

# Thailand: Plastic River: Follow the Waste Choking Bangkok's Chao Phraya

Thursday 8 September 2022, by [PAJAI Wanpen](#) (Date first published: 21 June 2022).

**The Chao Phraya River is born from mountain streams in northern Thailand, flowing hundreds of kilometers south to the sea. By the time the river travels through Bangkok and empties into the Gulf of Thailand, it is carrying huge quantities of plastic waste - an estimated [4,000 tonnes](#) every year. The plastic clogs the river along its course, drastically impacting communities and the waterway's ecology.**

The Third Pole traveled from the Chao Phraya's beginnings to the sea to explore what's happening to one of Southeast Asia's most important rivers.

## The river's beginnings

The Chao Phraya starts at the confluence of the Ping and Nan rivers in Nakhon Sawan province in the heart of Thailand. Although the river's waters have already traveled half of the country's length by this point, they are still relatively clean as they flow past villages and farms.

The surrounding land is ideal for growing rice thanks to the river's annual floods, which come with the monsoon from May to October and provide an ample supply of water and nutrients. In 2012, around [45%](#) of land in the Chao Phraya river basin was used for rice farming. Fruit orchards were also common.

But even here in these rural upper reaches, plastics already make an appearance. The farms themselves are one indirect source - the material is used extensively in agriculture across Thailand.

## Floods bring plastic to ancient capital

The floods that bring water and nutrients to crops along the Chao Phraya also draw plastic into the river.

South of Nakhon Sawan, the Chao Phraya flows through the ancient city of Ayutthaya, which was the capital of Thailand until 1767. Built at the point where two other rivers join the Chao Phraya, the city is crisscrossed with canals, and traditional ways of life here are closely connected to the water. Seasonal flooding is expected, with homes along the waterways built on stilts to accommodate the higher water levels. But climate change and a range of other factors is intensifying rainfall, and severe flooding is a growing problem in the city.

Ratimaporn Pakorn is a 23-year-old boat driver in Ayutthaya. Her home was flooded in 2021 after unusually heavy rainfall. "The area floods nearly every year, but the extent of it varies. Last year, the water came all the way up to my calves," she said.

As a UNESCO World Heritage Site, the ancient capital attracts tourists from around the globe, many of whom take boat tours to view its famous temples. Ratimaporn relies on these tourists to make a

living.

“It’s dirty,” Ratimaporn said, noting that plastic can be seen floating in the river, where it often clogs her propellers. She worries that this will impact tourists’ perceptions of the city.

## **Plastic-clogged canals**

As the Chao Phraya snakes through densely populated central Thailand and on to the country’s modern-day capital, Bangkok, it’s often treated as a catch-all waste disposal unit.

Much like Ayutthaya, Bangkok grew from a settlement built on canals that borrowed the waters of the Chao Phraya to form convenient transport routes. These canals remain a significant feature in today’s megacity, where 1,161 *khlongs* (canals) are lined with settlements, home to over 23,500 mainly low-income households. Many of these canals are choked with plastic.

Sira Leepipattanawit is a community leader who grew up on the Bangkok Yai canal.

Many of the communities along Bangkok’s canals are hard to reach by road, making it difficult to access municipal services. Throwing waste directly into the water is an old habit. Although this is now officially illegal, and people could be fined, Sira explains that it’s almost impossible to identify the culprits. Houses are often situated directly above the water, and residents “can easily open their window and plop their trash bag into the water when no one’s looking – at night, for example,” he said.

This used to just be an easy way to deal with household waste. But in the old days, this waste was organic. Today, everyday items come wrapped up in plastic – not just in Bangkok, but all over Thailand.

On a Monday afternoon on the Bangkok Yai canal, tourists cruise around on long-tail boats while children swim among old flip-flops and polystyrene fragments. Still, the water here is at least relatively clean. On the other side of the city, at the Lat Phrao canal, the scene is different. The water has a tar-like consistency and a putrid stench envelops the whole area.

“It’s from the wastewater and all the junk,” explains Samnieng Bonlu, a 66-year-old resident who has lived on the Lat Phrao for most of his life. Notoriously polluted, the canal was built to help drain rainwater away from the city into the Chao Phraya. Over its 31-kilometre length, the canal is home to over 7,000 low-income households.

Samnieng recalls that the area used to be mainly paddy fields, but as the urban population sprawled, it turned into a popular area for rural migrants to gain a foothold in Bangkok.

“I’ve seen a change in the way of life, with more housing along the river as people move in, and with people using more plastic,” Samnieng said.

## **Clean-up attempts**

Samnieng now works with the [TerraCycle Global Foundation](#), a project of the recycling company TerraCycle that aims to capture plastic waste along rivers and canals before it flows into the ocean. The foundation’s cleanup of the Lat Phrao area started in July 2020.

## **Mangroves and marine life**

Mangroves grow along the last stretch of the Chao Phraya, perfectly adapted to the brackish water

where the river meets the sea. At the mouth of the Chao Phraya, the muddy mangrove forests of Samut Prakan province are covered in plastic, a testament to how much waste the river is carrying.

What waste does not get caught by the twisted roots of the mangroves is funneled out into the gulf.

Rivers are an important contributor to plastic waste in the world's oceans, said Suchana Chavanich, a professor with the Department of Marine Science at Chulalongkorn University in Bangkok. "We estimate about one to two million tonnes of the plastic waste ending up in the ocean is from rivers," she said. The situation is particularly bad in Asia, which is home to the world's "top 20 polluting rivers."

This is having a major impact on marine life, with animals not only becoming entangled in debris, but also mistaking items like plastic bags for food.

In 2018, a [pilot whale](#) was found dead in southern Thailand after it swallowed 80 plastic bags, leaving it unable to eat.

Suchana said animals such as sharks and sea turtles are "top predators that control the marine ecosystem. If their population declines, and they die because of plastic waste consumption, it impacts the health of the ecosystem."

### **The big problem with microplastics**

By the time the Chao Phraya reaches the sea, a lot of the plastic waste it carries is too small to see, having been broken down into microplastics (defined as pieces smaller than five millimeters).

[Research](#) has found that microplastics harm the health of mangrove ecosystems by hindering gas exchange and releasing harmful chemicals. They are also entering aquatic food chains, not to mention our own bodies. "Scientists have found that we can [consume] microplastics through the food that we eat, the water that we drink, and the air that we breathe," Suchana said.

Microplastics have even been [found in human blood](#). The impact on humans is still a relatively new area of research that requires time to establish causal links. But already, studies are showing that the [consumption of seafood](#) that contains microplastics can have implications for our health.

### **Roadmaps to preventing plastic pollution?**

In 2019, the Thai Ministry of Natural Resources and Environment released the [Roadmap on Plastic Waste Management \(2018-2030\)](#). The plan outlines targets for various agencies to reduce plastic waste, including a proposed ban on four types of single-use plastic by 2022: lightweight plastic bags, polystyrene food containers, plastic cups and plastic straws. However, the COVID-19 pandemic interfered with the achievement of these targets and [reportedly](#) triggered a rise in plastic use.

In 2021, the Department of Marine and Coastal Resources announced a [collaboration](#) with nonprofit The Ocean Cleanup to tackle riverine plastic pollution in the Chao Phraya. The project includes deploying a vessel known as the [Interceptor](#) to [collect plastic debris](#), as well as monitor the flow of plastic waste through bottle-tagging and placing cameras on bridges along the river.

"[Through this research], we can gain an accurate measure of how much [plastic] waste is passing through the river," Suchana said. "Hopefully this data will be very useful for further management in this area."

Though the Thai government and non-governmental organizations are trying to better manage

plastic waste in the rivers and oceans, Suchana stressed that the best solution is to prevent plastic from getting into waterways in the first place.

“When plastic waste goes from the river into the ocean... it takes [up to] 500 to 600 years to decompose. So you can see that once it gets there, it will stay there almost forever,” she said.

For Sira Leepipattanawit from the Bangkok Yai canal, “This is a problem for humanity, not just waterside communities. It is a problem for all lives that starts with us humans.”

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## **Wanpen Pajai**

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## **P.S.**

This article was a collaboration between The Third Pole and the [China Environment Forum](#)’s Turning the Tide on Plastic Waste in Asia initiative. It is also available on the Wilson Center’s [New Security Beat blog](#).

Coconuts Bangkok

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