Sludge and Waste Composting in Dragør, Denmark
Composting Sludge, Waste, Water Hyacinth and Husk for Organic Fertiliser in Uganda in 5 days
Composting

• Temperature after 48 hours 70C
• Final Bio-Fertilizer after 5 days
• Automatic controlled aeration after oxygen contend
• Kills all plant diases (Coffee pest etc.)
• Cutted Water Hyacinth, Coffee Husk, Organic Garbage other organic materials
• Rawphosfate is opened for plant uptake
• N-balance with Urea or Legume eftover
1999 - Root Zone, Uganda, Kasese Cobalt Company, Ltd.
Objective: Wastewater from mining * Units: 1800 m²,
Support from World Bank and DANIDA
Customer References – consists of many top performing Global Companies as well as Governments and City Councils

<table>
<thead>
<tr>
<th>Transform has served:</th>
<th>STATOIL Statoil, NO</th>
<th>Unilever, NL</th>
<th>VERACEL Veracel, Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro, NO</td>
<td>Kimberly-Clark</td>
<td>Minol, DE</td>
<td></td>
</tr>
<tr>
<td>Kuwait Oil</td>
<td>Total, FR</td>
<td>British Petrol, UK</td>
<td></td>
</tr>
<tr>
<td>Texaco, US</td>
<td>Royal society for protection of nature, JO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlsberg, DK</td>
<td>Procter &amp; Gamble, US</td>
<td></td>
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<tr>
<td>Asesco, Colombia</td>
<td>Stora Enso, SE/FI</td>
<td>Petrol Development Oman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shell, UK</td>
<td>OOCEP, Oman</td>
<td></td>
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</tbody>
</table>
Industries in which our services and solutions are being used effectively. This includes treatment plants for wastewater and sludge management.

<table>
<thead>
<tr>
<th>Agriculture industry</th>
<th>Oil industry</th>
<th>Chemistry industry</th>
<th>Petrochemical industry</th>
<th>Mining industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel processing</td>
<td>Paper industry</td>
<td>Production of CD (compact disc)</td>
<td>Production of cut flowers</td>
<td>Dairies</td>
</tr>
<tr>
<td>Slaughterhouses</td>
<td>Pig production</td>
<td>Dry cleaning facilities</td>
<td>Car and Train wash</td>
<td>Hospitals, School etc</td>
</tr>
</tbody>
</table>
Activities in Uganda

1997
Bio-Earth Fertilizer with Banga Multi Purpose co.ug Feasibility Study

1997
Kasese Cobalt Company Limited Feasibility Study Environmental Protection

1999
Root Zone Kasese Cobalt Company, Ltd. Objective: Wastewater from mining * Units: 1800 m2,

2000
Composting of organic waste using Bio Fertilizer production. In cooperation with Banga Multi-Purpose And support from DANIDA

2011
Kampala Waste Management Feasibility Study With support from DANIDA

2012
Feasibility Study about Busumbu Phosphate, Exploration license and test mining.

2016
BioFertilizer Africa Limited was legally incorporated in Uganda

2017
Rootzone Container for Waste Water Treatment established

2017
Rootzone Africa Limited was legally incorporated in Uganda
SUSTAINABLE WASTE MANAGEMENT IN UGANDA: TRANSFERRING ALL WASTE TO VALUE
The true cost of waste is not simply the cost of discarded materials - it encompasses inefficient use of raw materials, unnecessary use of energy and water, faulty products, waste disposal of by-products, waste treatment and wasted labour.

Transform af 1994 ApS’s aim is to:

Reduce
Reuse
Recycle

Transferring waste to energy is the lowest value transfer. Transferring waste to nutrient and use it for food we get a much higher value.

Source: Peter Westermann
The main sources for waste are:
• Open market
• Household
• Restaurant, hotel, institutions (schools, nurseries, hospitals)
• Agriculture (post harvest left over and animal dropping/manure)
• Industrial (food, beverage and general waste)
• Construction material
• **Transport:**
Transport of waste is partly organized by the municipality and partly by private companies and single transporters.

• **Waste sections:**
Garbage and organics

Various markets with high waste volumes in Kampala have confirmed that they are ready to support and work with a waste management plan and it is possible to set up separation system in existing containers.
• Plastic: Is partly separated manually. There is good business in recirculation of plastic, but it has to be cleaned and separated into sorts (PVC, PE, and PP. etc.). Bottles are reused.

• Paper and cardboard: Is partly separated and bundled manually. It is selected out on deposit sites or at source.

• Glass: Bottles are partly separated out using manual labor and reused. Broken glass goes to the deposit or to be melted and reused.

• Tin and metal: Some tins can be reused without further processing, the rest will be melted and reused as metal.

• Construction material: Reused for road construction after being sorted and crushed. Present partly used as filling material.
Waste Management

Our 360 degree holistic view and suggested solution for total waste management

<table>
<thead>
<tr>
<th>Key design features</th>
<th>Kampala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Waste volume app. 5-600,000mt/year</td>
</tr>
<tr>
<td>Envisaged Capacity</td>
<td>Total Waste Management Technologies</td>
</tr>
<tr>
<td>Technology</td>
<td>Follow the objectives as outlined above under point 2.</td>
</tr>
<tr>
<td>Other relevant aspect</td>
<td>Municipalities given standard for Waste Management</td>
</tr>
<tr>
<td>Other location</td>
<td></td>
</tr>
</tbody>
</table>

| Technical and operational considerations | Waste technologies to be planned developed and implemented. Over time these technologies will be transferred for automation and higher efficiency. Separation to be done at source and in a healthy way/processing. The waste technologies shall reduce depositing with min. 80%. Pilot Biofertilizer project to set up. |

<table>
<thead>
<tr>
<th>Financing Model and partnership Arrangement</th>
<th>Key requirements are the following</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transform should be granted a 2-year grace period to conduct the initial set-up, including securing funding in stages following the project development and to establish and conduct the overall project management together with Government representatives. Finally to engage a lead contractor as well as contracting the range of local and international sub-contractors</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>Activity</td>
</tr>
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<td>---------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Phase 1</td>
<td>Signing of MoU between Transform and the Government of Uganda – including a commitment of granting Transform a 2-year grace period for project development.</td>
</tr>
</tbody>
</table>
| Phase 2 | Set up project organisation  
Legal framework development, funding plans, authorisation condition.  
Site fixation for waste handling based on logistic / transport.  
Implementation of waste separation and garbage processing for biofertilizer, standards for yield control | September 2017-February 2018 |
| Phase 3 | Process optimization of biofertilizer production, Feasibility study for Kampala and standard Municipality Subcontractor authorisation and engagement Hazardous Waste management                                                                                      | February - August 2018 |
| Phase 4 | Planning, design and tender for Kampala and Municipalities Construction contractor                                                                                                                                                               | August 2018-February 2019 |
| Phase 5 | Implementation                                                                                                                                                                                                                                         | February - August 2019 |
Contact:

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adedya@rootzoneafrica.com
pkappa@rootzoneafrica.com
inquiries@rootzoneafrica.com
THANK YOU
QUESTIONS?