Model

- Business to business: Direct sales to agriculture shops.
- Business to customer: Direct sales at event booths.
- Collaborations with UNDP community partners in Kayson Phomvihane City, business partners, and government agencies.

## Market

In Lao PDR, the government is actively supporting the agricultural sector:

- Approximately 1,880,000 individuals are engaged in agriculture.
- Around 564,000 farmers are involved in animal husbandry, like chicken farming.
- The GDP contribution from agriculture in Laos was 19,488 billion LAK in 2022.
- Kaysone Phomvihane City generates about 6,400 kg of plastic water bottle waste daily.

## Impact Statement

- Creating job opportunities for 30 local residents.
- Generating an annual income of approximately USD 37,937 for plastic collectors.
- Removing 41.95 tons of plastic from the environment per year.
- Helping farmers save 50% on cost amidst inflation.
- Reducing the need to import agricultural products made from plastic, saving USD 231,840.

## Investment

Total: USD 22,032 (78% or USD 18,000 from UNDP, 22% or USD 4,032 from Recycle Art)

|  |             |
|--|-------------|
| Equipment and machine                        | = USD 7,800 |
| Solar cell and workspace                     | = USD 2,927 |
| Operating expenses                           | = USD 7,995 |
| inflation risk & hedging budget for 3 months | = USD 3,310 |

## Traction & Key Metrics

**90%**

agriculture shops believe they could sell our products (survey)

**90%**

farmers express an interest in using it (survey)

First-time nets and fences made from recycling plastic bottle in Lao PDR

## Call for Action

Join us on our incredible journey of innovation! Your financial support can make all the difference in bringing our groundbreaking fencing product to life!

## Contact

**Ms. Malavong Maniseng**

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# Recyglo

*Making the world a cleaner place by reducing micro and macro plastic waste*



## Team



**Mr. Okka Phyo Maung**  
Project Director



**Mr. Bounheng southichak**  
Project Director



**Ms. Lai Lai Min Han**  
Project Manager

## Plastic Pollution Challenge

We are targeting two main segments of plastic pollution:

- Microplastics from fabrics
- Household plastic furniture items

## Solution

Thrift truck where people can “Donate 2 Items and Get 1 Item” focusing on fabrics and plastics. The truck will be moving around communities and deliver resources. Businesses can sponsor the activities. The truck will also be used to collect plastic furnitures from offices for a fee. 50% of surplus items will be donated to disadvantaged communities and 50% will be sold as raw materials, thus generating additional revenue from the resale.

## Innovation

Combined international and local experience for more than 20+ years in plastics recycling in ASEAN countries and successfully implemented several projects across Southeast Asia.

## Business Model

- B2B sale: Sale of surplus recycled materials.
- We charge businesses with collection, advertising and sponsorship fees.
- Additional income will be generated from the resale of the raw materials.

## Market

USD 1 million per year in Laos coming from subscription, sale of raw materials



## Impact Statement

- 1,000 unique beneficiaries of our services per month.
- Save 10,000 kg of fabric waste going to landfills per month.
- Reduce microplastics by 20% from clothing fabrics.
- Generate USD 10,000 per month for financial sustainability through B2B sales.
- Prevent 20,000 kg of plastic furniture from going to landfills.

## Investment

We need an initial investment of USD 25,000, however, USD 18,000 from UNDP will be part of the initial investment.

## Traction & Key Metrics

- Mobile recycling platform with successful tractions in Thailand, Vietnam, Myanmar and Cambodia.
- Currently collecting 1,000 tons of plastics and fabric waste per month in ASEAN.
- Donated second-hand plastics and fabrics to more than 100,000 people.

## Call for Action

“Make Laos sustainable.” We believe what we do is scalable and manageable without the hurdles of regulation and can be easily implemented. The project is financially sustainable for years to come only with the seed funding grant from UNDP. We aim to create 100-plus jobs in the supply chain per year with a positive social and environmental impact.

## Contact

**Mr. Okka Phyo Maung**

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**Mobile:** +66 81 412 6842

# Savanir

*Women Steering Community Transformation through Upcycling Initiatives*



## Team



**Ms. Chandokkham Youyabouth**  
*Co-founder and CEO*

Vice Dean of FOF, SKU  
Over 7 years of experience in textile industry



**Ms. ToEm Vilaysouk**  
*Co-founder and CFO*

Research Assistant  
Over 5 years of experience in youth and women empowerment



**Mr. Keovilay Thoummavong**  
*Co-founder and Product Development*



**Ms. Inthila Xayyavongsa**  
*Brand Management and Design*



**Mr. Souksakhone Vongsoutthi**  
*Co-founder and Product Management*

Junior Technical Officer of Waste to Value Project  
ASEAN Youth Volunteer for the Empowering Youths Across ASEAN (EYAA) program

## Plastic Pollution Challenge

Our project in Kaysone Phomvihane City, Savannakhet Province, Laos, directly addresses the plastic pollution challenge by upcycling discarded plastic bottles into fibers. By providing these materials to women in rural areas for weaving into bags, we not only mitigate plastic pollution but also contribute to sustainable livelihoods and poverty reduction.

## Solution

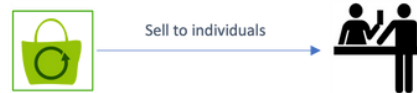
Creating a harmonious and sustainable solution to upcycle plastic waste into high-quality bags.

## Innovation

A commitment to producing products that are not only environmentally friendly but also aesthetically pleasing and culturally resonant.

## Business Model

Phase 1: B2C (4 months)



Phase 2: B2B (3 months)



Phase 3: Mix (2 months)



Educational institution  
Government organization

## Market

Total tourists in Laos in 2022 = 1.68 million  
 Hypothetical interest assumed 20%  
 So, TAM = 336,000  
 Tourists in Savannakhet Province in 2022 = 821,350  
 Hypothetical interest assumed 20%  
 So, SAM = 164,270  
 Expected Market Penetration (5% to capture the market)  
 So, SOM = 8,213.5 people/year

The Lao government is working to promote Laos as an ecotourism destination, highlighting the country's natural beauty and biodiversity. Ecotourism is a form of tourism that is responsible and sustainable, and it can help to protect the environment and cultural heritage of Laos.

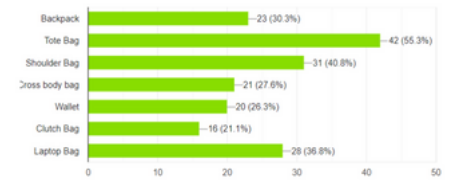
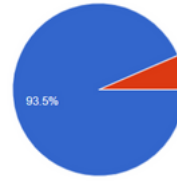
## Impact Statement

Socially, our initiative empowers women in rural areas by providing them with weaving jobs, enhancing their skills, and helping close the poverty gap in their households. Environmentally, it aids in cleaning up the surroundings by recycling plastic waste. Economically, it creates job opportunities, contributing to the economic stability of Kaysone Phomvihane City's local community.

## Investment

To implement and scale our project, we are seeking an investment from approximately USD 18,000 to USD 30,000. This funding will cover the costs associated with collecting, processing, and transforming plastic bottles into fibers, as well as supporting the weaving initiatives in the rural areas of Kaysone Phomvihane City, Savannakhet Province, Laos.

## Traction & Key Metrics



93.5% of potential customers have expressed a strong willingness to purchase our products.

## Call for Action

As we embark on this groundbreaking journey, we extend an invitation to partners, innovators, and eco-conscious individuals to join hand with us. Whether you possess technical expertise or share sustainable practice, we welcome everyone's involvement. Together, we can magnify the impact of our project and create a legacy of environmental stewardship, economic empowerment, and cultural preservation for Savannakhet and Laos as a whole.

## Contact

**Ms. ToEm Vilaysouk**

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# Waste Trap

*Practical Waste Management System by Local Innovative Technology for the River*



## Team



**Mr. Pasaya Thirasak (PhD)**  
*Consultant*

Deputy Head of Department,  
Vocational Education Development  
Institute



**Mr. Phanoulack Koumphon**  
*Co-founder*

Sales and Marketing  
Over 5 years of experience as a  
business analyst



**Ms. Tammany Phommachak**  
*Project Leader*

5 years of experience as a  
developer and project leader



**Ms. Bounhieng Sotapaserth**  
*Co-founder*

Finance and Budgeting  
Over 7 years of experience in  
Finance and Budgeting



**Mr. Song Xaykhamphan**  
*Co-founder*

Designer  
3 years of experience as a  
mechanical engineer



**Mr. Anek Bunkwang**  
*Mechanical Engineering Expert*

Lecturer at the University of  
Technology Thailand

## Plastic Pollution Challenge

The Waste Trap project addresses river plastic pollution by implementing an efficient waste operating system in canals and small rivers. The system screens and collects plastic waste, sorting recyclable materials for processing and directing non-recyclable waste to landfills.

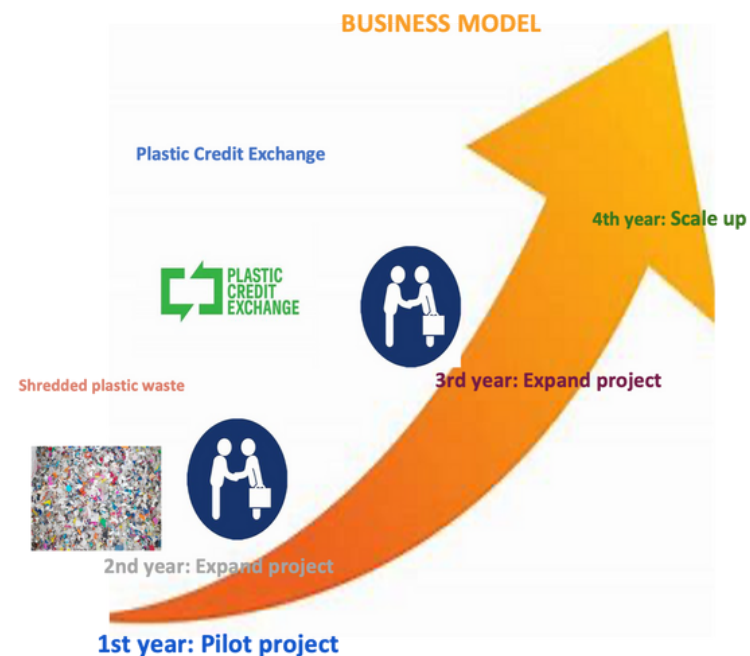
## Solution

We are an end-to-end river-bound plastic management solution leveraging local Lao technological innovations for screening and collecting plastic waste from canals and rivers. Our objective is twofold: to cleanse the Mekong River of harmful waste that impairs quality and causes flooding, and to repurpose ocean-bound plastic into valuable resources.

## Innovation

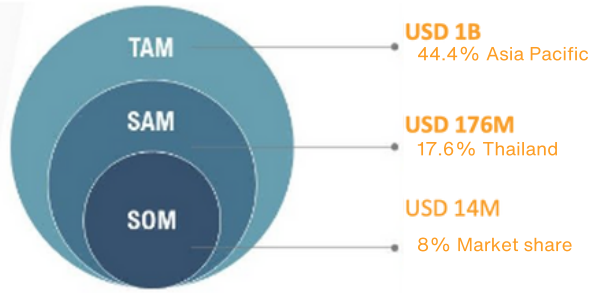
- Utilization of local Innovative technology, adapted from traditional fishing tools.
- Simple installation process, eliminating the need for professional engineers.
- Production by local Lao people, specifically TVET students.
- An enhanced operating system for more effective waste management in rivers.

## Business Model



## Market

### MARKET SIZE



Global Ocean-bound plastic Market value  
USD 2.41B

## Traction & Key Metrics

“Waste Trap”, Businesses, NGOs and government agencies. It attracted interest from:



3 NGOs



7 Corporations



6 Recycling companies

## Impact Statement

Waste Trap is a multifaceted project designed to combat plastic pollution. Beyond being an efficient waste operating system, it strives to change community behavior towards waste disposal in rivers through awareness workshops. This initiative aims to remove over 50 tons of plastic waste annually in each province, contributing to cleaner waterways, improved environmental aesthetics, and reduced flooding risks in Kaysone Phomvihane City. Additionally, Waste Trap promotes economic growth, skill development for TVET students, and job creation for locals living along the rivers.

## Investment

The initial budget to launch the Waste Trap project is USD 18,000. This includes USD 8,000 allocated for the pilot phase and an additional USD 10,000 for expanding the project to additional locations within the province.

## Call for Action

We invite collaboration to enhance our river operating system. Waste Trap requires:

- Funding for developing a fully functioning prototype.
- Partnerships for pilot implementation in areas heavily impacted by waste.
- Sponsorships to support the initial waste recovery activities.
- Expertise and financial assistance in ocean-bound plastic recovery

## Contact

**Ms. Tammany Phommachak**

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An underwater photograph showing several plastic bottles and a plastic bag floating in the water. The scene is dimly lit, with a blueish-green tint, suggesting an underwater environment. The bottles are of various sizes and are partially submerged, with some air bubbles visible around them. The plastic bag is crumpled and floating in the middle ground. The background shows the surface of the water and a cloudy sky above.

# Contact Us

**UNDP in Lao PDR**

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Head of Exploration

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SCAN to visit  
EPPIC website