



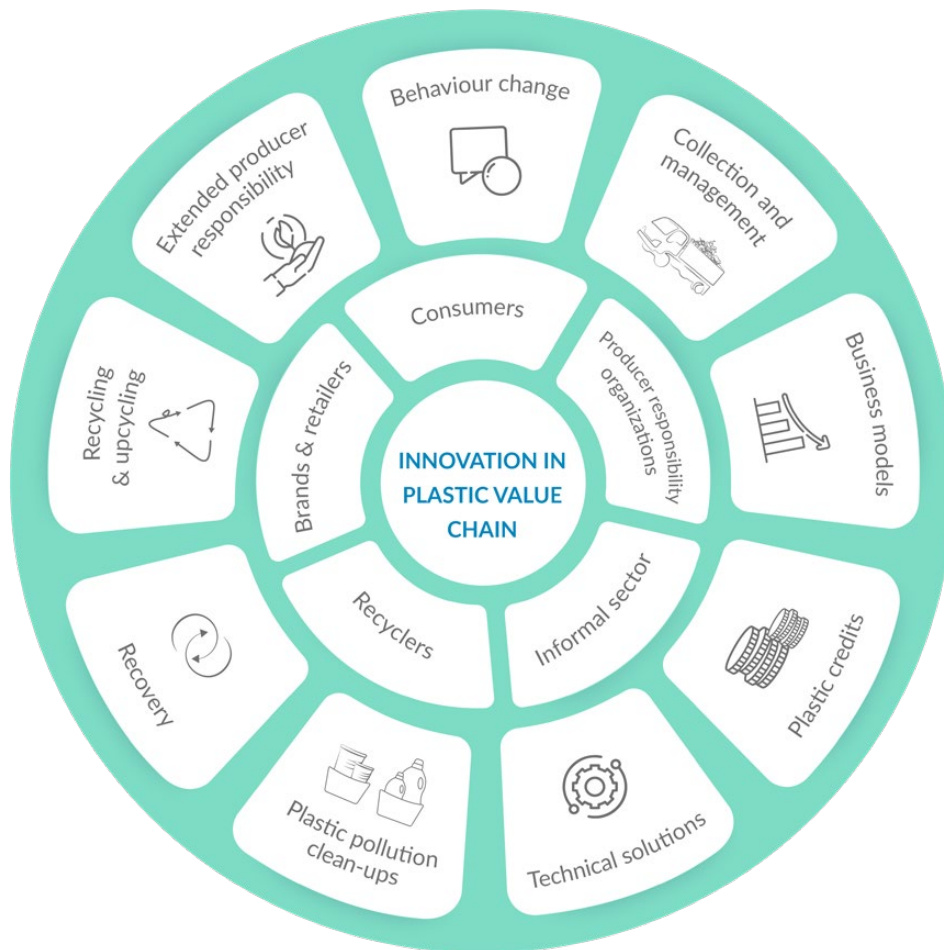
# Circular solutions for plastic pollution

Community-based plastic credit  
solution – a holistic attempt to  
make coastlines plastic-free

# About the case study

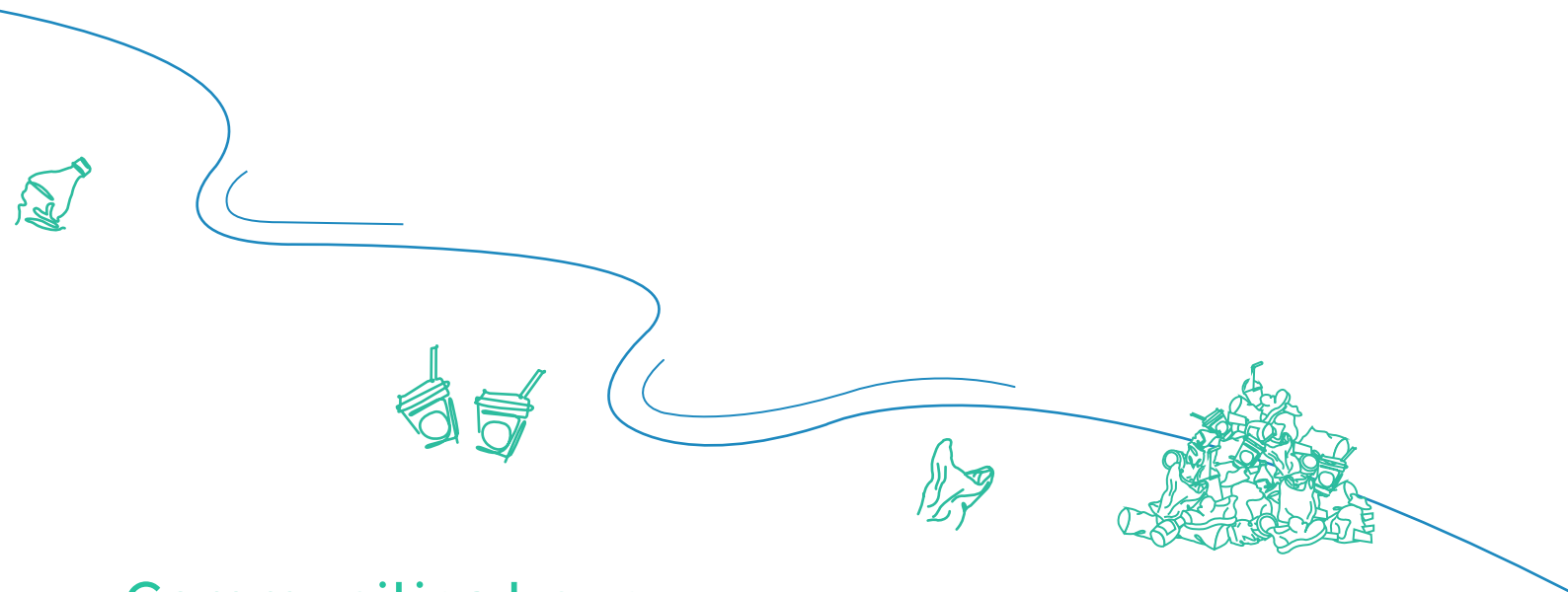
This good practice case study is part of a series of knowledge products developed by the SEA circular project to showcase exemplary market-based solutions that bring about transformational changes in the way plastic is managed in the value chain. This series captures circular economy approaches, ranging from innovative business models to behaviour change initiatives, to address plastic pollution. These approaches form part of the SEA circular project's "circularity framework for the plastic value chain".

## Circularity framework – plastic value chain



# Background

In the little-known villages of Tomnob Rolork, Oh Vietnam and Phum Thmey in the Sihanoukville province of Cambodia, communities have been dealing with a constant cycle of plastic pollution for more than 20 years. Unlike its neighbouring country Viet Nam, where informal waste pickers have an established mechanism for collecting and selling plastic waste, these small Cambodian villages have no market for recyclable and non-recyclable plastics, contributing to an increasingly worsening situation for their communities.



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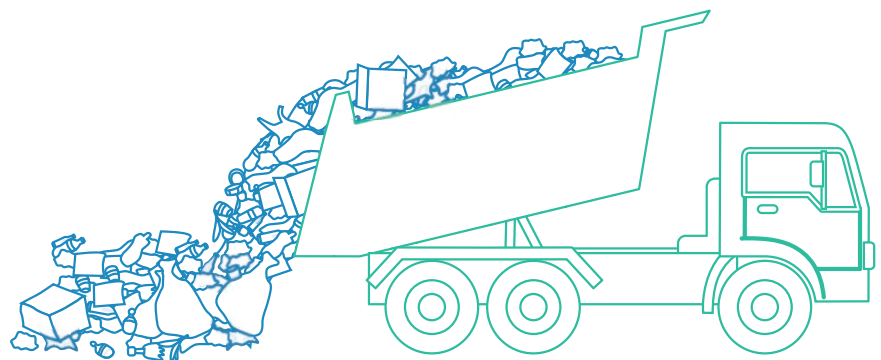


# The issue

Every year, 8 million tons of plastic waste pollute the world's oceans, which is equivalent to one full truck of plastic waste per minute. In six of the ten member countries of the Association of Southeast Asian Nations (ASEAN) alone, 53 per cent of plastic waste remains uncollected, of which only 25 per cent at most is recycled.<sup>1</sup> In terms of environmental plastic leakage, post-consumer non-recyclable waste, i.e. orphan plastics – a TONTOTON term for abandoned, single-use, mismanaged plastics that are ocean-bound and have no market value – is the most problematic.

Plastic waste contributes to 80 per cent of the litter found on Cambodia's beaches and is significantly impacting marine ecosystems and local communities, which do not have a lasting solution to deal with the daily reality of increasing plastic waste.

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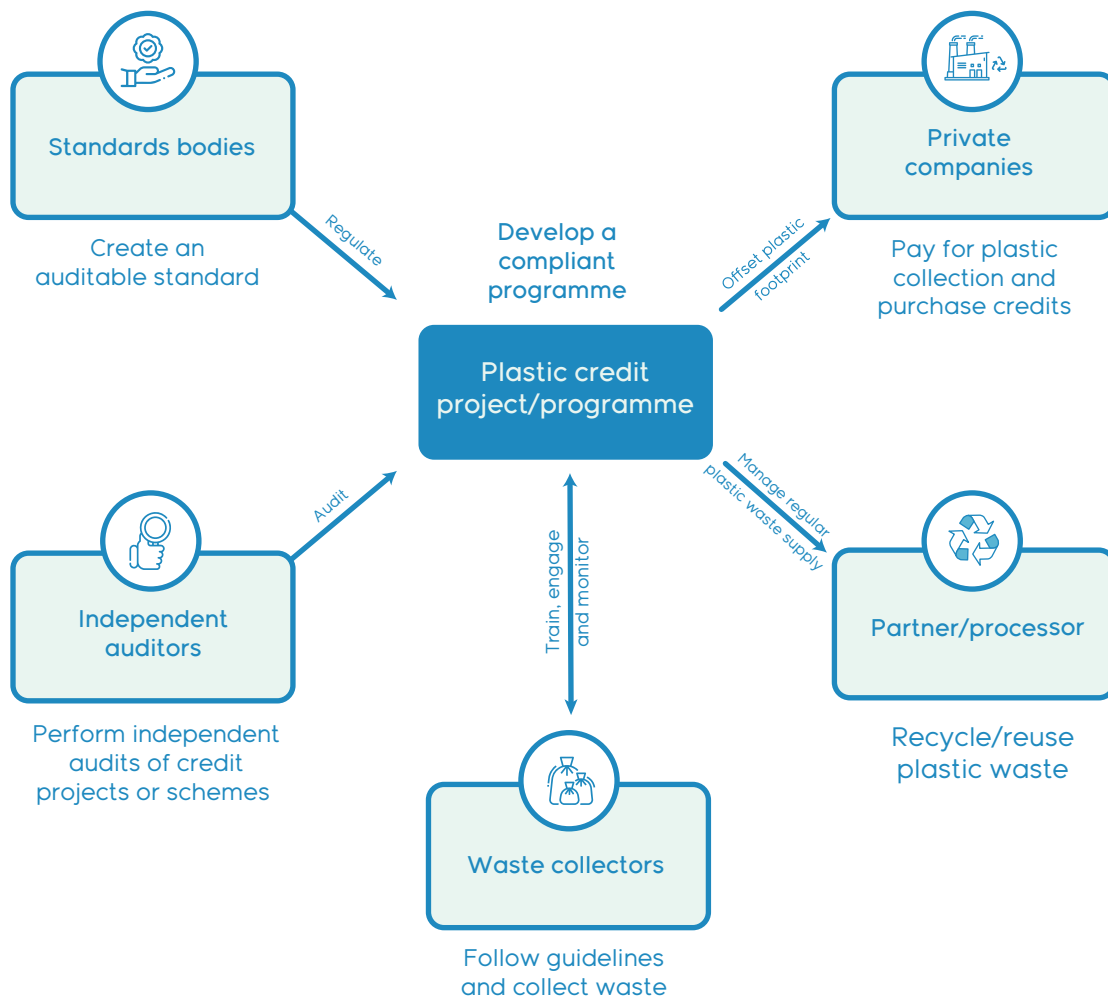
1. World Bank, "ASEAN member states adopt regional action plan to tackle plastic pollution", 28 May 2021. Available at <https://www.worldbank.org/en/news/press-release/2021/05/28/asean-member-states-adopt-regional-action-plan-to-tackle-plastic-pollution>.



# The intervention

To address this, TONTOTON – a programme aimed at reducing ocean-bound plastic waste – created a certified plastic credit system<sup>2</sup> that provides a community-based solution to involve and empower the informal waste sector and local communities (particularly in coastal areas) to manage and treat non-recyclable plastics.

The system complies with [Zero Plastic Oceans'](#) two ocean-bound plastic neutrality [standards](#) (covering collection, waste management and plastic credit verification and the compensation of plastic footprints through plastic credit purchases), and is audited by [Control Union](#), a third-party certification body. Through its eco-friendly waste-to-energy solution, the programme can handle vast quantities of non-recyclable plastic waste, creating a new market for orphan plastics and thereby promoting a circular economy to reduce plastic pollution worldwide. It is also able to help create local employment through its plastic credits, which in turn generates a regular source of income for local communities while helping businesses take responsibility for the unsolved crisis of non-recyclable mismanaged plastic pollution.



2. Plastic credits are measurable and verifiable units that represent a specific volume of plastic waste. Companies can purchase plastic credits to offset their plastic footprint.



# Plastic credits: environmental and social impact

TONTOTON's plastic credit system provides businesses with a holistic solution to neutralize their plastic consumption by recycling orphan plastics of an equivalent weight. Businesses that join the programme can declare their neutralization and impact plans by defining the volume of their plastic footprint for which they would like to become responsible. TONTOTON then neutralizes the equivalent amount of collected plastic waste on the businesses' behalf, which is converted into plastic credits.

## 1 plastic credit = 1 ton of orphan plastic waste collected and treated from vulnerable coastal and island communities.

The plastic credits are recorded in a [public registry](#) to avoid double counting, with the programme's third-party auditor ensuring all transactions comply with Zero Plastic Oceans' Ocean Bound Plastic Neutrality certification. TONTOTON has had such certification since March 2021, enabling the programme to trade certified plastic credits within the framework of impact and neutralization. Through the trade of such credits, TONTOTON is able to expand its programme and find more communities in urgent need of plastic waste clean-up.

Through its involvement of communities in collecting the non-recyclable waste, TONTOTON creates new job opportunities in vulnerable coastal communities, making them a partner in the waste management solution and its impacts. Supporting sustainable income through plastic pollution clean-ups creates hope for a better present and future within such communities, with families able to send their children to school, pay off debts and save.



TONTOTON currently works in three locations in Viet Nam – the Phu Quoc and Hon Son islands in the south, and Hai Phong province in the north – and in three coastal communities in Sihanoukville in Cambodia – Tomnob Rolork, Oh Vietnam and Phum Thmey.



# The challenges

Communities in developing countries are often at greater risk of the effects of plastic pollution, which include environmental degradation, impacts on marine life and health challenges. Almost 22,000 tons of plastic waste leaks into the world's oceans daily,<sup>3</sup> most of which is uncollected and mismanaged waste found in economically-challenged coastal and island communities or settlements near waterways.

In such communities, most residents are low-skilled workers or unemployed and live in poverty,<sup>4</sup> supporting themselves and their families on just US\$2 a day on average. Cleaning up their polluted environment is just one of many daily challenges such community members face, such as feeding their families and managing their debts, and therefore ranks lower in terms of their priorities.

Non-recyclable plastic waste is the most problematic waste type due to current waste management systems. For example, in countries with an active plastic recycling market, only high-value plastic waste (e.g. PET) is collected and recycled, with lower-value materials often discarded, while in villages outside city centres, waste management is poor or non-existent, with plastic waste either remaining in the environment, being burned or ending up in waterways.

Such selective collection of plastic waste leaves a significant amount of plastic pollution unaddressed. Aside from the prevention of such pollution, the challenge is therefore to develop an economical and sustainable solution for non-recyclable plastic waste.



3. International Union for Conservation of Nature (IUCN), "Marine plastic pollution", IUCN Issues Brief (Geneva, 2021).

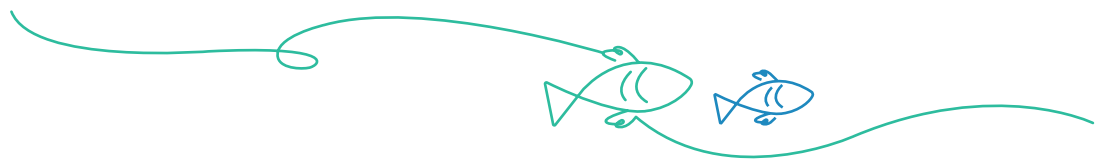
4. Cambodia, National Institute of Statistics, *Report of Cambodia Socio-Economic Survey 2019/20* (Phnom Penh, 2020); Cambodia, Ministry of Information, "Cambodia's poverty line updated: 17.8 [per cent of] Cambodians under the line", 18 November 2021. Available at <https://information.gov.kh/articles/60352>.



# The answer: a four-pillar community-based solution

TONTOTON's waste management system brings together coastal and island communities, governments, international organizations, non-governmental organizations, heavy industry and private businesses to create a new market for collecting and incorporating non-recyclable plastic into the circular economy.

The programme's plastic credits help achieve this as a financially-viable solution that enables committed businesses to somewhat mitigate plastic-related issues to fund high-impact, community-based clean-up projects for plastic wastes that are not included in recycling systems. A four-pillar approach guides the solution, ensuring it is both scalable and sustainable.



## Pillar 1: Collection of orphan plastics

Post-consumer non-recyclable plastic wastes are typically mismanaged low-value plastics that are abandoned to the natural environment for a long period and eventually end up in oceans. TONTOTON recovers such waste and creates a market for it to become part of the circular economy, thus providing an incentive for waste collectors to include the waste in their daily collection activities.

## Pillar 2: Community-based operation

TONTOTON engages local communities to clean their environments while earning a stable income under safe working conditions. Poorer communities are often most vulnerable to plastic pollution for several reasons (e.g. the leakage of plastic waste due to improper waste management), yet it is this vulnerability that also provides an incentive for their engagement in clean-up efforts, as they recognize the immediate benefits. Providing training, safe working conditions and a monetary incentive further motivates communities to participate in such sustainability efforts, with education on the dangers of plastic pollution not only empowering them to clean project locations, but to simultaneously contribute to cleaning the global environment while creating a better quality of life for community members.

Community-based solutions are effective, but only if they are well designed. TONTOTON's community-based solution for ocean-bound plastic waste therefore offers multiple benefits and recognizes that to be effective, certain aspects must be considered, including:

- the development of the project around the culture and traditions of the local community
- the provision of incentives for local community members to participate
- whether the project has a meaningful environmental impact that benefits both local and global communities
- sustainability regulations and recommendations by leading environmental groups.



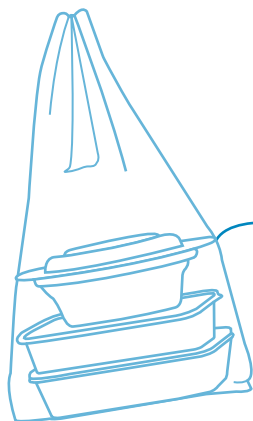


## Pillar 3: Eco-friendly solution

It is important that the solution deals with the scale of the problem and can be adapted in different locations to consider alternative approaches. Once the plastic waste has been collected, it is rid of organic materials, metals and electronics, kept to a moisture below 10 per cent and then delivered to TONTOTON's partner cement factory for cement kiln co-processing. This is a more environmentally-friendly and sustainable waste disposal method than landfill and incineration.

## Pillar 4: Certification

TONTOTON activities are audited under the Ocean Bound Plastic Neutrality certification scheme. Businesses participating in the programme receive certificates to verify the quantity of waste collected, transported, received and co-processed on their behalf, allowing for quantifiable and reliable reporting to the businesses' stakeholders. All credits are published in Zero Plastic Oceans' public registry to prevent the double counting or selling of credits, thereby mitigating any possibility of greenwashing.

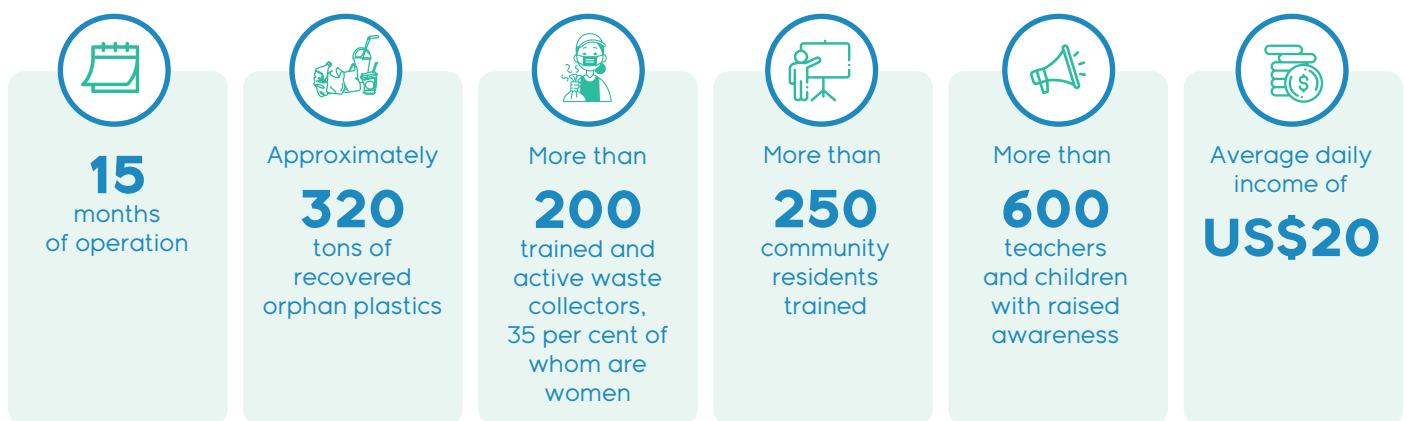


# Results: the impact

As at March 2022, TONTOTON had recovered more than 300 tons of orphan plastic waste from coastal and island communities, engaging more than 200 waste collectors in the process. The programme continues to explore creative ways to create value from the non-recyclable waste it collects so that it can be part of the circular economy for longer.

In Cambodia's only southwestern port city, Preah Sihanouk (Sihanoukville), plastic pollution and the COVID-19 pandemic have greatly impacted its population. However, thanks to TONTOTON's experience in Viet Nam, the programme has been able to expand its coverage to this area, launching clean-up activities along its coastlines.

The following information summarizes the impact of TONTOTON interventions as at March 2022 in Cambodia.



\* The amount of plastic waste collected and resulting daily earnings of the waste collectors is based on the types and description of ocean-bound plastics included in the Ocean Bound Plastic Neutrality standards.

Thanks to TONTOTON's community-based solution, waste collection rates have steadily increased in the project locations, rising from 200 kg a day up to 14 tons most recently, through engaging the community, empowering women and providing an alternative yet regular income stream for the informal waste collectors involved.

However, it is important to note that plastic credits are an interim solution towards ending plastic pollution, and work by pooling private sector investment, mobilizing communities and improving local economic activity. Longer-term solutions are still needed for the issue, such as changing attitudes to reduce plastic consumption, finding reusable and recyclable packing alternatives or designing compostable packaging.



- Reduced flooding due to clogged waterways.
- Reduced waterborne diseases resulting from stagnant plastic waste in waterways.
- Provision of new job opportunities to local communities and reduced poverty.
- Opportunities for parents to send their children to school, reduced debts and improved lives.
- Clean environment that is safe for children and the entire community.



# Lessons learned

TONTOTON was able to achieve major milestones in Cambodia through the following approach:



# The way forward: plastic-free coastlines

TONTOTON has started work on a master plan for achieving plastic-free coastlines in Cambodia in coordination with the Combating Marine Plastic Litter project of the United Nations Development Programme (UNDP) and the Royal Government of Cambodia, with the support of local non-governmental organizations. A strategic communication campaign is being developed alongside the plan to raise awareness of plastic pollution among target communities, while reaching out to global platforms with a strong call to help stop the issue.

The communication and awareness-raising campaign will involve schoolchildren and key stakeholders across the value chain, with the aim of making the solution inclusive, community-owned, relevant, scalable and therefore truly holistic.

From a target of 600 tons in its first year, TONTOTON has grown its capacity and increased its target to 3,000 tons by the end of 2022, with up to 9,000 tons estimated for 2023 and at least five plastic collection centres around coastal and island communities of Cambodia.

TONTOTON's work in Cambodia is fuelled by people – the empowerment of informal waste collectors as champions of a plastic waste solution, their aspiration to protect their family and community from the effects of plastic pollution and the prospect of active tourism returning to their localities to appreciate plastic-free sceneries and unique local cultures.

This is what underpins TONTOTON's plastic-free coastlines initiative, through which it aims to clear plastic from Cambodia's islands and along its entire 435 km of coastline, creating impact and changing realities, one village at a time.



We thank TONTOTON for sharing details of their exemplary innovations in the SEA circular project's series on the plastic value chain.



The SEA circular project Reducing marine litter by addressing the management of the plastic value chain in Southeast Asia is implemented by the UNEP Regional Office for Asia and the Pacific and the Coordinating Body on the Seas of East Asia (COBSEA), with funding support from the Government of Sweden. SEA circular aims to reduce and prevent plastic pollution and its impact by working with governments, businesses, civil society, academia and international partners. The initiative promotes market-based solutions and enabling policies to transform plastic value-chain management, strengthens the science base for informed decision making, creates outreach and raises awareness. The project leverages COBSEA's regional mechanism to tackle the transboundary challenge of marine litter in a harmonized manner.

 [www.sea-circular.org](http://www.sea-circular.org)

