

# Cleaner Production Case Study

## Metering Resource Usage

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

### Improving Factory Efficiency

Many textile factories realize the embedded costs of water, energy and other resources in the production process. For instance, water is free, but pumping, treating, heating, cooling and/or discharging it incur real costs to a factory owner. Efficient use of resources and identification of potential opportunities can save factories money. But how does a factory identify opportunities that result in high savings?

### Meter Your Inputs

The best way to identify and reduce the cost of resources is by metering the amount of raw materials used to manufacture the product. Accuracy and reliability of data play an integral role in efficient management of a factory. Reliable data help the factory management team to get an overall picture of how efficiently the factory is operating and identify scopes for improvement.

#### How Does Metering Help?

- Allows factories to calculate the true cost of a resource by following its use through the production line
- Enables factories to complete water and energy balance
- Helps factories to benchmark their performance against competitors and measure subsequent improvements
- Assists factories to allocate resources effectively by identifying high priority, high return areas for improvement
- Better efficiency in the use of resources leads to savings in the cost of raw materials
- Allows factories to identify leaks in buried water pipes

**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.



**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.

### Implementing a Metering Project

Implementing a comprehensive metering system is straightforward, but requires dedication and focused effort by the factory management team.

- **Prepare** diagrams showing energy and water flows through the factory. Select the best locations for meters.
- **Prioritize** flows and parameters to measure and record – i.e., boiler efficiency, total raw water or cooling water return rate.
- **Determine** data requirements – i.e., calculating boiler efficiency will require measuring flow rate and pressure of both gas and steam, as well as volume and temperature of makeup water.
- **Analyze** degrees of freedom to determine number of flow meters needed for a department, section or factory.
- **Select** appropriate meters for measuring water, steam, gas and energy. Good quality meters from reliable manufacturers offer the best investment as they are durable and provide dependable data.
- **Install** meters as per manufacturer's instructions.
- **Maintain** and periodically calibrate meters to ensure consistently reliable readings.
- **Record** metered data consistently. Data need to be checked for ensuring reliability.
- **Use** the data. Simply installing meters will not bring changes. How effectively factory management uses the information determines the factory's efficiency.



Metering helps recording reliable data.

See how Aboni Textiles Ltd. managed to reduce resource consumption

## Client Spotlight: Aboni Textiles Ltd.

Aboni Textiles Ltd. (ATL) produces an average of 12 tons of finished fabric per day. ATL kept knowledge in energy conservation and general process efficiency before working with the CP team.

### Challenge

Inadequate data was impeding ATL's strategic planning for future reduction, reuse and recycling efforts. The factory had poor monitoring on generator loading, boiler efficiency and dye-house soft water consumption only. The data recorded were unreliable and kept the factory from prioritizing improvement opportunities and potential savings.

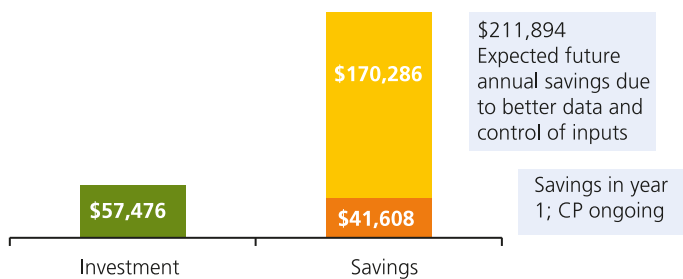
### Metering - The First Step for Benchmarking

PaCT experts advised a comprehensive meter installation strategy to measure ATL's energy and water consumption. By following the recommendations, ATL's management was able to obtain reliable data and use them to establish benchmarks. The strategy further enabled ATL to identify resource savings opportunities throughout the factory and set the platform for continuous improvement.

### Saving Resources, Seeing Results

ATL invested approximately US \$57,000 to implement the recommendations, of which about US \$23,000 was invested in meters. Within the first year, the company saved over US \$41,000. The payback period was approximately 18 months. With the benefit of reliable data and a scope for continuous identification of improvement opportunities, ATL's savings is expected to increase every year afterwards.

### Aboni's investment versus savings from CP



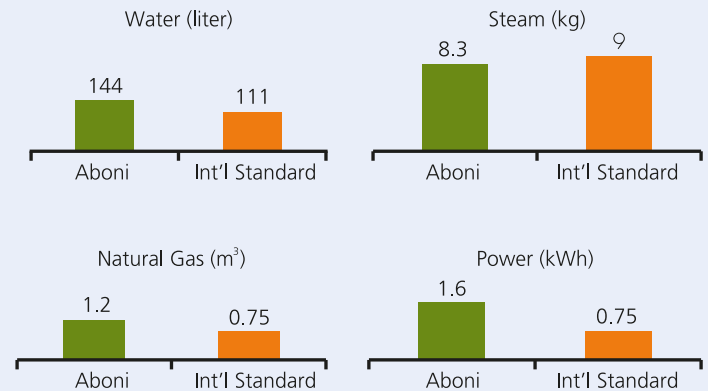
### A Mindset for Success

Commitment is an important per-requisite for the successful implementation of a cleaner production program. This commitment was reflected in ATL's interest in making investments in installing meters.

### Key Efficiency Measures

- Installed 7 new gas flow meters
- Installed 2 new steam flow meters
- Installed 10 new water flow meters
- Installed 8 new electricity meters

### Aboni's resource use per kg of finished fabric versus international standards



### Client Results

The metering strategy enabled ATL to

- Reduce soft water consumption
- Perform production analyses
- Effluent Treatment Plant (ETP) inlet and outlet water quality analyses
- Perform boiler efficiency, loading and performance analyses
- Perform generator efficiency, loading and performance analyses
- Perform gas consumption analysis throughout the factory
- Conduct steam production analyses
- Water balance
- Energy footprint

### Director

Aboni Textiles Ltd.

*"By implementing CP suggestions, we got good economic, environmental and social benefits."*

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