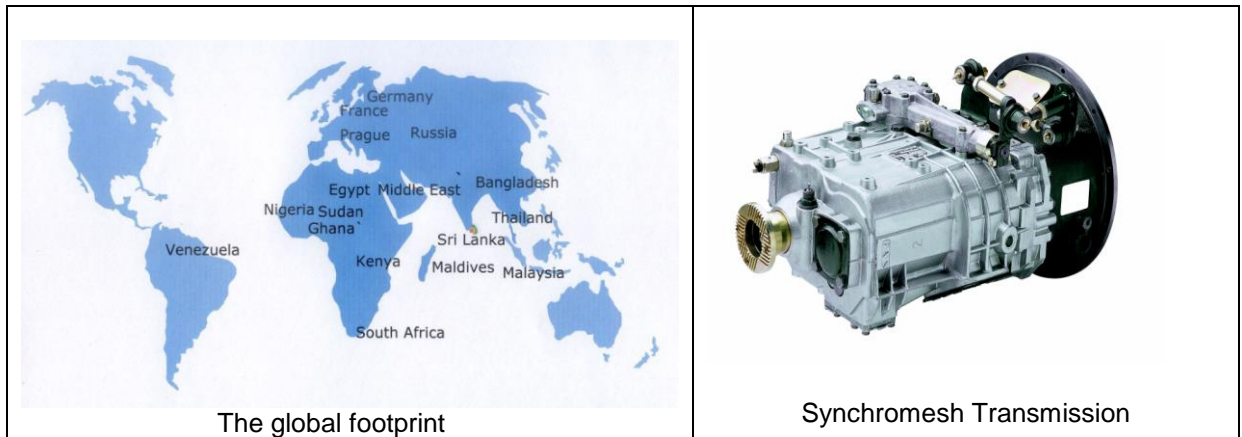




Ashok Leyland Bhandara Unit is located at class D notified backward area , 80 kms towards east of Nagpur along the national highway no. 6 . This is a drought prone area having no industry around . AL commenced its operations in the year 1982 . Progressively AL emerged as a modern and integrated transmission manufacturing plant , housing best in the class machine tools , heat treatment and assembly facilities for manufacturing and testing of transmissions in technical collaboration with ZF-Germany . AL is supplying synchromesh transmissions to the total range of Ashok Leyland commercial vehicles manufactured at various locations of the company in India and abroad . AL also produces commercial vehicles in small numbers , as per the market demand . The transmissions manufactured by AL are running successfully across the globe and has acquired a very good brand name . The presence of AL transmission exists over the Globe in 40 countries . AL also manufactures transmission spare parts and caters to the total network .



Few of our customers for transmissions are ZF-France , ZF-Hungary , Defense Vehicles Factory , State Road Transport Corporations like MSRTC , BEST , PMT , PTC , KSRTC , DTC , RSRTC , Private transporters and fleet owners operating in various segments like , mining , construction , off road applications , tankers and trailers , water bowsers , fire tenders etc.

AL has matching supplier base , who have become front runners in their respective fields and have developed capabilities to meet our process requirements . Major suppliers include , Bombay Forgings , QH Talbross , Hinduja Foundries , Sri Balaji Castings , MUSCO , Trinity Engineers , Trinity Auto , Sound Castings , Natesan , Jay Hind Castings , Rane Steerings , ZF Steerings , Tata Toyo , Fleet Guard , Spicer India , SKF , Sundaram Fasteners Ltd. , NRB Bearings etc.

The processes such as , Production Planning & Control , Material Planning , Finance , HR & Training , Manufacturing , Plant Engineering , Resource management & Industrial Engineering , Quality Assurance , IT , Purchase , Tool Planning , Stores etc are headed by the process owners and are coordinated by the Unit Head .

Milestones of Bhandara Unit:

1	ISO 9001 - 1994 - Certification	12.09.1995
2	QS 9000 - 1998 + ISO 9002 - 1994	18.09.1998
3	ISO 14001 - 1996 (EMS) - Certification	18.03.2002
4	Golden Peacock Environment Management Award	08.06.2002
5	ISO 9001 - 2000 - Certification	19.03.2003
6	TS 16949 Certification	06.02.2006
7	Accreditation of metrology lab by NABL, New Delhi	27.11.2006
8	'India Manufacturing Excellence Award (IMEA) 2007' conducted by Frost & Sullivan.	08.12.2007



It is not only the investments in testing and inspection facilities of AL that got focus , to have best in class set up of manufacturing , but also for the best harnessing of these facilities by way of improved and integrated process developments in a systematic manner , accreditation of AL's metrology lab by NABL – Ministry of Science and Technology, New Delhi is one amongst many of the manifestation of the above .



Many awards and appreciations have been received by AL for its products and services rendered .

AL received the 'Platinum' under the 'India Manufacturing Excellence Award (IMEA) 2007' conducted by Frost & Sullivan in Indian Manufacturing .

'GEMBA' initiative launched in the year 2005 is helping AL to achieve higher levels of value addition by its total workforce : Quantum jump in throughput improvement , 'New Seven Initiatives' (N7i) viz . Efforts & Ergonomics Index (EEI) improvements, waste reduction, Cost Management Initiative (CMI), 5S improvement, inventory optimization, OEE improvement and Total Employee Involvement (TEI) are yielding good and sustainable results. Other initiatives include Quality Circle, BITES, 100% club, RISEi, Suggestion Scheme and Six-Sigma for encouraging total employee involvement.



AL accords priority not only for the proactive actions for prevention and abatement of pollution but also works to make the environment better than what it naturally was; an initiative for giving back to the mother earth. It has adopted environmental friendly technology in all of its processes. AL is certified for ISO 14001:2004.

Received **Golden Peacock Environment Award** from **Dalai Lama** in the year 2002.



Ashok Leyland received the 'Best Employer Award' in the manufacturing sector from CNBC in the year 2007.

About 150 professionals and 600 trained technicians form the core strength of AL's work force. Their trust on the management and commitment levels, as getting mapped by external agency (Gallop India) are the benchmark in the industry for others to emulate. Continuous training inputs are given to keep the work force at the highest motivation and ability levels.



Energy Management System

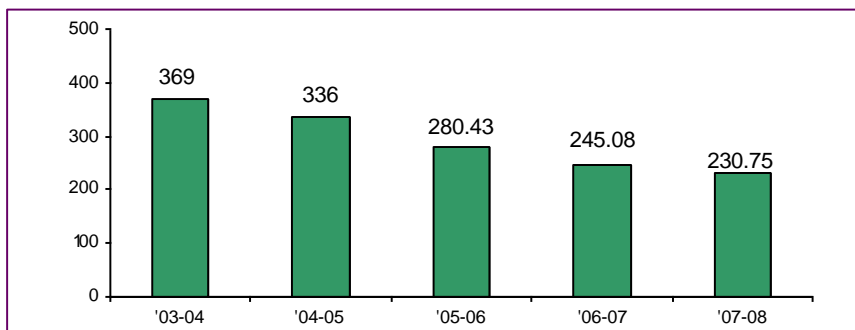
The Unit attaches top priority towards conservation of energy being scarce resource. At Ashok Leyland, Bhandara; energy conservation drive has become a way of life. The conservation drive received momentum after the appointment of Energy Manager in the year 2004 who motivates the team and the process owners. Data related to electricity consumed during last five years is given in the table

Electricity power data

SN	DESCRIPTION	2003-04	2004-05	2005-06	2006-07	2007-08
1	Total Power Cost (Rs. Lacs)	619.17	626.2	827.77	1135.55	1131.84
2	Total KWH Units (Lacs)	179.06	193.22	246.40	271.91	268.51
3	Equivalent Gearbox Units	48587	57487	87866	110946	116364
4	Total KWH / EGB	369	336	280.43	245.08	230.75

Lot of emphasis is being given towards change of mind set of employees for this drive. A platform of 'Mission Gemba initiative' to ensure Total Employee Involvement (TEI) and Empowerment to mine more values and get 'more from few resources' thus making one and all contribute towards improving specific energy consumption. Numerous projects on energy conservation have been implemented and the gains sustained year after year. This is reflected by way of reduction in specific energy consumption per Equivalent Gear Box (EGB).

SPECIFIC POWER CONSUMPTION TREND (KWH / EGB)



In addition, power factor improvement is viewed a thrust area. The Unit has rare distinction of achieving UNITY power factor 11 times in 07-08; remaining month it was at 0.99. Wind power utilization has significant share in the total energy consumption.

Year	PF incentive Lacs Rs	Wind power lacs KWH
04-05	15.66	119.5
05-06	18.67	105.22
06-07	27.33	99.81
07-08	45.64	92.54



Energy policy:



ASHOK LEYLAND
ENGINEERING YOUR TOMORROWS

ENERGY POLICY

Ashok Leyland will strive to conserve energy in all forms and optimise its usage through :

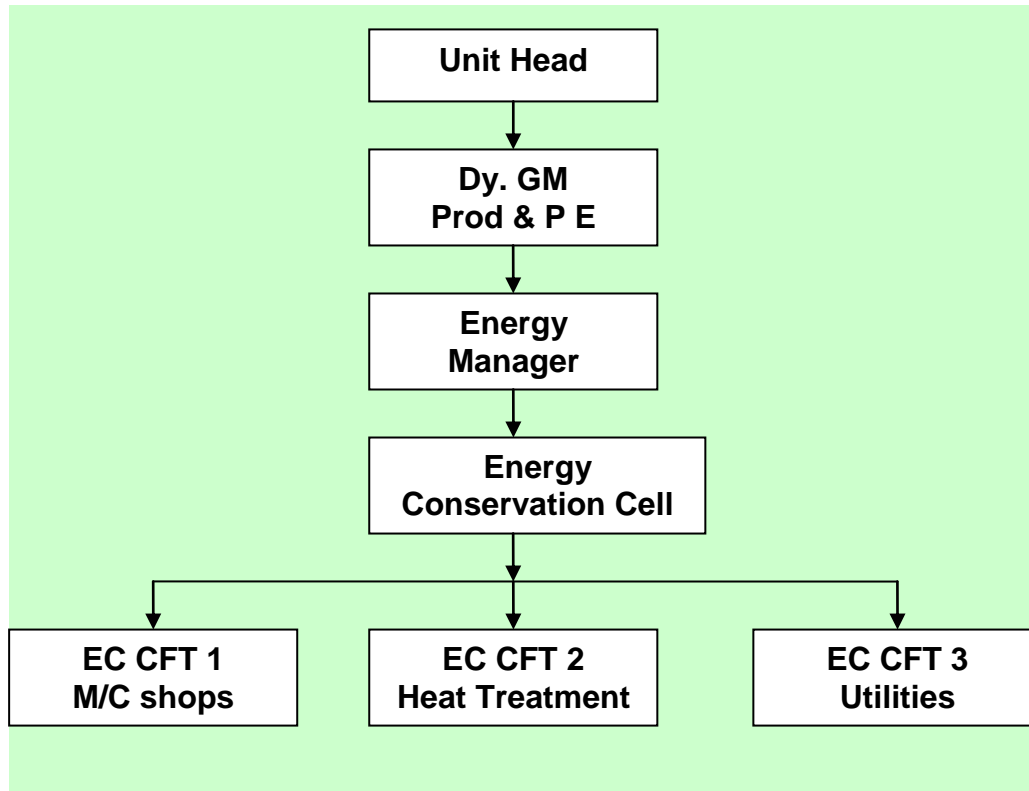
- Measurement and study of electrical energy consumption
- Setting targets for energy reduction and achieving them through management plans and regular monitoring
- Procuring energy efficient equipment and adopting energy efficient processes for new projects wherever practicable
- Continual reduction in consumption of fuels backed by regular reviews
- Exploring usage of alternate sources of energy in lieu of conventional sources where practicable
- Training of personnel including contractors on energy conservation
- Encouraging small group activities aimed at energy reduction
- Abiding by all the laws of the land which regulate the use of energy


MANAGING DIRECTOR



Energy conservation and management :

Organisation structure



Energy conservation cell:

- ❖ Sr. Manager – Plant Engg. – Designated Energy Manager
(Certified Energy Auditor –2004)
- ❖ Dy. Manager – Plant Engg. (Certified Energy Auditor –2007)
- ❖ Div. Manager – Plant Engg.
- ❖ Sr. Manager – Heat Treatment
- ❖ Div. Manager – M/c Shop

Energy conservation cell- Responsibilities:

- Energy data analysis and actions for improvements
- Exploring avenues for energy conservation and implementation
- Conducting internal energy audits
- Optimum utilisation of machines and furnaces
- Sharing of energy data to all concerned
- Information to management
- Energy conservation week celebration; organizing various competitions
- Rewards and recognitions
- Continual Improvements



Energy monitoring system:

- Energy data collection on daily basis using on-line eLAN energy management system
- Power factor monitoring on daily basis and ensuring always above 0.99
- Maximum Demand monitoring & control
- Setting overall and area wise power consumption targets, monitoring and reviewing
- Making available power data on-line through ERP system (ALMAP) to monitor and control by users.

Major energy conservation projects implemented :

A) Installation of Conzerv energy management software.

In order to make Energy management system On-Line and reliable all energy meters were interconnected to dedicated computer using Conzerv Energy Management Software.

Since installation of energy management software, we could fetch following benefits:

- 1) Availability of total and area wise energy data in the form of reports for analysis and controlling of power consumption.
- 2) Maintaining area wise power factor always above 0.99; to improve voltage regulation and obtain incentive from MSEDCL.
- 3) Restricting MD to 4700 KVA against contract Demand of 5000 KVA.

Reports and history trends of various electrical parameters are made available to all concerned for further improvements.

Investment :- Rs 244000 /-



B) Optimization of compressed air system by interconnecting 8 Nos. of air compressors and controlling by programmable logic controller.

8 Nos compressors are located at different locations but connected thru' Ring main system and controlled thru' PLC system.

Compressed air is fed to the plant in two different air pressure level (High 5.9 Kg/sq. cm and Low 5.2 Kg/sq. cm) Programming is done such a way that, one base HP and one base LP compressor is always in operation, where as trim compressor comes into operation in the event of pressure drop. Thus optimum air is utilized and un-interrupted air supply is provided to whole plant.

Investment: Rs 1700000 /-

Savings: Rs 2094000 /-

C) Optimization of capacity of electrical motors to suit the load requirement.

It was noticed that, hydraulic motors of 8 Nos vertical broaching machines and 4 Nos Hydraulic press are under loaded i.e. less than 50% causing utilization of these motor away from Best efficiency point. Connections of all above motors were converted from Delta to Star.

Investment: Nil

Savings: Rs 666325



50 HP Motor for vertical broaching machine



5 HP motor for hydraulic press.



D) Productivity improvement on MAZAK

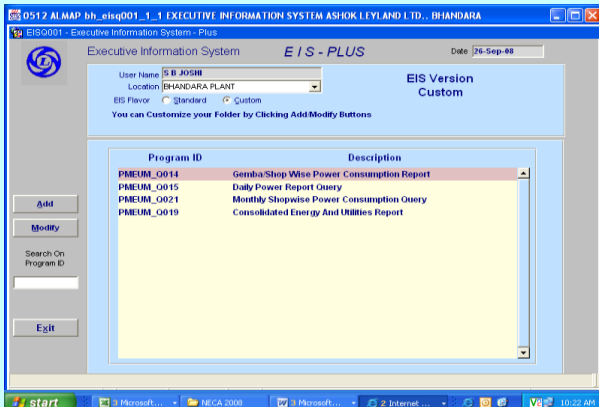
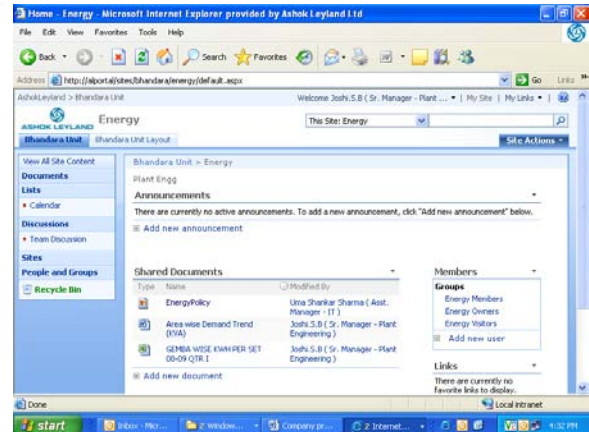
Productivity improvement on MAZAK machining centre by eliminating machining operation from HMC machine and optimizing cutting parameters of five nos MAZAK machines.

Investment on toolings: Rs 861000/-
Savings: Rs 647688/-

E) Introduction of Energy portal on website

Energy portal is created on our website to share information regarding various achievements related to energy i.e. month wise specific energy consumption of each production lines in graphical and tabulated form.

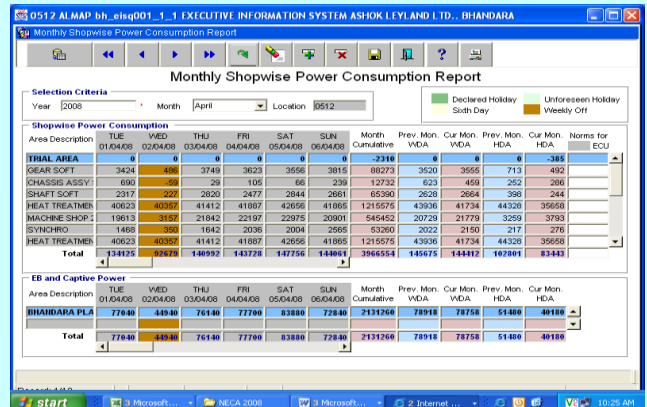
Recently area wise maximum demand (KVA) trend & Energy policy is uploaded on the portal. Screen shot of Energy portal is shown.



In-house software program is developed and incorporated in existing ERP system for monitoring & controlling overall & area wise power consumption. Above screen shot shows four programs:

1. Gemba/Shop wise Power Consumption Report
2. Daily power report query
3. Monthly shop wise power consumption query
4. Consolidated energy and utility reports.

With the above program daily as well as monthly power consumption of each area is available for analysis and control.



Programs are developed such that daily power consumption can be compared with last month power consumption in one screen.

From above ERP programs one can have total information about power system like total power consumption, maximum demand, power factor, area wise power consumption, captive power generation, diesel consumption etc.

Access to Query program is given to all process owners (Production In-charges).



EC projects summary:

YEAR	SAVING IN LACS. KWH	SAVING IN Rs LACS	INVESTMENT IN Rs LACS
2005-06	5.83	42.28	2.514
2006-07	8.11	67.23	40.46
2007-08	8.08	81.2	14.02

Future plans for improving SEC:

SN	Project Description	Investment Rs In Lacs	Exp.Savings Rs In Lacs
1	Implementation of Non-conventional energy projects like Solar water heater at canteen	1.5	0.4
2	Installation of solar street lights in select locations	3.28	0.55
3	Conducting Energy Audit through accredited agency i.e. PCRA, Mumbai	2.0	Based on suggestions.
4	Installation of eco-friendly turbo ventilators, thus avoiding use of exhaust fans.	0.8	0.16
5	Productivity improvement projects like reduction in cycle time, process modification etc.	2.0	5.0
6	Replacement of 2 Nos Diesel fork lifts with battery operated fork lifts.	16	3.6
7	Reduction in skin temperature of old furnaces.	2	0.7
8	Modification in machine tools to switch OFF machine automatically, when not in use.	1.0	1.0
9	Modification in ventilation system to switch OFF ventilators automatically during lunch / dinner time	1.6	1.6
10	Replacement of conventional twin tube light fittings by energy efficient metal halide fittings on Shop floor.	1.5	1.7
11	Replacement of conventional tube light fittings with C.F.L in offices	0.5	0.15
12	Installation of translucent FRP roof sheets in place of aluminium sheet for better natural illumination.	1.51	1.35
13	Increase in wind power share from 35 to 75%	Under negotiation	
14	Conduction EC awareness programs for employees and nearby villages/schools	0.5	Non Tangible benefit

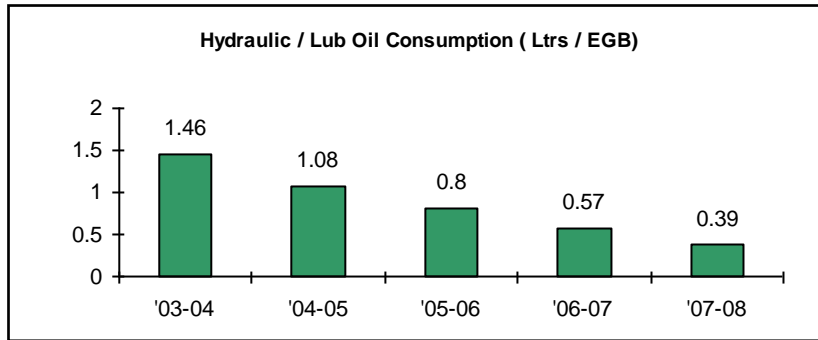
RESOURCE CONSERVATION

In addition to electricity conservation measures we have cross functional team approach towards resource conservation. Major resources are:

1. Hydraulic / Lubrication oil
2. Compressed air
3. Water.

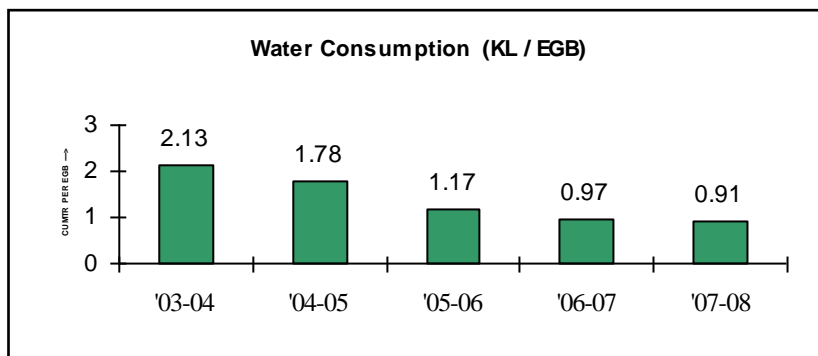
Hydraulic / Lubrication oil conservation approach & actions :-

- Targeted monitoring ; Timely replacement of rubber items
- Improved quality of rubber items
- Avoiding over filling ; Improved handling
- Maintaining work area and return lines clean
- Monitoring excessive consumption



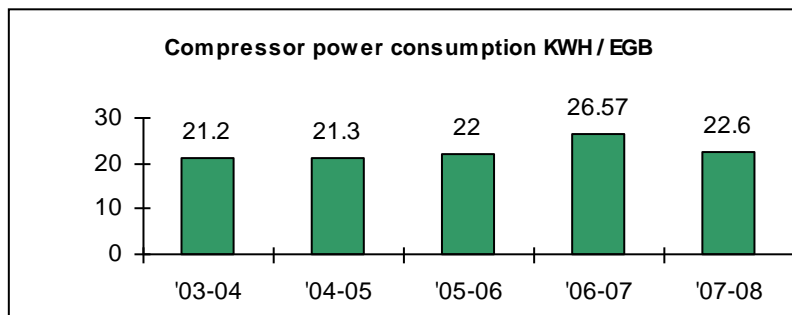
Water conservation approach & actions:-

- Assigning targets and monitoring actual consumption.
- Capturing wastage and taking timely corrective actions.
- Running of water pumps as per requirement only.
- Analysis of consumption data and interaction with MIDC for timely change in supply quantity as per seasonal requirement.
- Regulating MIDC line valve to avoid overflow.
- Method of watering to plantation improvised.
- Creating awareness among users for conservation.



Compressed air conservation approach & actions:-

- Periodic checks to detect air leaks; Minimizing air leaks and misuse
- Avoiding compressor running during no-use time.
- Avoiding main compressor running in deep night shift by providing localized smaller compressors.
- Regrouping & optimizing cooling water pumps for compressors.
- Optimizing pressure settings to feed majority and managing higher pressure areas with portable compressors.
- Maintaining compressors to deliver designed out put.



Due to increase in high pressure air requirement for imported machine tools and new furnaces there was increase in KWH/EGB requirement of compressed air in 06-07. With the introduction of PLC based controlled system reduction in KWH/EGB was achieved. Total saving of 4.7 Lacs KWH per annum is actualized in 07-08; cost impact is Rs 20.94 Lacs.



ENVIRONMENTAL MANAGEMENT SYSTEM:

Ashok Leyland, Bhandara is ISO 14001: 2004 certified Unit. The first certification was achieved for ISO 14001: 1996 in 2002. During 2006, the Unit upgraded the certification to ISO 14001: 2004. Since the introduction of Environmental Management System, Unit has executed a number of projects on resource conservation.

The prestigious “Golden Peacock – Environment Management Award” was received by the Unit in 2002 by the World Environment Foundation. The award was presented by his holiness, Dalai Lama at Palampur in Himachal Pradesh. The special features of the Environmental Management System are given below.

- 1) Compliance beyond 100% legal requirements.
- 2) Environmental training of employees
- 3) Development of green belt
- 4) Conservation measures for resources like water, compressed air, power etc.
- 5) Move towards renewable energy
- 6) Continuous improvement projects
- 7) Environmental objectives and targets
- 8) Segregated wastes storage and scientific disposal system
- 9) Responsibility towards the society.

Legal compliance: As committed in Environmental Policy, Ashok Leyland is committed to comply with all the applicable rules and regulations. Towards this, the company has studied all the relevant obligations and established a practice to always remain 100% compliant. Also, a system for updating the changes in rules and regulations is in place so as to ensure compliance at any given time. The compliance is reviewed periodically and compliance reports are prepared and shared in review meetings with the concerned.

Environmental training of employees: EMS awareness training is given to all the employees of the company and contract employees. In addition, 52 executives are trained for internal auditing, who conduct the internal audits every quarter. Each department has identified environmentally significant aspects of the activities performed by them and for all such aspects operation control procedures have been established. All the concerned employees have been given the training on these procedures.

Development of green Belt: 100 % of free area within the premises is covered under plantation as against statutory requirement of 33% coverage. Total number of well-grown plants in the premises is about 02 lacs and the varieties are more than 35. They include Teak, Ashoka, Suru, Shishan, Neem, Bamboo, Eucalyptus, Hibiscus etc. In general, the premises remain green, neat and clean, free from any environmental pollutants.

In addition to plantation, company has take lot of efforts in developing green lawns and land scaping wherever feasible. This helps to maintain overall ambient conditions comfortable for working employees.

Social responsibility: Company is committed to work for society with the aim to improve environmental awareness of all the elements of society. Following initiatives have been taken in this respect.

- Environmental awareness training program for NSS camp
- Environmental awareness training to school / college students of nearby towns
- Environmental awareness training to family members of employees
- Support to MPCB in arranging seminars on environment
- Medical aid to neighboring villages
- Financial help to neighboring schools



Safety Management : Initiatives and Improvements

Safety committee: Monthly safety committee meetings are held under the chairmanship of Unit Head. It constitutes 28 members, all department heads / In-charge / Gemba Unit Leaders (GUL s), MA – OHSAS / Medical Officer, MR-EMS and associates are the members of safety committee. There is equal no of participation from associates; one associate from each line is a member of safety committee. Respective GUL / In-charge shares the causes of incident & corrective action taken for incidents took place during previous month. All other points related to safety, health & environment are being discussed during the meeting.

Hazard identification & risk assessment under OHSAS 18001: All the executives have undergone OHSAS 18001 awareness training program. The departments have identified the hazards related to their activities and also assessed the risk level as per OHSAS guidelines, and are proceeding to prepare Risk Control Procedures (RCP) which will in turn help in preparing objectives, OHSMP and operation control procedures thus the risk level will be reduced to acceptable risk. In short Incident rate will be minimized or may be reduced to zero.

Safety audits: All GUL s / line In-charge carry out safety audit of their line along with DM-Safety and associate member as per schedule. During the audit unsafe condition / unsafe practices, if any present at work place are being observed and immediate corrective actions are taken accordingly.

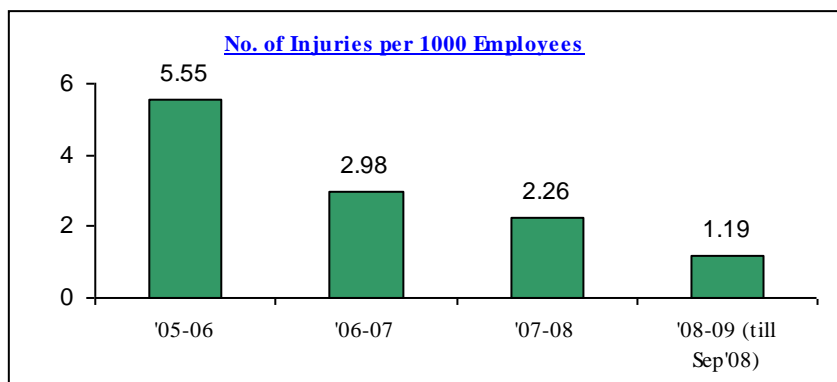
Training to employees: Classroom training on safety, health, environment and fire fighting is provided to all the floating employees before putting to work. DM – Safety gives inputs on General safety & environment, Asst. Manager–Security educates them on fire fighting and medical officer gives health related tips. Also on the job, training on machine safety is provided and causes and corrective actions taken for the accidents in previous 2 years are shared with the newly joined employees by respective line In-charge / GUL.

Incidents reporting: All departments have incident register to record the incidences / accidents / near misses. In case of injury to person the victim is sent to medical centre for further treatment. For every incident investigation is done by a team (GUL / In-charge, DM – Safety and associate member) to know the root cause and proposes corrective action required to be taken to avoid its recurrence

Third party inspection: Safety audits, risk & consequences analysis, inspection of tools & tackles / man coolers / shot blasting machines by competent person are being done at regular intervals.

Motivation programs: Every year 'Safety week', 'World Environment Day' and 'Energy Conservation week' are being celebrated by organising different competition like slogans, essay, poems, drawing, awareness program, etc. for employees & their families to motivate them on safety, health, environment and resource saving.

Use of PPE's: Wherever required use of PPE's (Personnel Protective Equipments) is ensured in all the activities. PPE management program is prepared to make the safe & fruitful use of PPE's. As a result of thrust on overall safety of man and machine, no. of injuries per 1000 employees is continuously reducing as shown in graph below:





Occupational health monitoring

Following activities are performed at our Medical Center:-

- 1) Pre-recruitment check up
- 2) Periodical health check up
- 3) Campaigns on various health related subjects are organized and conducted from time to time to know the present health status of the employees.
 - a. Cardiac disease diagnostic & treatment camp
 - b. Skin disease diagnostic & treatment camp
 - c. Dental diseases diagnostic & treatment camp
 - d. Anemia diagnostic & treatment camp
 - e. Blood sugar detection camp
 - f. Healthy baby competition
 - g. Blood group detection camp
 - h. Blood donation camp (As a part of social responsibilities)
 - i. Bone densitometry camp
- 4) Sick employees are regularly treated and employees needing specialist treatment are referred to concerned specialist for investigation and expert treatment. Record maintained.
- 5) Food handlers check up of canteen & guest house is done regularly on monthly basis to maintain the hygienic condition.
- 6) Sanitary audit of canteen is taken with reference to cleanliness of kitchen, dinning hall, and utensils, drainage system, drinking water and disposal of waste.
- 7) Sanitary audit of all toilets on shop floors and offices is taken on monthly basis with reference to cleanliness, proper ventilation, water leakage, proper drainage and proper illumination.
- 8) A well-equipped ambulance is parked near the medical center for 24 hours so that it can be utilised in case of emergency when needed. Stretchers and First-aid boxes are kept at important places in the shop floor and in offices for quick disposal and easy treatment of the patients.
- 9) Liasoning with government hospitals and private specialist and super specialist is done for prompt and urgent treatment of emergency cases.