

PRINCIPLES OF LEAN MANAGEMENT SYSTEM

Towards Optimizing Capital and Operating Expenses and Ensuring Model Sustainability

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KEY INSIGHTS

- There are many immediate opportunities to make the capital and operating costs LEAN.
- Capital costs have two major components: civil works and equipment.
- In case of civil works, the major time and money deployed is through room building and tiling it to meet the specifications.
- In Equipment, there are four major items: HP pump, Codeline side port housing, Hydranautics Low Energy membranes and RMS (Remote Monitoring System) that form a major part of the equipment cost. Each of these components cost just below Rs.1Lac (\$2000).
- Power Conditions make it necessary for us to provide protection (VMR) and in some cases, Automatic Voltage Regulator. We are classifying plants where the expensive AVR is installed and is not done uniformly across the plants. However, we need to develop a model where each of the power conditioning option has to be deployed rather than it being done basis the demand from the station.
- Plant Specifications are also designed to meet high TDS specifications; thereby requiring high wattage HP Pump as well as MOC (Material of Construction) of SS 316. We might build a structure of plants specifications to be used specific to the water quality rather than giving one high specification plant at all the locations. This grid also needs to be developed.

Summary

The basic tool of Lean Management is ECRS – Eliminate, Combine, Reduce, Simplify. The focus is on reducing waste in the system, be it in operations or in management. We need to, therefore, look at all program areas to make them “Lean”:

1. Capital
2. Operating cost
3. Transportation
4. Motions of Operators within Safe Water Stations
5. Reduce over-production to avoid waste
6. Optimize inventory
7. Reduce waiting time of the consumers to enhance consumer experience
8. Reduce defects
9. Enhance skills of current staff and more importantly, that of new people that come in Safe Water Network, Partner organization, franchise operations, safe water station operation or interns.

Program Summary

- **Objective:** Optimize costs, both capital and operating to make the model economically sustainable and scalable.
- **Scope:** Water Treatment Facilities
- **Intervention:** We are currently using reverse osmosis technology with standard configuration across all safe water stations.

Studies recommended

1. Need to see if each of the following are competitive advantages or merely a cost – RMS, international manufacturers, system protection, etc.
2. Lean Product Design using Spaghetti diagram for water flow in order to reduce loops

3. Study of comparative membranes and their characteristics and relative pricing to recommend what membranes to use in future
4. Comparative HP Pump and Motor for costs (Capital and operating)
5. Side port housing versus end port housing
6. RMS benefits versus each component cost: Output cost benefit analysis.
7. Use of Interns to do most of the above projects: develop an Intern engagement study
8. In developing involve all the field personnel to get their inputs
9. Developing consumer engagement evaluation formats for interns or mobilizers to fill in
10. WRM benefits and use of specialist interns

Lean Tools

Following tools are generally used:

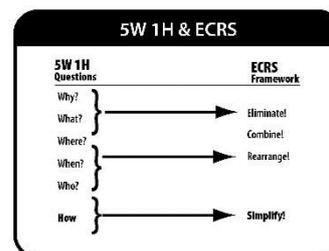


Figure 1: Lean Tools

What's Next?

Get technically qualified resource in each area, either within Safe Water Network or through its Technically Qualified Partners (viz. Pentair) or engage engineering college students as interns, depending upon the extent of expertise required to assess the specific problem or challenge. Also work on getting funding for this two year initiative.