

## Technical Information Sheet

1. Name of technology	Cyclic bioremediation technology (in-situ groundwater circulation purification technology) <sup>1)</sup>
2. Type of technology	In-situ purification technology that circulates groundwater with nutrients added and activates microbial biodegradation in soil to treat polluted materials.
3. Description of technology  <div data-bbox="97 824 389 947" style="border: 1px solid black; padding: 5px; margin-top: 10px;">Objective, application, characteristics, delivery record, and price of technology</div>	<div data-bbox="416 394 948 427" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">[Objective and application of technology]</div> <ul style="list-style-type: none"> <li>◆ Applicable to soil remediation caused by illegal waste dumping and inappropriate treatment (such as VOCs and oil), and non-proliferation (heavy metal).</li> <li>◆ Aims to treat polluted soil economically while continuing to use the land for running shops, etc.</li> </ul> <div data-bbox="416 613 815 647" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">[Characteristics of technology]</div> <ul style="list-style-type: none"> <li>◆ Nutrients contain plant-derived ingredients, so are environmentally-friendly.</li> <li>◆ No major civil engineering work is required. The compact purification facility has no space constraints for polluted sites.</li> <li>◆ Applicable to a wide range of polluted materials such as VOCs, oils, nitrate-nitrogen, and heavy metals <sup>2)</sup></li> </ul> <div data-bbox="416 875 655 909" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">[Delivery record <sup>1)</sup>]</div> <ul style="list-style-type: none"> <li>◆ Ministry of the Environment technology demonstration business</li> <li>◆ VOCs purification business (Shizuoka, Yamagata, and many others)</li> <li>◆ VOCs and oils purification business (Aichi, Chiba)</li> <li>◆ VOCs and heavy metal purification business (Tokyo, Hiroshima)</li> </ul> <div data-bbox="416 1240 504 1274" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">[Price]</div> <p>Rough guide to processing costs <sup>3)</sup>: ¥3,000 to ¥20,000/m<sup>3</sup></p> <div data-bbox="416 1386 1528 1480" style="font-size: small; padding-top: 10px;"> <p><sup>1)</sup> The cyclic bioremediation technology is a property of our affiliated company, Towa Environment Science Co., Ltd.</p> <p><sup>2)</sup> Heavy metals for insolubilization are cadmium, hexavalent chrome, lead, and mercury.</p> <p><sup>3)</sup> The cost varies depending on the conditions in a country, the state of the polluted site, and other factors.</p> </div> <div data-bbox="1018 846 1533 1205" style="text-align: center; margin-top: 20px;"> <p style="font-size: x-small;">Basic structure of cyclic system (anaerobic treatment)</p> </div>
4. Classification of technology	
(1) Applicable fields	Other environment protection technology
(2) Target waste	Other (illegally dumped waste)
(3) Services provided	Plant construction, Waste treatment service, Technical cooperation/licensing, Consulting, Survey/data processing, Other
5. Countries to which this technology can be provided	Worldwide
6. Keywords	Illegal dumping, soil pollution, VOCs (volatile organic compounds), oils, heavy metal, bioremediation, purification
7. Contact information	Contact point: Business Development Office, IDEA Consultants, Inc. Person in charge: Goda Contact: Tel: +81-3-4544-7603 E-mail: ghd70089@ideacon.jp