



# **Sustainability**

**Plant Location : MVML**

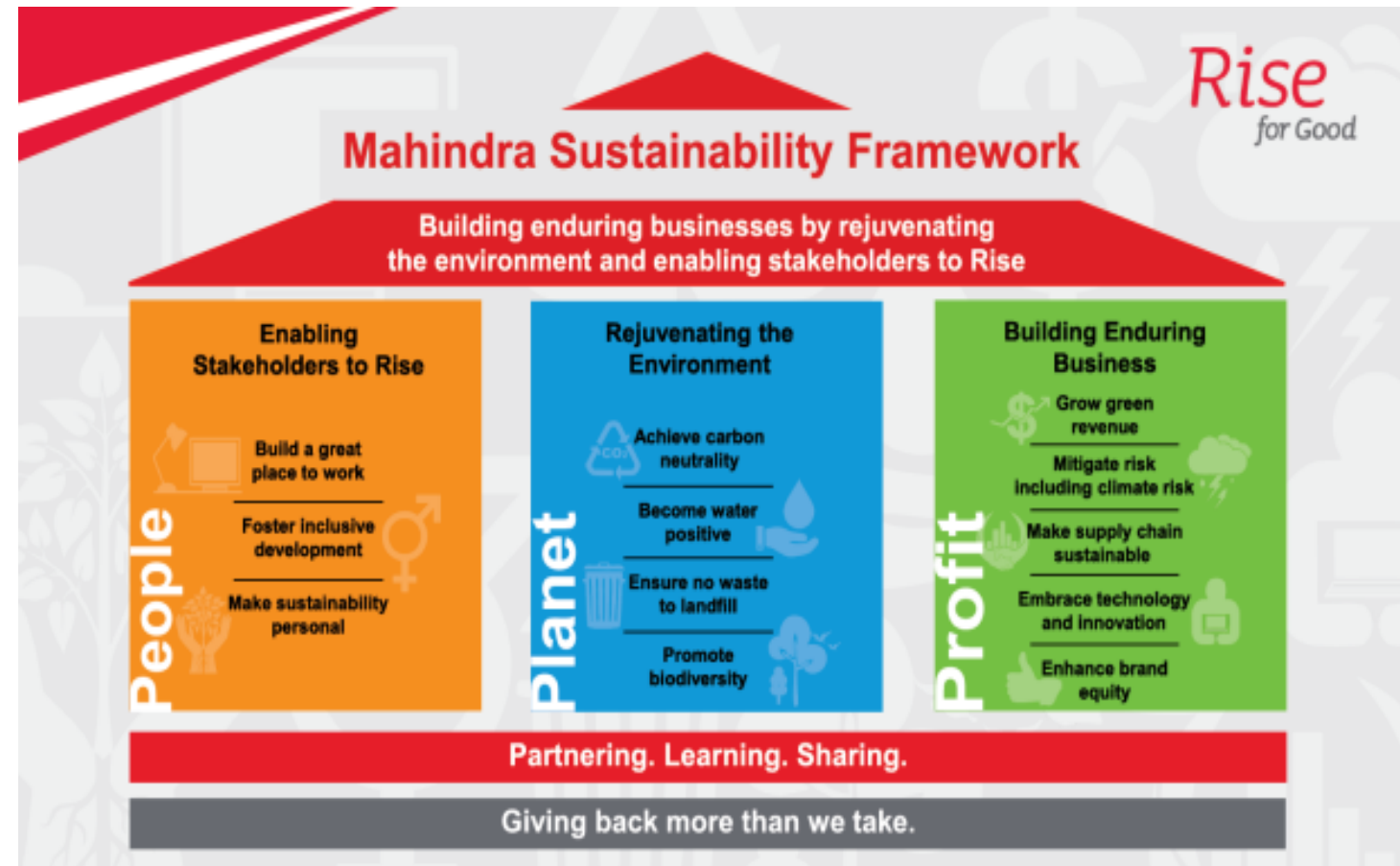
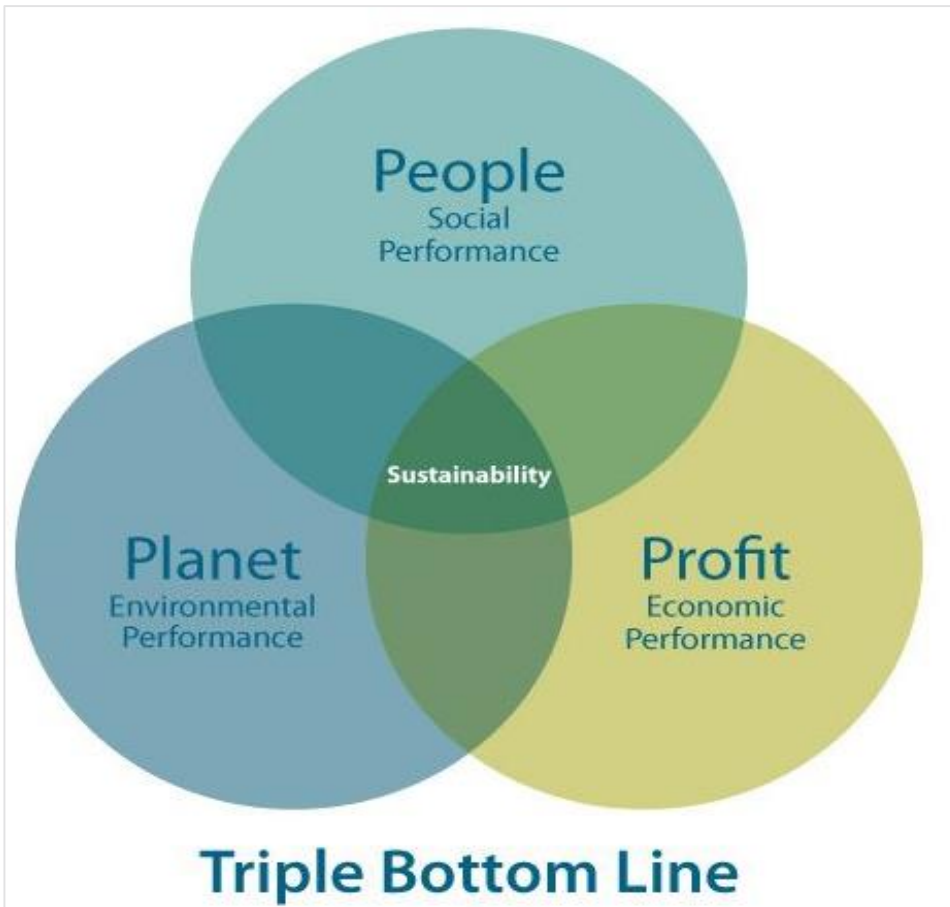


# SUSTAINABILITY

## FRAMEWORK & OBJECTIVE

### Mahindra Sustainability Framework

*Building enduring businesses by rejuvenating environment and enabling stakeholders to rise*



### MVML Objective

*Sustainable development by striking right balance between Economic, Environmental and Social performance*

# **SUSTAINABILITY**

## **FOCUS AREAS**



***Reduction in Sp.  
Electrical Energy  
Consumption***



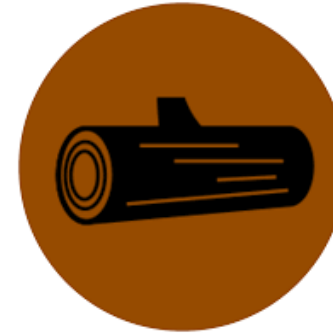
***Reduction in  
Carbon Foot  
Print.***



***Reduction in  
Sp. Water  
Consumption***



***Reduction in  
Sp. Hazardous  
Waste***



***Reduction in  
Wood  
Consumption***



***Reduction in  
Paper  
Consumption***

# **REDUCTION IN SPC.ELECTRICAL ENERGY CONSUMPTION**

***Process Adopted***



***Reduction in Sp.  
Electrical Energy  
Consumption***

***Energy  
Management***

- *Daily MIS to all HOD's.*
- *Daily discussions in production meeting about energy consumption.*
- *Weekly meetings with energy champions.*
- *Monthly Sustainability score card presentation to plant head.*



# SUSTAINABILITY PROJECTS IMPLEMENTED



**Reduction in Carbon  
Foot Print.**

**Renewable Energy**

<i>Fiscal Year</i>	<i>Projects Implemented</i>	<i>Status</i>
<i>Till FY-16</i>	<ol style="list-style-type: none"> <li><i>Clique Solar integration for aggregate washing machines</i></li> <li><i>Solar Concentrator-70 Nos for ED Bath VAM</i></li> </ol>	<ol style="list-style-type: none"> <li><i>Completed</i></li> <li><i>Completed</i></li> </ol>
<i>FY-17</i>	<ol style="list-style-type: none"> <li><i>350 Kwp Solar Plant inside MVML</i></li> </ol>	<ol style="list-style-type: none"> <li><i>Completed</i></li> </ol>
<i>FY-18</i>	<ol style="list-style-type: none"> <li><i>2.1 MW Wind Mill outside MVML</i></li> </ol>	<ol style="list-style-type: none"> <li><i>Completed</i></li> </ol>
<i>FY-19</i>	<ol style="list-style-type: none"> <li><i>1 MW Roof Top Solar plant</i></li> </ol>	<ol style="list-style-type: none"> <li><i>Completed</i></li> </ol>
<i>FY-20</i>	<ol style="list-style-type: none"> <li><i>6 MW Rooftop Solar</i></li> </ol>	<ol style="list-style-type: none"> <li><i>Proposed</i></li> </ol>



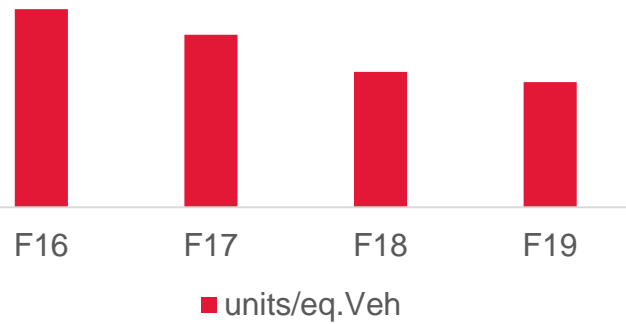
**Reduction in Sp. Electrical Energy Consumption**

**Energy Management**

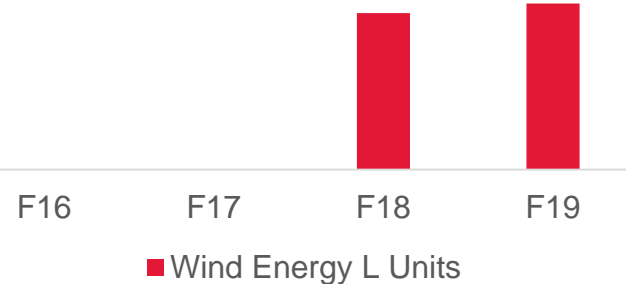
**Reduction in Carbon Foot Print.**

**Renewable Energy**

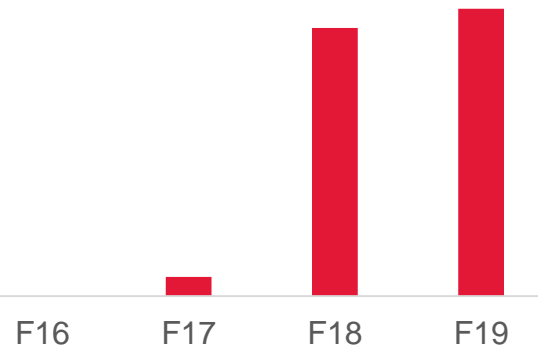
**Sp. Electrical Consumption**



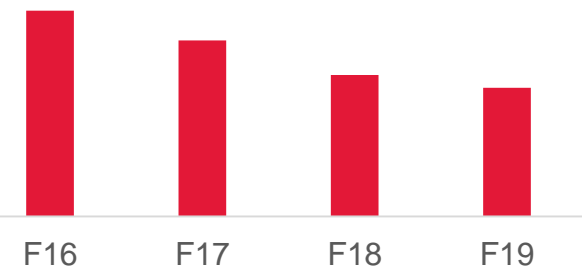
**Wind Energy (Lac Units)**



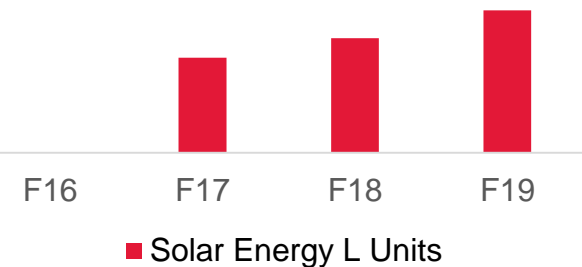
**(Wind + Solar) (% Rise YOY)**



**Reduction in Sp.GHG MT/Eq. Veh.**



**Solar Energy (Lac Units)**



## Intelligent Flow Controller



**Reduction in Sp.  
Electrical Energy  
Consumption**

**Energy  
Management**



## Schmalz Air Injector



**Reduction in Sp.  
Electrical Energy  
Consumption**

**Energy  
Management**



- *Material pick and drop application require suction cup for lifting.*
- *Air was getting consumed continuously during suction operations*
- *Ejector is a mechanism where this continuous air loss is eliminated.*



## ECO Air Circulator



**Reduction in Sp.  
Electrical Energy  
Consumption**

**Energy  
Management**



- *Installed 80 Nos at offices. 120 are in process.*
- *For cluster of 4 cubical, one fan is sufficient.*
- *AC's are switched off after 5:30 pm.*
- *We run the fan to have a fresh air circulation after 5:30 pm.*



**Reduction in Sp.  
Electrical Energy  
Consumption**

**Energy  
Management**

Energy Conserving Product Display



Sustainable Habitat explained



Chairman Visiting Sustainability Stall



External Faculty on board



Students at ECON Function.

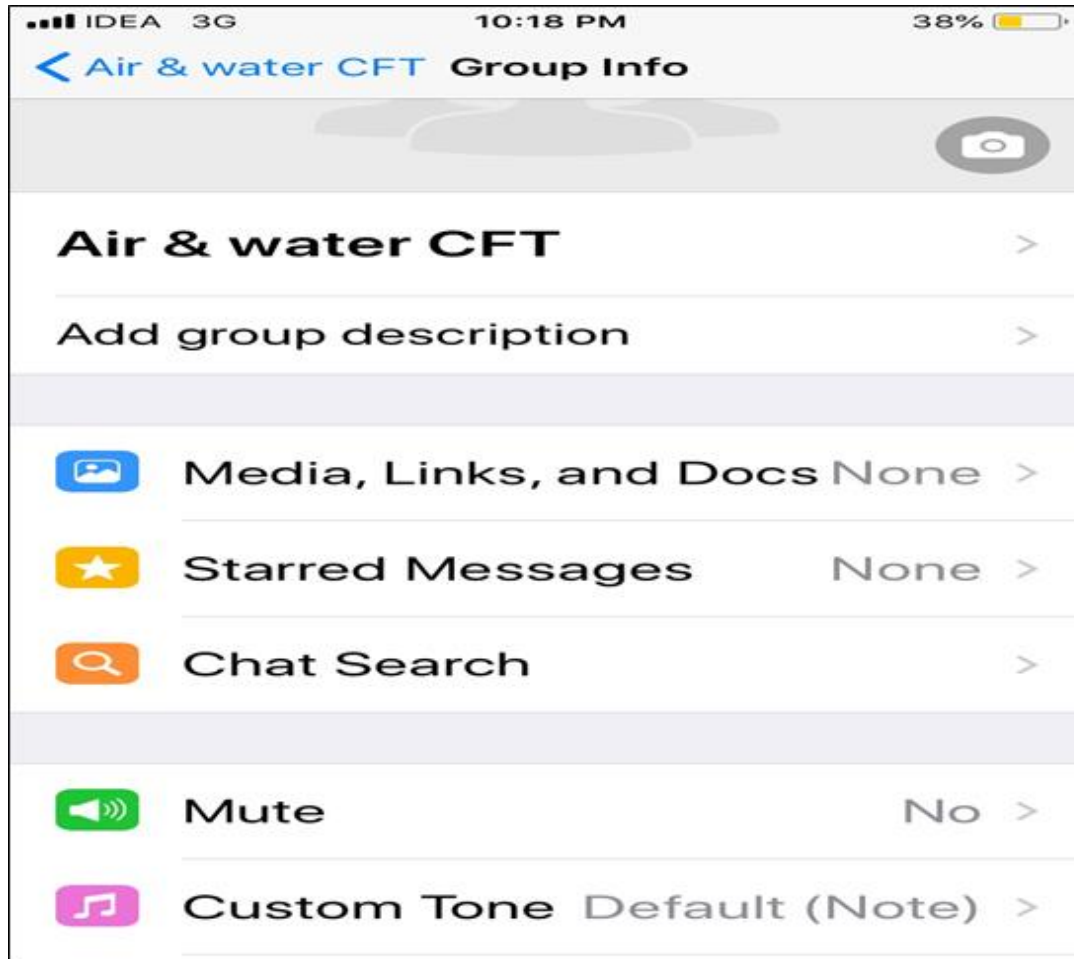


Sustainability awareness



# REDUCTION IN SPC. WATER CONSUMPTION

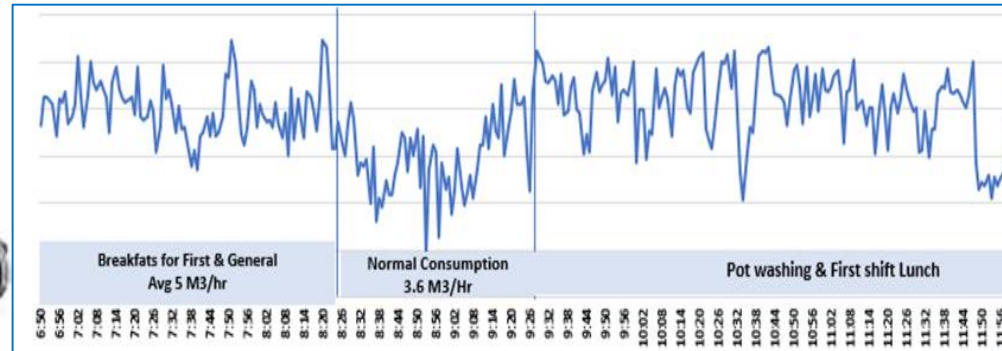
## WhatsApp group for quick response



***More than 2000 Leakages have been attended***

# REDUCTION IN SPC. WATER CONSUMPTION

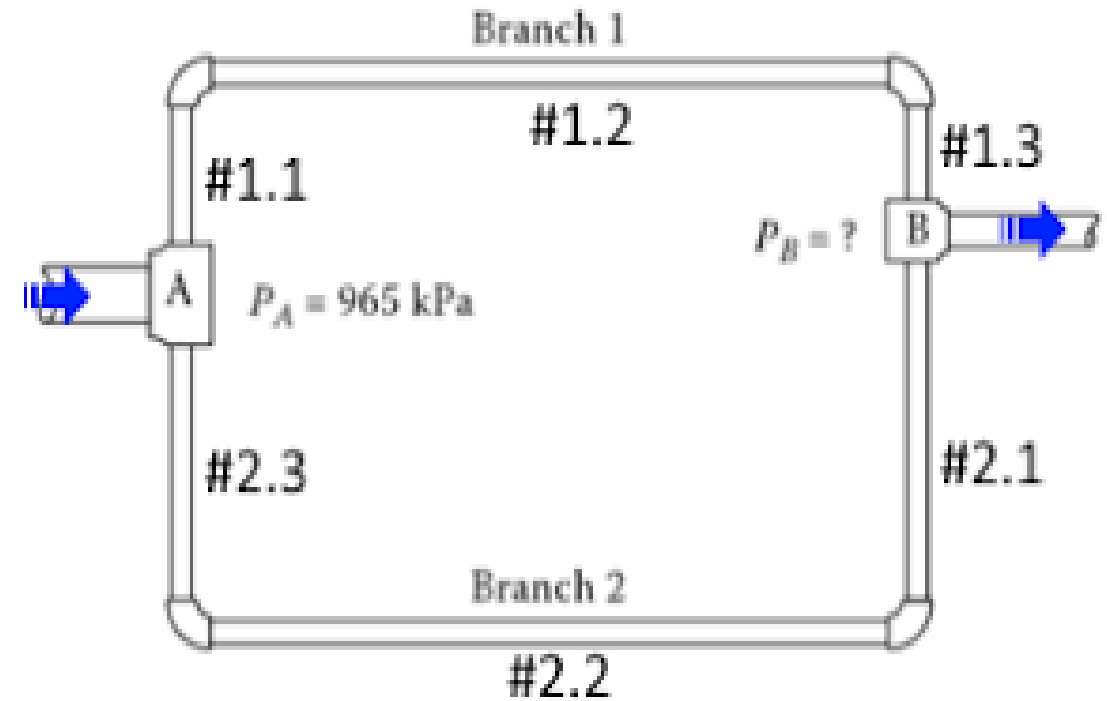
## Initiatives 01 – Pressure Optimization



Measurement through Ultrasonic Flow Meter



Gravity Feed System



Piping Network Analysis and Ring Main Architecture



# REDUCTION IN SPC. WATER CONSUMPTION

## Initiatives 02 – Flow Optimization, Nozzle replacement



### NOZZLES

Flow Before LPM	Flow After LPM
4	2

### AERATORS

Flow Before LPM	Flow After LPM
10	5

### ORIFICES

Flow Before LPM	Flow After LPM
10	5



Two Litre reduction per Flush

*Total 765 Nos fitted  
across all Toilets, Wash  
basins & Dining Halls*

# REDUCTION IN SPC. WATER CONSUMPTION

## Initiatives 03 – New Technology/Products:-Delta Fibalon Filter Element at WTP

- New generation filtration media.
- Replaces Conventional Sand.
- Superior than sand. Filters SS upto 8-10 micron size.

Type

MOC

- Manufactured from Polymer fibre.
- fused with silver phosphate glass (a biocide).

- **Fresh Water saving.**

Water Saving

Microbial Growth, Odour

- Biocide counters microbial growth.
- Reduces Odour

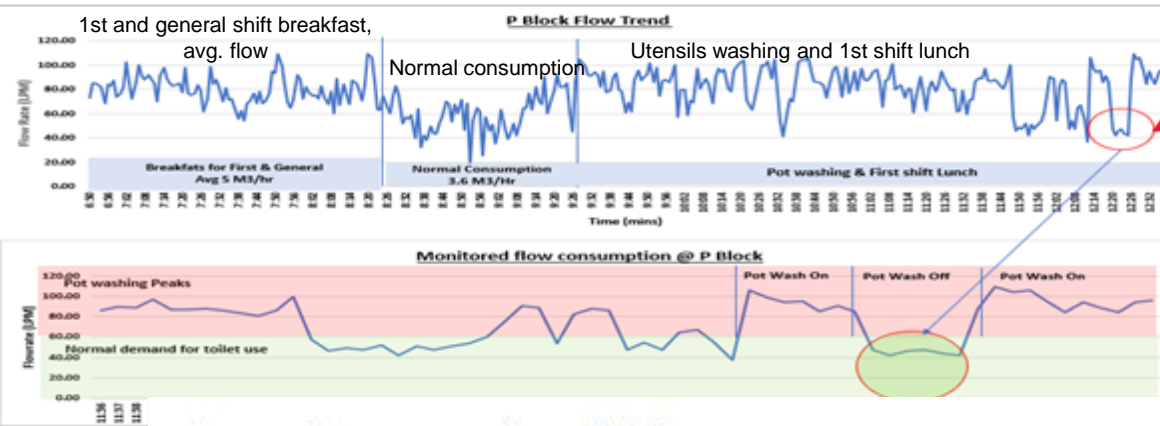


# REDUCTION IN SPC. WATER CONSUMPTION

## Initiatives 04 – In House Mist Spray Nozzle

There is drastic reduction in Water consumption..

Problem : High flow and Low Pressure



### Implemented Idea :

In house mist spray nozzle developed to reduce free flow of water.

Due to high water pressure, the cleaning is good. Flow reduction 50%





# REDUCTION IN SPC. WATER CONSUMPTION

## Initiatives 04 – In House Mist Spray Nozzle

Conventional Method :

Water is wasted due to excess flow



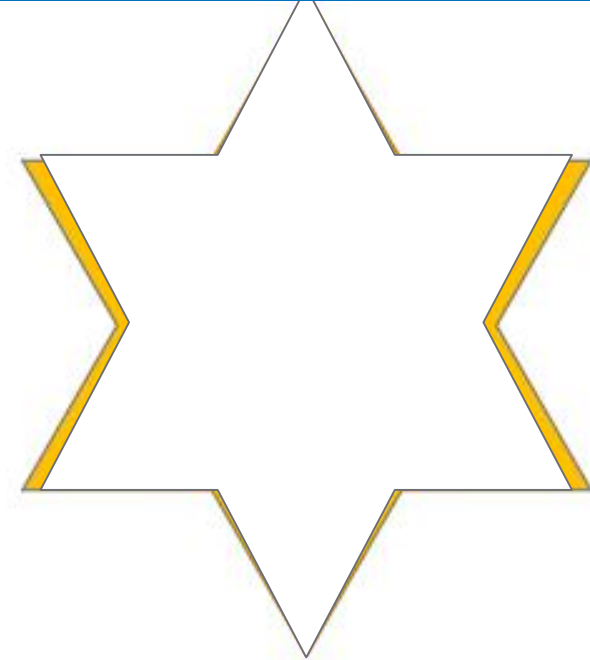
100 Litres/Min Flow

Frugal Method :

Mist spray nozzle developed inhouse



50 Litres/Min Flow



Awareness program to Dining Hall Employees

These ladies are being rewarded for their efforts towards water conservation





# REDUCTION IN SPC. WATER CONSUMPTION

## Initiatives 05 – Auto Panel Cleaning



### Conventional Method :

Manual Labour cleaning the Solar Panels with Water Jet

### Out of Box Method :

Automatic panel cleaning with motorized brushes (No Water)

Yearly Saving 500 M3

# REDUCTION IN SPC. WATER CONSUMPTION

## Awareness trainings

Awareness training to change the behavioral aspects:

Mega Awareness Session in all Shops



### *Behavioural Change*

Importance of Water conservation.

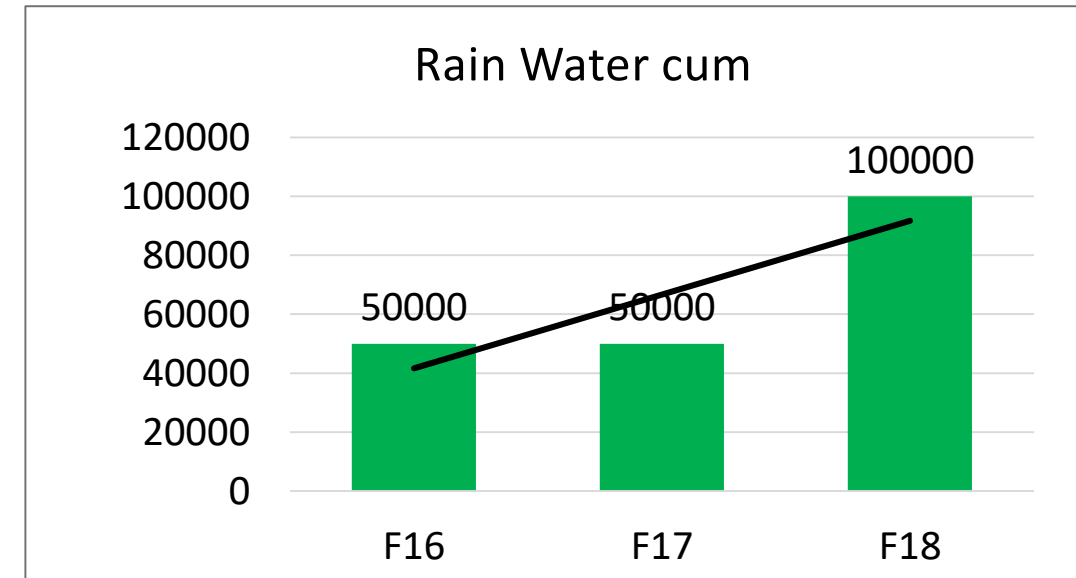
Present water situation in Maharashtra.

What one can do to control the usage etc

# Rejuvenating the Environment

*Becoming Water Positive*

*Rain Water Harvesting*





# REDUCTION IN SPC. WATER CONSUMPTION

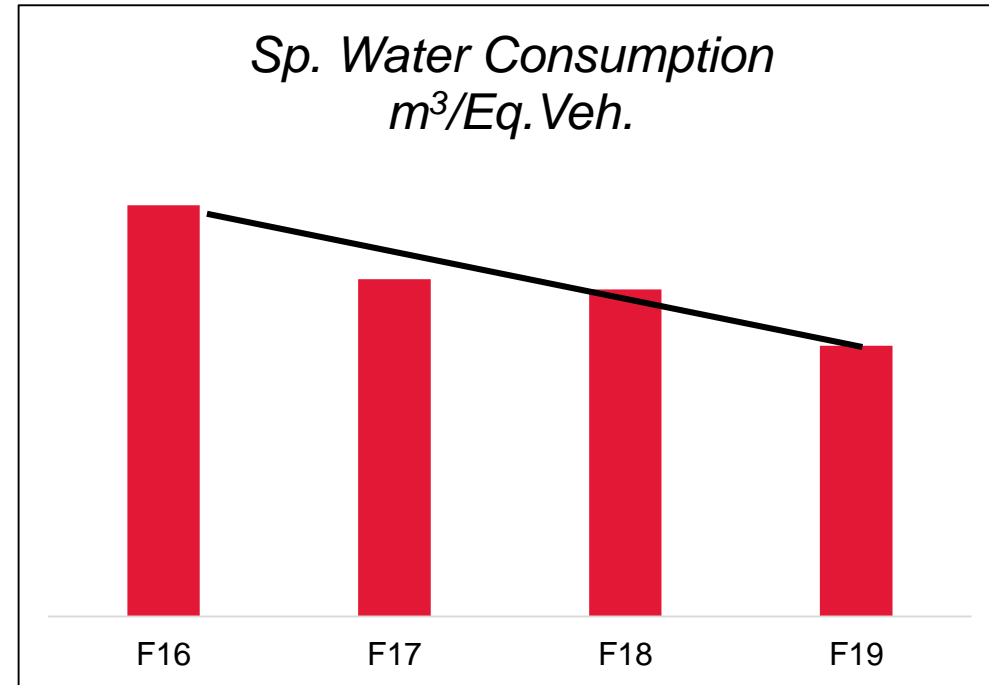
## RESULTS

### Improvement in Process water reduction

Sr No	Project Details	Annual Saving of Water m <sup>3</sup> /year
1	Dry Booth	
2	Reuse of Rinse IV Waste water in to Rinse II	
3	Recycling of Water at Vehicle dispatch Yard	

### Improvement in Domestic water reduction

Sr No	Project Details	Annual Saving of Water m <sup>3</sup> /year
1	Installation of nozzles, orifices, aerators across all Toilets, Wash basins & Dining Halls	
2	In house mist spray nozzles	
3	Auto Panel Cleaning	
4	Fablon	

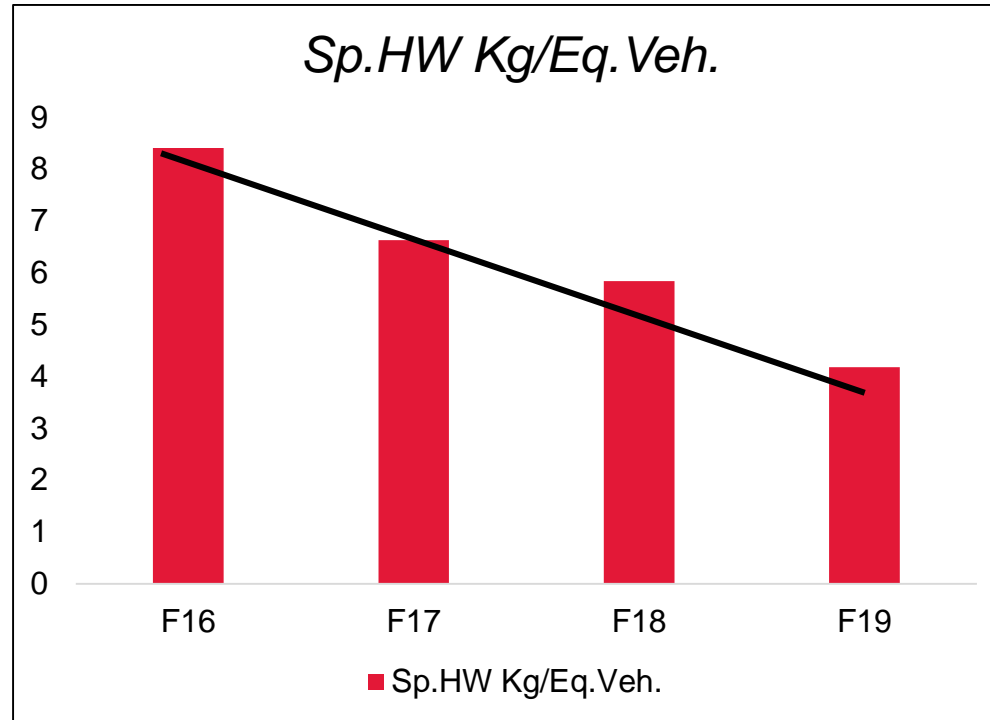




# REDUCTION IN SPC.HAZARDOUS WASTE



**Reduction in Sp.  
Hazardous Waste**



## **Cotton Waste:-**

- Segregation of Waste.
- Reuse of Overalls & lint free cloth at paint shop.
- Washing of gloves and reuse.
- Tighter control by SCM and paint shop.

## **ETP Sludge:-**

- Open air & solar drying by solar dish to reduce the moisture content.
- Modification in Pre Treatment tunnel to reduce carry over.

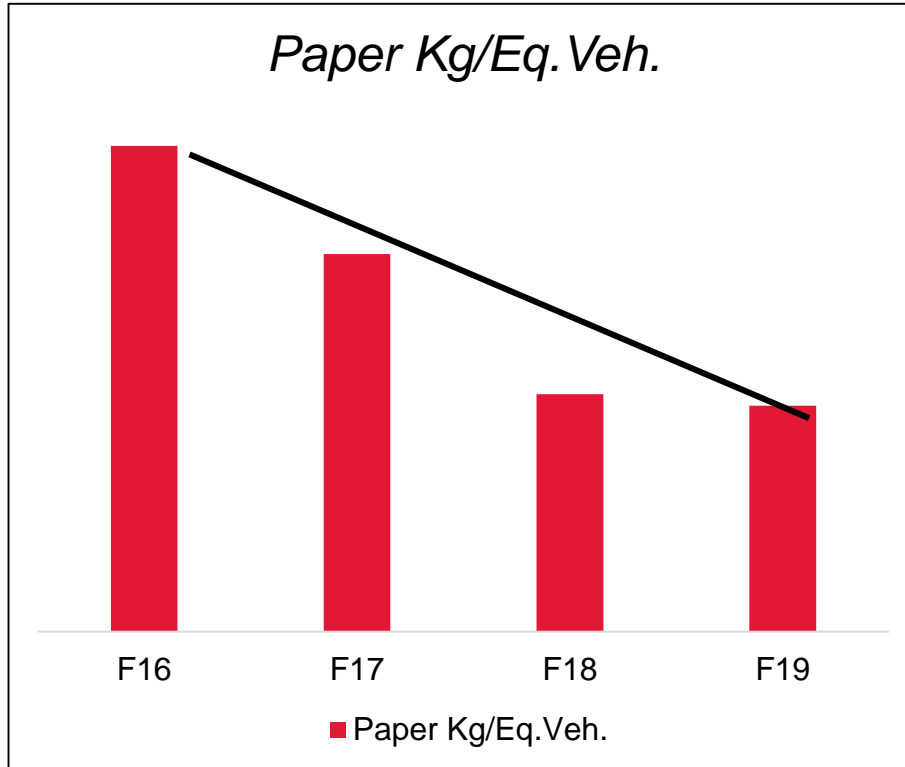
## **Sealant Waste:-**

- Commonisation of stiffener pad and strip
- Aluminum cartridge usage and filling of same inhouse with drum.
- Sealer Extraction from drum through sealer extracting machine.
- Collection of sealer in drum during flushing till cut-off of plasticiser.

# REDUCTION IN PAPER CONSUMPTION



**Reduction in  
Paper  
Consumption**



**Before**

*Direct buying by  
individual users*

**Now**

*Central Purchase &  
Issue*

*Online Documentation IMS*

*Tighter control on issuance*

*Paperless audits*

*Both side printing*

# **SUSTAINABILITY AWARDS & ACCOLADES**





# SUSTAINABILITY AWARDS & ACCOLADES

## Best Energy Efficiency Project Competition-2018

**Winner**

**FD Kandivli**

To improve carbon footprint through power conservation in heat treatment

**1<sup>st</sup> Runner - Up**

**MVML**

Carbon footprint reduction by installing air saving ejectors in body and TCF shop

**2<sup>nd</sup> Runner - Up**

**AD Kandivli**

To reduce carbon footprint by using waste to wealth and industry 4.0 concept at compressor house

*Kudos to all  
winners*

**17 Locations across  
M&M participated**

**Mission  
Sustainability**



**Mahindra**  
Rise.



# **SUSTAINABILITY AWARDS & ACCOLADES**



***Mahindra Innovation Award for Rain Water Harvesting***



# **SUSTAINABILITY AWARDS & ACCOLADES**



***Mahindra Rise Award - (Runner up in Driving positive Change)***

# SUSTAINABILITY AWARDS & ACCOLADES



**Admin Building "Hub" is IGBC Gold certified**



# SUSTAINABILITY AWARDS & ACCOLADES



**CII “Green Co-Silver” rated company**

# SUSTAINABILITY AWARDS & ACCOLADES



**Vasundhara Award by MPCB**



# SUSTAINABILITY AWARDS & ACCOLADES



***CII Award - Innovative Environmental Project***



**mahindra**  
*Rise.*