

Modernising Wastewater Infrastructure

A Low-Energy, Nature-Based Upgrade for Small Cities, Towns & Villages Worldwide

The Challenge Facing Local Authorities Globally

Across the world, municipal wastewater infrastructure in small and mid-sized communities is under increasing pressure.

Many treatment plants are:

- 20–50 years old
- Lagoon-based and underperforming
- Mechanically complex and energy intensive
- Struggling to meet tightening discharge standards
- Generating odour and community complaints
- Costly to operate and maintain

At the same time:

- Environmental discharge standards are tightening worldwide
- Energy prices and chemical costs continue to rise
- Climate change is increasing hydraulic and compliance stress
- Skilled operators are increasingly difficult to retain
- Municipal budgets face long-term renewal pressure
- Communities expect visible environmental leadership

For many councils and municipalities, full mechanical replacement is financially unsustainable.

A Practical Alternative: Natural Biological System (NBS™)

A patented, plant-based engineered biological treatment system designed specifically for:

- Retrofitting ageing lagoon systems
- Replacing small mechanical plants
- Delivering secondary or advanced nutrient treatment
- Low-energy and off-grid applications
- Climate-resilient wastewater infrastructure

Core Principle

Break the water–energy nexus through engineered natural biological processes.

Instead of increasing mechanical complexity, this system leverages controlled ecological processes to deliver stable, compliant treatment with dramatically lower energy demand.

What This Means for Your Municipality

Lower Lifecycle Cost (Not Just Lower CAPEX)

- Minimal energy consumption
- Reduced sludge production
- Low operator dependency
- Simplified maintenance requirements
- Long-term OPEX reduction compared to mechanical upgrades
- Reduced exposure to energy price volatility

For smaller communities, this translates into predictable and manageable operating budgets.

Reduced Compliance & Environmental Risk

- Improved BOD, TSS and nutrient removal performance
- Enhanced odour control
- Greater hydraulic resilience
- Transparent monitoring capability
- Early and structured engagement with environmental regulators

The system supports sustainable compliance under tightening global environmental standards.

Multi-Benefit Community Infrastructure

Beyond wastewater treatment, the system enables:

- Irrigation reuse
- Landscape irrigation for public spaces
- Stormwater polishing
- Aquifer recharge
- Flood mitigation buffering
- Biodiversity enhancement



- Creation of green community assets

This transforms wastewater infrastructure into visible, climate-positive community infrastructure.

Suitable Applications Worldwide

Ideal for:

- Small cities, towns and villages (2,000 – 500,000 population)
- Rural and peri-urban communities
- Island communities
- Developing regions with energy constraints
- Communities facing lagoon upgrade decisions
- Municipalities pursuing net-zero or sustainability targets
- Sites where reuse or green integration is desirable

Applicable across:

- Europe
 - Asia
 - Africa
 - North & South America
 - Australia & Pacific Islands
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Proposed Pilot Implementation Approach

1. Site assessment & hydraulic review
2. Feasibility and lifecycle cost comparison
3. Regulatory engagement
4. Phased or modular implementation
5. Performance monitoring and validation

Pilot Benefits

- Risk reduction before full rollout
 - Measurable performance validation
 - Scalable across multiple municipal assets
 - Minimal disruption to existing operations
 - Data-driven decision support
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Strategic Opportunity for Local Government

This is not merely a treatment upgrade.

It is an opportunity to:

- Reduce long-term financial burden
- Increase resilience to climate and energy volatility
- Improve environmental performance
- Enhance public perception and community value
- Future-proof wastewater infrastructure
- Align with national and international sustainability frameworks

Contact

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BEFORE



AFTER