



# Initiative Lazarus

Sanitation ▶ Restoration ▶  
Regeneration ▶ Recovery

Green Cross United Kingdom  
Institutional Member of Green Cross International

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# INITIATIVE LAZARUS

FROM WATER BANKRUPTCY TO RECOVERED NATURAL CAPITAL —  
WITHOUT BURDENING PUBLIC BUDGETS

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Description of the technical solution and operational framework of the Lazarus Initiative for entities with water exposure, together with the main regulatory and strategic frameworks that underpin it:



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# EXECUTIVE SUMMARY

## WATER SANITATION, BIODIVERSITY RESTORATION, ECOSYSTEM SERVICES REGENERATION, NATURAL CAPITAL RECOVERY

Mobile advanced oxidation technology for the sanitation of contaminated and/or collapsed water bodies, biodiversity restoration and regeneration of ecosystem services — turning liabilities into recovered natural capital, without burdening public budgets.

### **1. THE PROBLEM: WATER BANKRUPTCY**

A latent socio-environmental liability that worsens with each day of inaction — visible in local health and economy, ignored in public and corporate balance sheets.

### **2. THE SOLUTION: LAZARUS INITIATIVE**

Mobile infrastructure with Aquadelle technology operating in situ, enabling water sanitation, biodiversity restoration, ecosystem services regeneration and natural capital recovery — generating verified sustainable assets that contribute to financing the solution.

### **3. THE TECHNOLOGY: ADVANCED OXIDATION**

ISAOP system: integrated primary, secondary and tertiary treatment. 99.9% pathogen elimination. Continuous sanitation service 8–10 hours/day. Deployable in weeks.

### **4. SUSTAINABLE ASSETS: CAPITAL LEVERAGE**

Three verified uncorrelated sustainable assets: CSHG (water · m<sup>3</sup>/year) · CBIP (biodiversity · eDNA) · VCC (carbon · tCO<sub>2</sub>e). Each with independent methodology, digital traceability without double counting.

### **5. GOVERNANCE: SOLVENCY CONDITION**

Without continuous operation, no restoration. Without restoration, no assets. Without assets, no OPEX. Governance is the solvency condition of the model.

### **6. DESIGNED FOR: RESPONSIBLE ENTITIES WITH WATER STEWARDSHIP**




State / Basin Authority · Corporation with water exposure · Financial institution · Impact fund · Multilateral organisations · Local communities.

# 1. STRATEGIC VISION OF LAZARUS

## THE MODEL

The Lazarus Initiative reverses the insolvency of degraded basins through mobile infrastructure that intervenes in the water resource, catalyses biological restoration and recovers local ecosystem services.

Under the SIt Programme of Green Cross UK, ISAOP deployment (exclusive Aquadelle Tech technology) is verified through digital MRV – generating verified sustainable assets that cover OPEX and leverage CAPEX, without compromising public finances.

 WATER	<p>~95% COD IN 12 MONTHS</p>	<p>COD: pollutant load indicator. Field-documented result.</p>
 BIODIVERSITY	<p>VERIFIED ECOSYSTEM REACTIVATION</p>	<p>Cyanobacteria elimination            · DO recovery · Trophic chain reactivated · GBF Targets 2 and 8</p>
 ECOSYSTEM SERVICES	<p>NATURAL CAPITAL RENAISSANCE</p>	<p>Water · Fisheries · Mitigated CH4 · Recovered territorial value            · TEEB curve · GBF Target 11</p>

The sustainable assets generated finance OPEX and leverage CAPEX, reducing the financial burden of the solution for the natural capital custodian.

Basin authorities, investors, corporations and multilateral organisations: eligibility and terms are defined on a case-by-case basis.

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## 2. THE PROBLEM AND ITS CONSEQUENCES

### WATER INSOLVENCY AND ITS IMPACT

Human action has turned many water bodies into latent socio-environmental liabilities that worsen with each day of inaction — visible in local health and economy, ignored in public and corporate balance sheets.

The Global Water Bankruptcy report (UNU-INWEH, 2026) documents that the planet's basins and aquifers are rapidly losing their recovery capacity:

- More than 50% of large lakes have lost volume since the 1990s.
- 410 million hectares of wetlands lost in five decades.



<b>+900</b> CHILDREN/DAY	<b>~2.2 bn</b>	<b>+280</b>
CHILDREN WHO DIE FROM UNSAFE WATER	PEOPLE WITHOUT SAFE DRINKING WATER	MAJOR CITIES IN WATER SCARCITY BY 2050
<a href="#">WHO</a>	<a href="#">UNICEF</a>	<a href="#">Nature Communications</a>

A eutrophic body of water is not just dirty water. It is a latent socio-environmental liability that radiates damage in a complex way:

SANITARY	Cyanobacteria → microcystins → chronic liver damage. Health costs absorbed with no traceability to source.
POTABILISATION	Pollutant load requires intensive treatment. Risk is not eliminated: it is transferred to the end user.
TERRITORIAL	Documented 5%–25% drops in riparian property values. Local tourism, fisheries and tax revenue collapsed.
REGULATORY	GBF Targets 2, 8 and 19 · NDC · TNFD · CSRD: all require verifiable data. Each year of inaction compounds regulatory exposure.
CLIMATIC	Anaerobic decomposition → continuous CH <sub>4</sub> . Warming potential 28× CO <sub>2</sub> . The water body is an active emitter, not a sink.



Without intervention, the contamination source will persist.

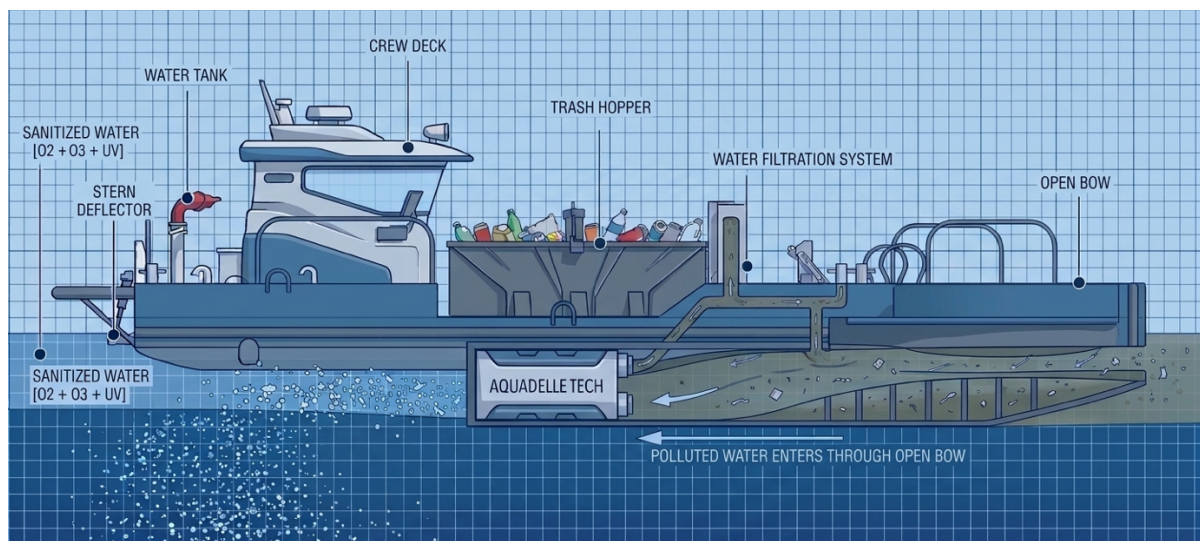
Inaction accumulates multidimensional deterioration — sanitary, economic and climatic — aggravated by the global biodiversity financing gap of USD 700 billion annually.

## 3. THE TECHNOLOGICAL SOLUTION

### THE STARTING POINT: NO TECHNOLOGY, NO RESTORATION

ISAOP (In Situ Advanced Oxidation Process) is the exclusive technological process of Aquadelle Tech. It operates directly in the water body by injecting O<sub>3</sub> and O<sub>2</sub> into the water column, simultaneously eliminating COD, pathogens, heavy metals and the anoxic conditions that generate methane.

Field-proven for over two decades, published in indexed scientific journals and with registered patent (US 63/314,988). No other equivalent technology exists with this level of evidence for in situ intervention.



#### ONE CYCLE: THREE TREATMENT STAGES + INFRASTRUCTURE CLEANING

1. Primary (Bow): Physical removal of floating solids and macrophytes.
2. Secondary (Stern): Deep O<sub>3</sub> injection → elimination of organic contaminants.
3. Tertiary + UV (Stern): Total disinfection before returning water to the natural cycle.

## THE SCIENTIFIC MECHANISM

- Nano and microbubbles of O<sub>3</sub> and O<sub>2</sub> maximise contact surface and solubility.
- Ozone: sterilising power 3,600× higher than chlorine, with no harmful residues.
- Predictive mathematical model (patent US 63/314,988): calculates exact dosage according to volume and pollutant load.
- Ozone disrupts cell membranes and damages DNA of viruses and bacteria naturally.



**-60% COD**

6 months

**-95% COD**

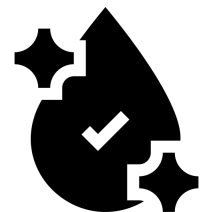
~95% COLIFORMS  
~100% PESTICIDES AND CHROME  
12 months

VALSEQUILLO, MEXICO: PUBLISHED RESULTS

Complementarity, not competition.

WWTPs (Wastewater Treatment Plants) intercept pollution at source.

ISAOP acts on what reaches the water body regardless: diffuse pollution, overflows, agricultural runoff, and accumulated load. They address different points of the same problem.



## WHAT MAKES ISAOP DIFFERENT VS. CONVENTIONAL WWTP



- Treatment of the water body
- Mobile infrastructure · deployment in weeks
- Pathogens - 99.9% elimination



- Treatment at source
- Fixed Infrastructure · Years of construction
- Pathogens - Partial reduction

## SCOPE AND RESILIENCE UNDER PERSISTENT POLLUTION

ISAOP's oxidising power — through continuous injection of  $O_3$  and  $O_2$  — actively counteracts the pollutant load from diffuse and point-source inflows: surface runoff, atmospheric deposition, groundwater recharge, and direct discharges. It sustains the aerobic and redox conditions required for ecosystem restoration even with uncontrolled active sources — without this exempting the need for comprehensive stewardship of the water body.

That being said, flows with extreme industrial saturation where the aqueous matrix has been displaced remain beyond the scope of any currently available technological intervention.

The factor that protects the sustainable asset (additionality).

Continuous operation for 8–10 hours a day is the technical additionality that sustains the value of the sustainable assets. Without it, the ecosystem reverts to anoxic conditions and the assets lose their validity.

The governance that guarantees this continuity is a financial condition of the initiative, not an administrative detail.



## 4. VERIFIED SUSTAINABLE ASSETS

### THREE UNCORRELATED INVESTMENT MARKETS

Restoration of a water body simultaneously generates three types of verifiable value in differentiated markets with no methodological overlap. Each asset responds to a distinct impact unit, operates under its own methodology and accesses an independent market — guaranteeing the integrity of each instrument and eliminating the possibility of double counting.

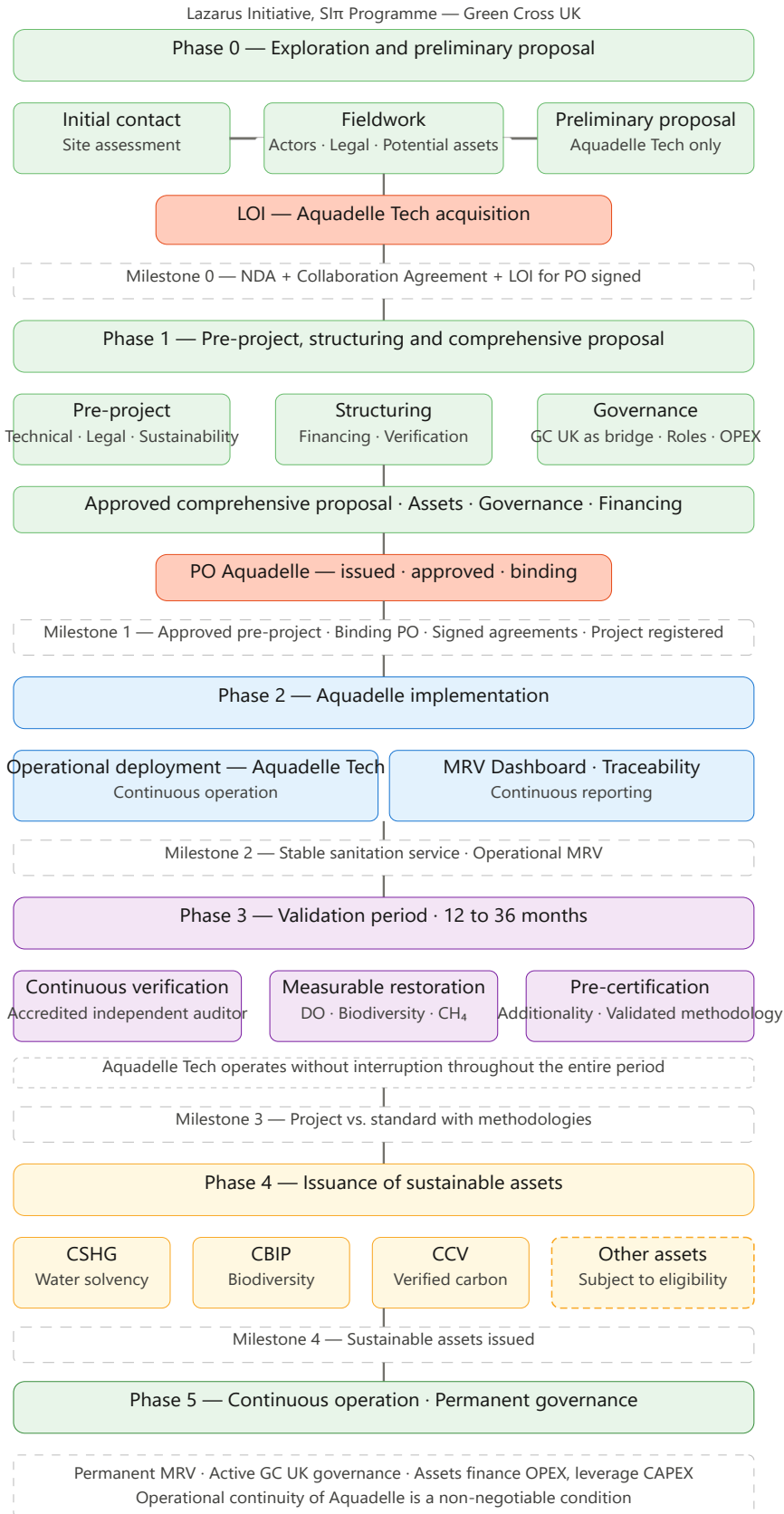
- CSHG · Credits of Solvency Hydric Global.
  - Impact measured: m<sup>3</sup>/year of verified net gain
  - Buyer: State, water utility, certified blue bond
  - Market: High — active green and blue bonds
- CBIP · Credits of Biodiversity with Integrity and Prosperity.
  - Impact measured: Alpha/Beta/Gamma indices via eDNA + socioeconomic impact
  - Buyer: TNFD/CSRD corporations, biodiversity funds, NBSAPs
  - Market: Medium-high — GBF Target 19 · regulatory acceleration COP16
- VCC · Verified Carbon Credit
  - Impact measured: tCO<sub>2</sub>e (mitigated CH<sub>4</sub> + reactivated biological sink)
  - Buyer: Voluntary markets, SBTi, net-zero corporations — also ITMO potential (with authorisation)
  - Market: Mature — acts as Lazarus witness

### GOVERNANCE: SOLVENCY CONDITION

Without operational continuity there is no verifiable restoration, without restoration there are no assets, without assets there is no OPEX financing.

Governance is the solvency condition of the initiative, where Green Cross UK facilitates management between the custodian entity, investors, independent verifiers and the community to guarantee sanitation continuity and sustainable asset integrity.

## IMPLEMENTATION PROCESS



## 5. ENTITIES AND MANDATES

### INSTITUTIONAL FRAMEWORK AND SCIENTIFIC BACKING OF LAZARUS

Lazarus is an institutional framework of multilateral trust. Upon published science, States, corporations, funds, integrity guarantors and communities converge — all with a clear mandate: to restore verifiable natural capital.

#### A. BASIN AUTHORITY:

- Their primary obligation is to the population that depends on that water body: their health, their economy, their territory. A degraded aquatic ecosystem generates untraceable healthcare expenditure, destroys territorial value and collapses local fishing and tourism.
- Lazarus reverses this liability without compromising public finances — the assets generated contribute to financing the solution. And when your government reports to the GBF, NDCs or the Pact for the Future, it will have verifiable evidence, not declarations.



#### B. CORPORATION WITH WATER EXPOSURE:

- TNFD documents four categories of financial risk from nature dependence: market, liquidity, operational and legal. A corporation in a degraded basin faces all of them. CSRD makes them mandatory to report.

- Lazarus converts that exposure into assets with IoT-eDNA traceability that satisfy TNFD, CSRD and SBTi – reputational liability transformed into auditable evidence of verified positive impact.

#### C. INVESTOR:

- GBF Target 19 mobilises USD 200 billion annually towards verified biodiversity assets. Biodiversity credits, green bonds and payments for ecosystem services are explicitly recognised instruments in COP15 Decision 15/7 and accelerated at COP16.
- Lazarus offers three uncorrelated assets – water, biodiversity, carbon – with auditable chain of custody, published scientific backing and independent methodology. Early position in a market with structural and irreversible demand.

#### D. MULTILATERAL ORGANISATION:

- The biodiversity financing gap is USD 700 billion annually. The GBFF has accumulated commitments of USD 400 million; the Kunming Fund adds an additional USD 200 million. The gap is structural.
- Lazarus operates as a blended finance mechanism, offering a replicable, auditable positive impact model aligned with the biodiversity, climate and water mandates of major multilateral institutions.

#### E. LOCAL COMMUNITIES:

- Water restoration directly benefits health, fisheries, economic development and territorial value – the assets that communities already manage and defend. The GBF and CBD Article 8J recognise that territories conserved by Indigenous peoples and local communities cover 23 million km<sup>2</sup> outside state-protected areas.
- In Lazarus, the community is not a passive beneficiary: it participates in MRV, governance and co-benefit distribution from Milestone 0.



## 6. GREEN CROSS UNITED KINGDOM

Green Cross United Kingdom is the independent facilitator that structures, validates and protects the integrity of the Lazarus Initiative globally. Strategic credentials:

- Member of Green Cross International – founded by Nobel Peace Prize winner Mikhail Gorbachev (1993)
- General consultative status with the United Nations (ECOSOC) and consultative status with UNESCO; observer status in major multilateral climate frameworks (UNFCCC, UNCCD, others)
- SIπ integrity framework in collaboration with ISI-Harvard

### THE TIME TO ACT IS NOW

The window of opportunity for preventive basin restoration does not stand still. Each year of inaction deepens degradation, multiplies remediation costs and brings the ecosystem closer to a point of no return.

Green Cross UK supports the natural capital custodian – whether State, corporation or community – that is committed to the genuine sanitation of its water body. We assist, advise and accompany the implementation of a customised Lazarus Initiative, adapted to the technical, financial and territorial needs of the endeavour.

Our commitment is to structure a solution that restores the ecosystem and contributes to its own financing.

The first step involves no financial commitment. Green Cross UK supports the interested entity in evaluating the applicability of Lazarus to its water body – from technical site assessment to preliminary proposal.

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- CBIP: Credit Biodiversity Integrity and Prosperity (Lazarus asset)
- CBD: Convention on Biological Diversity (UN)
- COP15 / COP16: Conference of the Parties to the CBD (Biodiversity Summit)
- CSHG: Credits of Solvency Hydric Global (Lazarus asset)
- CSRD: Corporate Sustainability Reporting Directive (EU)
- COD: Chemical Oxygen Demand (organic pollution indicator)
- DO: Dissolved Oxygen (water health indicator)
- ECOSOC: United Nations Economic and Social Council
- eDNA: Environmental DNA (biodiversity traceability technology)
- GBF: Kunming-Montreal Global Biodiversity Framework
- GEF: Global Environment Facility
- IoT: Internet of Things (monitoring technology)
- ISAOP: In Situ Advanced Oxidation Process (Aquadelle technology)
- ITMO: Internationally Transferred Mitigation Outcomes (Article 6 of the Paris Agreement)
- MQBO: Model for Quantification of Operational Benefits (published methodology)
- MRV: Monitoring, Reporting and Verification
- NDC: Nationally Determined Contributions (Paris Agreement)
- OPEX / CAPEX: Operational Expenditure / Capital Expenditure
- WWTP: Wastewater Treatment Plant
- SBTi: Science Based Targets initiative
- SIn: Sustainable Infrastructure Programme (Green Cross UK)
- TEEB: The Economics of Ecosystems and Biodiversity (UN methodology)
- TNFD: Taskforce on Nature-related Financial Disclosures
- UNESCO: United Nations Educational, Scientific and Cultural Organization
- UNFCCC: United Nations Framework Convention on Climate Change
- UNU-INWEH: United Nations University Institute for Water, Environment and Health
- VCC: Verified Carbon Credit (Lazarus asset)

FOR POSITIVE IMPACT ON HUMANITY AND THE  
PLANET: LET'S STAY CONNECTED.

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