

# River Cleaning technologies

*Innovating tomorrow, today*

high-performance solutions against riverine macro  
and meso litter for healthy watercourses



# Taking the fight against water pollution to the next level.

*"This presentation is dedicated to showcasing innovative solutions focusing on combatting plastic pollution in rivers. Our primary goal is to address this global challenge by leveraging advanced technology-based solutions, emphasizing their pivotal role in achieving mid to long-term environmental objectives. Together, we aim to contribute significantly to the global movement to protect our rivers and oceans from the devastating impact of plastic pollution. As human beings, it is our duty to take this journey towards a cleaner and sustainable future."*

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# Part 1

**Current state of the art against plastic pollution in rivers**

# 1. The plastic pollution that everybody knows

**85%+** of marine pollution comes from rivers.

**1000+** rivers account for the majority of plastic pollution.

**7-12 M tons** of plastic litter end up in the sea every year.

**90%** of the global plastic pollution is located in Asia.



## 2. The hidden and multifaceted problem of plastics

Relevant scientific literature correlate riverine plastic pollution to all above factors.

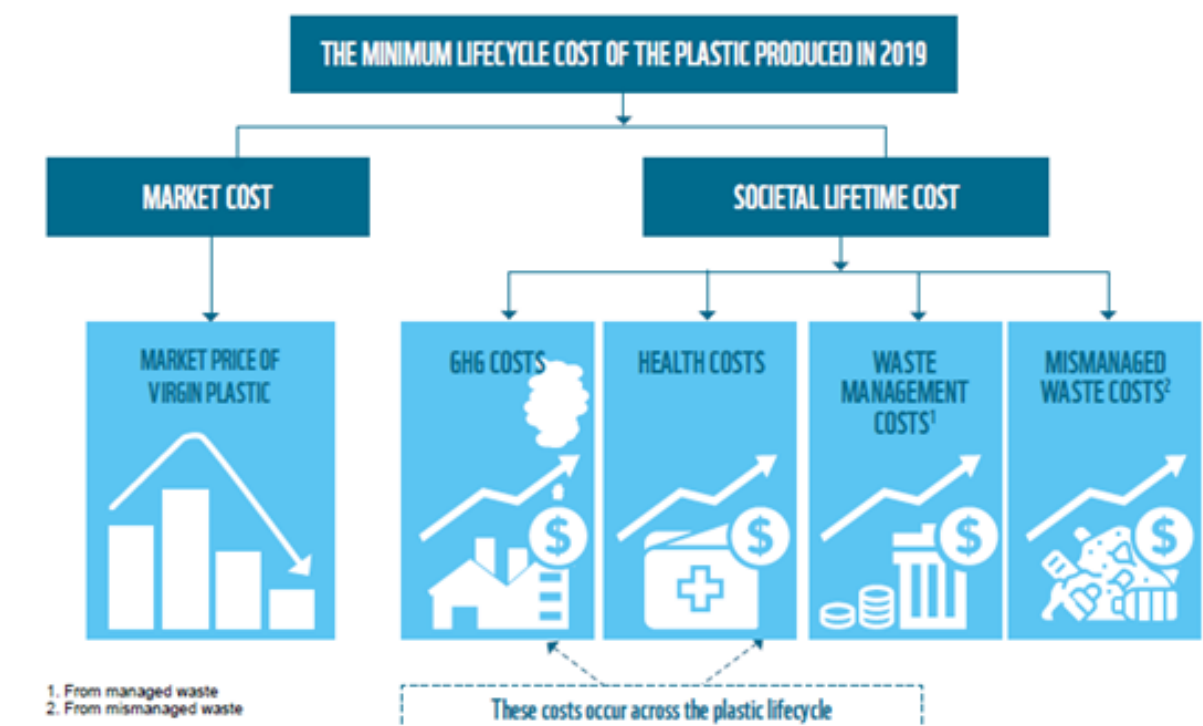
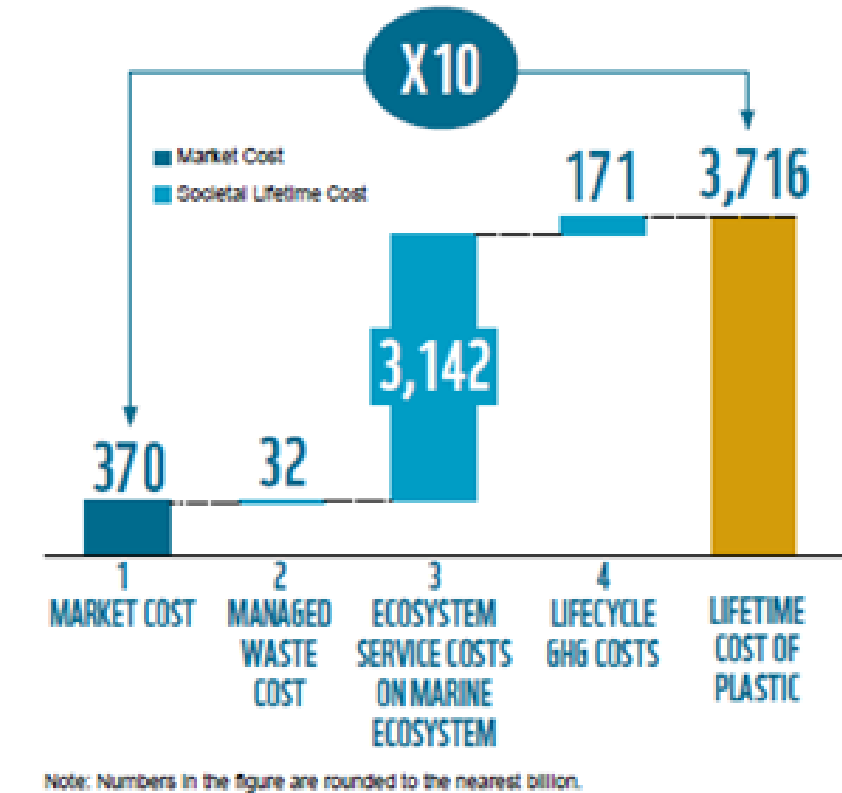
Plastic litter impacts territories and human beings at multiple levels, along the whole watercourse and in several points.





### 3. Plastic pollution on global plastic costs

Cost Dimension	Quantifiable Elements	Currently Unquantified Elements
Market Cost	Market price of virgin plastics	
GHG emissions	<ul style="list-style-type: none"> <li>Costs of GHG emissions from production processes</li> <li>Costs of GHG emissions from waste management processes</li> </ul> Both paid for indirectly by society (based on carbon prices and costs to stick to carbon commitments)	<ul style="list-style-type: none"> <li>Costs of GHG emissions from uncontrolled plastic waste</li> </ul>
Health		<ul style="list-style-type: none"> <li>Health costs from production processes</li> <li>Health costs from waste management processes</li> <li>Health risks from plastic use</li> <li>Health costs of uncontrolled plastic waste</li> </ul>
Waste management	<ul style="list-style-type: none"> <li>Direct costs to governments and indirectly to corporates or citizens based on the taxes used to fund it or EPR schemes in place for formal waste management.</li> <li>Costs to informal waste management sector to conduct informal waste management activities.</li> </ul>	
Unmanaged waste	<ul style="list-style-type: none"> <li>Lost ecosystem service costs of marine plastic pollution paid for indirectly by governments and all other stakeholders, given the environmental and economic consequences</li> <li>Revenue reductions from fisheries and tourism as a result of marine plastic pollution</li> <li>Clean-up activity costs</li> </ul>	<ul style="list-style-type: none"> <li>Lost ecosystem service costs of plastic pollution on terrestrial ecosystems (any ecosystems which are found on land including rainforests, deserts, and grasslands)</li> </ul>



## 4. Hyperlocalization on pollution hotspots

Deploying solutions for the retention of macro and mesolitter not only at the river mouth, the ultimate pollution discharge point, but also upstream, in strategically selected locations.



IN EACH TRIBUTARY OF A RIVER

WATER STREAMS NEAR OR ACROSS CITIES

BEFORE TWISTS AND TURNS IN RIVERS

WATER STREAMS NEAR INDUSTRIAL AREAS

## 5. 3 benefits of hyperlocalizing river cleaning techs

Upscale synergies across the whole value chain of anti-plastic pollution operations:

Head ops: monitoring and detection

Mid ops: litter retention and collection

Tail ops: litter valorization

Improve results/costs ratio for rivers and sea cleaning operations

Spread economic, environmental, social benefits on a wider territory and scale

## 6. Hyperlocalized operations need the right tool



Hyperlocalization means facing different and variable environmental conditions.



To ensure a sustainable and positive impact over time, we need the right tool.



This is where River Cleaning technologies fit it, aiming at filling the gaps of the current solutions on the market.

## 7. Limits of the current competitive landscape

① Floating boons	Low retention capacity with faster streams	Application limited to places with calm waters	Passive retention, need manpower for removal
② Bubble barriers	Application limited to places with calm waters	High energy needs and pump maintenance	
③ Fences and screens	Obstruct the natural flow of the river and its wildlife	Need extensive preparatory work in the riverbed to withstand strong flows	
④ Water drones	Application limited to places with calm waters	Discontinuous operations due to charge time	Limited collection capacity
⑤ Boat-based solutions	Dependant upon manpower and work times	Discontinuous operations	

# Part 2

**River Cleaning technologies distinctive features**

# 1. Previous experiences of Mold Srl



**MOLD**

The diagram features a central light blue oval with a dark blue border. Above the oval is a dark blue rectangle containing the word 'MOLD' in white. Three lines extend from the bottom of the oval to three separate white rounded rectangular boxes, each containing a point about the company's experience.

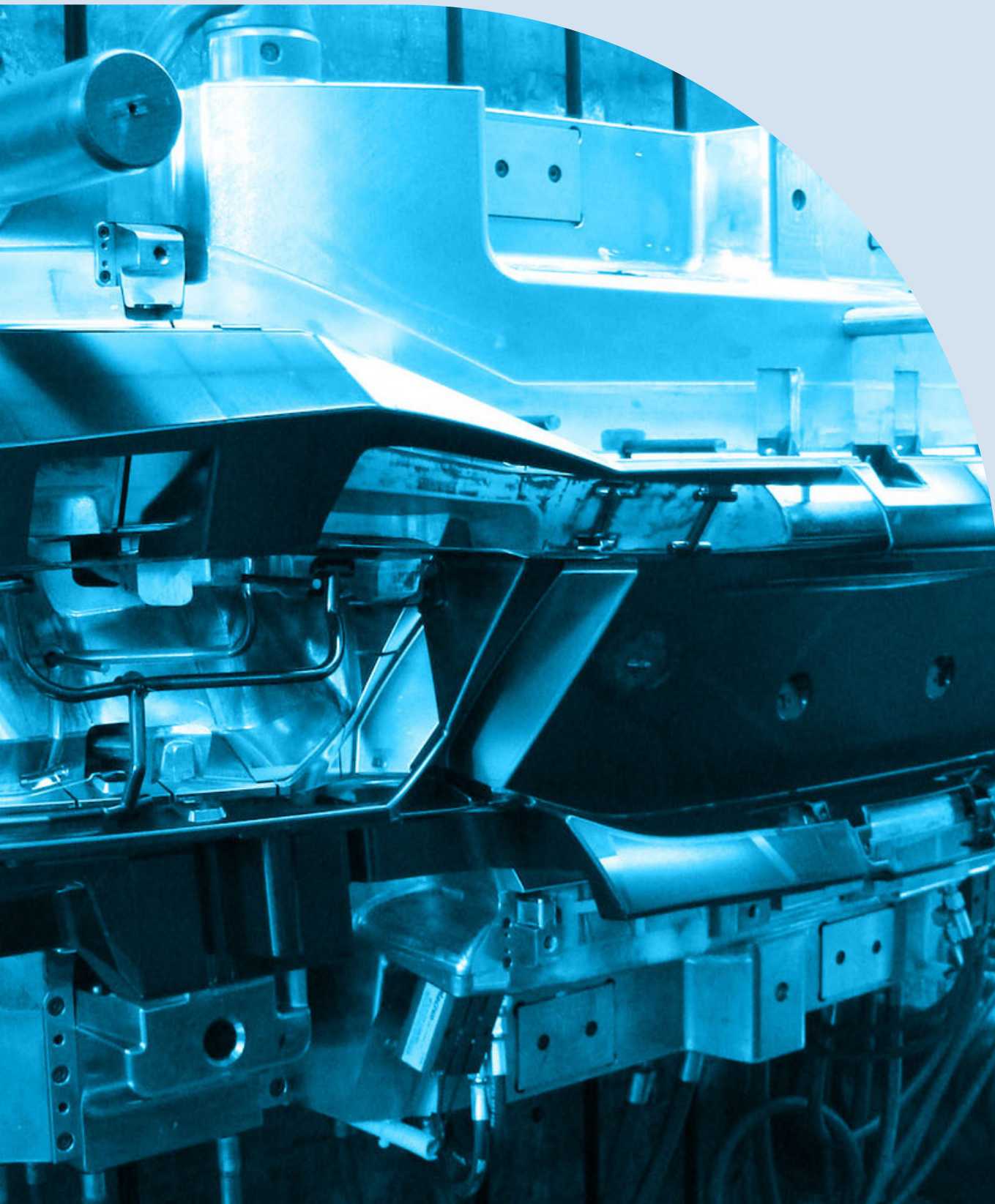
Mold Srl is an Italy-based SME located near Venice and formally established since 2008

Mold Srl committed to crafting highly detailed and customized plastic parts for diverse applications.

Throughout the years, the company emerged as a European key player in delivering precision components for industry giants in the automotive, space and furniture industries.



## 2. The pillars of Mold Srl's success



**Agile and versatile structure**: Mold's adaptive framework ensures quick response to market demands and evolving customer needs.

**Customer-centric approach**: placing customers at the forefront, Mold Srl excels in understanding and meeting specific requirements.

**Tailor-made niche products**: specializing in crafting unique, customized solutions that cater to niche markets and applications.

### 3. Seamless collaboration, swift results



Through 1:1 direct interaction, Mold Srl's commitment to personalized communication fosters strong partnerships with clients.



The right qualities at the right time: Mold Srl engages his network of specialized collaborators to match each project with the appropriate skillsets.

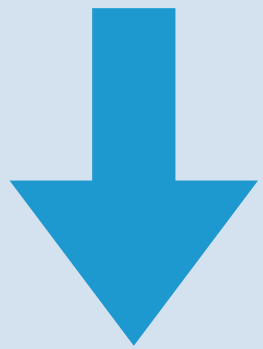


Reduced time-to-market: the company's efficient processes result in swift development and delivery, minimizing time-to-market.

## 4. From making plastics to fighting plastics



**MOLD**



**river cleaning**

After a decade of successful business, Mr. Vanni Covolo, the current Chief Executive Officer, decided to pivot from the original business focus and develop a side project aimed at providing solutions to fight the increasing issue of plastic pollution.

After experiencing this problem at a personal level and realizing that there were no solutions which could provide long-term impactful benefits, Mr. Covolo decided to leverage the expertise of his company and collaborators to find new solutions from scratch.

With the first international patent formally acknowledged, the River Cleaning project was born officially during the 3rd quarter of 2019.



## 5. The legacy of Mold, the new vision of River Cleaning

River Cleaning is a brand which unites a set of technology-based solutions aiming at the retention and removal of solid litter and oil pollutants from diverse water streams.

Leveraging the distinctive features of Mold and embracing the hyperlocalization perspective, River Cleaning technologies' aim is to offer durable, long term systems that fit the specific features of each water stream and location.

River Cleaning Technologies offer an unparalleled value proposition with remote operability, ensuring security in tackling debris in streams of diverse shapes and regimes. Its self-powered design enables efficient 24/7 cleanup, while allowing unrestricted boat passage.



**Zero impact**



**Self-powered**



**Allows navigability**



**24/7 cleanup**



## 6. How does the River Cleaning system work?

River Cleaning systems are responsive and floating barriers which can cover the entire width of any water stream to stop and actively remove any incoming floating or semi-submerged debris.

The barrier features recurring elements, such as:

- 1) floating modules
- 2) a collection cage
- 3) a connecting structure
- 4) anchoring equipment

The final setup is completely tailored to the place and its conditions





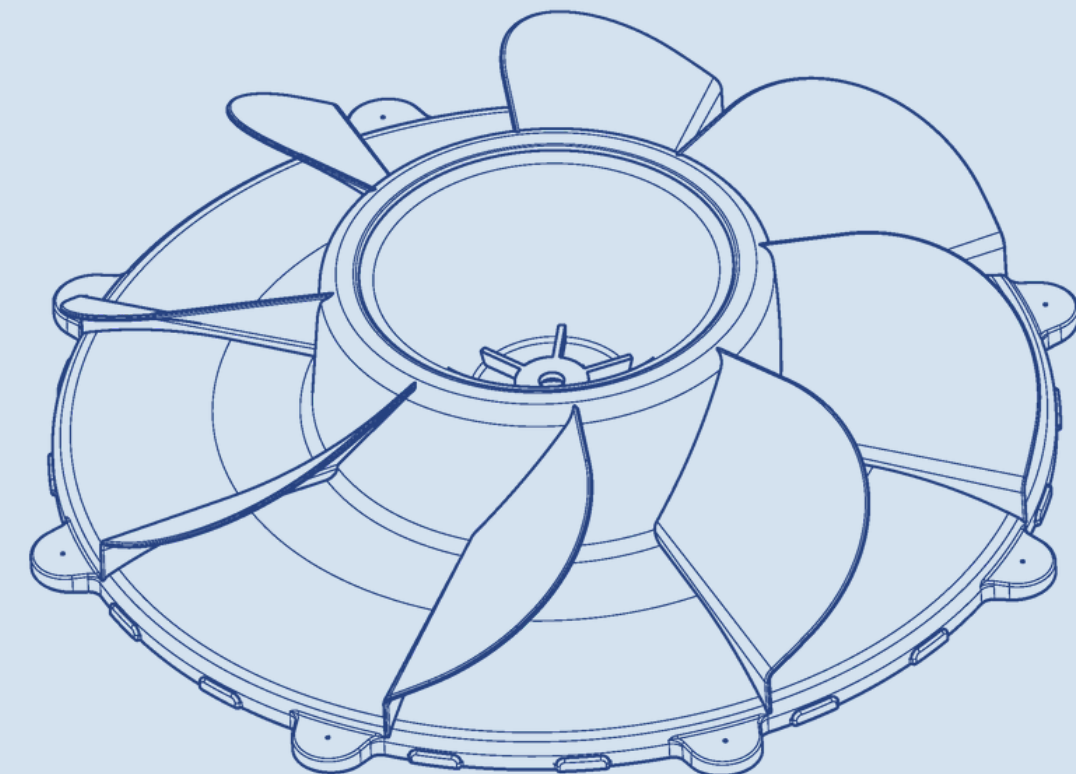
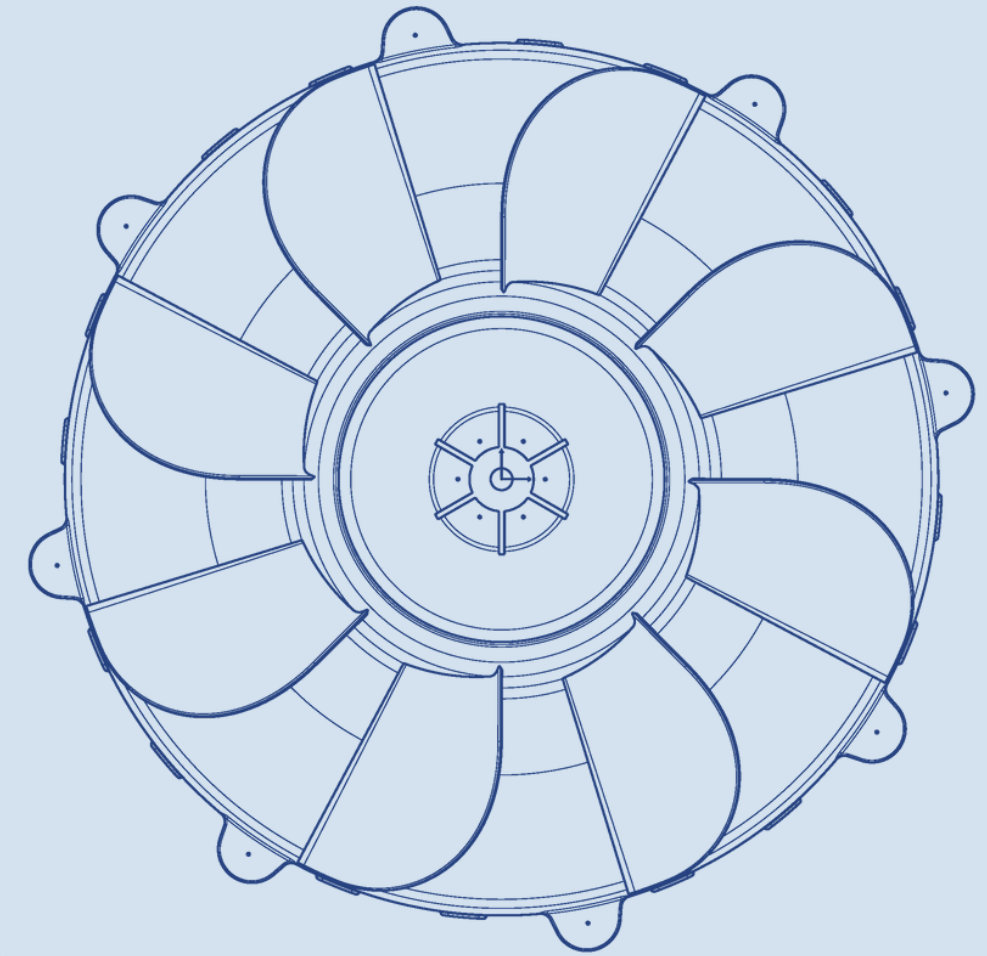
# 7. Unique features of River Cleaning

## **Modular Marvel:**

Unleash the power of adaptability with our innovative modular design. Comprising interconnected modules, our system effortlessly conforms to diverse dimensions, ensuring a perfect fit for any environment. The freedom of water flow between modules not only minimizes impedance but guarantees year-round smooth and safe operations.

## **Turbulent Technology:**

Revolutionize water management with our spinning turbine modules. Harnessing the natural current, each module functions as a turbine, actively sweeping incoming litter towards the collection cage. Say farewell to clogs as our system works tirelessly to keep waterways clear and pristine.





# Unique features of River Cleaning:

1

## **Smart Automation at Your Fingertips:**

Experience the future of aquatic maintenance with our automated system. Equipped with cutting-edge sensors, it detects perilous conditions like storms, promptly lifting the system out of the water for safety. This intelligent automation extends to routine maintenance cycles, effortlessly removing any obstacles such as stuck branches. Embrace hassle-free water management with our state-of-the-art technology.

2

**Remote Mastery, Hassle-Free Control:** Take charge from anywhere with our system's advanced programming and remote-control capabilities. Easily integrate cameras and firmware for continuous checkups and remote maintenance operations. Bid farewell to on-site operations, as our system enables seamless management without the need for personnel. Stay in control effortlessly, anytime, anywhere.





# Unique features of River Cleaning:

3

## **Eco-Efficiency Redefined:**

Step into a sustainable future with our self-powered marvel. Operating 24/7 without consuming external energy, our system relies solely on the passive energy harnessed from the water stream.

As the modules spin like turbines, they not only keep the waterways clear but also generate clean energy to power the smart automation equipment.

Embrace a greener tomorrow with an eco-friendly solution that operates efficiently while minimizing its environmental footprint.





# 8. Market comparison and excellence

## MOST COMMON ISSUES OF BARRIERS

Low retention capacity  
with faster streams



Application limited to places  
with calm waters



High energy needs and  
pump maintenance



Obstruct the natural flow of  
the river and its wildlife



Need extensive preparatory  
work in the riverbed to  
withstand strong flows



Discontinuous operations



Dependant upon manpower  
and working hours



## RIVER CLEANING TECHNOLOGIES

University-tested efficiency over 90%

Versatile, adaptive design

Self-powered, no external energy needed

Reduced impedance on the water, no  
obstacle in the water column

Riverbed mostly untouched,  
eventual preparatory work on the  
banks

24/7 continuous action

Completely autonomous

# Part 3

**Localization and IP-based scale up strategy**

# 1. International IP-based development strategy

Mold S.r.l. is pursuing a scale-up strategy based on **IP exploitation**, namely Patents and Technical Know-how.

Our goal is to provide licenses and to transfer know-how to strategic partners in target markets.

This strategy takes advantage of the current structure and work practices of Mold S.r.l.:

- Most of the value comes from non-tangible assets
- We use an agile innovation tank approach
- We coordinate a network of third-party providers, without in-house production facilities

## 2. Advantages of IP-based Model

IP-based model enables:



Sustainable



Collaborative



Economically viable

**River Cleaning solutions. How?**

1

### **Manufacturing Locally:**

- Mold Srl provides designs and knowledge.
- Local partners distribute and commercialize autonomously.
- Benefits: reduced emissions, lower prices, shorter and cheaper transportation.

2

### **Job Creation:**

- Employment opportunities for the local workforce.
- Competitive pricing for customers.

3

### **Building Trust and Circular Economy:**

- Local partnerships foster trust.
- Contributes to the development of a solid circular economy ecosystem.



4

#### **Legal and Bureaucratic Management:**

- The partner leads legal and administrative procedures independently to ensure a smooth roll out of activities.
- Local partners have in-depth knowledge of local business dynamics and more credibility.

5

#### **Royalty Structure:**

- Initial fee for license acquisition.
- Annual royalties corresponded to Mold Srl.
- Encourages partner-driven market growth.

# Part 4

**Impact, KPIs and the broader framework**



# 1. A business with core impact purposes

Rather than starting a non-profit organization, we chose the business formula.

We believe that economic drivers imbued with ethics are the key to free anti-pollution initiatives from the constraints of a voluntary-based approach.

Making solutions profitable means making solutions scalable.

We need scalability to comply with 2030 Agenda and beyond.





## 2. Tangible value proposition and measurable KPIs

### Short term 1-6 mo.

Amount of removed litter

% of waste-to-value

% of recyclable waste

Decrease of visible river and sea pollution

Improvement of water quality

### Mid term 6-12 mo.

Decrease of revenue loss (tourism, fisheries, real estate) due to plastic pollution

Cut/improve public spending on remediation costs

Access to continuous and reliable data on pollution fluxes

Avoided ocean bound plastic and avoided emissions per year

### Long term 1-5 years

Decrease of microplastics in the sea

Added GDP per region

Additional jobs provided/regional per capita income

### 3. The Global Plastic Treaty and future frameworks

*“This is the most significant environmental multilateral deal since the Paris accord. It is an insurance policy for this generation and future ones, so they may live with plastic and not be doomed by it.*

*[...]In parallel to negotiations over an international binding agreement, UNEP will work with any willing government and business across the value chain to shift away from single-use plastics, as well as to mobilise private finance and remove barriers to investments in research and in a new circular economy”*

*Inger Andersen, Executive Director of UNEP*

## 4. Our statement for a litter-free future

As we move towards legally binding resolutions, innovation will be the key to develop and implement solutions which are viable, long term-oriented and regenerative.

We commit to putting our technologies at the forefront of the fight against plastic pollution and become part of a wider group for global action.



**Thank you.**

*Innovating tomorrow, today.*

