



Using Social Design to Stem the Tide of Ocean Plastics

With Project STOP, Borealis aims to reduce waste, encourage recycling by locals

By Robert Grace

The ocean plastics problem is well-documented, prompting serious, valid concern across the globe. Many are working diligently and taking a number of different approaches to address the issue.

One of those is Vienna, Austria-based Borealis AG, the multinational maker of polyolefin resins, base

chemicals, and fertilizers, which in 2017 launched a targeted program in Southeast Asia called Project STOP (for “Stop Ocean Plastics”). Its mission is to eliminate the leakage of plastics into the environment by developing partnerships with city governments to create effective circular systems.



For Project STOP to succeed, it requires buy-in from the local community in Muncar, Indonesia. The locals have embraced the initiative. Courtesy of SYSTEMIQ



Project STOP did social mapping to determine the willingness of local residents to participate in such a program, with Sustainable Waste Indonesia going door to door to interview locals. Each household needed to pay a modest fee, and residents had to learn to pre-sort their trash. Courtesy of SYSTEMIQ

One could call this effort a social design initiative, as it aims to assess local conditions, educate local inhabitants, and incentivize them to change their behavior—all with the aim of cleaning up their small patch of the Earth. Its core objectives include: zero leakage of waste into the environment; increased resource efficiency and recycling of plastics; benefits for the local community in the form of new jobs, improved public health, and increased income from tourism and fisheries; and scaling up to expand the effort and sharing the lessons learned.

Starting Project STOP

Project STOP was cofounded by Borealis (www.borealisgroup.com) and SYSTEMIQ (www.systemiq-earth.com), an advisory and investment firm with offices in London and Munich that aims to tackle system failures in land use, energy, and materials such as plastics. The partners then publicly launched the project in October 2017 at the Our Oceans Conference in Malta.

Since then, the Norwegian Ministry of Foreign Affairs, Borealis sister company NOVA Chemicals, and food giant Nestlé have joined as strategic partners. Supporting and technical partners now include Borealis joint-venture partner Borouge, Germany's Schwarz Group, the nonprofit Sustainable Waste Indonesia, and France's Veolia Group, which focuses on optimizing resource management worldwide.

Project STOP (www.stopoceanplastics.com) uses a “system enabler” approach, in which a team of experts in waste management, plastic recycling, organics management, behavior change, and program governance help a city to design and implement a low-cost, sustainable waste management system in which all households and institutions benefit from collection, and plastics are kept out of the environment. The effort supports and integrates many existing local initiatives and informal waste pickers into the business model.

Partnering in East Java

For the project's first city partnership, STOP chose the 130,000-person city of Muncar, a coastal community in Banyuwangi, East Java, Indonesia. Muncar (pronounced MUN-char) is East Java's second biggest fishery harbor and had no practical waste collection infrastructure, explains Dorothea Wiplinger, Borealis's sustainability manager. She briefed media attendees on the initiative during a pre-K 2019 media gathering on June 25 at the company's innovation center headquarters in Linz, Austria.

Researchers estimate that 8 to 12 million metric tons of plastics leak into the ocean every year and that roughly 80 percent of marine debris comes from land-based sources, with more than half originating from just five Asian economies—China, Indonesia, the Philippines,



Borealis Sustainability Manager Dorothea Wiplinger has helped direct Project STOP from its inception. Here she stands in the lobby of the company's Innovation Headquarters in Linz, Austria, in front of a sculpture created for the project. Made of aluminum, plaster, peanuts, and plastics waste, the installation—titled “Museum of non-natural history”—was created in 2018 for Borealis by Berlin-based artists Claire Chaulet and Saba Tsereteli of the nonprofit collective Artistania (www.artistania.org) and first exhibited at the company's 2018 Leadership Summit. Showing a sea creature ingesting a stream of waste plastics, its aim is to “trigger the discussion about plastic waste, marine litter, and the power of collective effort and advocacy for circularity.” Photo by Robert Grace



Vietnam, and Thailand. Plastic consumption has grown in these countries, along with their economies, and has outpaced the development of effective solid waste management systems.

Project STOP found a willing partner in Indonesia. The nation's president, Joko Widodo, has been focused on reducing plastic waste since a damning 2015 report ranked Indonesia as the second-biggest plastic waste producer in the world with 3.22 million metric tons (MMT) per year of mismanaged plastic waste. China is the world's largest plastic waste producer with 8.82 MMT.

Widodo pledged in July 2017 that "Indonesia will minimize solid waste by 30 percent through reduce-reuse-recycle, and reduce marine plastic waste by 70 percent by 2025." The Indonesian government signed a memorandum of understanding and a three-year contract with the Project STOP partners to support their efforts.

How STOP works

At the Linz gathering, Wiplinger explained the process involved. The project's team created a "war room design workshop" and partnered with local officials to assess the current situation in Muncar. They found that 66 percent of residents dumped their waste or buried it in the environment, 21 percent burned their waste, and only 12 percent disposed of it properly.

In Indonesia, two-thirds of plastic waste is medium- to low-value (mostly flexibles, multilayer laminates, and expanded polystyrene foam). Local waste pickers tend to collect the rigid, more valuable plastic bottles and containers on their own.

On-the-ground research yielded further results, according to Wiplinger. Of the roughly 10 tons of waste that Project STOP is now collecting daily from Muncar households, the vast majority is organic waste, with only about 1 ton being plastic.

Project STOP notes it "does not own the waste nor operate [a] collection, sortation, recycling, treatment, or landfill business. All profits from the sale of recyclables or the processing of organic waste are kept by the local community and used to cover collection and sortation worker salaries and operating costs of the system. Our aim is to design a low-cost system that can capture as much value from waste as possible, so the financial burden on residents for collection is as low as possible."

A Social Engineering Exercise

STOP did social mapping to determine the willingness of local residents to participate in such a program, with environmental services group Sustainable Waste Indonesia going door to door to interview locals. The project was well received by residents, even though they needed to partially fund the project. Households pay a modest fee to support the effort, but residents understood the eventual benefits returning to them, in the form of better sanitation, cleaner beaches, having the funds earned by producing usable recycling feedstock being returned to the city, and the creation of new jobs.

"We educated locals to presort their waste into wet waste, rigid waste, and sanitary waste," Wiplinger said. And STOP also worked with local groups to build up the waste management infrastructure.

"We began as a philanthropic exercise," Wiplinger says, "but we want STOP to be a catalyst for business. One needs feedstock to run a recycling business." The group also wants to work with companies to redesign their packaging to make it less wasteful and more recyclable.

STOP is covering about 60 percent of Muncar's households now but wants to expand that to reach them all, as well as schools and businesses such as restaurants.

What It's Achieved So Far

STOP offers the following progress, from the start of waste collection in May 2018 through April 2019:

- » 671 tons collected, with more than 500 tons of that gathered in just March and April as the program began to gather momentum;
- » 76 tons of waste (19 tons of it plastic) removed from local beaches, covering a surface of 5,000 square meters;
- » 68 new jobs created (collection workers, waste sorters, organic processors, management, and administration), with the added benefit of largely removing the stigma of working in the waste management community;
- » 27 community meetings to consult and inform on new waste systems and more than 480 hours of training delivered so far to workers in the waste system and to community workers.
- » As of April, the group had saved 102 tons of waste plastic from the ocean, with the target being 800 tons for all of 2019, and 2,000 tons in 2020.



Workers in Muncar sort waste at a local facility, with the aim of providing cleaner feedstock that will yield revenue that can be reinvested in the city (left). Project STOP team members sort collected plastics (top-right). Sorted waste is baled and then transported for sale (bottom-right). Courtesy of SYSTEMIQ

The goal, Wiplinger says, is for STOP to exit Muncar by 2021, “as long as the system is working.” They want to be able to hand off management of the project to local “owners.” Borealis, SYSTEMIQ and their partners are already planning to launch STOP in another, as-yet-undefined Indonesian city later this year, and possibly in yet a third city in that nation early next year.

Nestlé’s Long-Term View

Others in the project also hope to take the learnings from this initiative and apply them more broadly. In January, when Nestlé joined the project, Magdi Batato, its global head of operations, said, “For us, this is an important pilot, which is part of our broader vision to achieve a waste-free future, aligned with our commitment to make 100 percent of our packaging recyclable or reusable by 2025.” Then, he added, “Over the coming months, we will take the learnings from this project to other countries where we operate in an effort to deliver ‘plastic neutrality’ in those markets.”

ABOUT THE AUTHOR

Robert Grace is a writer, editor and marketing communications professional who has been active in B2B journalism since 1980. He was founding editor of and worked for 25 years at *Plastics News*, serving as editorial director, associate publisher and conference director. He was managing editor of *Plastics Engineering* from July 2016 through October 2017, and is now both editor of SPE’s *Journal of Blow Molding* and directing content strategy for SPE. He runs his own firm, RC Grace LLC, in Daytona Beach, FL., and can be contacted at bob@rcgrace.com.

