Nereda® today
sustainable tomorrow

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Nereda for biological wastewater treatment: Proven at TU Delft, developed by DHV, demo plant in Gansbaai, South Africa, first full scale plant launched on 8 May 2012 in Epe, the Netherlands. While this technology is a clear improvement over conventional treatment, securing investment remains a challenge.

BREAK THE KNOWLEDGE, TOUCH THE BOUNDARY, FIND THE TIME, MEET NEREDA

In contrast to conventional activated sludge, the Nereda technology treats wastewater at up to 30% less investment cost, 30% less energy, and uses up to 75% less land. However, the implementation of Nereda is slow because of lack of trust in new technologies, and a chronic lack of funding in the water industry globally.

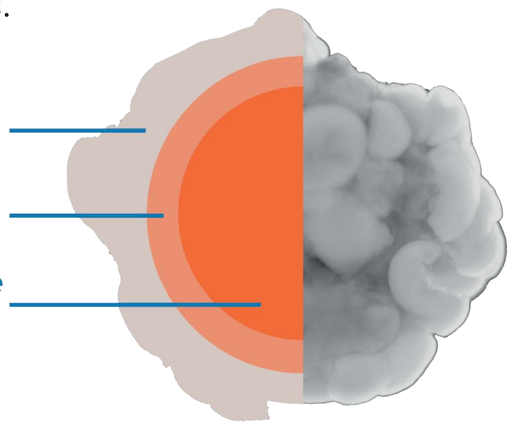
To improve this, we propose a two-tier approach:

1. Build public awareness which influences political decision-making on budget allocation.
2. Promote the Nereda to different industries to create cross-industry partnerships.

1. Nereda technology

Granules making up aerobic granular activated sludge (the Nereda technology) are to be understood as aggregates of microbial origin which do not coagulate under reduced hydrodynamic shear, and which settle significantly faster than activated sludge flocs.

For extensive biological nutrient removal (BNR) to clean wastewater, the biocatalyst needs to encounter alternating aerobic (with air) and anoxic/ anaerobic (without air) conditions.



Every Nereda granule is like a complete treatment works!

2. Benefits of Nereda

	Nereda process (Aerobic granular sludge)	Conventional Activated Sludge Process	What does this mean for industry?
Settling time	0,25 minutes	20 minutes	Efficient product recovery of both water product and bioproduct.
Settling velocity	> 20 m/h	<1 m/h	
Sludge structure	Granules, no carrier material	Flocs, prone to sludge bulking	Energy efficiency through utilizing discrete biomass retention (and product retention)
Dewatering of sludge	Quick, well compacted sludge	Slow, prone to slime formation	Energy efficiency in downstream processing
Bacterial population	Reactor setup selects for self-aggregating microbial population	Relies on large volume of treatment tanks to absorb frequent systems failure	Positive implications of maintaining product productivity in non-sterile, mixed cultures (mainly for bioprocessing industries)

3. Eco-industrial parks

The benefits inherent in the Nereda system makes it possible to form eco-industrial parks with wastewater treatment works at the core; this was not feasible with conventional activated sludge processes before.

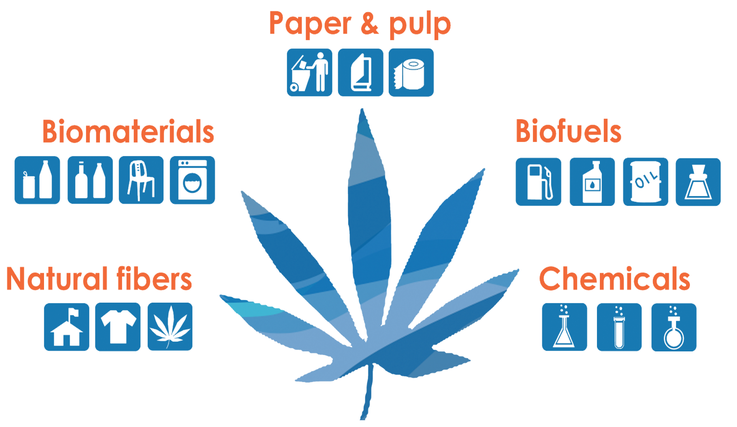
Eco-industrial parks improves:

Establishing eco-industrial parks have their challenges, taking the following point into account will mitigate these complications:

- Collective setting of available utilities;
- Mutual exchange of materials and energy;
- Reduced and shared transport costs;
- Collective processing of waste/by-product;

4. Industrial partnerships

The industry partners still remain accountable for their core business. In this way the 'waste' in wastewater is converted into an asset, and existing capabilities can be exploited in new ways to generate novel opportunities.



5. Project strategy for Nereda

Public awareness

Value wastewater treatment
Influence political decision making

Design and innovation

Innovate
High return investments

Education and tourism

Capacity building
Low risk revenue

New Nereda Investments!

Build trust in Nereda
Support eco-industrial partnerships

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