

National Award for Excellence in Water Management – 2007

BOSCH - JAIPUR

COMPANY PROFILE

Established : 1999
 Land Area : 202,350 m2
 Built Area : 30,834 m2
 Employees : 1,380
 Turnover : 8,605 MINR
 Product : Fuel injection pumps

CERTIFICATIONS

ISO 14001:2004
 TS 16949:2002
 OHSAS 18001
 (Under implementation)

MICO - Established in 1951

Single largest Indo-German company and largest auto parts company

Market leader in diesel systems, spark plugs and power tools

All plants TS 16949 and ISO 14001 certified



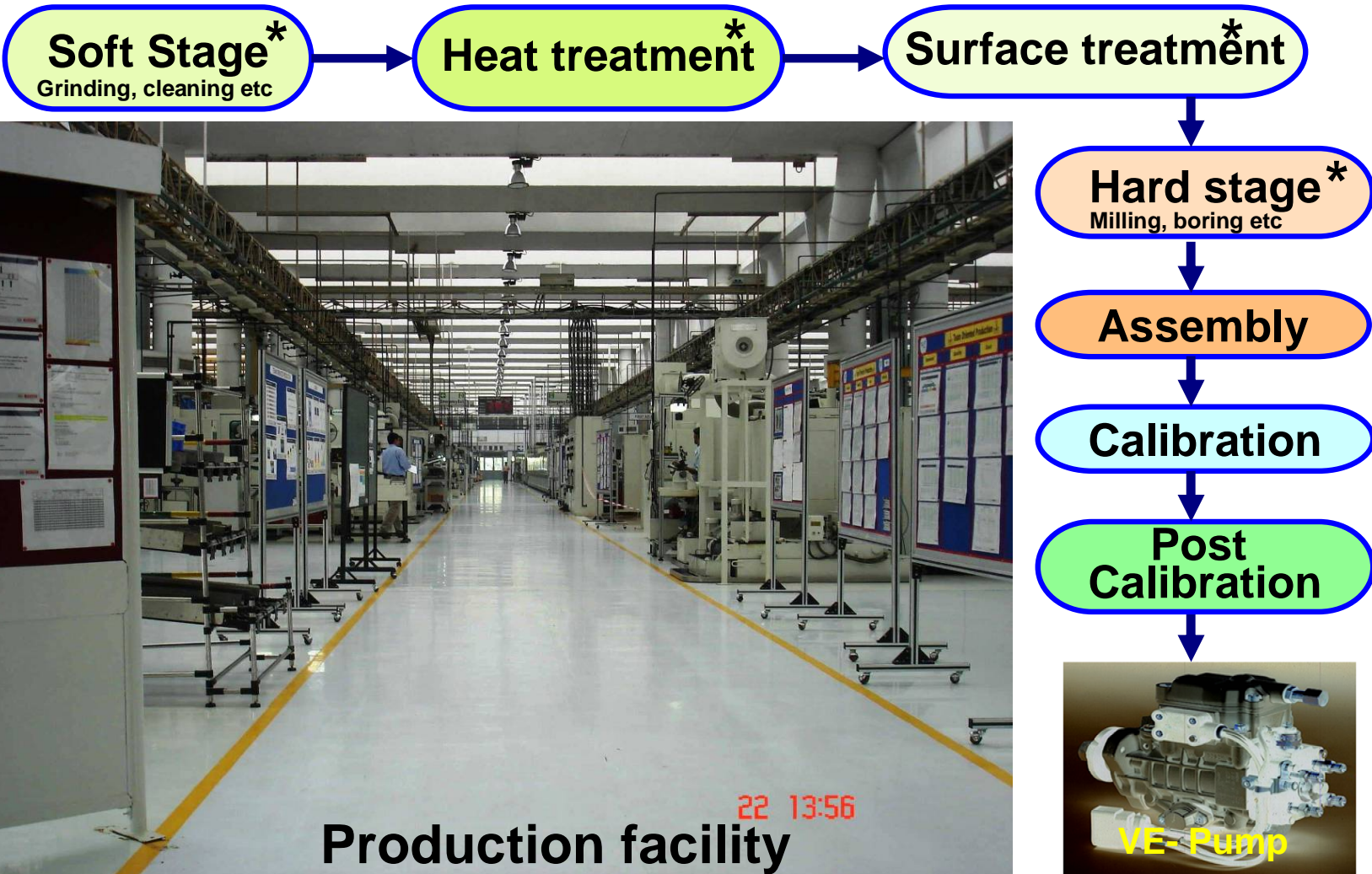
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MANUFACTURING PROCESS



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ENVIRONMENTAL PRESERVATION



Reduction in Specific water consumption
Community partnership and campaigns
Conservation, recycling and auditing



Non-conventional energy sources
Usage efficiency
Monitoring , auditing and awareness



Minimize and recycle
Technology up gradation
Vendor/supplier audit



Tree plantation
Minimize Green house gases (GHGs)
Awareness to employee/society

FUTURISTIC APPROACH



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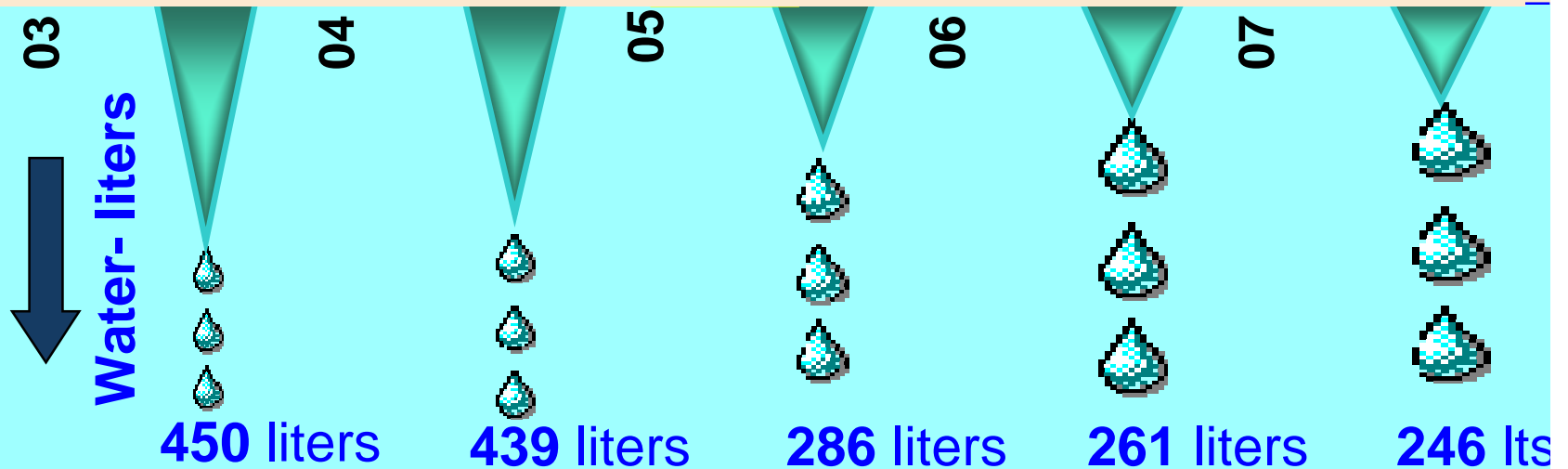
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List of few projects completed to reduce water consumption

- Conversion of water cooled fan chamber in SQF to air cooled
- Conversion of conventional taps to sensor based
- Reduce fresh water in irrigation of landscape and green belt
- Leak audit tests and arresting the leakages & many more

SPECIFIC WATER CONSUMPTION



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WASTE WATER DISCHARGE

SPECIFIC WASTE WATER DISCHARGE

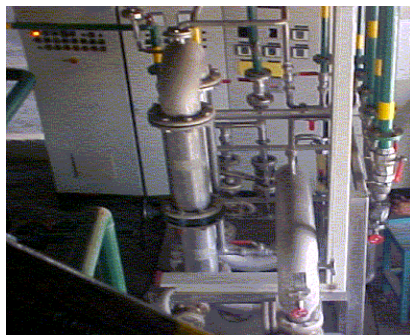
EFFLUENT TREATMENT PLANT



Process Effluent



Domestic sewage



ULTRA FILTRATION PLANT

**“ZERO DISCHARGE UNIT”
SINCE INCEPTION**



SEWAGE TREATMENT PLANT



100%

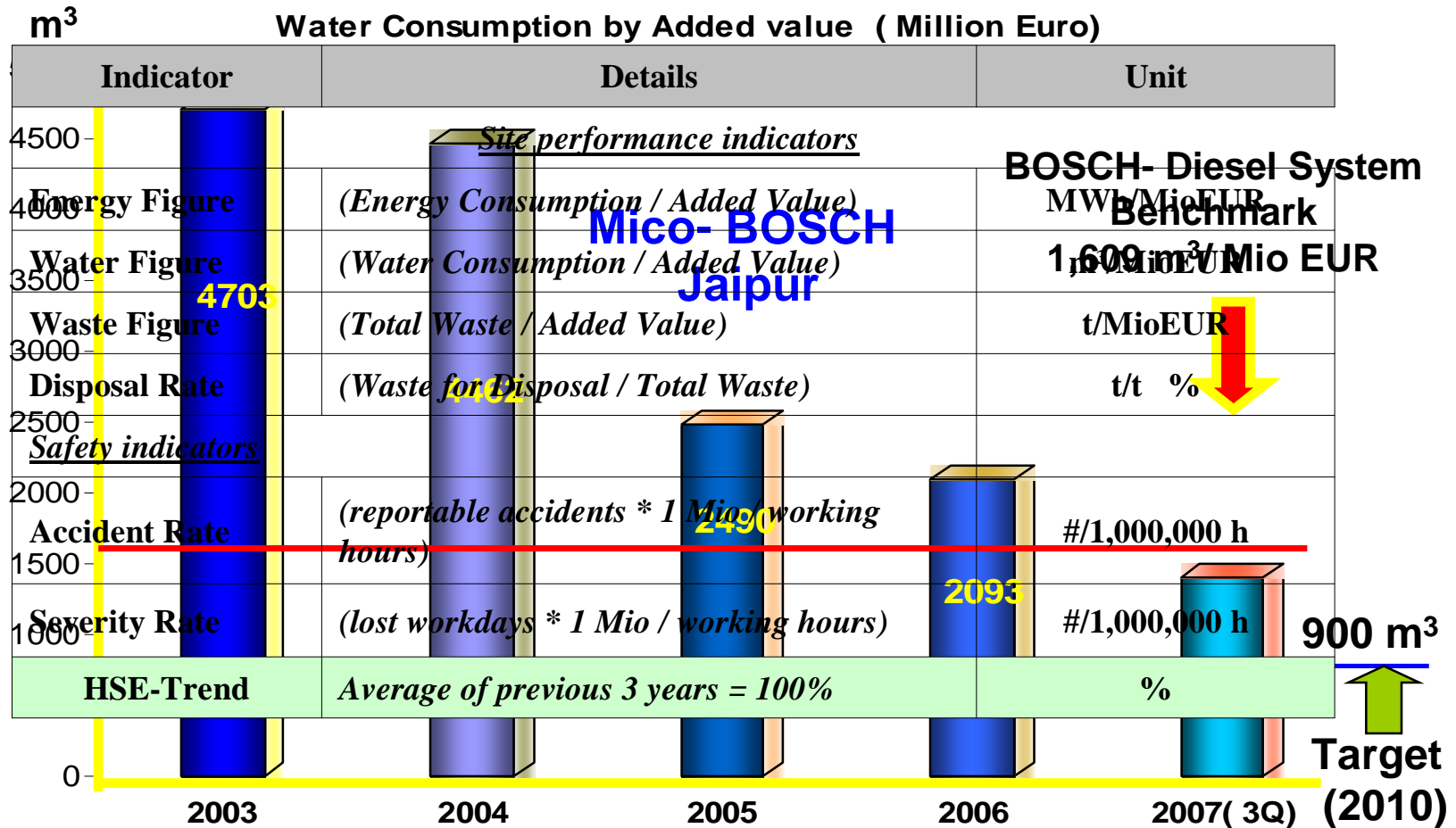
Recycling and reuse
in gardening and process



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Reference: BOSCH- Diesel System- worldwide

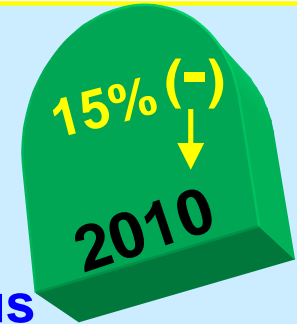
INTERNATIONAL BENCHMARK



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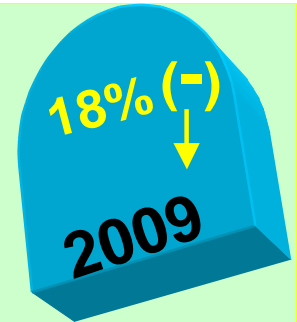
ROADMAP TO EXCELLENCE

Rain water utilization for Process and Cooling
To become a benchmark plant in BOSCH - DS



Awareness among employees/contractors - Continuous

Technology up gradation for wastewater treatment
Recycling of treated wastewater in process/ flushing
Introduce DSM methodology for water distribution



Modify cleaning process in canteen
Introduce Zeriscaping in the lawns
Irrigation 100% by treated waste water



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Sustainability tools

Kaizen



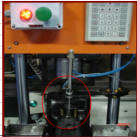
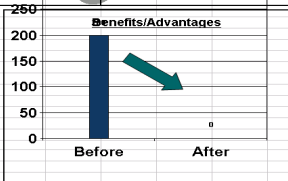
Suggestion Scheme

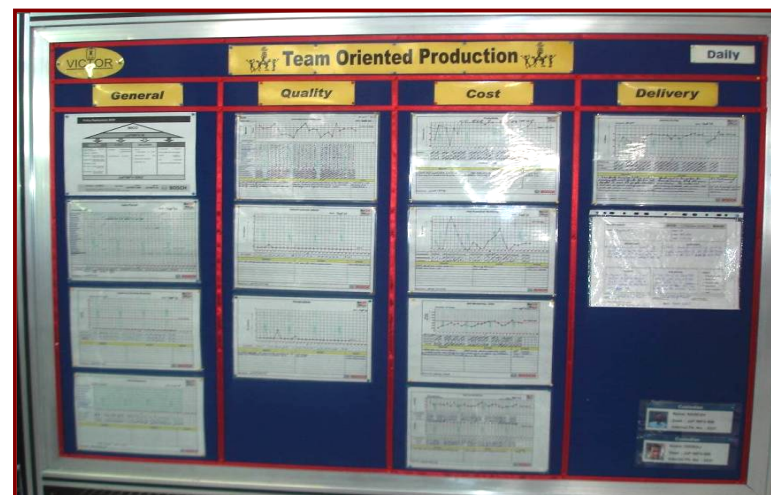
Team Oriented Production

POKA - YOKE

WATER CONSERVATION



KAIZEN SHEET		BOSCH	
THEME :- Reduction in Internal Rejections		S.No.	06.09.114
		Dept :	MFV-BM
		TOP Team name	Z Stage
		Date :	22.09.2006
BEFORE KAIZEN		AFTER KAIZEN	
			
HOW IMPROVED Analysis : Why 1: Distributor Pump got seized Why 2: Head got seized Why 3: Entry of dirt and chip in Dist Head Main bore Why 4: Filter missing in Dist head Why 5: No detection for presence of filter Introduction of Probe with Sensor to verify the presence of filter in Distributor Head		Benefits/Advantages 	RESULT 1. Productivity Increase 2. Reduce Cost 3. Reduce Manpower 4. Organised 5-S 5. Quality Improvement 6. Safety 7. Environment
Suggested by (Name, E.no. & Signature)		Implemented by (Name, E.no. & Signature)	
		Verified by (Dept. head/Call Engrs. (Name, E.no. & Signature))	



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Sustainability tools

Awareness campaigns

Leanstats

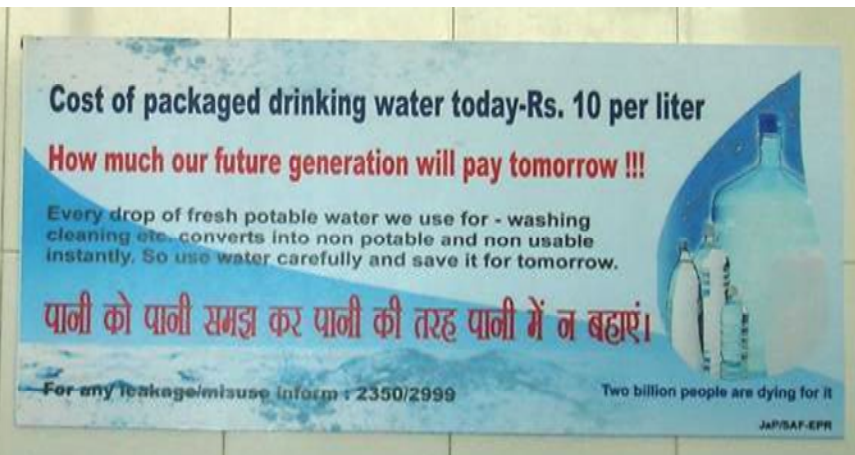
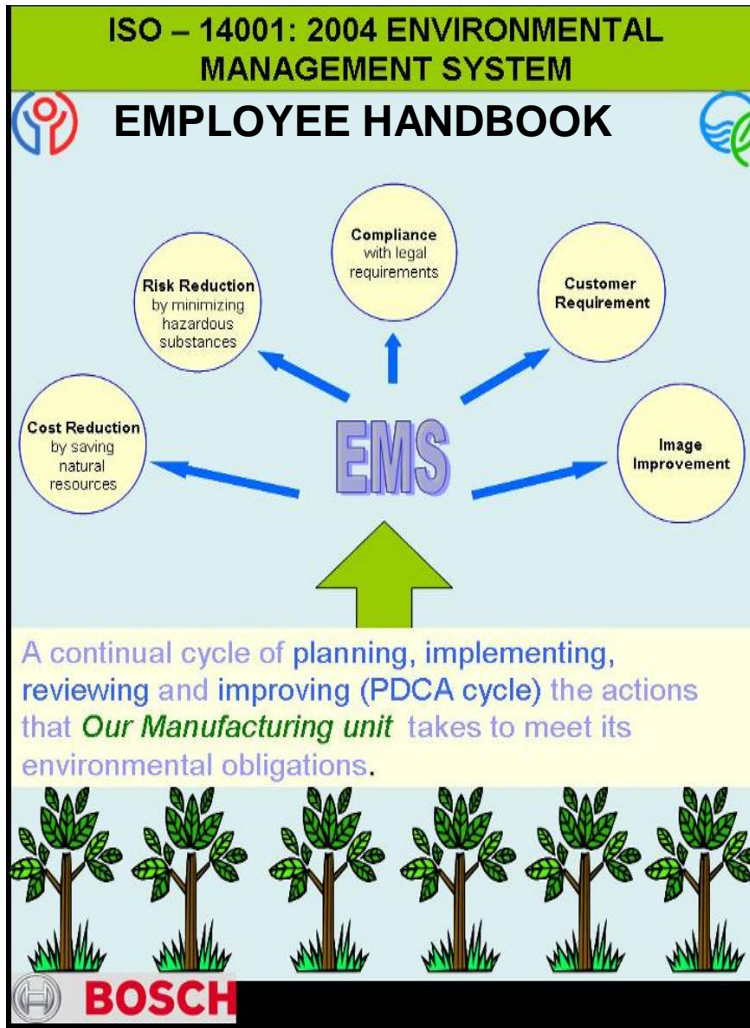
WATER CONSERVATION



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CONSERVATION

WATER



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Sustainability tools

WATER CONSERVATION

- Policy Deployment
- Competitive mapping of indicators
- Annual review by Mico – Management

JaP : Strategic Themes & Strategic Targets

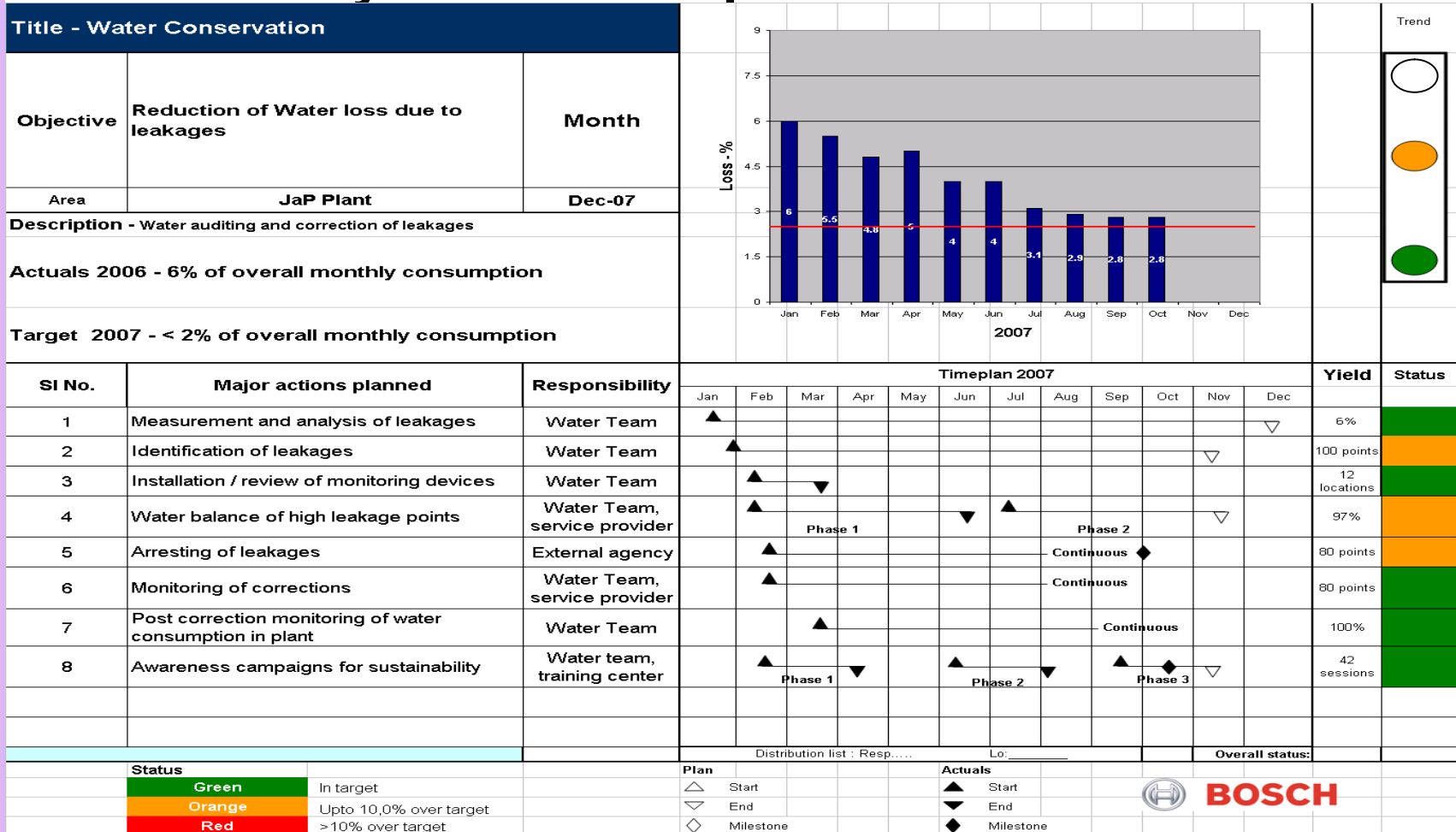
Strategy Theme	1. Customer focus	2. Profitable Growth	3. Leading market position	4. People	5. Partnership				
Owner	PM	PM	PM	PER	PUR				
STRATEGIC TARGETS	Quality-QMM 1.1- Meet mutually agreed customer requirement 1.2- Reliable and economical in field 1.3- Perfect Quality 1.4- Fast competent response	Profit 2.1- Profitability as per BP 2.2- Development of VE5000 2.3- Development of VE EDC10000	VE pump 3.1 - Sustain market share levels 6. Processes PM BPS 6.1- Become a BPS plant by year 2011	People 4.1 - Competency Building : •Development of local talent •Employee flexibility 4.2 - Relationship Enhancement 4.3 - Knowledge base Management	Business Partners 5.1 - Speed up Localization 5.2 - To concentrate vendor base in Northern region 5.3 - Global Player role for Preferred business partners 5.4 - BPS in the supply chain 5.5 - Mutual trust and transparency				
	Delivery-MFV 1.5 - Flexibility to meet customer requirement	Growth-SO 2.4 - Acquire business for VE5000 (SO) 2.5 - Realize VE EDC volumes as per VPZ2007/2 2.6 - Reman concept 2.7 - Explore new business opportunities	7. CSR (Society & Environment)- PM <table border="1"> <tr> <th>Internal</th> <th>External</th> </tr> <tr> <td> 7.1 – Respect for people’s Health & Safety 7.2 - Economic use of natural resources & clean environment </td> <td> 7.3 - Clean Water for Health & Hygiene of community </td> </tr> </table>	Internal	External	7.1 – Respect for people’s Health & Safety 7.2 - Economic use of natural resources & clean environment	7.3 - Clean Water for Health & Hygiene of community		
	Internal	External							
	7.1 – Respect for people’s Health & Safety 7.2 - Economic use of natural resources & clean environment	7.3 - Clean Water for Health & Hygiene of community							
	Technology-NE 1.6 - Robust System 1.7 - Product Extension								



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Sustainability tools – Cockpit Chart

WATER CONSERVATION



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Sustainability tools – Monitoring and Reporting

Daily Area wise Water Consumption in KL

Month:-

WATER CONSERVATION

Date	ABB-1	Difference	ABB-2	Difference	ABB-3	Difference	ABB-4	Difference	DG Cooling	Difference	U/F Soft water	Difference	U/F Outgoing	Difference	Cooling Tower	Difference	Changing Room	Difference
1																		
2																		
3																		
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Total:-																		



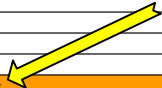
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Sustainability tools – Monitoring and Reporting MICO/ JaP reporting system

CONSERVATION

WATER

Site: MICO/JaP	unit	1 Q (Jan - Mar)	2 Q (Apr-Jun)	3 Q (Jul - Sept)	4 Q (Oct - Dec)	Total
General information						
Employee	#					
Added Value (NGU-PMAT)	Mio EUR					
Manufacturing costs (PHEK)	Mio EUR					
Energy consumption						
Electricity**	MWh					
Natural gas*	MWh					
Heating oil (HSD) *	MWh					
Remote heat	MWh					
Renewable Energy	MWh					
LPG *	MWh					
Coke	MWh					
Coal	MWh					
Utilization of natural resources						
Water from public supply	m ³					
Water from own supply	m ³					
selected material						
Solvents (includes MTO, SBP spirit, thinner)	t					
Methanol	t					
Disposal of waste water						
domestic waste water (disposed out)	m ³					
untreated plant sewage (process effluent) (disposed out)	m ³					
treated process effluent (disposed out)	m ³					
treated process effluent (recycled)	m ³					
domestic waste water (recycled)	m ³					
Waste						
Waste for recovery (not including demolition waste)						
thereof hazardous	t					
Used solvents	t					
Spent oil	t					
thereof non hazardous	t					
Plastic	t					
Metal chips	t					
Aluminium chips	t					
Corrugated boxes / sheets	t					
Wood	t					
Paper	t					
Metal scrap	t					
Component scrap	t					



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WATER CONSERVATION PROJECTS -1

PLC controlled Irrigation system (Sprinkler & Drip) :

PROCESS: Irrigation of Landscaped area, shrubs and trees

Pre-Implementation :

Irrigation manually through

- Pipes
- Rain guns



Post Implementation :

Irrigation automatically through

- PLC controlled pop-up sprays sprinklers
- Drippers.



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WATER CONSERVATION PROJECTS -1

PLC controlled Irrigation system (Sprinkler & Drip)

Features:

Totally automated system

Waste water optimization through even distribution

Enhancement in green coverage

Investment = 1.1 Mio INR

Saving = 22,000 m³ /annum fresh water

Payback period = 4 years*

* Indirect savings such as Energy, manpower etc. not included.



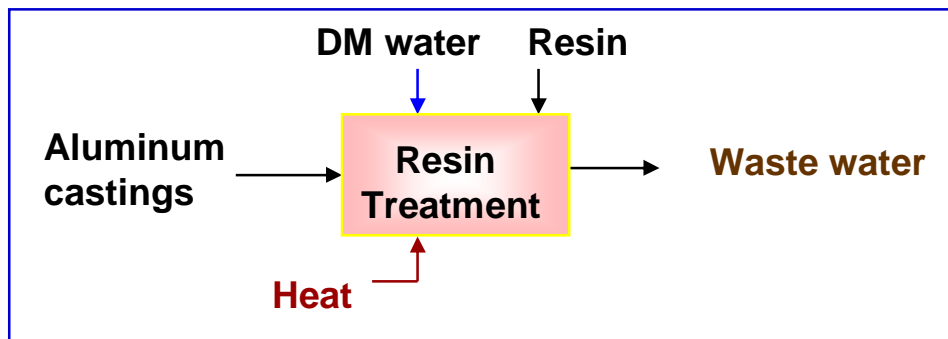
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WATER CONSERVATION PROJECTS -2

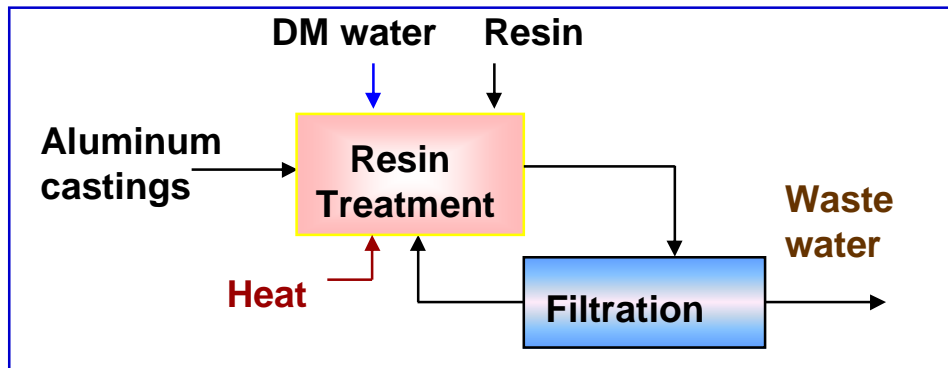
Modification in resin treatment plant

PROCESS: Porosity Elimination In Aluminum Castings

Pre- modification



Post - modification



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WATER CONSERVATION PROJECTS -2

Modification in resin treatment plant

Features:

Energy Conservation

Reduction in DM water consumption

Reduction in chemical consumption

Reduction in wastewater generation

Improvement in product quality

Investment = 0.55 Mio INR

Saving = 435 m³ /annum fresh water

Payback period = 1.3 years*

* Indirect savings included.

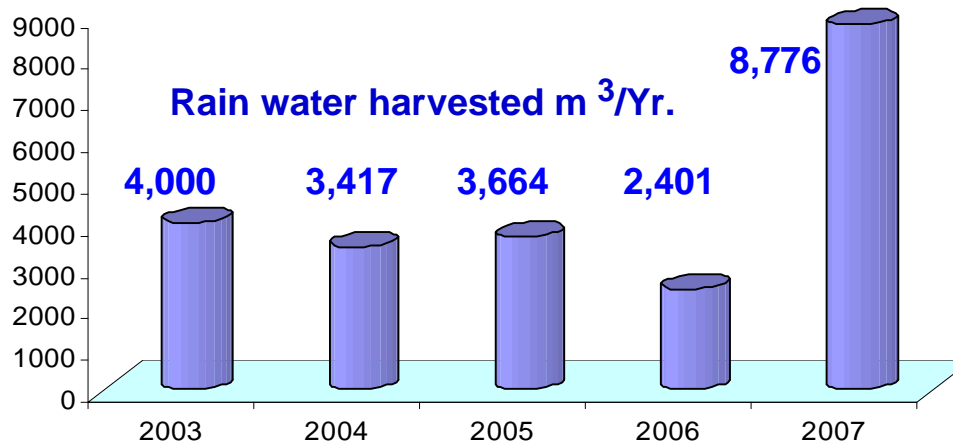
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WATER CONSERVATION PROJECTS - 3

Rain water Harvesting system

PROCESS: Collection of surface runoff and recharging , Abandoned drains used as collection area having total volume of 1,200 m³. A collection tank of 200 m³. and a set of pumps with meters provided

Harvested rain water charged back to old dry well in premises by pumping and passing through filtration chamber. Till date **22,258**, m³ litres rain water harvested.



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WATER CONSERVATION PROJECTS -4

Emulsion Oil replacement in Machining processes

PROCESS: Water + Emulsion Oil (Coolant) used in grinding/machining

Pre- modification

Frequency of changing the coolant - Monthly

Post modification

Frequency of changing the coolant – Once in 6 months

Features:

Reduction in water consumption

Less hazardous waste generation

Energy saving in Ultra Filtration of wastewater

Investment = Nil

Saving = 348 m³ liters /annum fresh water

Payback period = Immediate



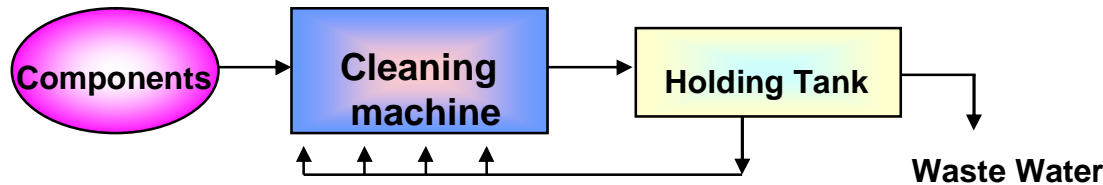
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WATER CONSERVATION PROJECTS -5

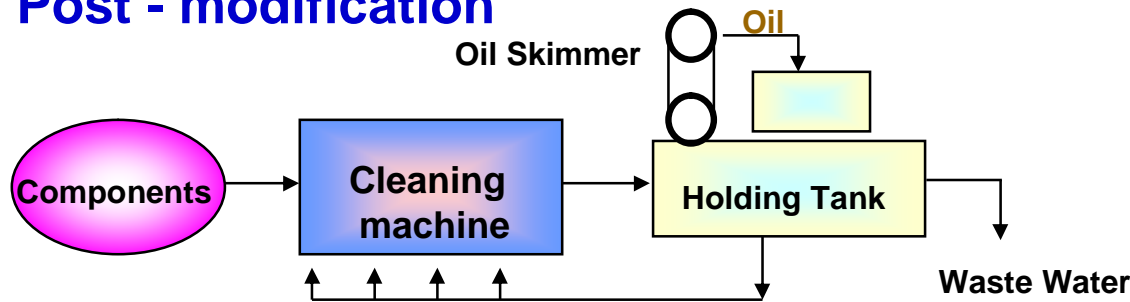
Modification In cleaning process before heat treatment

PROCESS: Water + chemical used to remove oil from components

Pre- modification



Post - modification



Investment = INR 39,000
Saving = 96 m³ liters /annum fresh water
Payback period = 2.8 years

Leak Audit and leakage arresting (WATCON)

- Fixing of meters (total 46 meters).
- Leakage audit team .
- Weekly water leakage audits (Every Sunday) .
- Immediate leakage arresting .
- Closure of unwanted water points.
- Awareness to employees

Investment – 1.5 lakh

Savings – 9170 m³ per annum.

Payback – 1.3 year

Other projects and Milestones

- Installation of Non Cyanide Alkali based Zn Plating line.
- Elimination of Ozone Depleting substances (Total 347 units).
- Technology up gradation in component cleaning process.
- Up gradation of Sewage treatment Plant.
- Solar water heating system installation for canteen.
- Enhancement of RO recovery.
- Change of conventional faucets to sensor based.
- Conversion of water cooled fan chamber in SQF to air cooled.

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