Honda Motorcycle & Scooter India Pvt. Ltd. Tapukara (RJ)

Welcome

7th CII Environmental Best Practice Award

29th – 31st July, 2020

BLUE SKIES FOR
OUR CHILDREN

Joy For Next generation

Background

Mr. Soichiro Honda
(Founder)

1948
Honda was founded

1960
Honda actively endeavoured to solve Environment problems.

1970
World's 1st Automaker to comply with U.S. Clean Air Act

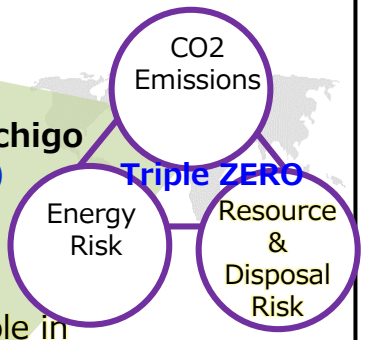
1992
Released our First Honda Environment Statement

2010
New Honda Environmental Logo
Blue Skies for Our Children

2016
Playing a Leading Role in Reducing CO_2 Emissions

Mr. Takahiro Hachigo
(President & CEO)

Future Challenge
Triple ZERO Approach



GLOBAL TARGET

Vision 2020
2 Wheelers
Baseline Year 2000
30%
CO_2 Reduction

Vision 2030
2 Wheelers
Lead efforts to realize a "Carbon-Free Society"

Vision 2050
2 Wheelers
Baseline Year 2000
50%
CO_2 Reduction

Honda has self commitment to mitigate the resource and disposal risk in Future.

Policy

HONDA
The Power of Dreams

HMSI ENVIRONMENT POLICY

As responsible members of society and industry, we Honda Motorcycle and Scooter India Pvt. Ltd. (HMSI), manufacturer of two wheelers, recognize that well being of human and conservation of earth's environment is important. By adopting Environment Management System, HMSI is fast moving towards realization of Honda's Green Factory Concept.

We shall endeavour to continually monitor, improve and conserve the environment in which we operate. HMSI is committed to achieve, environmental excellence in all its activities related to products & services in the following ways.

- Conserving and protecting the environment by preventing pollution at its source of generation and strengthening our existing pollution control system.
- Promote activities for reduction of water consumption, CO2 emission and usage of renewable energy for conservation of resources such as electricity, water and fuels.
- Adopting 3 R principle – Reduce, Reuse & Recycle in all processes thus minimizing waste generation.
- Fulfil all applicable legal / regulatory requirements and compliance obligations and strive to go beyond wherever possible.
- Regular monitoring and reviewing of environmental objectives and take actions to achieve the intended outcomes of Environment Management System.
- Encourage sustainable resource usage, climate change mitigation, adaptation and protection of ecosystems.
- Increasing environment awareness and competence amongst our employees and encourage vendors, suppliers, dealers and other stake holders to adopt Environment Management System.

HMSI will continually improve its environmental management system following PDCA cycle to make it more effective. The policy will be well communicated to our employees as well as persons working on our behalf and to the general public.

Date : 01-11-2017
Place: Gurugram

President & C.E.O

Based on top direction. Honda Motorcycle & Scooter India Pvt. Ltd. minimizing waste generation and encouraging sustainable resources management by taking Env. best initiatives.

Selected Theme by CII

Best Environmental Initiatives

1. Recovery of Aluminium From Aluminium Dross

2. Installation of High Efficiency Bell to Enhance Paint Transfer Efficiency.

CII has selected us to present these two best environmental initiatives in front of you.

Best Environmental Initiatives

1. Recovery of Aluminium From Aluminium Dross

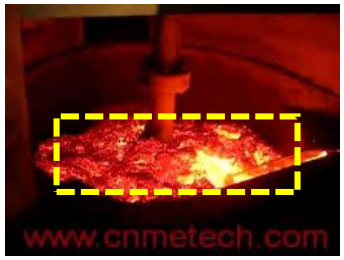
2. Installation of High Efficiency Bell to Enhance Paint Transfer Efficiency.

Presenter → Sanjay Tiwari San

Dross & It's study

Aluminum dross is a mass of solid impurities floating on a molten metal. As aluminum metal melting point is 660℃, (which is low-melting-point) so it will be formed on the surface in aluminum melting or alloys by oxidation of the aluminum

Dross & It's composition



High Aluminum Content 30-40 %

Dross composition	
Aluminum	30-40 %
Aluminum Nitride	5-10 %
Aluminum Oxide	30-40 %
Other (Ti, Cu, Fe, Ca, Zn, S, K and Na)	5-10 %

Activity Schedule

Sr	Description	2018									2019			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	Feasibility Study													
2	Quotation Arranging													
3	Approval from Mgmt.													
4	Indenting & PO													
5	Design, Mfg & Dispatch													
6	Civil & Structure Work													
6	Material Receiving at site													
7	Installation & Commissioning													
8	Realization													

Date of commencement : Apr, 18
Date of Completion : Apr ,19

After Analysis Recovery from Hot dross explored & schedule made to install the equipment.

Process, Concept, Operation & Benefits

【Melting Process】

Aluminum receipt	Melting	Metal tap out	Furnace Cleaning	Dross Removal	Gravity Recovery	Scrap
						
ADC-12 ingot receipt	1) Charging 2) Melting	Metal tap out	Furnace cleaning after 12hrs	Hot dross from holding chamber	Aluminum recovery through gravity	Aluminum remain in dross

【 Hot Dross operation concept 】

Hot dross machine with automatic operation

Hot dross pot setting in machine

Centrifugal shaft for dross crushing to remove aluminum from dross

Aluminum recovery from hot dross pot

【 Hot dross Operation】

Hot aluminum dross Pot

Aluminum recovery from dross

Aluminum % reduced in Dross

【 Benefits】

Details	Before	After
Daily dross	700 Kg	700 Kg
Al recovery	7 Kg	70 Kg
Scrap details (Dross) (Avg)	693 Kg	630 Kg

Through recycling approach we are recovering
10 % aluminum from dross.

Geo thermal system is to utilize heat for the cooling and heating of the AC.
In conventional system ground water is used & after use, water is again recharged to ground.

Photographic Evidence of Implementation

Implementation & review of performance

Machine during operation

Actual photographs from the installation.

Saving & Return Of Investment (ROI)

Saving Calculation

Description	Before	After
Al recovery	Manual	machine
method	Gravity	Centrifugal
Avg recovery	07 Kg	56 Kg
Al %in Dross	40 %	32%
Dross (Avg700 kg)		1.55%
Dross Sell Cost Avg/Kg		40
Avg Aluminium cost/Kg		131

Description	Calculation
Daily Al recovery	56 Kg
Cost save (130-40)	91
Yearly saving	1.4 Mill
Electricity cost	0.038
Investment	2.95 Mill. Rs.

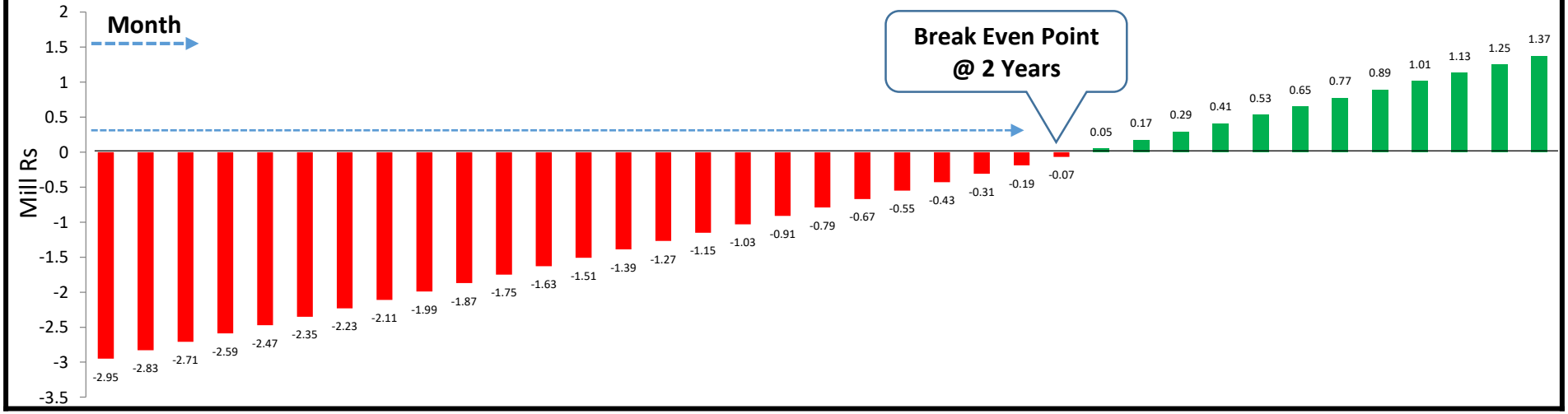
Benefits:

Saving (Aluminum / yr) → **15384 Kg**

Cost Saving (Mil.Rs./Yr) → **1.4**

Cost Saving (Rs./ Veh) → **1.16**

Payback Period : 2 Year



Aluminum around 15 Ton / Year can be recovered from Hot dross & ROI of Hot Dross Operation Machine is 2 years.

Horizontal Deployment

	HMSI 1F	HMSI 2F	HMSI 3F	HMSI 4F
Plant	 Manesar, Haryana	 Tapukara, Rajasthan	 Bengaluru, Karnatak	 Ahemdabad, Gujrat
Situation	No In House Die Casting Water supply from Rain Water Ponds & Canal		No In House Die Casting Water supply from Rain Water Ponds & Canal	
Feasibility	NA	●	NA	●
Plan of Deployment	NA	● Apr, 2018	NA	○ Dec, 2019
Testing	NA	● Mar,2019	NA	○ Nov. 2020
Final Completion	NA	● Mar,2019	NA	○ Dec. 2020

HMSI follows horizontal deployment of All energy saving themes across all plants

Intangible Benefits

For sustainable development of society, Environment plays a vital role.

BLUE SKIES FOR OUR CHILDREN

Project Management

Improved

HVAC Design Understanding

Improved

New Concept understanding

Improved

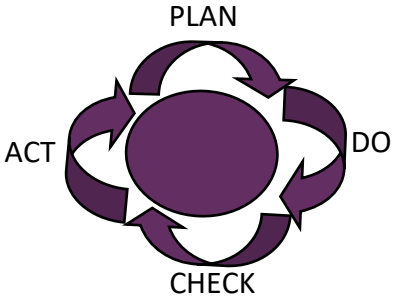
Different kind of intangible benefits received after implementation of project.

Learning

Team Work

Improved

Problem solving



Improved

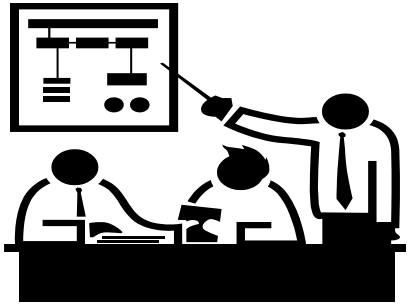
Morale

Improved

Soft Skills

Improved

Communication



Improved

Experience

Improved

Different kind valuable learning received during the implementation of the project.

Best Environmental Initiatives

1. Recovery of Aluminium From Aluminium Dross

2. Installation of High Efficiency Bell to Enhance Paint Transfer Efficiency.

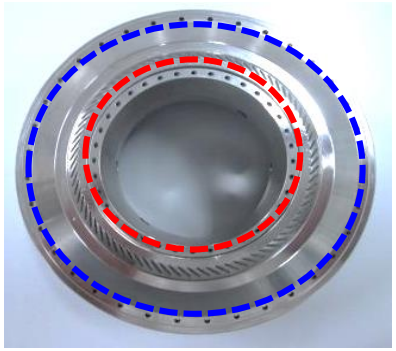
Presenter → Devender Singh San

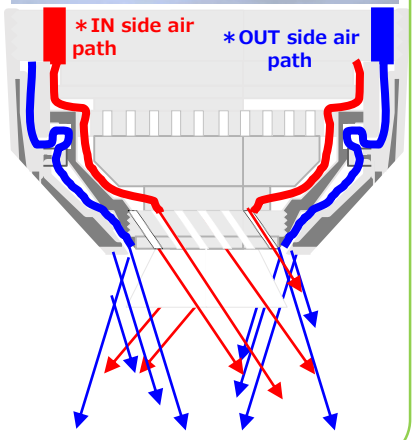
Concept for theme introduction

High Efficiency Bell work on Double Air supply Mechanism, this special designed Bell used in robotic painting which reduce the painting pattern width from 280~300 mm to 180~200 mm.

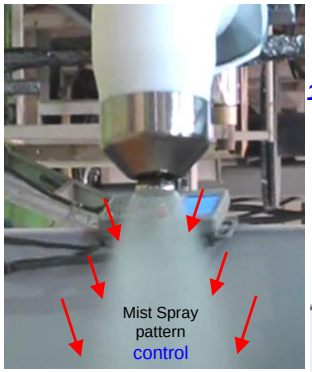
High Efficiency Bell System

Shaping air ring

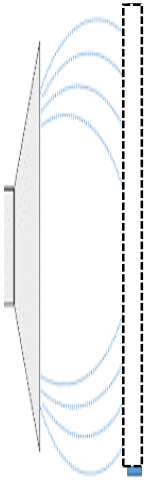


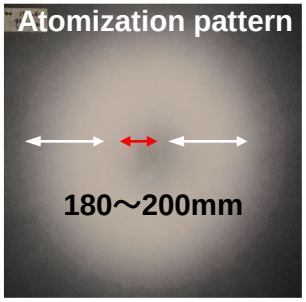


Mist Spray pattern High Transfer efficiency



Pattern Width 180~200 mm





Double Air Supply Mechanism
Transfer Efficiency increase 33~ 43%

Activity Schedule

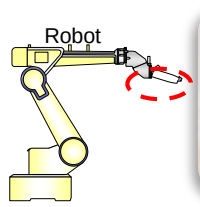
Sr	Description	2017						2018	
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Feasibility Study	▼							
2	Quotation Arranging	▼							
3	Approval from Mgmt.		▼						
4	Indenting & PO		▼						
5	Design, Mfg & Dispatch			▼	▼				
6	Material Receiving at site						▼		
7	Installation & Commissioning						▼	▼	
8	Realization								▼

Date of commencement : July, 17
Date of Completion : Feb, 18
1st phase completed on 2018 and 2nd phase - 2019

Concept decided for High Efficiency Bell and activity schedule made for implantation of the project

High Efficiency Bell System

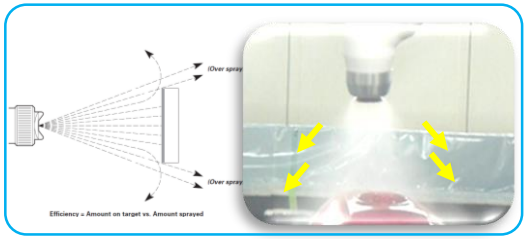
Presently in paint shop Robot , Recip & stationary bells painting equipment are used for painting.



Transfer efficiency:

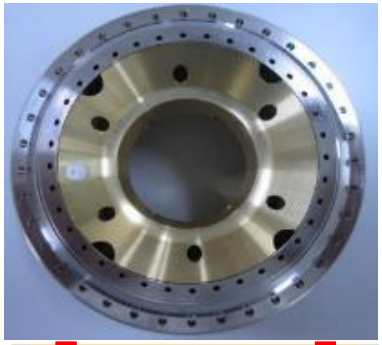
SPC :43%
ABS :33%

The amount of material that adheres to the target compared to the amount of material that was sprayed through the applicator toward the target. It is expressed in percentage(%).

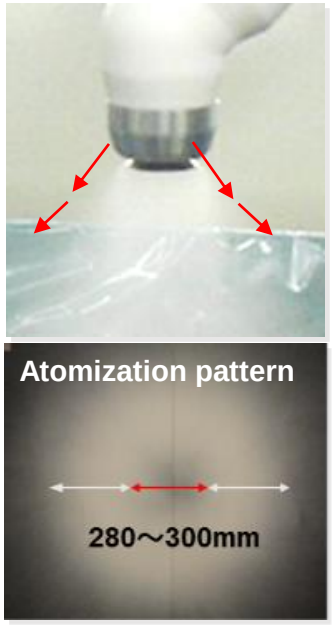


Present : Single air supply mechanism

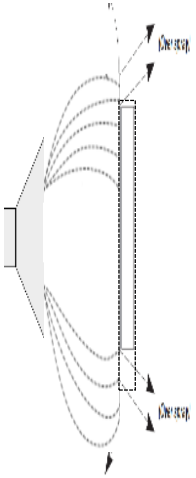
Shaping air ring



Mist Spray pattern



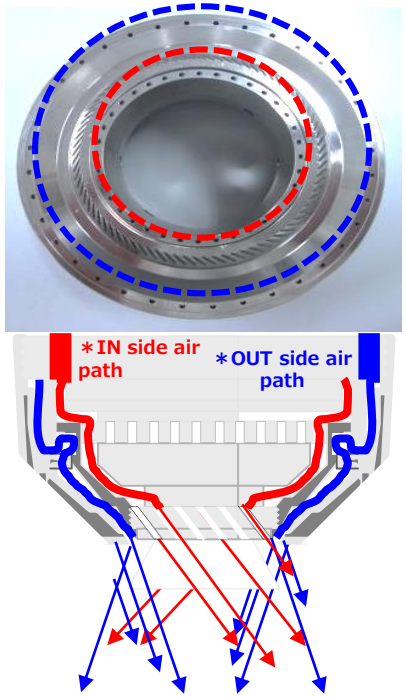
Low Transfer efficiency



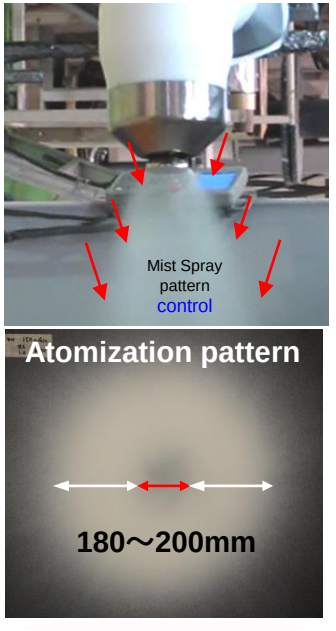
Pattern width i.e.280~300mm.
Transfer Efficiency 33~ 43 %

Proposed : Double air supply mechanism

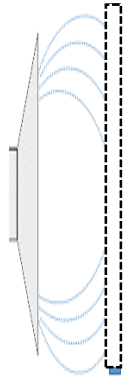
Shaping air ring



Mist Spray pattern



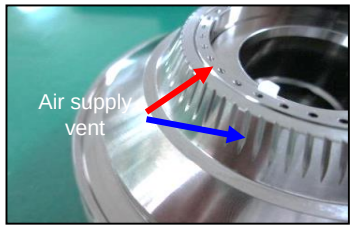
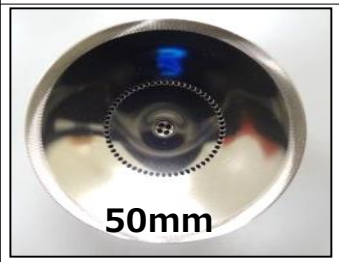
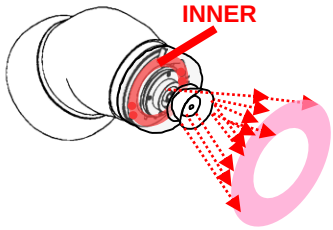
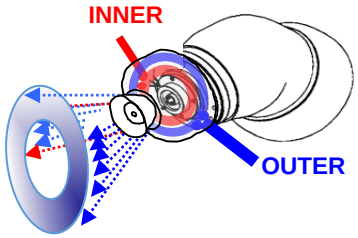
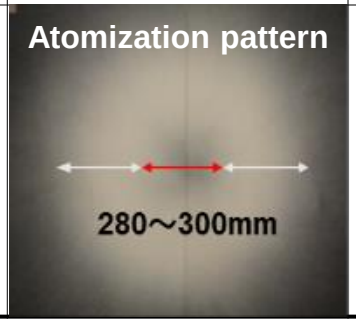
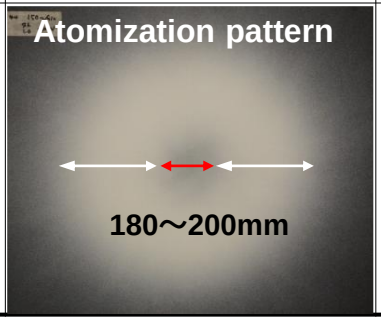
Low Transfer efficiency



Pattern width i.e.180~200mm.
Transfer Efficiency 38~ 48. %

Double air supply mechanism will restrict the paint spray pattern only to the part surface & increase transfer efficiency.

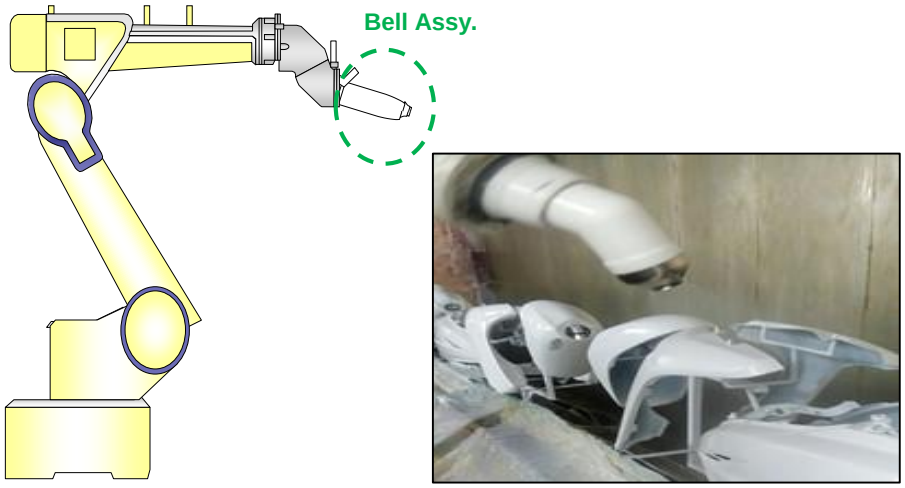
High Efficiency Bell System

SN	Before		After	
1		In shaping air ring Single air supply mechanism to provide atomization.		In shaping air ring conversion form Single air supply to double air supply mechanism.
2		Bell cup diameter is 50 mm.		Bell cup diameter reduced from 50 mm to 40 mm to narrow down the spray pattern size.
3		Wide range of spray pattern leads to over spray.		Spray pattern narrow down leads to low over spray.
4		Wide range of spray pattern i.e 280~300mm leads to over spray.		By narrow down the cloud pattern of charged paint particles up to 180~200mm leads over spray reduction.

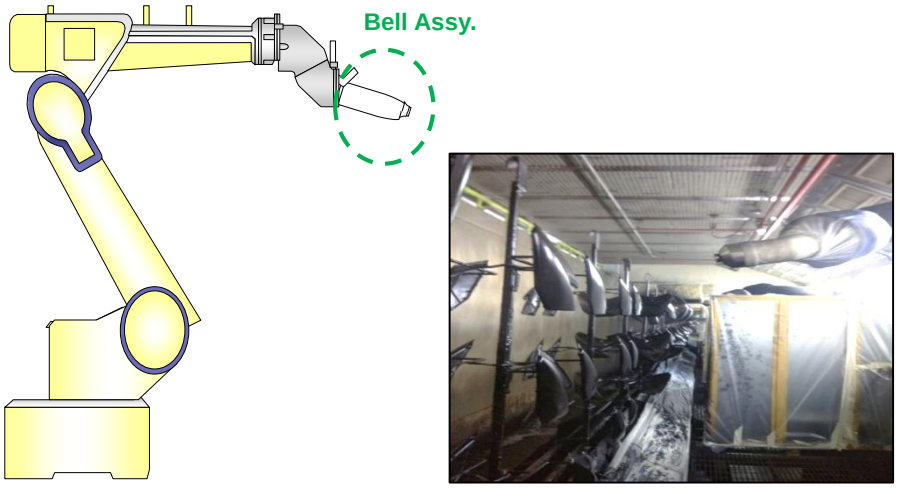
On the basis of other Gempo's effectiveness verification, 5% increase projected in transfer efficiency.

Photographic Evidence of Implementation

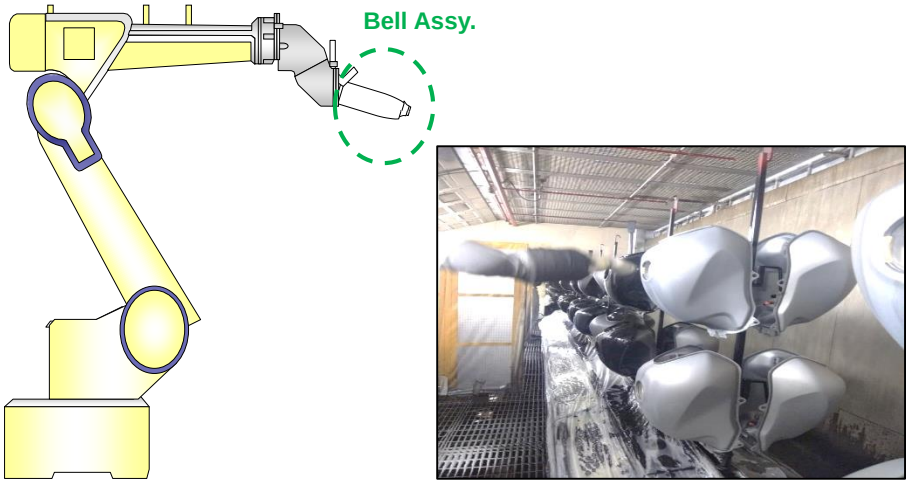
SPC-1 & 2



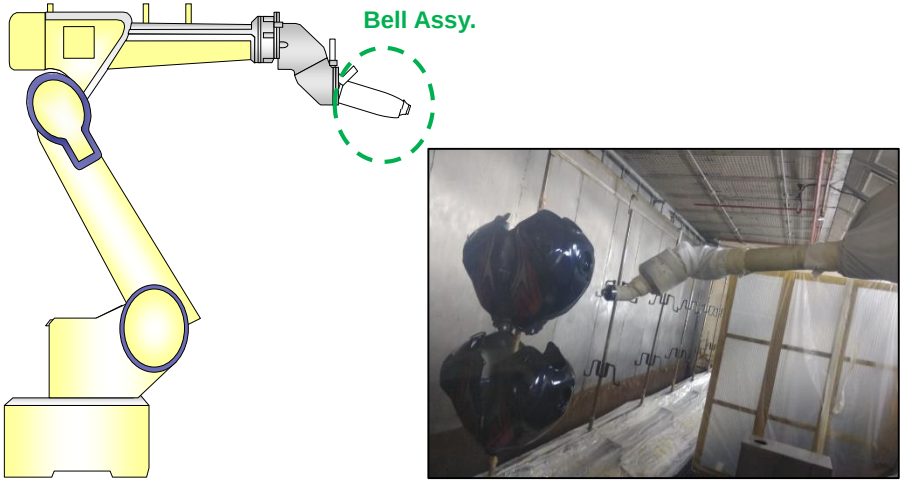
ABS 1,2 & 3



FT Color



FT Clear



Actual photographs from the installation.

Return Of Investment (ROI)

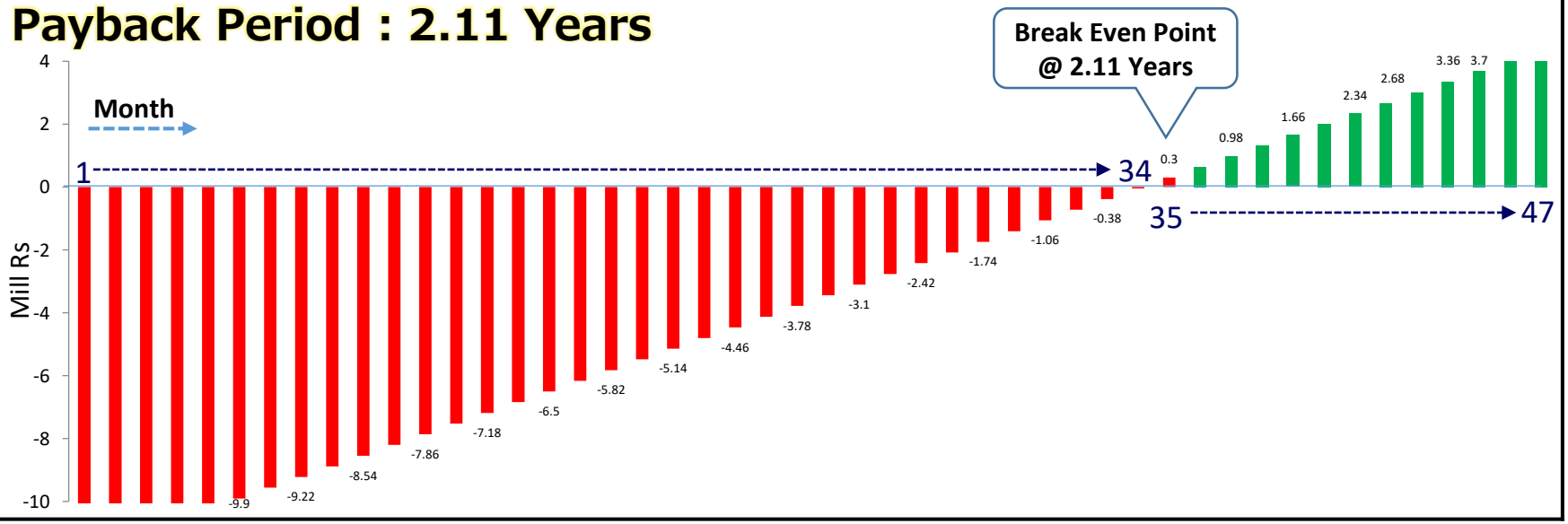
Operation Cost

Cost	Before		After	
	Transfer Efficiency of Painting Process	33 ~43 %	Transfer Efficiency of Painting Process	38 ~48.3 %
	Paint Wastage due to over spray	56.7 ~67%	Paint Wastage due to over spray	51.7 ~62%
	Material Cost / Vehicle	302.7	Material Cost / Vehicle	291.8
	Total Production Volume (95 Ki)	**499946**	Total Production Volume (95 Ki)	**499946**
	Total Cost (in Mill) (a)	**151.33**	Total Cost (in Mill) (b)	**145.88**

Saving in Mill (a)-(b) = 151.33-145.88 = 5.45 Mill

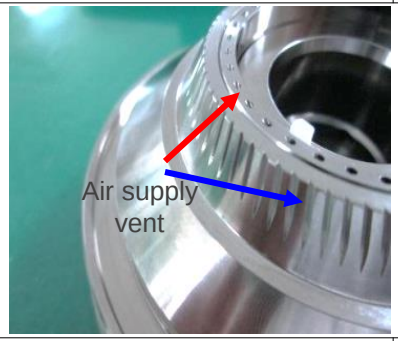
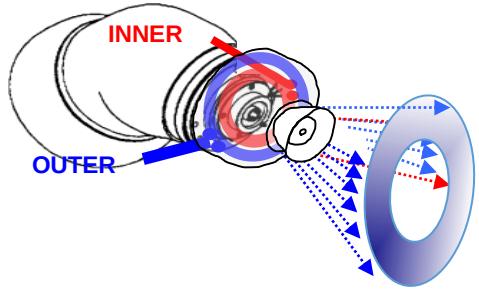
ROI

Payback Period : 2.11 Years



ROI of High Efficiency Bell project is 35 months.

Horizontal Deployment

	HMSI 1F	HMSI 2F	HMSI 3F	HMSI 4F
Plant	 Manesar, Haryana	 Tapukara, Rajasthan	 Bengaluru, Karnatak	 Ahemdabad, Gujrat
Design				
Feasibility	●	●	●	●
Plan of Deployment	● July'2018	● July'2017	● April'2017	● Oct'2017
Testing	● Jan'2019	● Feb'2018	● Oct'2017	● March'2018
Final Completion	● Jan'2019	● Feb'2018	● Oct'2017	● March'2018

HMSI follows horizontal deployment of All energy saving themes across all plants

Tangible Benefits

Cost Reduction	Cost Calculation
TE of Painting Process Increase → 5~5.3% **Painting Cost/ Vehicle decrease →** Rs 10.9/Veh.	(see table below)

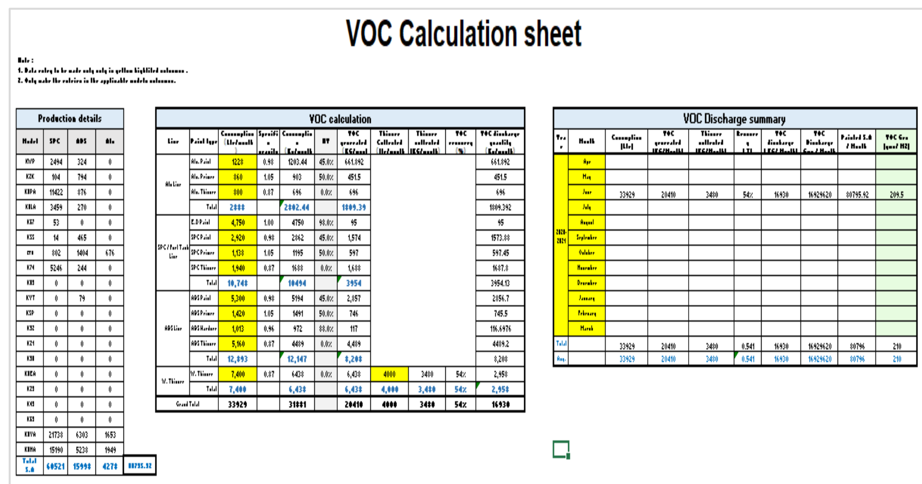
Cost Saving (Rs./Veh) (A)	11
Depreciation (Rs. / Veh.) (B)	3
Profit after depreciation (C= A-B)	8
Income Tax@ 34.61% (D)	3
Net Profit (C-D)	5
Net Profit (in Mill Rs.)	27,20,565
Depreciation (In Mill. Rs.)	12,88,889
Total Saving (In Mill Rs.)	40,09,454

VOC Reduction

Paint Wastage reduce due to overspray→ 4~5%

VOC reduction→ 1~1.5%

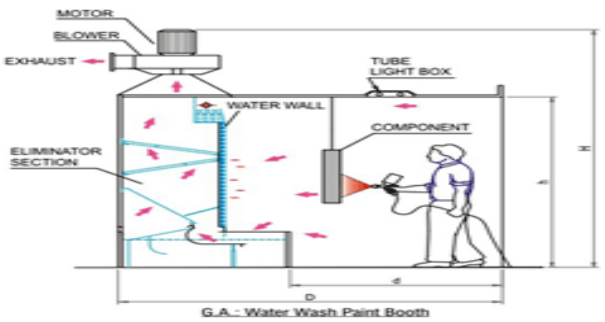
VOC calculation



Painting cost reduction Rs 10.9/veh. & reduction in VOC 1~1.5%.

Intangible Benefits

Improve Work Environment



- Due to VOC reduction work Environment improve

Improved

Associate Moral High

- Due to VOC reduction associates moral high.

Improved

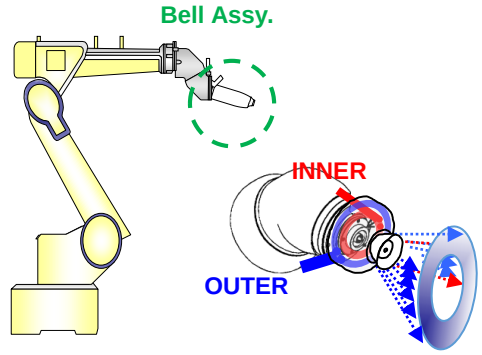
Project Management

Improved

Understanding of Programing

Improved

New Concept understanding



Improved

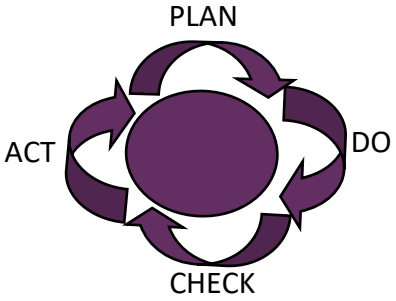
Implementation of High efficiency bell help to improve our work environment as well as associate moral.

Learning

Team Work

Improved

Problem solving



Improved

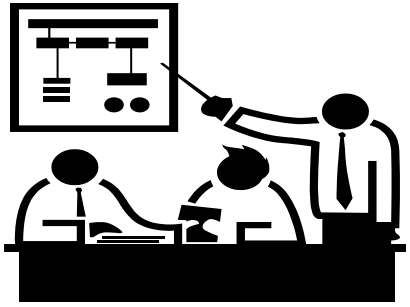
Morale

Improved

Soft Skills

Improved

Communication



Improved

Experience

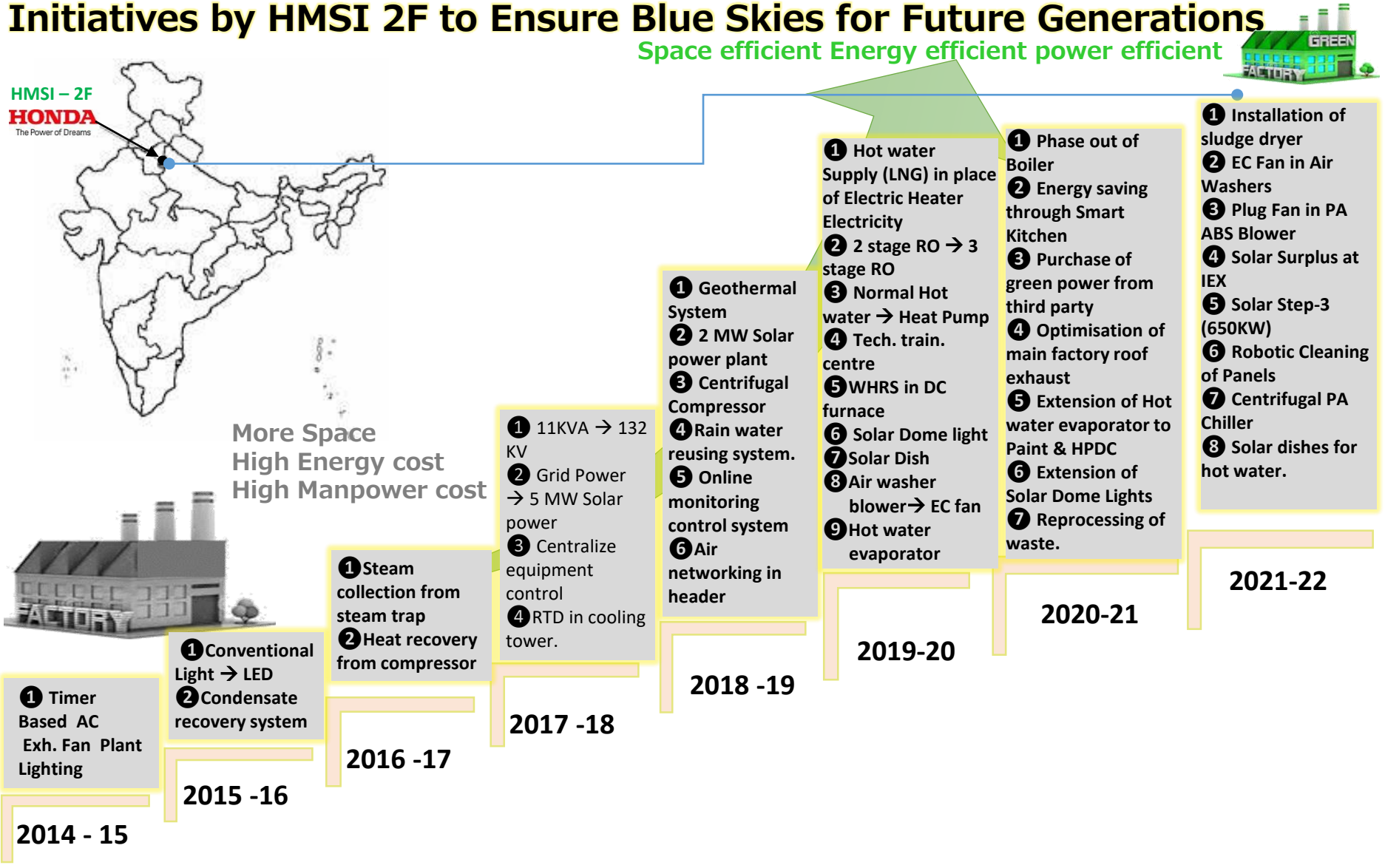
Improved

Different kind valuable learning received during the implementation of the project.

Way Forward

Initiatives by HMSI 2F to Ensure Blue Skies for Future Generations

Space efficient Energy efficient power efficient



Continual improvement initiatives taken and planed to reduce the resource and disposal risk

THANK YOU

It is in our hand to protect our beautiful earth