

# The RIVER CLEANING PROJECT



river cleaning

**BIODESIGN RIVER CLEANING PROJECT**  
**ZERO PLASTIC & OIL**  
**IN THE SEA**



BIODESIGN  
FOUNDATION



THE CUSTODIANS  
**PLASTIC RACE**  
WE CLEAN THE PLANET

# A first glance...

[Videos](#)

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Water and spinning wheels. An iconic duo that enabled a literal revolution. It worked in the past. We're making it work today as well.

# Our story: a tale of diversification

2008

Foundation of **MOLD SRL**

Mold Srl has been working in the field of thermoplastic materials study, design and prototyping with particular regard for the automotive market. Building on the previous experience of the CEO Mr. Covolo, and on a lean, innovation-oriented structure, the company built a strong european network and managed to consolidate as a reliable player in the ecosystem.

2018

Birth of the **RIVER CLEANING PROJECT**

Presented at Ecomondo Expo, winner of SeedUp Prize and SDG Award from Wien University, River Cleaning technologies are now our main business focus. With a dedicated team, we already target solid waste and started studying liquid pollutants capture.

After testing and prototyping in Italy, we now aim at becoming a true impact enabler.



# Project driver 1: plastic pollution

- Plastic pollution is reaching unprecedented levels, and current commitment is not enough to prevent the global threat oceans are facing.
- 79% of the global waste was dispersed in the environment until 2015.
- More than 1500 rivers in the world are accountable for 80% of the marine plastic emissions.
- 5-13 million tonnes of plastic waste entering the oceans every year.
- 60 to 90% of litter sinks to the seabed after reaching the ocean.
- More plastic than fish in the oceans by 2050.



Yellow dots represent areas emitting more than 5000 MT riverine litter per year (Meijer *et al.*, 2021)

# Project driver 2: riverine oil spills

- Riverine oil spills are less severe in terms of quantity of oil spilled, but more frequent than ocean spilling.
- 13.000 oil spills in the Niger Delta since 2006, 2000 oil spills/year in the US, 474 spills in the Peruvian Amazon Rio from 2000 to 2019.
- Riverine oil spills tend to have increased environmental and social impact as they occur near populated areas.
- Risk of affecting World Heritage sites. That happened in Bangladesh (2014) with a 380.000 liters spill of heavy oil.
- Current lack of particular expertise to assess and plan riverine spills management.



Yellow dots represent areas where major riverine oil spills were confirmed (Royal Society of Canada, 2015; Sundarban Oil Spills Assessment, 2014)

# Our solution: River Cleaning Plastic

TRL 6

Solid  
Waste

## Technology features

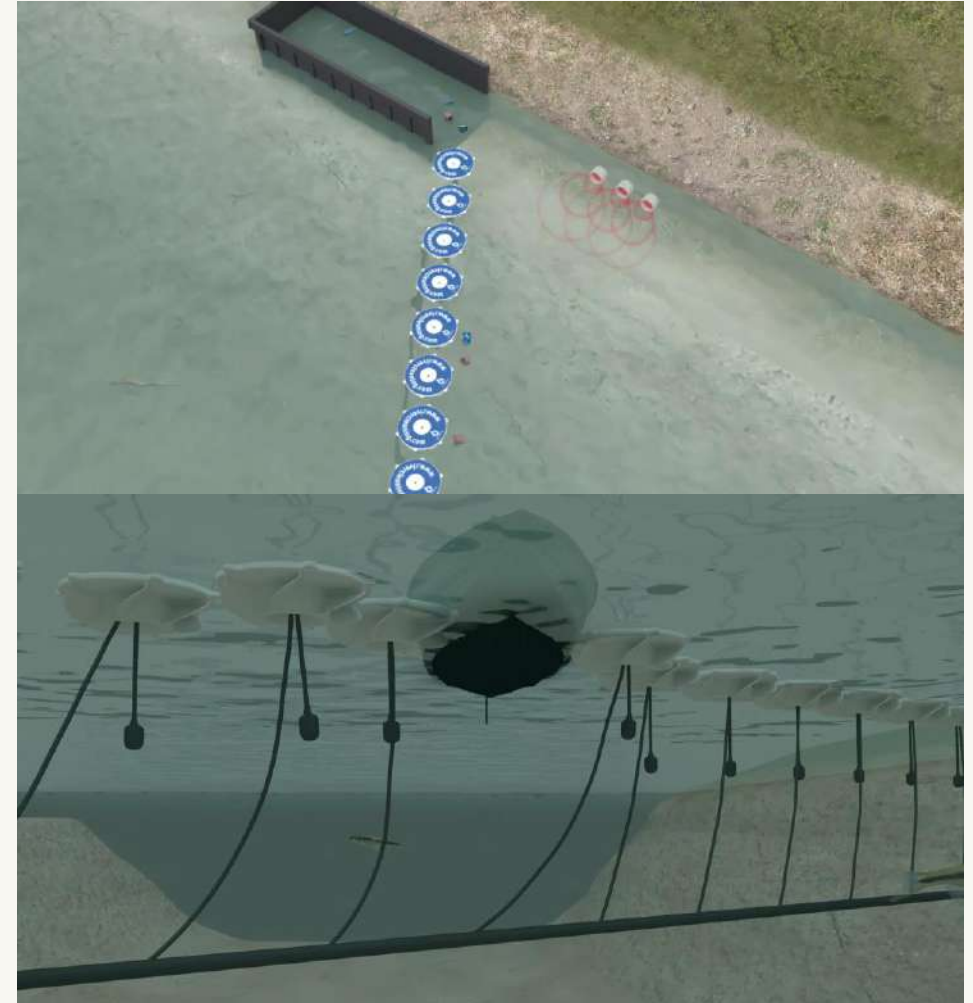
Modular, floating barrier that can be adapted to any kind of flowing water. It works 24/7 unstaffed, it is energy-free and allows the passage of vessels, with minimum impacts on the movements of riverine wildlife.

## Application

Each module is individually anchored to an underwater structure, positioned diagonally in the watercourse. By virtue of the constant rotation, the barrier stops and diverts 95% of the trash flow towards a storage box located near the riverbank.

## Planned improvements

Automatic waste collector, environmental scanning sensors, remote monitoring, auto-maintenance, vessel passage easing.



# Our solution: RC Plastic V4.22

TRL 7

Solid  
Waste

## Technology features

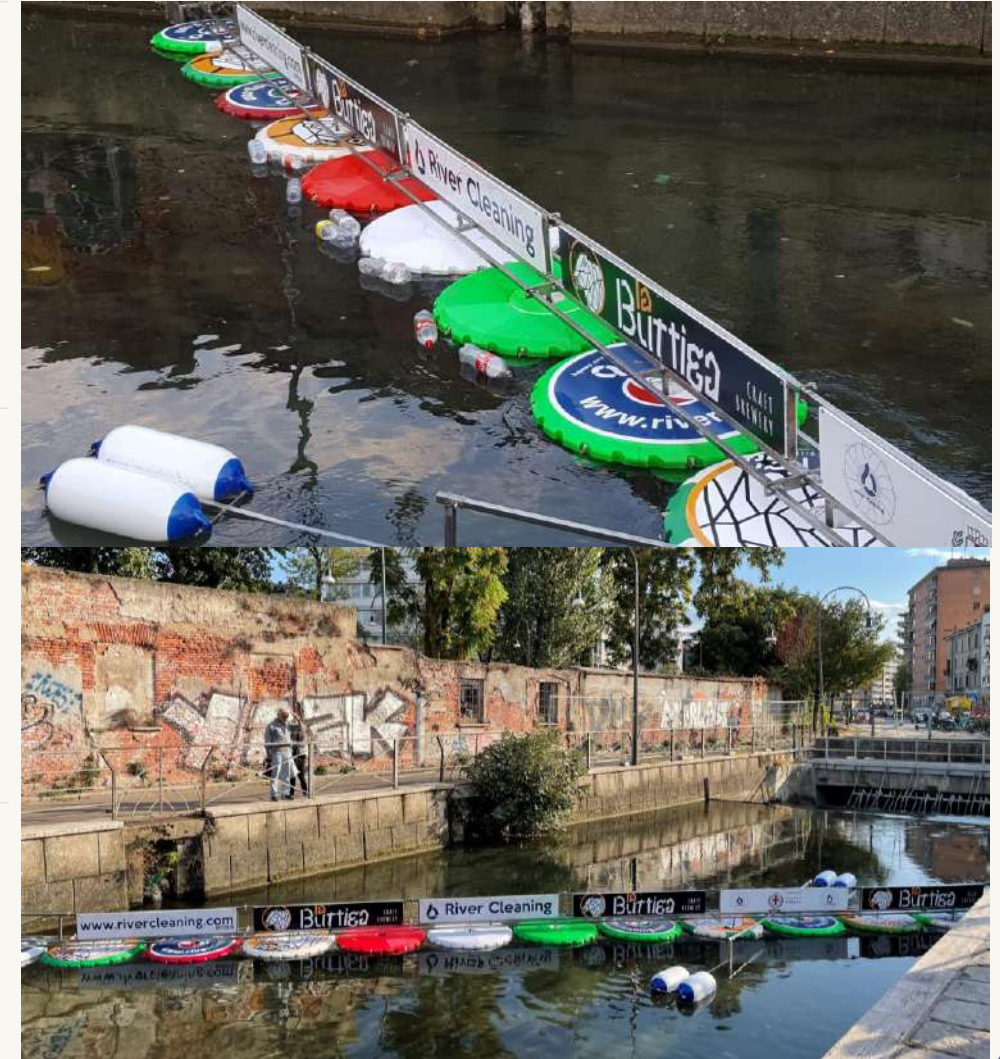
Modular, floating barrier. Can produce energy from rotation and use it to power the equipped array. Stops up to 95% of litter on the surface and 35 cm below the water level, including algae. Fast, low cost installation.

## Application

Similar to River Cleaning Plastic. Best suited for channelized watercourses with low to no passage of vessels. In case of clogging due to large objects (e.g. branches), the system can be lifted remotely to remove unharmed organic material.

## Planned improvements

Energy storage devices; electric cranks operated remotely; integrated software and dashboard; detection and monitoring.



# Our solution: River Cleaning Oil (Plug-in)

TRL 3

Liquid Waste

Solid Waste

## Technology features

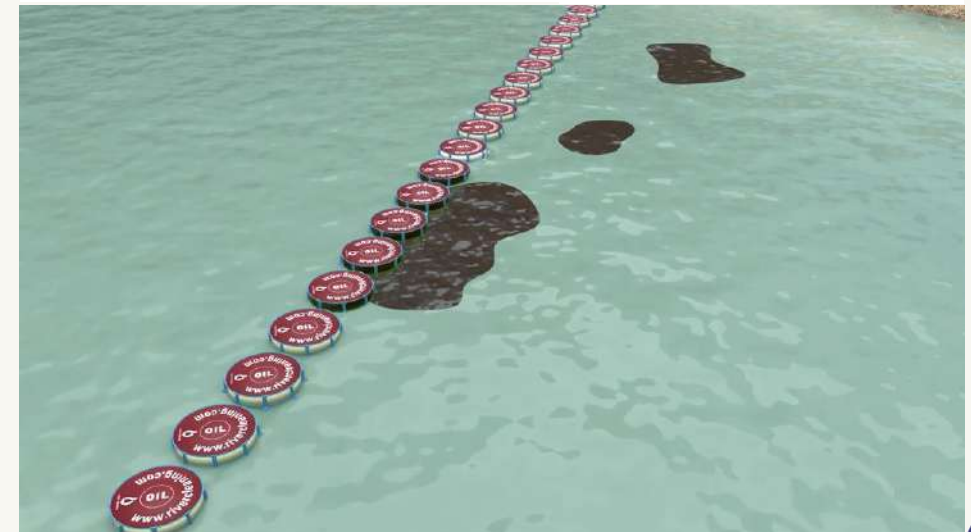
In addition to all the features of River Cleaning Plastic, the «Oil Plug-in» device incorporates an absorbent disk on top to block surface pollutants. The material can be removed quite easily from the buoys to be cleaned and reused several times.

## Application

Similarly to the River Cleaning Plastic barrier, it is deployed diagonally to stop both solid waste and liquid pollutants. It is best suited for watercourses with frequent but small/medium sized oil leakages.

## Next product development stages

Manufacture full scale prototypes; finalize the choice of absorbent material; test in a real environment.





# Our solution: River Cleaning Oil (Full-Filtering)

## Technology features

Though designed to catch solid waste as well, the «Full-Filtering device» has a perforated structure that lets liquid pollutants and water in - to be sucked inside the underwater pipeline network and transported to a proper treatment plant on the riverside.

## Application

The Full-Filtering system is a preventive measure that can be deployed beforehand to safeguard areas, and put to work only when needed. It enables a prompt response to potential life-endangering environmental catastrophes.

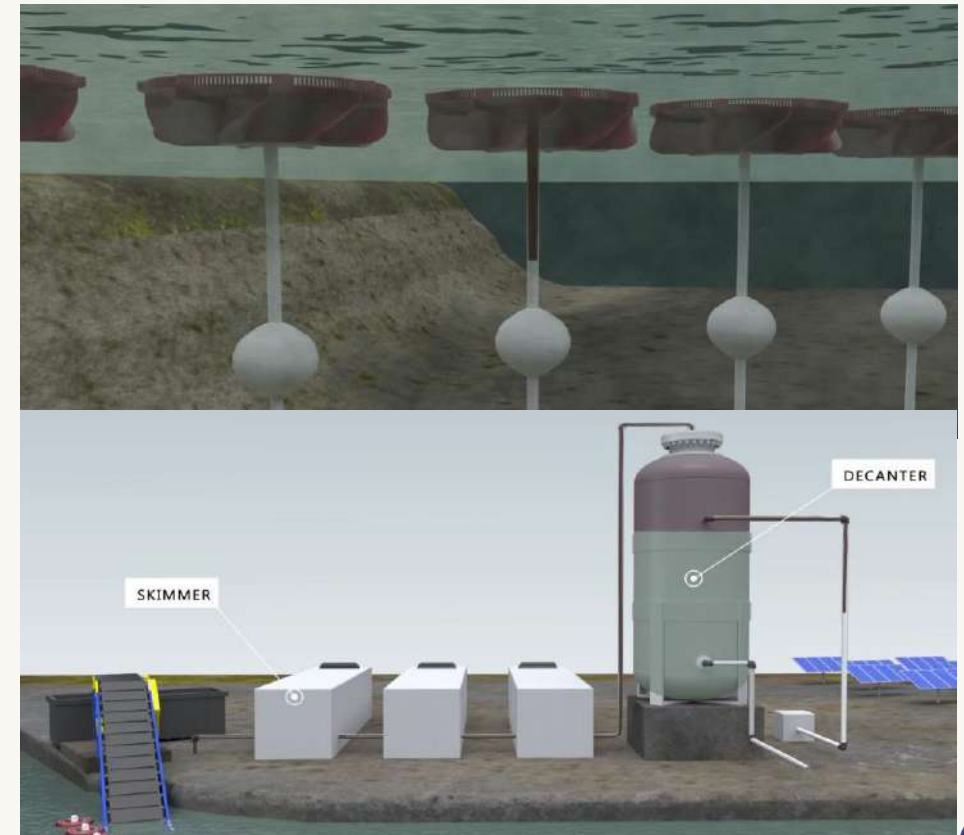
## Next product development stages

Manufacture prototypes, select and integrate third party technology, infrastructural technical studies.

TRL 3

Liquid Waste

Solid Waste



# Broader impact and value

## Economic

- Access to a cost cost-effective technology for cleanups.
- Governments and municipalities save up money they can reallocate.
- Enables waste management companies to access easy recycling stock with high quality material.
- Enables carbon or plastic credits for CO2 compensation.
- Commercial opportunities for brands through logo exposure.

## Environmental

- Efficient rehabilitation of riverine areas.
- Prevent the formation of micro and nanoplastics in marine/coastal areas.
- Protect ecosystems and biodiversity.
- Ensure healthier wildlife and better quality fish products.
- Transform litter from danger to a new source of value.

## Social

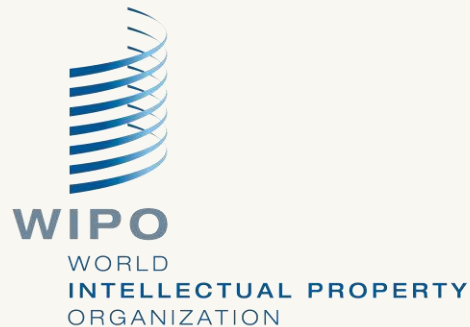
- Empower communities through the rehabilitation of polluted areas.
- Provide new opportunities for reclaimed areas (sports, recreation, education, etc.)
- Use the data collected from trash capture for educational and research purposes in collaboration with universities and schools.



# Our strengths

- A committed team with mixed technical, commercial and research skills.

## Project Team



## Patented technology

- We enhanced the value of our innovations with 3 international patents, and more are on the way.

- 30+ years of industry expertise in the field of design and prototyping activities.
- Consolidated and successful workflow and method.

## Know How & Expertise



# Awards and public acknowledgements

## Events

- *IPEC 2022 «AI & Sustainability», IHK*
- *Investor Days Thuringen 2021, STIFT*
- *World Water Day, UNRIC*
- *World Water Forum Massachusetts, Foundation for a Green Future*

## Expo

- *Removal of Marine Litter and Circular Economy, Venice Boat Expo*
- *Maritime Technology International Cluster Act, Genoa Boat Expo*
- *Ecomondo and Key Energy EXPO in Rimini*

## Awards

- *European Advanced SDG Award , Vienna School of International Studies*
- *Orcelle & Neptune Awards, Ocean Exchange Foundation (semifinalists)*
- *CTO World Competition, Cleantech Open Accelerator (Northeast Area semifinalists)*

## Media exposure

- *Saving our rivers from oil with River Cleaning, Innovation News Network*
- *World Water Day, UNRIC*
- *The clean, green polypropilene machine, EPPM*
- *Cleaning rivers, cleaning oceans, article on African Review Magazine*

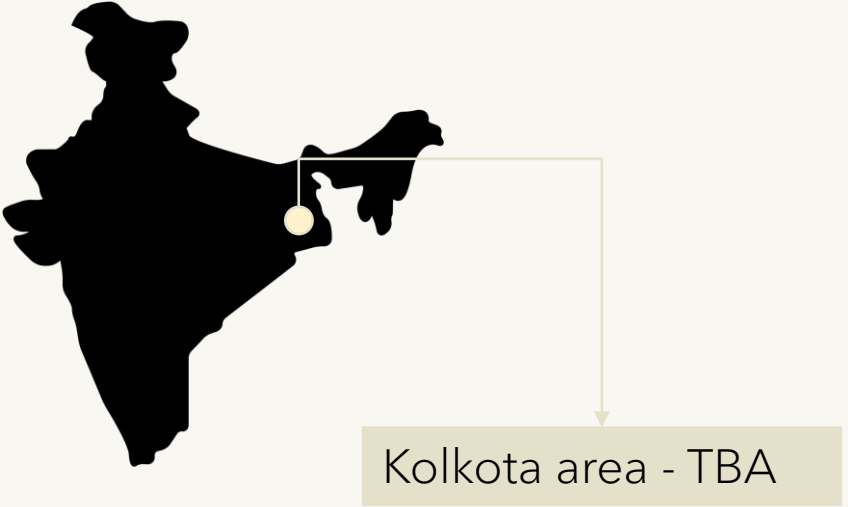
# Past and current installations



- We tested the first prototypes several times in River Brenta (Italy) with temporary installations within the day.
- We deployed our first complete River Cleaning Plastic pilot in the Dolfina Canal near the City of Rosà (Italy), in June 2021.



# Future installations



# What are we looking for



## Corporate partnership

- Agreement for local sponsorships.
- Local waste collection and management.



- Set up demo installations
  - Build value
- Early market entrance considerations



## Strategic Alliance

- Joint venture (minority)
- Non-equity strategic alliance



- Integration of technology and infrastructure
  - Be competitive
- Add additional resources
  - New markets and revenues
- Leverage talent pools



## Acquisition

- Corporate M&A



- Growth
- Market access
  - Financial
- Enable diversification
- Leverage talent pools

# BioDesign Foundation



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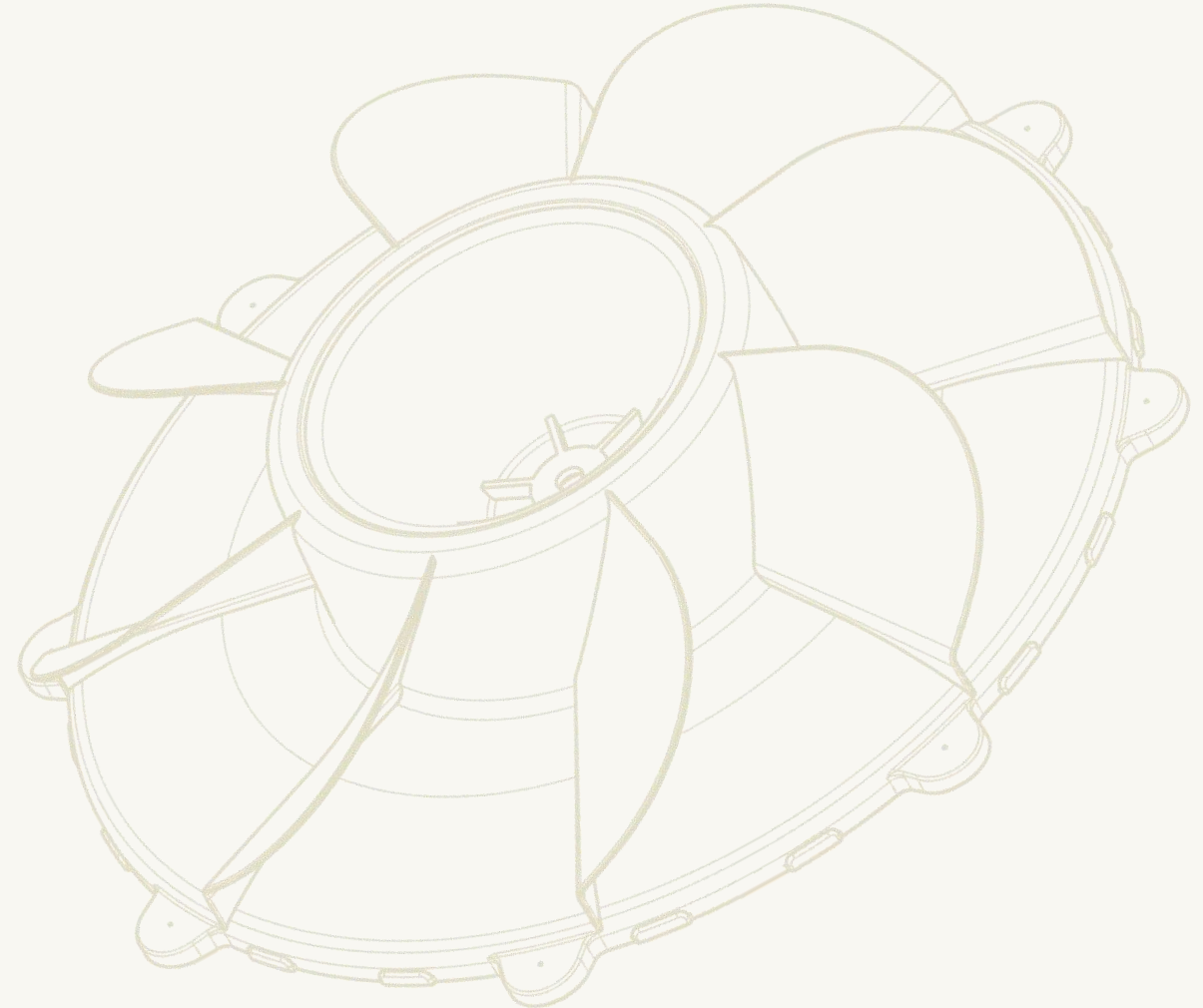
[www.biodesignfoundation.org](http://www.biodesignfoundation.org)



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# Help us shape a cleaner future



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