Cleaner Production Case Study

Upgrading Process Machinery

This series provides examples of PaCT's advisory work with clients to implement Cleaner Production solutions in the Bangladesh textile wet processing sector.

Old Machines Cost High

Textile processing is notorious for its energy and water intensity, consumption of a large variety of toxic chemicals, and for its high pollution load. This consequently raises the cost of resources and further makes it difficult for factories to comply with pollution discharge limits. In many cases, it is possible for factories to reduce costs by optimizing processes. One of the ways of doing so is by replacing old machines.

Benefits of Investing in New Equipment

In textile wet processing, annual operating expenses for old machinery are often higher than capital expenditure plus annual operating cost required for new, more efficient machines.

Upgraded machinery support

- higher productivity
- lower liquor ratios
- shorter lead time
- high quality textile production

Cleaner Production (CP) is an integrated strategy to maximize profits by making more efficient use of inputs (such as energy, water, raw materials), while maintaining or increasing production and minimizing waste and pollution at source.

PaCT Partnership for Cleaner Textile

The Bangladesh PaCT: Partnership for Cleaner Textile is a holistic program that supports textile wet processing factories in adopting cleaner production, and that engages with brands, government, communities, financial institutions, and other stakeholders to bring about systemic, positive environmental change for the Bangladesh textile wet processing sector, its workers, and surrounding communities, and to contribute to the sector's long-term competitiveness.

Three Ways to Boost Process Efficiency

Retrofits: Factories can occasionally save large volumes of water with low-cost and no-cost modifications of existing machines, such as installing a standalone PLC controller or central dye house controller.

Replacement: Modern wet-processing machineries use low liquid ratio and consume less gas, electricity and water. Cost savings from these resources add up fast. Advanced automation increases reliability and product consistency. Payback period on such investments is typically less than 3 years.

Enterprise Resource Planning: Enterprise Resource Planning (ERP) software monitors resource use in real time, enabling a factory to identify potential savings, evaluate investment opportunities and improve efficiency of wet processing.

See how Fakir Apparels Ltd. managed to reduce water consumption

Client Spotlight: Fakir Apparels Ltd.

Fakir Apparels Limited (FAL) is one of the pioneers in the wet processing sector in Bangladesh. Its daily average production is 13.5 tons. The factory has several different brands of dyeing and finishing machines, which have been in use for a long time.

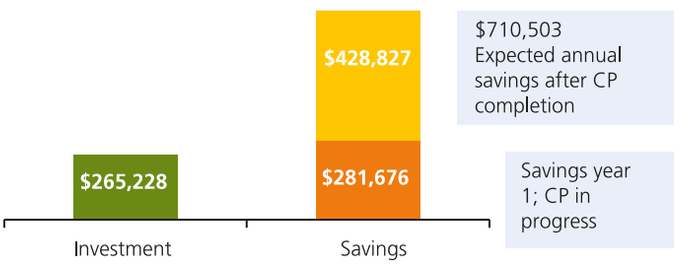
Challenge

FAL worked with PaCT experts to complete a detailed resource use assessment. PaCT experts identified scopes to improve resource-efficiency, lower costs and raise profits.

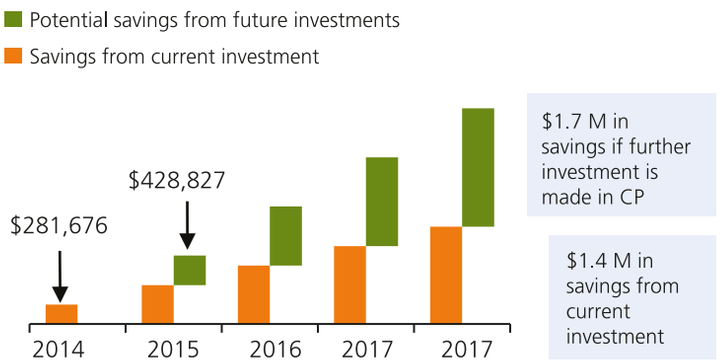
Equipment Upgrades – A Smart Choice for FAL

The assessment revealed that total water consumption within FAL's dyeing processes was very high. FAL implemented most of the measures recommended by PaCT project and invested approximately US $265,000 for factory improvement. This resulted in FAL saving approximately US $282,000. The payback period for initial investments was under 6 months.

FAL's investment in equipment upgrades versus savings from CP



FAL's savings over 5 years based on current investment and potential future investments



Key Efficiency Measures

FAL is in the process of installing a computerized-greenfield dye house with

- Central dye house controller
- Waste heat recovery boiler
- New dyeing machines
- Thermal oil heater
- Hot water module
- Auto dispensing system
- Stenters

FAL's water consumption per kg finished fabric

Client Results

- Payback period of only 6 months
- Savings of about US $282,000
- Reduced water consumption resulting from upgraded machinery

General Manager
Textile
Fakir Apparels Ltd.

"The CP measures are easy to implement, besides, the return is very quick. We plan to implement more of these measures in the future."

Upgraded Process Machinery Help FAL Save

FAL installed new wet-processing machinery and achieved reduction in water consumption. FAL's results demonstrate that resource savings are possible, provided the factory is committed to implementing cleaner production techniques and have the mindset to invest.