

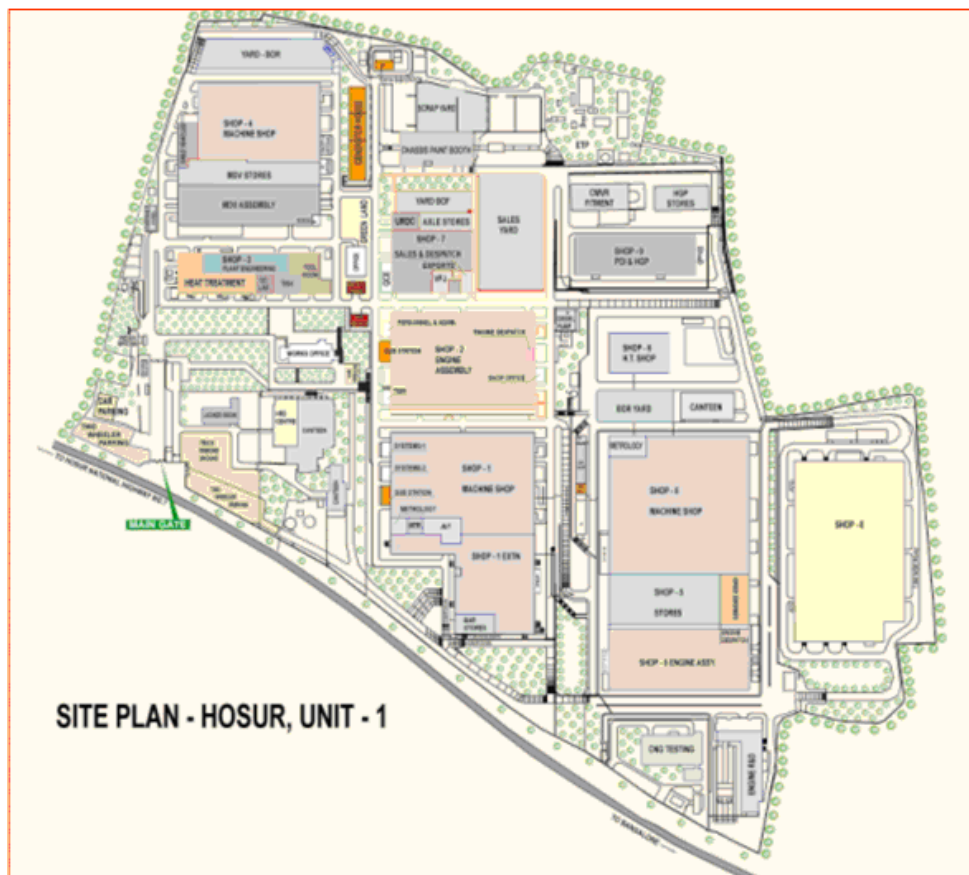
ASHOK LEYLAND LTD.,
(A unit of Hinduja Group)
Unit-1, Hosur(Tamilnadu)

Unit Profile

Ashok Leyland Limited is the second largest commercial vehicle manufacturer in India. We have 4 manufacturing plants in India viz., one plant at Ennore near Chennai, our plant at Hosur near Bangalore, third one at Bhandara near Nagpur & fourth one at Alwar in Rajasthan. We also have a full fledged R&D facility at Hosur apart from Technical center for R&D activities at Vellivoyalchavadi near Chennai. Management Development Centers available at Hosur & Chennai are to take care of our HR initiatives.

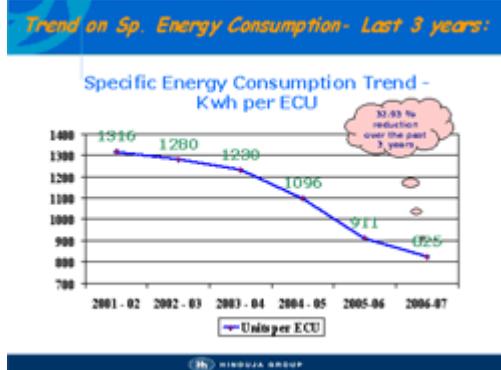
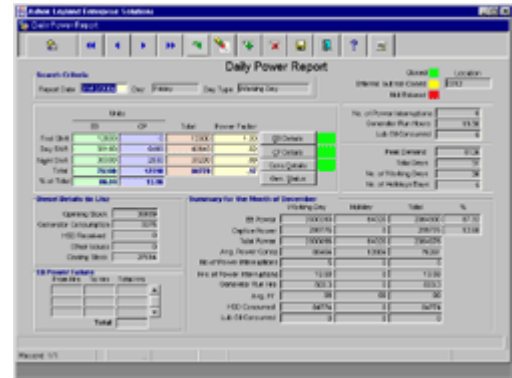
At unit 1- Hosur, we have the manufacturing plant spread over an area of 102.4 acres & our plant commenced manufacturing activities at Hosur during 1981. We are manufacturing around 44 vehicles of various capacities /day & 300 nos "H" series engines /day. We have the world class manufacturing facilities like machining lines for critical engine components for Cylinder block, cylinder head, connecting rod, cam shaft, etc., 2nos heat treatment shops, apart from assembly of engines in dust proof enclosure, followed by vehicle assembly on conveyor & testing of vehicles on roller test bench.

Our connected load is 31924 kva with an installed captive power capacity of 8750 kva.. Our employee strength is 2740 & our unit's turnover during 2006-07 was 1951 crores.



Energy conservation as a way of life.....

Monitoring of Energy consumption at our plant is a real time exercise & we have energy meters installed at all our strategic locations to track down consumption on hourwise, shift wise & daywise basis. Our daily reports for power consumption depicts the data shiftwise & shop wise & the information is available in online for anybody in the plant to access.



Energy conservation projects are identified & implemented based on routine monitoring & periodical audits, & the efforts are reflecting in our trend on specific energy consumption for the last 3 years. A reduction of 32.93 % has been achieved over the last 3 years thro' our sustained efforts on energy conservation. Similar trends exist on other resources also such as compressed air, water & diesel consumption.

Energy management policy, planning & structure:

Energy Management Policy

Mission :
 To become the "Best energy efficient unit among the automobile industries".

To meet the above objective by:

- Scientific approach towards energy management.
- Procuring new equipments with energy efficient installations.
- Resorting to increased usage of renewable energy.
- Encourage initiatives taken by our employees .

Energy Management Structure Watch your power factor – Save energy!

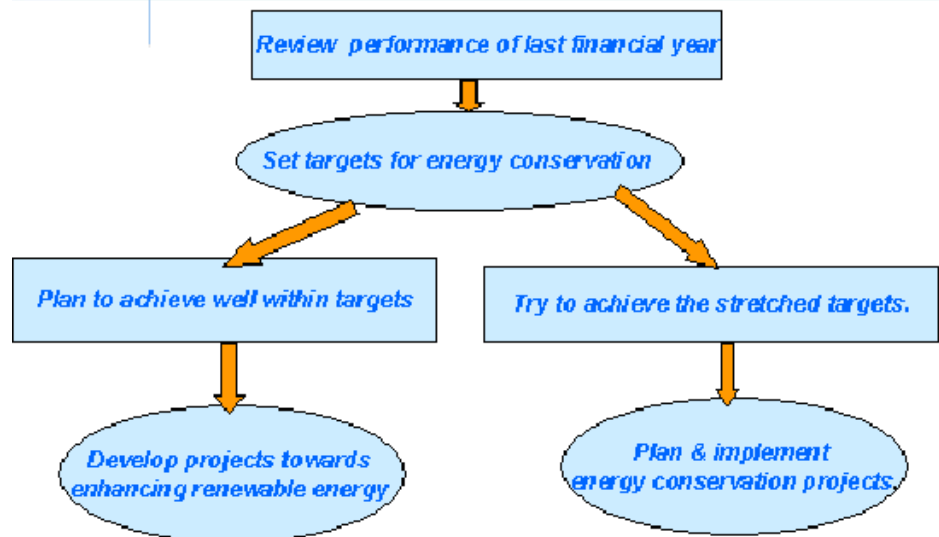


Energy management structure at our plant starts from Unit Head & further percolates down to Divisional Heads, Energy manager & Department Managers, Shop Energy Representatives & leading further to Small Group Activities(SGA) and Cross Functional Teams(CFT).

HINDUJA GROUP

Energy management planning consists of review of previous year's performance, setting targets based on last year figures & considering next year's production plans, developing energy conservation projects to contain energy consumption within stretched targets. Increase in energy consumption due to increase in volumes is offset by implementing energy conservation initiatives.

Energy Management Planning The best day to start energy saving is "Today"



HINDUJA GROUP

Energy conservation achievements:

Year	Product	Production achieved in ECU/annum	KWH/ECU	% Reduction achieved over previous year
2002-03	Heavy & Medium commercial vehicles & engines.	15550	1280	
2003-04		18409 ↑	1230 ↓	4%
2004-05		19373 ↑	1097 ↓	10.8%
2005-06		27968 ↑	911 ↓	16.9%
2006-07		31806 ↓	825 ↓	9.44%

Major Energy Conservation Projects implemented in 2006-07:



Before

Project Title: Optimisation of water cooler capacities –38 nos at all shops.

Investment : Rs. 7.00 lakhs

Savings in KWH/annum: 44160

Cost savings : Rs. 2.42 Lakhs

After



Project Title: Productivity improvement in shot blasting machine thro' improved loading jig.

Investment : Rs. 1.10 lakhs

Savings in KWH/annum: 66633

Cost savings : Rs. 3.66 Lakhs

Before



After



BEFORE

Project Title: Energy saving by introduction of additional electric hoists in place of air hoists(8 nos) at shop7 axle assembly.

Investment : Rs. 3.00 lakhs.

Savings in KWH/annum: 56160.

Cost savings : Rs. 3.08 Lakhs

AFTER

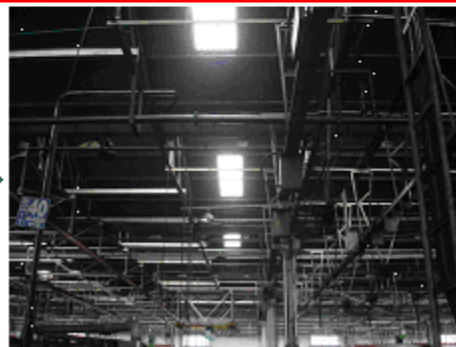


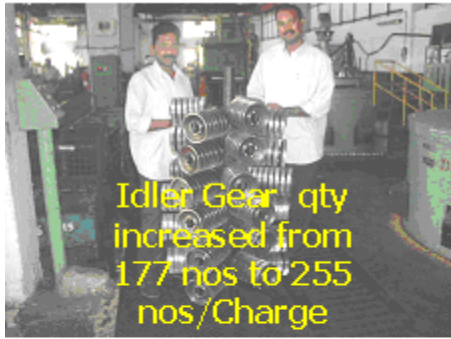
Project Title: Introduction of translucent roof sheets(50 nos) to improve lighting at machine shop 5.

Investment : Rs. 2.50 lakhs

Savings in KWH/annum: 73350

Cost savings : Rs. 4.03 Lakhs





Project Title: Increasing load/charge thro' modification of Load Hangers at shop3 HT.

Investment : Rs. 1.50 lakhs

Savings in KWH/annum: 23477.

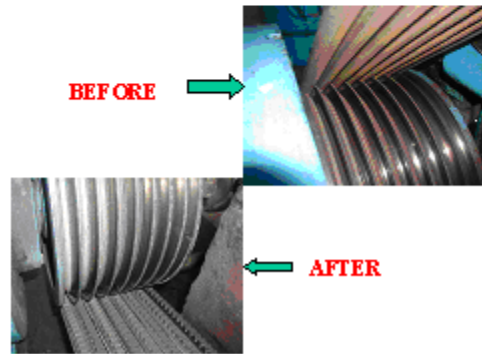
Cost savings : Rs. 1.29 Lakhs

Project Title: Efficiency improvement in Compressors by replacing "conventional wrapped belts" with "cogged belts"(5 nos).

Investment : Rs. 1.05 lakhs

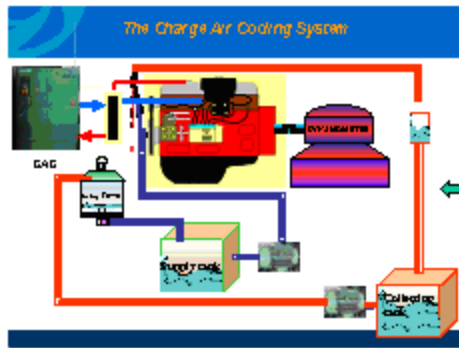
Savings in KWH/annum: 156000

Cost savings : Rs. 8.60 Lakhs



Renewable energy trend:

Ashok Leyland has invested for windmill energy generation & the trend on the no. of units supplied to the grid is indicated in the trend chart. Power generated thro' wind mill is 26.7% of the total power requirement of AL.



Project Title: Elimination of "Charge Air Cooler Units(CAC)" in "H" series engine testbeds(15 nos)

Investment : Rs. 5.40 lakhs

Savings in KWH/annum: 268800

Cost savings : Rs. 10.75 Lakhs

Project Title: Installation of energy efficient screw compressor on trim side of energy saver.

Investment : Rs. 11.00 lakhs

Savings in KWH/annum: 120000

Cost savings : Rs. 6.60 Lakhs

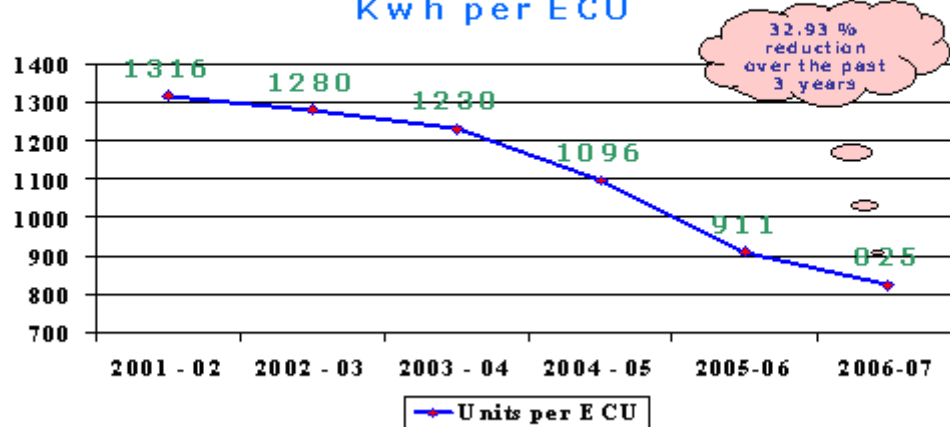


Trend on consumption of vital resources:

Trend on consumption for Vital Resources:

Trend on Sp. Energy Consumption- Last 3 years:

Specific Energy Consumption Trend -
Kwh per ECU

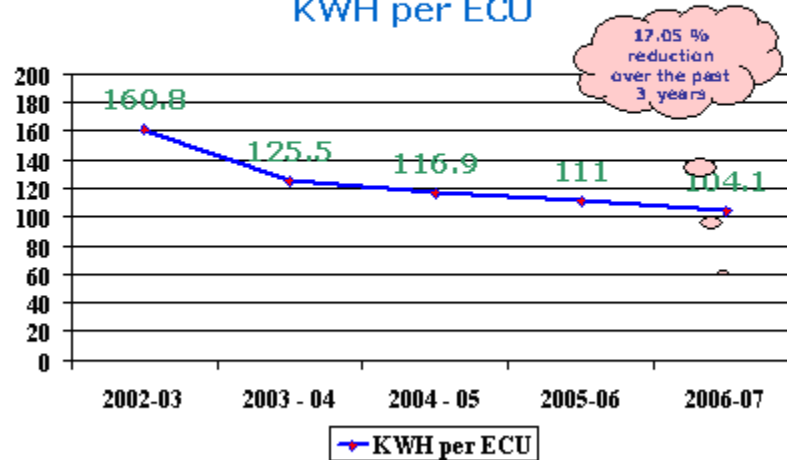


H HINDUJA GROUP

Trend on Sp. Energy Consumption- Last 3 years:

Power Consumption Trend – Compressed Air

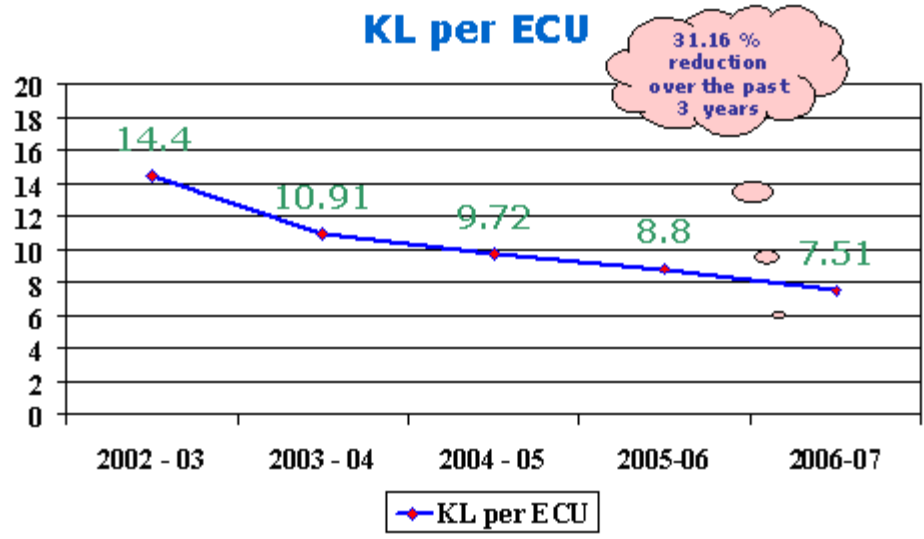
KWH per ECU



H HINDUJA GROUP

Trend on Sp. water Consumption- Last 3 years:

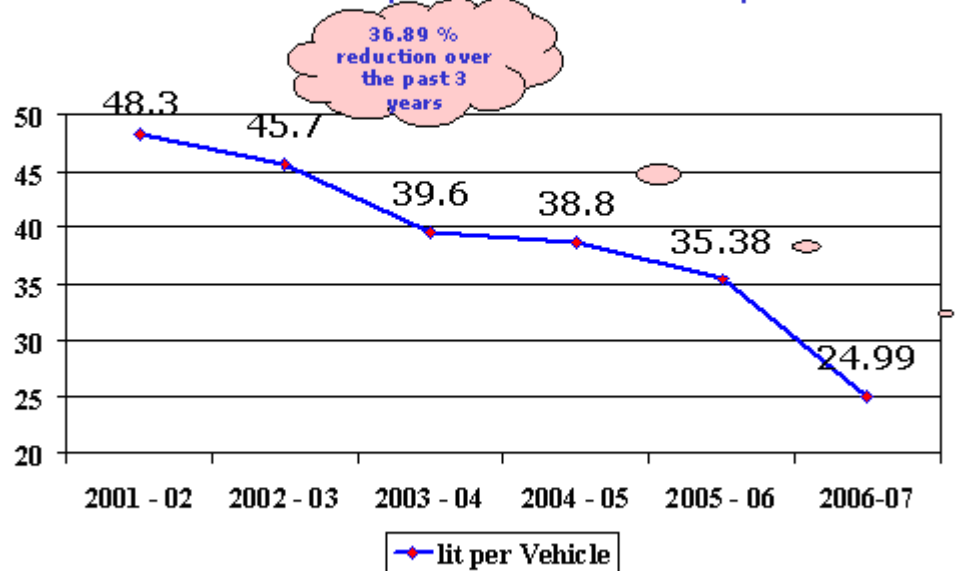
Water Consumption Trend



Additional information - Annexure 4:

Diesel Consumption Trend

Diesel Consumption – Liters per ECU



List of energy conservation initiatives implemented in 2006-07:

Sl.No.	Year	Description of Project	Savings achieved in Kwh/annum	Savings achieved in (Rs.in lakhs) /annum.	Investment made (Rs. In lakhs)
1	2006-07	<i>“Elimination of idle running of hydraulic motors using interlocks”</i> in 38 machines.	68400	3.76	Nil
2	2006-07	<i>“Energy conservation in washing machines heater circuit by changing the washing chemical”.</i> (2machines)	108000	5.94	Nil
3	2006-07	<i>“Optimisation of energy consumption by right sizing of pumps(from 15 hp to 10 hp)”</i> in compressor house.	14400	0.79	Nil
Sl.No.	Year	Description of Project	Savings achieved in Kwh/annum	Savings achieved in (Rs.in lakhs) /annum.	Investment made (Rs. In lakhs)
4	2006-07	<i>“Elimination of compressed air leaks”</i> thro' periodic monitoring & arresting.	6384	0.35	Nil
5	2006-07	<i>“Energy conservation in dust extractors”</i> using interlocks to eliminate idle running -(6machines)at shops 1&5.	57600	2.75	Nil
6	2006-07	<i>“Energy conservation in Fume extractors”</i> using interlocks to eliminate idle running -(4machines) at shops 1 & 5.	18000	0.99	Nil
7	2006-07	<i>“Energy conservation in pressurized chamber blower unit (2x20hp+2x40hp) by introducing low cost automation”</i> to eliminate blower running during lean hours.	26400	1.45	0.05

8	2006-07	<i>"Replacement of Conventional 65watts fluorescent lamps with additional energy efficient 28watts T5 lamps (800nos)"</i> in H series machining & assembly at shop 1 & 2.	48000	2.64	2.60
9	2006-07	<i>"Replacement of ceramic lining instead of refractory brick lining in GCF 2".</i>	109000	5.37	7.48
10	2006-07	<i>"Introduction of translucent roof sheets 50nos, to improve lighting"</i> at shop5 machine shop.	73350	4.03	2.50
11	2006-07	<i>"Energy saving by introduction of additional electric hoists in place of air hoists".</i>	56160	3.08	3.00
Sl.No.	Year	Description of Project	Savings achieved in Kwh/annum	Savings achieved in (Rs.in lakhs) /annum.	Investment made (Rs. In lakhs)
12	2006-07	Efficiency improvement in compressors by <i>"replacing conventional wrapped belts with cogged belts"</i> .	156000	8.6	1.05
13	2006-07	<i>"Installation of 5nos power capacitors for reduction of T&D losses"</i> in machine shop5.	NA	13.00	1.36
14	2006-07	<i>"Optimisation of water cooler capacities"</i> - 38nos in all shops.	44160	2.42	7.00
15	2006-07	<i>"Increasing load/charge thro' modification of loading hangers"</i> in GCF furnace.	23477	1.29	1.50
16	2006-07	<i>"Optimisation of carrier plate and baskets"</i> in Gas Carburising furnaces, to improve productivity.	100541	5.53	1.75
17	2006-07	<i>"Productivity improvement in shot blasting machine"</i> thro' improved loading jig.	66633	3.66	1.10

18	2006-07	"Elimination of charge air cooler(CAC) unit" in H series test beds (15beds).	268800	10.75	5.40
19	2006-07	"Installation of energy efficient screw compressor on trim side of energy saver" .	120000	6.60	11.00
20	2006-07	"Elimination of cooling tower and introduction of sprinkler water cooling system" in quenching tank of GCF.	10800	0.59	0.30

Safety & Environment:

Environmental Projects:

Objective: To reduce diesel cost on boiler in lean hours.

Target: To reduce diesel cost from Rs. 528/hr to Rs.66 /hr by 31/5/2006.

Program: Installation of LPG fired boiler.

Benefits: (a) Saving on diesel consumption by 21litres/day.

(b) Reduction in emissions due to switchover to LPG from diesel fired boiler.



Resource saving

Environmental Projects:

Objective: To prevent leakage of LPG at canteen area.

Target: To ensure leak free environment at canteen LPG storage area by 31/5/2007.

Program: Installation of "LPG Leak detection system" .

Benefits: (a) Proactive approach towards avoiding emergency.
(b) Improved work environment at storage area.



Improved work environment

Environmental Projects:

Objective: To reduce emission levels of forklifts

Target: To reduce the emission level from 75 HSU TO <65 HSU by 30/11/2006.

Program: Installation of "S4 Engine" in place of "P4 Engine" by M/s Voltas.

Benefits: (a) Smoke level achieved within 65 HSU.
(b) Improved work environment.



Pollution Prevention

Environmental Projects:

Objective: To improve work environment inside the test cell while testing of chassis in "Roller Test Bench".

Target: To reduce spreading of smoke at LH side of test cell by 26/07/2006.

Program: Installation of exhaust hood on LH side for suction of smoke.

Benefits: (a) Improved work environment.
(b) Elimination of Interested party concern.



Pollution Prevention



HINDUJA GROUP

Environmental Projects:

Objective: To improve work environment inside Chassis assembly shop while starting of vehicle.

Target: To reduce smoke emission inside the shop by 30/05/2006.

Program: Installation of "Nederaman Exhaust system".

Benefits: (a) Improved work environment.



Pollution Prevention



HINDUJA GROUP

Environmental Projects:

Objective: To reduce the wastage of anabond at our Engine machine shop .

Target: To reduce the consumption of "Anabond 402" for HCB line from 90 litres/ annum to 60 litres /annum by 30/05/2006.

Program: Installation of " Anabond applicator" for controlling & dispensing of anabond.

Benefits: (a)Resource conservation.



Resource saving

Environmental Projects:

Objective: To reduce the noise level at our Engine R&D shop .

Target: To reduce the noise level inside the shop from 77dbA to 72 dbA by 15/06/2006.

Program: Installation of " Damping arrangement in the exhaust system" by Cummins.

Benefits: (a)Reduction in from 77dbA to 71 Dba at passage area.

(b) Improved work environment.



Pollution Prevention

Environmental Projects:

Objective: To improve work environment in engine components machine shop while machining cast iron components.

Target: To reduce the dust level inside the shop from 650 mgm/m³ to <500 mgm/m³ by 31/05/2006.

Program: Installation of "Dust Collector".

Benefits: (a) Reduction in SPM level to < 500 mgm/m³.

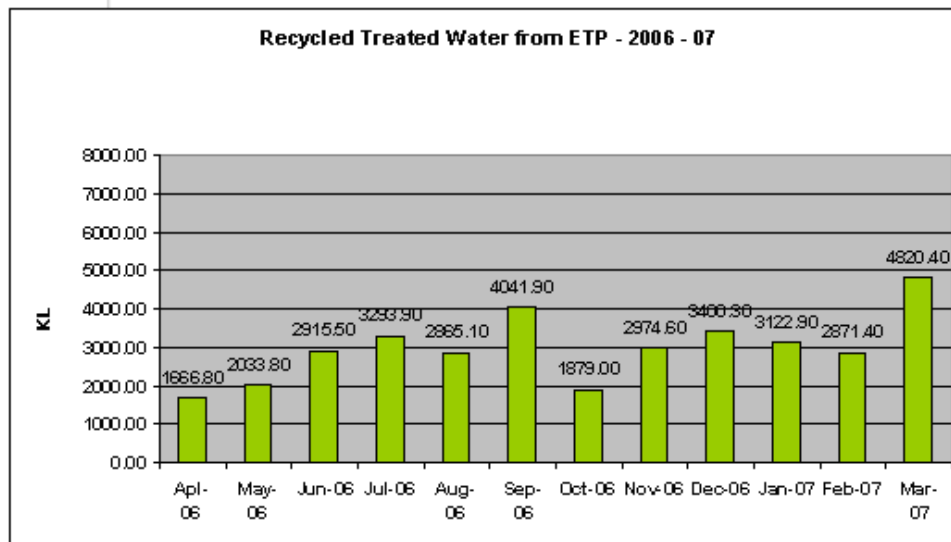
(b) Improved work environment.



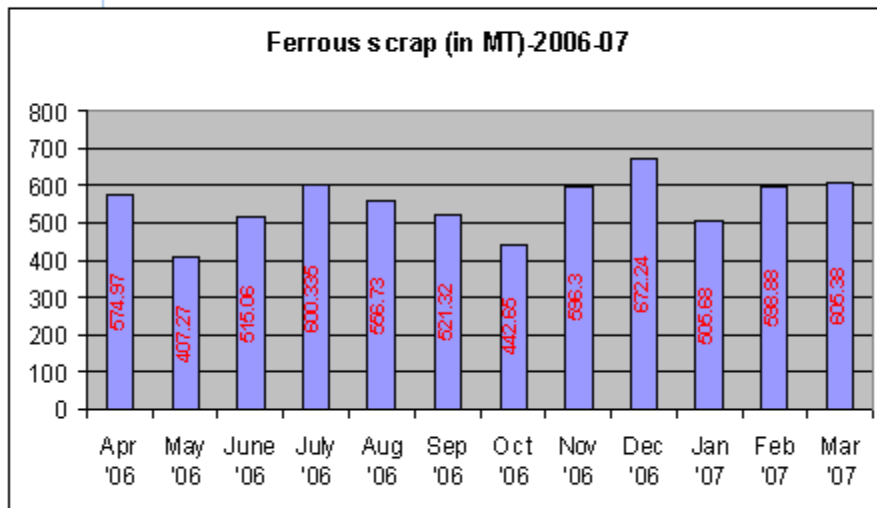
Pollution Prevention

Wealth from Waste:

Wealth from Waste:



Wealth from Waste:



Wealth from Waste:

