

# Uisce Beo- Living Water

Entrant Number 142

The small bird  
chirp-chirruped:  
yellow neb,  
a note-spurt.

Blackbird over  
Lagan water.  
Clumps of yellow  
whin-burst!

**Translated by Seamus Heaney**



The Lagan River

## Uisce Beo-Living Water

This project proposes a sculptural prototype that demonstrates how the River Lagan could one day become clean and swimmable again. Once the heart of Belfast's industrial identity, the Lagan is now largely avoided, seen as polluted and disconnected from everyday life. In contrast, many European cities have reclaimed their rivers as spaces for transport, leisure, and community.

The installation acts as both an educational sculpture and a functional filtration system, showing that restoring the Lagan doesn't require vast, chemical-heavy infrastructure. Water is drawn in from the river's edge and passes through four transparent tanks, each filled with natural filters such as gravel, sand, charcoal, and reeds. These layers mimic the processes of a wetland, gradually cleansing the water before it returns, visibly clearer, to the river.

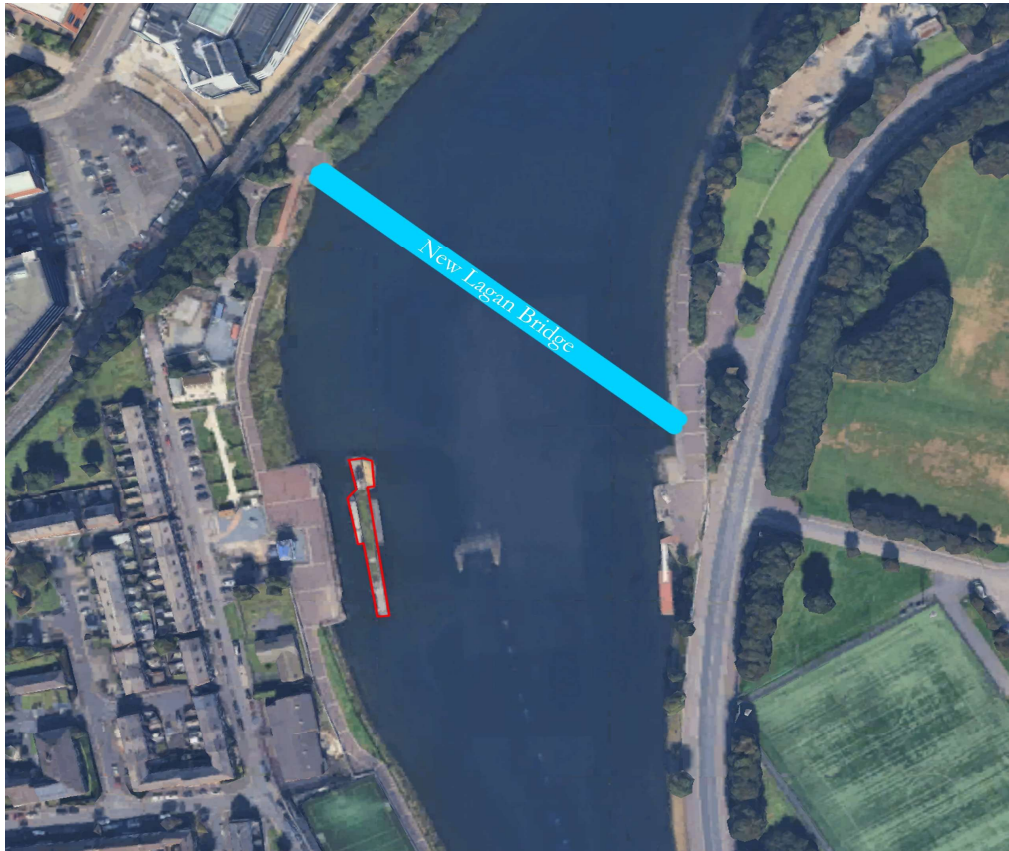
Visitors can sit beneath the red steel structure, watch the system at work, and even use the "grey water" produced to wash bikes, fill dog bowls, or rinse hands. Designed as a portable prototype, this model could be placed in other polluted waterways, from Loch Neagh to Derry's River Foyle, offering a low-cost, natural approach to water purification and environmental education.

Cleaning our rivers is not only vital for people but for the wildlife and ecosystems that depend on them. Healthy rivers support fish, birds, and plant species that have been pushed to the margins by pollution and neglect. Across the UK and Ireland, public and governmental pressure is growing to address declining water quality, this project stands as a small but hopeful example of how design can play a role in healing both our cities and their environments.



Lough Neagh

## Council to work with Stormont to clean up the Lagan and bring back water tourism



## Location

The chosen site sits along the River Lagan on a small concrete dock (shown in red) once used for boats, a point where land and water meet but rarely interact. It's a forgotten edge of the city, neither fully part of the river nor entirely of the land, and that's exactly why it's the perfect place for *Uisce Beo – Living Water*. From the river path, the red steel frame appears to hover just above the surface, giving the illusion that the structure is floating. This sense of lightness reinforces the project's message: that water, even when polluted, has the potential to carry renewal rather than decay.

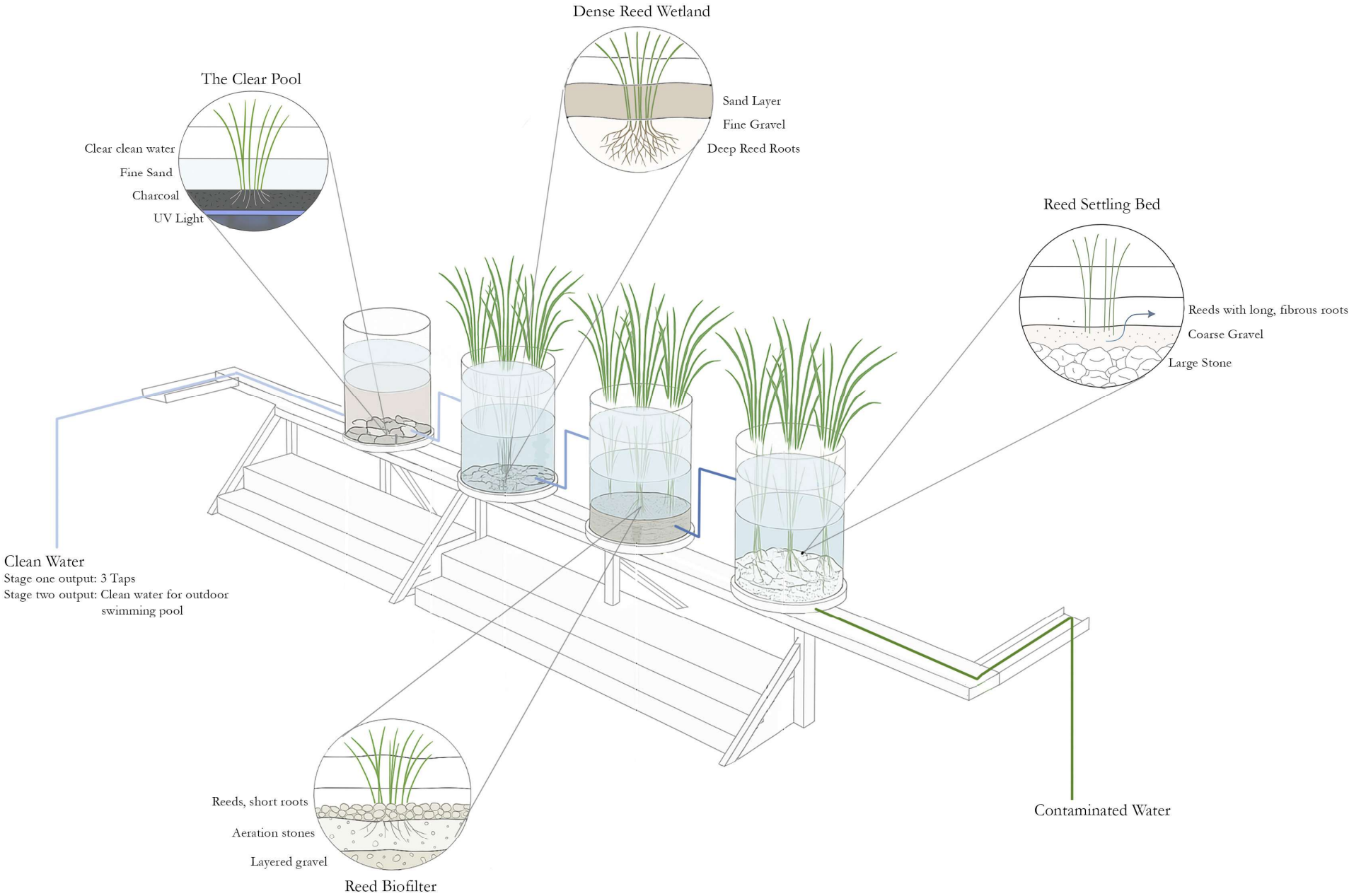
The dock provides a stable platform while maintaining a close relationship with the river, allowing water to be drawn directly from and returned to it. Yet this prototype could exist anywhere, in Derry, along the Foyle; at Lough Neagh, where algae blooms choke wildlife; or even in Venice or Paris, where similar systems have already proven effective. Each version becomes part of a larger network of "living machines," quietly cleaning the world's waterways. Together, they remind us that restoration doesn't require grand gestures, only simple, visible acts of care repeated across the landscape.

The chosen site sits on a disused concrete dock along the River Lagan, just beside the proposed New Lagan Bridge. Once a mooring point for boats, it now sits quietly at the edge of the water, a forgotten threshold between land and river. That's exactly what makes it the perfect setting for *Uisce Beo – Living Water*. From the opposite bank or from the bridge above, the red steel frame appears to float delicately over the surface, its transparent tanks catching light and reflection so that, from a distance, the structure seems weightless.

At night, the installation would softly glow, illuminated from within by the UV lights in the final "Clear Pool" tank, becoming a visible signal of renewal that passers-by can see from the New Lagan Bridge or the towpath below. It turns a dark, polluted stretch of river into a moment of optimism, a glowing reminder that the Lagan can live again.

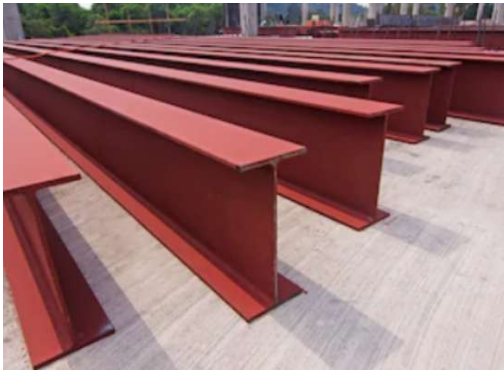


# How it works









Item	Quantity	Unit Cost (£)	Subtotal (£)	Notes
Structural Steel Beam (10 m total)	1	2000	2000	Main red frame under tanks
Steel Columns (4 no.)	4	500	2000	Vertical supports
Steel Connections / Brackets	4	200	800	Welded base & top plates
Transparent Plastic Tanks (Ø 1 m × 2 m)	4	800	3200	Clear acrylic / polycarbonate cylinders
Circular Metal Bands / Rings (Tank Holders)	8	150	1200	Two per tank – top & bottom clamp
Metal Bases and Lids (Fabricated steel discs)	8	100	800	Four bases + four lids
Water Pumps (Low-flow submersible)	3	400	1200	Moves water between tanks
Brass / Stainless Taps (Outlet)	3	120	360	For demonstration use
Pipework & Fittings (PVC + valves)	Lump sum	-	600	Inter-tank and overflow connections
Electrical / Control setup (for pumps + UV light)	Lump sum	-	500	Basic control + wiring
Miscellaneous / Fixings / Sealants	Lump sum	-	400	Bolts, silicone, supports
Subtotal			13060	
+ 10% Contingency			1306	
Estimated Total Cost			14400	(Within £20k budget)

Not Including foundations TBC

## Uisce Beo – Living Water

### 1.0 Reconnecting Belfast with the River Lagan

The River Lagan is the spine of Belfast, a waterway that once powered the city's industry, defined its boundaries, and shaped its growth. Yet today, the Lagan is a river many avoid. Polluted, inaccessible, and disconnected from public life, it stands in contrast to the thriving waterfronts of other European cities. In places like Zurich, Copenhagen, and Paris, rivers have become spaces for swimming, transport, and leisure, essential parts of urban identity. *Uisce Beo – Living Water* aims to imagine how Belfast could reclaim its river, beginning with a simple prototype that both educates and demonstrates how natural systems can clean water.

This project proposes an interactive water-filtering sculpture, combining art, ecology, and engineering. It is designed as a portable prototype, capable of being installed anywhere, whether along the River Lagan, the polluted waters of Loch Neagh, or Derry's River Foyle. Its purpose is twofold: to clean small quantities of river water naturally, and to invite the public to learn from, interact with, and take part in that process.

### 2.0 How It Works

Water is drawn from the river by 3 pumps which are concealed inside the seating. It will travel through the pipes which will be fixed to the back of the steel beam. It begins from one end of the structure and travels through four transparent filtration tanks, each performing a different stage of purification. These tanks, made from clear acrylic cylinders held within a red steel frame, use the same layered natural materials found in wetlands and reed beds: stones, gravel, sand, charcoal, and aquatic plants. The process is entirely chemical-free, demonstrating how rivers can be cleaned without expensive industrial systems or chlorine-based treatments.

The water that emerges at the end is not drinking water, but "grey water", clean enough for everyday use, such as washing bikes, or rinsing hands. It makes visible the process of natural cleaning, reconnecting people to both the materiality and value of water.

The dock itself already has electricity as shown by lighting and pulley system already installed. The lights will be powered fully by solar panels on top of each tank, and the pumps will be powered by both the solar panels and if required electricity from the dock. Each tank will have a filter which can be removed, cleaned, and placed back into the tank (Almost like a fish tank filter).

### 3.0 Tank 1 — The Reed Settling Bed (“Intake Garden”)

The first tank acts as the system’s gateway, where the dirtiest river water first enters. It contains a base layer of large stones and coarse gravel that acts as a natural sediment trap. Above this, tall reeds with long fibrous roots (Phragmites or Typha) extend into the water, creating a web of root fibres that catch floating debris and slow the water’s movement.

As the flow reduces, heavier particles naturally settle to the bottom. The reeds begin the biological process of oxygenating the water and supporting bacteria that break down organic matter. This stage is the most dynamic to observe, the point where visitors can see the transformation begin, from dark, murky water to something recognisably clearer.

By starting with something so familiar, a plant, the system encourages a sense of accessibility. It shows that nature itself is the most powerful technology we have for environmental repair.

### 4.0 Tank 2 — The Reed Biofilter (“Breathing Tank”)

The second tank continues the cleaning process through biological aeration and microbial action. Here, the gravel is layered from coarse (40 mm) at the bottom to fine (10 mm) at the top, with aeration stones embedded within to oxygenate the water.

Fewer reeds are planted here, exposing the layered stones beneath. Microorganisms living on the roots and surfaces digest organic matter, removing odours and nutrients that cause water to stagnate. Small bubbles rise through the tank as water trickles through the layers, illustrating the invisible labour of microbes and roots working together.

This is the “breathing” stage, the point at which life within the system is visibly active, mirroring how natural wetlands constantly regenerate and self-clean. It encourages viewers to reflect on how many of these living systems once existed along the Lagan before industrialisation.

### 5.0 Tank 3 — Dense Reed Wetland (“Root Lab”)

The third tank is the heart of the system, the most vegetated and alive. It contains a deep root zone filled with fine gravel and sand, densely planted with multiple reed species, *Phragmites*, *Iris pseudacorus*, and *Carex*. The diversity of plants increases the variety of microorganisms and filtration processes taking place.

Here, the water moves slowly through a maze of intertwined roots, where excess nutrients such as nitrogen and phosphorus are absorbed. These are the same pollutants that cause algae blooms and oxygen depletion in rivers like the Lagan and Lough Neagh. By removing them naturally, the water begins to appear clear and oxygen-rich, ready for its final stage.

This tank symbolises resilience, it’s where most of the biological “work” happens. The reeds represent an ecosystem quietly healing itself, showing that the smallest organisms can perform the greatest acts of restoration.

### 4.0 Tank 4 — The Clear Pool (“Polishing Reed Bed”)

The final tank is the cleanest and most refined. At its base lies a fine layer of sand and biochar (charcoal), which absorbs impurities, removes odours, and polishes the water. The few reeds that remain are lighter in colour and more ornamental, such as *Acorus calamus* or *Juncus inflexus*, visually signalling purity and completion.

At the base, UV lights gently illuminate the water, a subtle technological nod that enhances sterilisation while also glowing softly through the transparent tank at night. The result is clear, fresh water that is visibly transformed. From here, it flows into a small reservoir that feeds three public taps, providing clean grey water for everyday urban use.

The final outlet connects to a secondary pipe, a symbolic gesture toward a future swimming pool in the Lagan, suggesting that this small prototype could one day expand to purify entire sections of the river.

### 5.0 The Structure and Seating Area

The tanks are supported by a 10-metre-long red steel frame, inspired by Belfast’s industrial heritage and shipbuilding legacy. The steel truss not only supports the tanks but also forms a series of timber seating steps underneath, allowing visitors to rest, observe, and engage with the system.

The seating transforms the installation from a passive object into a public space, a living classroom where people can sit beneath flowing water, listen to the sounds of pumps and trickling filters, and witness the process of renewal. It invites curiosity, education,

and participation: people can watch the system change colour over time, or discuss its potential with others.

By merging structure, ecology, and social space, the installation embodies how architecture can serve as both infrastructure and storytelling, a built reminder that environmental restoration is not distant or abstract, but something that begins at the human scale.

## 6.0 Why It Matters

Across Northern Ireland, public and governmental pressure is mounting to address pollution in rivers and lakes. Lough Neagh, the largest freshwater lake in the UK, has been overwhelmed by algae blooms linked to agricultural runoff and sewage overflow. The River Lagan faces similar challenges. Cleaning these waterways is not only about aesthetics, it's about restoring biodiversity, protecting wildlife, and creating healthier communities.

By demonstrating how natural filtration works, *Uisce Beo* gives people a tangible sense of agency. It transforms abstract environmental issues into something visible, hopeful, and participatory. It reminds us that water is not waste, and that reclaiming our rivers is both possible and essential for the future of our cities.

## 7.0 Conclusion

*Uisce Beo – Living Water* is more than a sculpture: it's a prototype for a new relationship between people, place, and water. Through a simple, elegant system of natural filters, it teaches how even the dirtiest rivers can heal themselves if given the right conditions.

It invites Belfast, and cities everywhere, to imagine a future where rivers are no longer boundaries but lifelines. From cleaning grey water to the dream of a swimmable Lagan, this project shows that the tools for renewal are already in nature's hands, we simply have to listen, learn, and build with them.