Implementation Approach

**Opportunity Assessment**
- Systematic audit to identify where resources are being wasted
- Analyse & measure processes and collect data

**Selecting Actions to Implement**
- Evaluate feasibility with industries
- Shortlist actions to implement (focus on low cost options initially)
- Form an internal team & establish target dates

**Coaching & Handholding**
- Technical support to industry team during implementations
- Training of industry staff
- Discuss opportunity to implement higher cost options
- Continue monitoring of progress

**Impact Assessment**
- Collate results from implemented actions
- Prepare show cases
- Return to opportunity assessment

**RECP Process**
- Systematic audit to identify where resources are being wasted
- Analyse & measure processes and collect data
- Evaluate feasibility with industries
- Shortlist actions to implement (focus on low cost options initially)
- Form an internal team & establish target dates
- Technical support to industry team during implementations
- Training of industry staff
- Discuss opportunity to implement higher cost options
- Continue monitoring of progress

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“This project is really an eye opener to me. We have been in the business for the last 40 years and it’s amazing to note what simple things could do to make a big difference at a very minimal cost. Through METABUILD project, we were able to reduce the monthly electricity bill by a significant amount. We were able to streamline our production processes in an environmentally friendly manner. The extent of harmful wastes generated was reduced drastically. A healthier working environment was created within the factory and in return, the productivity levels of our work force improved.”

Mr. Eric L. Samuel, Deputy General Manager, U.S.S. Engineering (Pvt.) Ltd., Sri Lanka
Case Studies

**CO₂ emission reduction through fuel change**

**Location:** Airmate Fan, Chittagong, Bangladesh | **Process:** Electric fan manufacturing

**BEFORE**
The company was operating a diesel generator (DG) set (of 1200 kVA) which consumed 360,000 litres of diesel annually. This fuel consumption led to 963 t CO₂ emission annually. The diesel costs around € 0.74/litre (€ 0.074/kWh of energy).

**AFTER**
The company has replaced the DG set with gas generator set (of 1000 kVA) that operates on natural gas. This fuel consumption now leads to 729 t CO₂ emission annually. The gas price is € 0.13/m³ (€ 0.013/kWh of energy).

| COST: ≈ €180,600 | ANNUAL SAVING: ≈ €204,000 | PAYBACK PERIOD: 11 months | CO₂ REDUCTION: 234 t/year |

**Fuel saving by installing waste heat recovery system**

**Location:** S R Steel Pvt. Ltd., Rupandehi, Nepal | **Process:** Billet heating

**BEFORE**
Heat from the exhaust/flue gas of furnace was directly released to the environment. The measured temperature of flue gas was 500°C, indicating significant energy being discarded.

**AFTER**
Re recuperator is installed to utilise heat energy from the flue gas to pre-heat combustion air. Hot air ducts are suitably insulated. It helps in increasing the combustion air temperature from 30°C to 300°C thus saving fuel.

| COST: ≈ €7,900 | ANNUAL SAVING: ≈ €28,800 | PAYBACK PERIOD: 4 months | COAL SAVINGS: 182 t/year |

**Waste reduction through welding scrap materials**

**Location:** Lak Steel, Colombo, Sri Lanka | **Process:** Galvanised Iron (GI) pipe production

**BEFORE**
The galvanised iron sheet rolls were fed one by one. This generated a lot of waste because the end pieces having insufficient length was discarded as waste.

**AFTER**
End piece of the current roll is welded with the beginning of the next roll so that continuous feeding can be done. There is no waste due to discarded end pieces.

| COST: ≈ €2,240 | ANNUAL SAVING: ≈ €6,800 | PAYBACK PERIOD: 4 months |
The information below are based on results until 31 December 2019.

**METABUILD by Numbers**

- **SMEs Involved in the Project**: 403
- **Number of RECP Measures Implemented**: 3,766
- **Energy Saved Per Annum (in kWh)**: 33,953,817
- **Water Saved Per Annum (in Litres)**: 48,978,140
- **Waste Minimised Per Annum (in Kilograms)**: 700,436
- **Material Saved Per Annum (in Kilograms)**: 4,434,782
- **Monetary Savings Per Annum (€)**: 2,943,875
- **CO₂ Emissions Reduced Per Annum (in Tonnes)**: 13,222
- **Industry Personnel Sensitised on RECP**: 3,049
- **SMEs Supported in Access to Finance (A2F)**: 133
- **Number of Local Consultants Trained**: 59
- **Technology Suppliers Engaged**: 192
### Country Achievements

<table>
<thead>
<tr>
<th></th>
<th>Bangladesh</th>
<th>Nepal</th>
<th>Sri Lanka</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMEs involved in the project</td>
<td>240</td>
<td>82</td>
<td>81</td>
</tr>
<tr>
<td>Kilowatt hours energy saved per annum</td>
<td>8,995,413</td>
<td>14,997,753</td>
<td>9,960,651</td>
</tr>
<tr>
<td>Litres of water saved per annum</td>
<td>292,600</td>
<td>40,785,500</td>
<td>7,900,040</td>
</tr>
<tr>
<td>Kilograms of waste minimised per annum</td>
<td>58,121</td>
<td>494,945</td>
<td>147,370</td>
</tr>
<tr>
<td>Kilograms of material saved per annum</td>
<td>262,132</td>
<td>1,563,539</td>
<td>2,609,110</td>
</tr>
<tr>
<td>Monetary savings in Euros per annum</td>
<td>938,514</td>
<td>1,556,267</td>
<td>449,094</td>
</tr>
</tbody>
</table>

The above mentioned savings are based on results until 31 December 2019

“METABUILD Project has been like a teacher to me for RECP as I had not known RECP before. We have changed our furnace; we have enhanced production and saved electricity from the repair of the compressor pipeline. We have saved energy by installing recuperator. We will continue to implement the suggestions provided by METABUILD and carry it sustainably.”

Mr. Raju Timilsina, Production Manager, Saakha Steel Industries Pvt. Ltd., Nepal
“METABUILD project helped us to change our mindset. They helped us to improve our process efficiency with very low cost suggestions; in some cases without any cost. It will be highly appreciated if this kind of project takes place in the future.”

Mr. Md. A Sattar Miah, Proprietor, Best One Metal, Bangladesh

About METABUILD

METABUILD is a 4-year project (2016-2020) supported by the European Union (EU) under the SWITCH-Asia Programme. This programme emphasises sustainable consumption and production in small and medium enterprises (SMEs). METABUILD is targeted specifically at the metal industry supplying to the building and construction sector in Bangladesh, Nepal and Sri Lanka.

The overall objectives of the project are

(a) creating resource efficient and cleaner production processes for metal components in the building and construction sector,
(b) contributing to improved environmental quality in the target locations, and
(c) creating improved working and living conditions in the target countries.

Project Partners

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