

A Canadian company is offering a technology for wastewater aeration with plunging microbubbles.

## Summary

Profile type	Company's country	POD reference
<b>Technology offer</b>	<b>Canada</b>	<b>TOCA20230503023</b>
Profile status	Type of partnership	Targeted countries
<b>PUBLISHED</b>	<b>Research and development cooperation agreement</b>	<b>• World</b>
Contact Person	Term of validity	Last update
<a href="#">Rita Elste - Tomsone</a>	<b>3 May 2023</b> <b>2 May 2024</b>	<b>3 May 2023</b>

## General Information

### Short summary

Our client's technology uses vertically plunging liquid jets right beneath the surface of the liquid to mix the entirety of reactors. This creates microbubbles and aspirates atmospheric air to disperse the microbubbles throughout the reactor. Bubble retention time is increased, maximizing gas transfer efficiency while homogeneously mixing the reactor. Subsequently, their technology can inject high-purity oxygen to compensate for diurnal peak oxygen demands within the existing infrastructure.

### Full description

Our client is offering their technology for biological wastewater treatment to a philanthropic partner that can assist with technology transfer to developing countries. Specifically, their technology addresses the challenges associated with conventional diffused aeration systems which release approximately 80% ( $\pm 15\%$ ) of the initially blown air into the atmosphere, wasting a lot of energy and stripping greenhouse gases (GHG) generated during the oxidation of organic matter. The relevant GHGs are nitrous oxide (N<sub>2</sub>O) and carbon dioxide (CO<sub>2</sub>) which are naturally highly soluble and tend to stay soluble in the water however, excessive air flow and associated vigorous surface agitation strip both gases out of water. To address this challenge, our client offers unique optimization solutions for wastewater treatment plants as a quick and easy plug-in to upgrade any aeration reactor and increase oxygen transfer efficiency from 15% to 90% (6-fold). As a result, their technology reduces air input by 90% off-gases, fugitive GHG emissions by 95%, and aeration energy consumption by up to 50%, thereby eliminating the need for additional construction and unlocking the full potential of existing infrastructure.

#### Advantages and innovations

Our client's technology solution offers several unique advantages for treating wastewater. Firstly, their technology reduces 95% of N<sub>2</sub>O and CO<sub>2</sub> emissions generated during the treatment of wastewater. Similarly, it reduces energy consumption by 30% to 80%, dependent on the depth of their reactors which improves efficiency the deeper they are installed against conventional diffused aeration. Furthermore, our client's technology can be installed without interrupting the existing wastewater treatment, enabling instantaneous capacity upgrades without constructing new reactor(s). Their solution is made up of standard equipment and parts which are readily available across the globe. The reactors contain no moving parts and critical parts are semi-submerged so they can be easily replaced without additional tools or a service specialist.

#### Technical specification or expertise sought

#### Stage of development

**Available for demonstration**

#### IPR Status

**IPR granted**

#### Sustainable Development goals

- **Goal 13: Climate Action**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 6: Clean Water and Sanitation**

## Partner Sought

#### Expected role of the partner

Our client is seeking a reputable philanthropic partner who can assist with finding sponsors to transfer their technology to developing countries and enable local partners to establish self-sustaining water treatment solutions at a minimal cost.

#### Type of partnership

**Research and development cooperation agreement**

#### Type and size of the partner

- **Other**

## Dissemination

Technology keywords

- **10004003 - Wastewater Recycling**
- **10004001 - Industrial Water Treatment**
- **10004002 - Municipal Water Treatment**
- **010002009 - Water Pollution / Treatment**

Targeted countries

- **World**

Market keywords

- **08004003 - Water treatment equipment and waste disposal systems**
- **09008002 - Water, sewerage, chemical and solid waste treatment plants**

Sector groups involved

- **Proximity & Social Economy**