Environmental Technologies

3D Computational Fluid Dynamics (CFD) Analysis for Atmospheric Environment Survey & Analysis of Water Quality & Soil Contamination

Natural Environment Analysis

Modeling Habitat Suitability

Conserving Rare Plants

Determining Urban Biodiversity

Tracking Endangered Species Habitats by GPS & CCTV

R&D Center for Innovation, New Technologies & Engineering Solutions
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• Land modifications and construction works often cause adverse effects on atmospheric environment such as windblast, air pollution and cold air drainage.
• To provide the physically sound and cost effective countermeasures, we use three dimensional Computer Fluid Dynamics (CFD) analysis.
There has recently been a large increase in awareness of soil and groundwater contamination with toxic substances.

The need to survey and possible contamination is increasing in real-state transaction and land redevelopment.

We provide field surveys for soil and groundwater contamination, analyzing for heavy or metals and other chemical compounds harmful to human health.

- Our lab is well equipped; instruments include:
  - Atomic absorption photometer
  - ICP chemiluminescent and spectroscopic analyzer
  - Liquid chromatograph
  - Gas chromatograph
  - Gas chromatograph mass spectrometer
  - Spectrophotometer
  - Spectrofluorometer

- We undertake water and soil surveys and performs soil and water sample analysis.
- We also perform investigation, evaluation, analysis, and examination in collaboration with our consulting divisions.

<table>
<thead>
<tr>
<th>Country</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>Environmental impact assessment for waste disposal center</td>
</tr>
<tr>
<td>Japan</td>
<td>Investigation of groundwater contamination for old factory sites</td>
</tr>
<tr>
<td>Japan</td>
<td>Groundwater monitoring of existing final waste disposal sites</td>
</tr>
</tbody>
</table>
Biodiversity on the earth has been in great crisis since the 20th century.

To conserve biodiversity, we are researching on planning and evaluation methods such as modeling habitat suitability and field investigation methods using new devices such as an elastomer tag, GPS and CCTV.

Through modeling appropriate environment for each animal and plant, we can predict the impacts of port projects and road projects on the animals and plants.

Preparing GIS database of habitat environment
- water depth
- salt content
- grain size distribution
- ocean waves, etc.

Modeling habitat appropriateness for each physical environmental factor

For conservation of rare plants in the construction sites (road, dam, etc.), we preserve and propagate rare plants in our R&D Center.

Glass house  Hygrophyte field  In-room glass house
Counting cast-off skins of cicada is effective methods to know the biodiversity of the forest. Hence we clarify cicada distribution in urban areas and the environmental factors that affect its population and distribution.

**Determining Urban Biodiversity**

Tracking Endangered Species Habits by GPS & CCTV

- Attaching a GPS device
- Installing an artificial nest
- Documenting activity range
- Collecting video record of nursing conditions by a CCTV camera
- Tracking GPS information from a satellite