Water Resource Areas

Matsuo Sekkei Corp.
Kitakyusyu Water and Sewer Bureau
In the field of water resource, we will consider several improvement in 2 water purification plants & 12 transfer pumping stations to promote CO2 emission reduction possibility through energy saving etc.
Proposal of Water Resource Areas

Proposals

A. Investigating the CO2 Reduction Possibilities by Energy Saving at Water Purification Plants & Pumping Stations
B. Preparing Basic Data Planning for Block Distributing System
C. Investigating CO2 Reduction Possibilities by Energy Saving at Wastewater Treatment Facility in Surabaya Industrial Estate Rungkot
D. Investigating CO2 Reduction Possibilities by Energy Saving at Keputih Septage Treatment Facility
A. CO2 Reduction Possibilities by Energy Saving at Water Purification Plants and Pumping Stations

<table>
<thead>
<tr>
<th>① Action Name</th>
<th>CO2 Reduction Possibilities by Energy Saving in Water Purification Plant &amp; Pumping Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>② Study Overview</td>
<td>Investigating CO2 Reduction Possibilities by Energy Saving at Candidate Facilities; 2 Water Purification Plants &amp; 12 Transfer Pumping Stations and Reviewing Cost-Effective Approach.</td>
</tr>
</tbody>
</table>
| ③ Study Items | ○ Water purifying process investigation  
Collecting existing data and study on-site treatment processing conditions to assess energy saving potential of the water purifying process and its facilities.  
○ Water delivery and distribution investigation  
Collecting existing data and future planning information regarding water distribution system to acquire on-site conditions. |
| ④ Considerations | ○ Water purifying process consideration  
Candidate facility selection for energy saving and proposing countermeasure draft and its efficiency  
○ Water delivery and distribution consideration  
Candidate facility selection for energy saving and proposing a countermeasure draft and its efficiency |
| ⑤ Potential CO2 Emission Reduction | If energy saving rate by inverter control & others is considered from 15% to 20%, the potential CO2 emission reduction is from 3,200t·CO2/year to 2,000t·CO2/year. |
Water Purification Plants
Transfer Pumping Stations

Reservoir (Tandon Air) Putat Gede
Dengan Kapasitas 5.000 m³
B. Preparation of Basic Data Planning for Block Distributing System

<table>
<thead>
<tr>
<th>Action Name</th>
<th>Preparation of Basic Data Planning for Block Distributing System (Model Zone Selection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>② Study Overview</td>
<td>Selecting one model zone among water systems which measure flow rate and water pressure. Then, planning &amp; studying block distributing system for that selected zone</td>
</tr>
<tr>
<td>③ Study</td>
<td>○ Data gathering sorting at the distribution pumping system such as ① distributing zone, ② distributing network, ③ distributed amount, ④ water pressure and ⑤ water leakage volume.</td>
</tr>
<tr>
<td>④ Considerations</td>
<td>Studying possible water leakage countermeasures (such as optimum water pressure and block distributing system etc.) and formulating basic data.</td>
</tr>
<tr>
<td>⑤ Potential CO2 Emission Reduction</td>
<td>The water leakage countermeasures includes to the only basic data planning this time. If block distributing system is actually installed and assume water leakage reduction rate is from 5% to 10%, potential CO2 emission reduction will be from 3,800t to 7,700 t·CO2/year.</td>
</tr>
</tbody>
</table>
Water Leakage Countermeasures in Distribution Pipes
C. CO2 Reduction Possibilities by Energy Saving at Surabaya Industrial Estate Rungkut (SIER)

<table>
<thead>
<tr>
<th>Action Name</th>
<th>CO2 Emission Reduction Possibilities by Energy Saving at PT Surabaya Industrial Estate Rungkut (SIER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Overview</td>
<td>PT Surabaya Industrial Estate Rungkut (SIER) which was established in 1974 currently holds 300 companies in operation. Investigating and reviewing improvement proposals such as key equipment replacement and the operating method of wastewater treatment facilities.</td>
</tr>
</tbody>
</table>
| Study Items | ○ Wastewater treatment process investigation  
  Collecting existing data and study on-site processing conditions to assess facilities for potential renewable energy in the process of wastewater treatment.  
  ○ Wastewater treatment system investigation  
  Collecting existing data and future planning information of wastewater treatment system and also acquiring on-site conditions |
| Considerations | ○ Water purifying process investigation  
  Selecting candidate facility for renewable energy, planning countermeasures and reviewing its efficiency  
  ○ Wastewater treatment system investigation  
  Selecting candidate facility for renewable energy, planning countermeasures and reviewing its efficiency |
| Potential CO2 Emission Reduction | If the operational rate of key facilities is considered 50% and rate of energy reduction is considered 10%, the potential CO2 emission reduction is 42t-CO2/year. |
SIER Wastewater Treatment facilities
## D. CO2 Reduction Possibilities by Energy Saving at Keputih Septage Treatment Facility

<table>
<thead>
<tr>
<th>Action Name</th>
<th>CO2 Emission Reduction Possibilities by Energy Saving at Keputih Septage Treatment Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overview</strong></td>
<td>The first construction of Keputih Septage Treatment Facility has begun from 1989; therefore, currently its equipment corrosion and aging are obvious. Therefore, investigating and reviewing improvement proposals such as replacement of key electric equipment and operating method at this treatment facility.</td>
</tr>
</tbody>
</table>
| **Study items** | ○ Equipment investigation  
Collecting existing data and study on-site treatment processing conditions to acquire facilities for potential energy saving in the process of septage treatment.  
○ System investigation  
Collecting existing data and future planning information of septage treatment system to acquire on-site conditions |
| **Considerations** | ○ Septage treatment process investigation  
Selecting candidate facility for potential energy saving and planning countermeasures and reviewing its efficiency  
○ Septage treatment system investigation  
Selecting candidate facility for potential energy saving and planning countermeasures and reviewing its efficiency |
| **Potential CO2 Emission** | If the operational rate of key facilities is considered 50% and rate of saving energy is considered 10%, the potential CO2 emission reduction is 13t·CO2/year. |
Keputih Septage Treatment Facility
## Operation Schedule

<table>
<thead>
<tr>
<th>Operation Name</th>
<th>Date</th>
<th>Content</th>
<th>Operation Details</th>
</tr>
</thead>
</table>
| Advance Preparation            | from May to June      | Advance preparation and review             | Preparation for inception meeting  
On-site investigation review  
Document request review                                      |
| First On-site Investigation    | from 3rd of July until July 11th of July | On-site investigation  
Document request                                | Main equipment specifications, processing flow sheet, equipment replacement records, current operating method, operating hours, current problems  
Overview hearing  
Identifying systems likely to produce substantial amount of CO2  
Reviewing applicable energy saving equipment |
| Inception Meeting              |                       |                                            |                                                                                  |
| Reviewing Works in Japan       | from August to October| Organizing the result of on-site investigation and documents  
Reviews toward energy saving and CO2 emission reduction | Main equipment specifications, flow sheet, equipment replacement records, current operating method, operating hours, current problems  
Reviewing for energy saving and CO2 emission reduction  
Interim meeting preparation                      |
| Second On-site Investigation   | from 18th of November until 22nd of November | Proposals after reviewing                  | Studying difference between proposals and actual condition  
Investigate whether on-site requests match proposals or not |
| Interim Meeting                |                       |                                            |                                                                                  |
| Reviewing Works in Japan       |                       | Preparations for the third on-site investigation  
Updating the interim meeting result                      | Adjustment of contents  
Report writing  
Seminar preparation |
| Third On-site Investigation    | from 27th of January until 31st of January |                                            |                                                                                  |
| Seminar                        |                       |                                            |                                                                                  |
Operation System

- Energy Saving at Water Purification Plant & Transfer Pumping Station
- Water Leakage Measures (Basic Data Planning)
- Energy Saving at SIER Wastewater Treatment Facilities
- Energy Saving at Keputih Septage Treatment Facilities

PDAM
- Water Supply Corporation Surabaya
- Surabaya Industrial Estate Rungkut (SIER)
- DKP Surabaya
- Cleansing and Landscaping Department

Matsuo Sekkei Co.,
Kitakyusyu Water and Sewer Bureau
Thank you for your kind attention.

Kali Mas