

CALENDAR 2020



ACHIEVEMENTS



JANUARY | 2020

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HEATING OPTIMISATION



Galvanising unit, Sri Lanka

- Top surface of molten zinc bath covered by a glass wool mounted steel frame, significantly reducing heat energy loss and improving workers comfort
- Annual savings: 8,179 l furnace oil
- Payback: 1 month



Steel industry, Nepal

- Temperature sensors installed in re-heating furnace to avoid overheating; this reduced fuel consumption and furnace firing time
- Annual savings: 29,700 kWh electricity, 34,850 l furnace oil
- Payback: 20 months



Sheet metal industry, Bangladesh

- Steam from boiler used to heat process tanks replacing burners below tanks, reducing heat loss from tank
- Annual savings: 6,686 m³ natural gas
- Payback: 18 months



FEBRUARY I 2020

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WATER SAVING

Cable manufacturing unit, Sri Lanka

- Condensate recovery system installed to divert hot condensate water for boiler; this saves both fuel and fresh water
- Annual savings: 230,000 l water and 3,036 l furnace oil
- Payback period: 2 months



Copper wire manufacturing unit, Bangladesh

- Drain-board installed below wires exiting pickling tank so carry-over acid is directed back into the pickling tank; this reduces spillage and improves housekeeping
- Annual savings: 1,194 l water + acid solution
- Payback period: 4 months



Cable manufacturing unit, Nepal

- Water sump used to collect hot water discharged from the extrusion process; this water is cooled and reused in the extrusion process, forming a closed loop
- Annual savings: 3,000,000 l water
- Payback period: 48 months



MARCH | 2020

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IMPROVED MATERIAL UTILISATION

Electrical panel manufacturing unit, Sri Lanka

- Sheet metal offcuts used to make smaller products such as lamp shades, file holders realising a higher value than scrap sale; some of these new products are gifted to employees
- Annual savings: 120 t steel sheets
- Payback period: 2 months



Cable manufacturing unit, Bangladesh

- Workers were trained for optimal use of welding electrodes before discarding them, thereby reducing electrodes consumption
- Annual savings: 300 kg welding electrodes
- Payback period: Immediate



Fabrication unit, Nepal

- After awareness training, welding electrode utilisation improved, leftover pieces were collected and long left over electrodes were utilized for simple welding jobs
- Annual savings: 564 kg welding electrodes
- Payback period: Immediate



APRIL | 2020

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POWDER PAINT SAVING



Powder coating unit, Sri Lanka

- Hooks shaped with sharp angle to hold objects firmly; this improved grounding, leading to better paint adherence and reduced wastage
- Annual savings: 116 kg powder paint
- Payback period: Immediate



Fabrication unit, Nepal

- After awareness training, air pressure decreased and precautions taken to reduce spillage and over spraying during powder coating
- Annual savings: 92 kg powder paint and 301 kWh electricity
- Payback period: Immediate

Fan manufacturing unit, Bangladesh

- New electrostatic powder coating machine installed to improve powder paint recovery, compared to older machine
- Annual savings: 480 kg powder paint
- Payback period: 12 months



MAY | 2020

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INVESTMENT BASED INTERVENTIONS

Cable manufacturing unit, Sri Lanka

- A 104 kWp roof top solar photovoltaic (PV) system installed; excess electricity produced sold to the national grid
- Annual savings: 152,000 kWh electricity
- Payback period: 54 months



Fabrication unit, Nepal

- Variable Frequency Drives (VFD) installed allowing motor speed to be reduced rapidly while lowering energy consumption
- Annual savings: 1,406,178 kWh electricity
- Payback period: 9 months



Fan manufacturing unit, Bangladesh

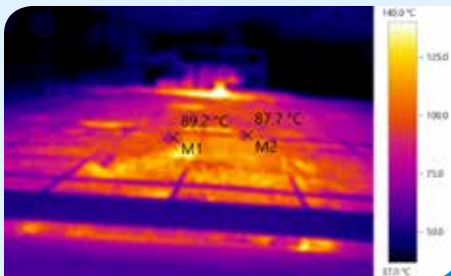
- Gas based generator replaced diesel generator set
- Annual emission reduction: 234 t CO₂
- Payback period: 11 months



JUNE | 2020

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FUEL SAVING



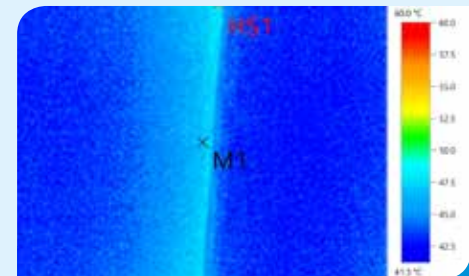
Steel industry, Sri Lanka

- In annealing furnace, refractories replaced inside and glass wool insulation added outside to reduce heat energy loss
- Annual savings: 3,121 l furnace oil
- Payback period: 6 months



Steel industry, Nepal

- Covered storage area with concrete floor provided to reduce quality deterioration and blow off losses of coal
- Annual savings: 45.5 t coal
- Payback period: 7 months



Fan manufacturing unit, Bangladesh

- Ceramic wool insulation provided at the oven surface for reducing heat energy loss
- Annual savings: 1,560 m³ natural gas
- Payback: 1 month



JULY I 2020

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MATERIAL SAVING



Powder painting unit, Sri Lanka

- Length of binding wire for part suspension was shortened and standardised leading to reduced wire consumption and waste
- Annual savings: 245 kg wire
- Payback period: Immediate



Wire drawing unit, Nepal

- New electrical panel board installed to avoid tripping of power supply due to under capacity; preventing power supply disruption led to reduced material wastage due to quality defects
- Annual savings: 165 t wire
- Payback period: 3 months



Spring manufacturing unit, Bangladesh

- Die design modified to better fit part to be cut from the raw material; this reduced off-cuts
- Annual savings: 900 kg metal sheet
- Payback period: 2 months



AUGUST | 2020

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WASTE REDUCTION



Fabrication unit, Sri Lanka

- Manufacture of pavement bricks using accumulated discarded powder paint and cement, mixed in optimum ratio
- Annual savings: 370 kg waste powder
- Payback period: Immediate



Cooling tower manufacturing unit, Bangladesh

- Fixture installed in cutting machine to improve accuracy and reduce waste
- Annual savings: 1,028 kg plastic
- Payback period: Immediate

Cable manufacturing unit, Nepal

- Feeding of copper wire and plastic aligned to produce cable until most of the cable coating plastic material in hopper is utilized; this reduced plastic waste from extruder at end of each batch
- Annual savings: 340 kg polyvinyl chloride (PVC) & cross-linked polyethylene (XLPE) and 12,240 kWh electricity
- Payback period: Immediate



SEPTEMBER | 2020

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ELECTRICITY SAVING



Cable manufacturing unit, Bangladesh

- Extruder insulated with ceramic blanket to minimise heat loss and temperature monitoring system installed to control overheating
- Annual savings: 675 kWh electricity
- Payback period: 5 months



Wire drawing unit, Nepal

- Phased replacement of old motors by high grade energy efficient motors - 45 motors out of 400 replaced in first phase
- Annual savings: 205,518 kWh electricity
- Payback period: 8 months

Steel industry, Sri Lanka

- Replacement of fibre based bearings by ball bearings in a 600 kW motor, reducing electrical load by ~50%
- Annual savings: 399,840 kWh electricity
- Payback period: 3 months



OCTOBER | 2020

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CHEMICAL SAVING



Wire drawing unit, Nepal

- Mechanical descaling used instead of acid pickling for low carbon steel bars with sufficient level of cleaning
- Annual savings: 232,969 l acid
- Payback period: 1 month



Powder coating unit, Sri Lanka

- Copper rod installed at the electrostatic powder coating booth to ensure adequate grounding of products; this resulted in improved powder adherence, lower wastage
- Annual savings: 440 kg powder
- Payback period: 2 months

Bathroom fittings unit, Bangladesh

- Copper wires replaced with custom designed, re-usable, insulated jigs; insulation prevents chemical reactions thus reducing both chemical and copper wire loss
- Annual savings: 1.8 kg nickel plating solution and 15 kg copper wire
- Payback period: 11 months



NOVEMBER | 2020

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GOOD HOUSEKEEPING



Steel industry, Sri Lanka

- AC filters and condenser fins cleaned and a regular maintenance schedule set up to ensure optimal performance
- Annual savings: 1,905 kWh electricity
- Payback period: Immediate



Steel industry, Nepal

- Leaks in the fume extraction system repaired and maintenance schedule introduced for better working environment



Screw manufacturing unit, Bangladesh

- Specific tools hangers used for orderly storage, leading to reduced search time



DECEMBER | 2020

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• 25 Christmas Day



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

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

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