

One Page Summary

It Takes A Lot Of Blue To Stay Green !!

Mahindra Vehicle Manufacturers Ltd. is driven by Mahindra & Mahindra Group Sustainability Framework. The guiding principle is "Building enduring businesses by rejuvenating the environment and enabling stakeholders to Rise."

Automobile industry (OEM), is not a water intensive industry, but still require considerable amount of water. United Nations Sustainable Development Goal 12, calls for "Responsible Consumption & Production". We leveraged the principles of Group Sustainability Framework, Quality Management System and started looking at water from different perspective. Since MVML is ISO 9001/14001&OHSAS 18001 certified company, we closely worked on PDCA principles to understand the gaps and opportunities.

Problem Statement :- Water availability, a threat to business

- MVML is located in Chakan, Pune, Maharashtra State. It is becoming automobile hub of western parts of India.
- **It is evident**, Rapid industrialization and urbanization are causing burden on fresh water sources. Today even though, Maharashtra Industrial Development Corporation (MIDC) is supplying water for industrial operations across Chakan, during water crises in future, MVML may face challenges from water management perspective.
- We studied NITI AAYOG report on water – composite water management index 2018, it was evident from the report that, 40% of Indian population will not have access to clean water & 6% GDP will be lost by 2050 due to water crises.
- As per Mckinsey report also, Business's as Usual approaches will not meet demand for water hence, **we decided to take quantum jump in water conservation initiative which will help us to achieve our long term target of "becoming water positive"**
- We decided to work on two fronts a) Creating own source of water – rain water harvesting b) Conservation program inside the plant.

Steps Taken with application of QMS philosophy: We approached the problem statement with **QC STORY APPROACH**.

- Brain storming session, Cause & Effect Diagram
- Hypothesis of all possible causes to identify "valid" & "invalid" causes. We did root cause analysis for all the valid causes.

Results :-

A) Rain Water Harvesting:-

- We decided to CHECK OUR MASTER PLANNING and identified Low lying North gorge area for RAINWATER HARVESTING, which is otherwise hostile for use for setting up manufacturing facilities, but has excellent potential for rain water harvesting.
- After detailed geological investigations, we constructed "An introjected Back fill Dam", to store the water.



Intra Back dam has been built with patented technology of Introjected Backfill walls. This technology has been applied for the first time for this kind of application.

Project benefits :-

PEOPLE :

- An alternate source of water having capacity **1,00,000 Cu. Mtrs.** is created inside the premises.
- Use of rain water for secondary applications initiated.
- Possible reduction in dependability on MIDC atleast for **45 days** with current production level.

PLANET : Creation of Biodiversity park.

Planning for future:- Height of the rain water harvesting structure is 11 mtr, with storage 1 Lac Cum of water. It is expandable to 13 mtrs which will increase the capacity from 1 Lac cum to 1.5 Lac cum in future.

B) Reduction in Plant water consumption.

Steps Taken with application of QMS philosophy: We approached the problem statement with **REGRESSION ANALYSIS**.

Results :- Reduction trend of overall water consumption in Cum per equivalent vehicle

Reduction in Domestic water consumption:- (From 2.78 Cum per Eq.Veh to 1.55 Cum per Eq.Veh.)

Based on above tool, QC story approach & 3R (Reduce, Recycle, Reuse), ideas implemented at shops are,

- Reduce:- Distribution Pressure & flow Optimisation, Water efficient nozzles, aerator
- Recycle – Single pass to partial dual pass
- Reuse – Reuse of final assembly line shower test water.
- Substitute – Use of rainwater for toilet flushing.

We got phenomenal results and water consumption per capita of sample shop came down from 45 lit to 33 lit per person. We horizontally deployed the ideas and reduced the domestic per capita water consumption upto 35 lits across MVML.