

## GlaxoSmithKline Pharmaceuticals Limited, Nashik

### (i) Unit Profile



**GlaxoSmithKline Pharmaceuticals Ltd., Nashik** is the prime secondary formulation drugs manufacturing facility of the country's number one pharmaceuticals company with a market share of 6.5 % of the Indian pharmaceutical market. The unit is an integral part of world leading research based pharmaceutical company "**GlaxoSmithKline Pharmaceuticals Plc.**" with head quarter at U.K. & operation based at U.S. The company has an estimated share of 7 % of the world pharmaceuticals Market.

- ✚ The company has two manufacturing facilities in India, located at Thane and Nashik
- ✚ GSK-Nashik is recognized globally for it's world class quality products manufacturing facilities for various dosage forms viz.
  - Sterile Products – Dry Powder & Liquid injectables.
  - Non Sterile Products – Tablets, Ointments, Liquids, Capsules, Clean Liquids & Inhalers.
- ✚ In pursuance to it's quest to be the world best secondary formulation drugs manufacturing facility, GSK-Nashik has various distinct recognitions both at national as well as international level to it's credit. To list some of you as follows:-
  - ISO 14001 & OHSAS 18001 Certification
  - WHO GMP Certification for various products.
  - CEO'S EHS Excellence recognition awards for the year 2002 & 2003 for
    - Energy Conservation initiatives
    - Elimination of CFC'S from centralized refrigeration system.
  - Excellence recognition awards for various initiatives in lean sigma & non-lean sigma categories.
  - National & state level energy conservation award – 2004 in drugs & pharmaceuticals sector.
- ✚ **In view of the above, GSK-Nashik site is being looked for one of the most preferred sources of supply for secondary formulations by the Global Manufacturing & Supply Network of the GSK group in near future.**
- ✚ Apart from manufacturing excellence, the strong field force of GSK, backed by a nation wide network of stockiest, ensures that the company's products are readily available across the nation. This combined with

the quality of the products means that GSK is able to strengthen the hands of doctors by offering superior treatment and healthcare solutions. It is our constant endeavor to improve the quality of life by enabling people to do more, feel better & live longer.

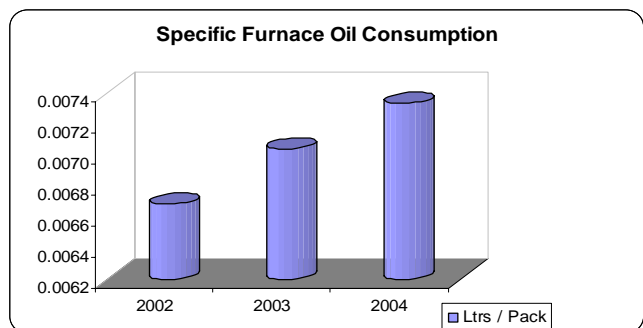
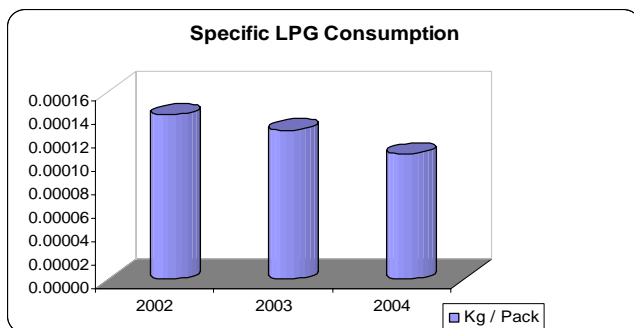
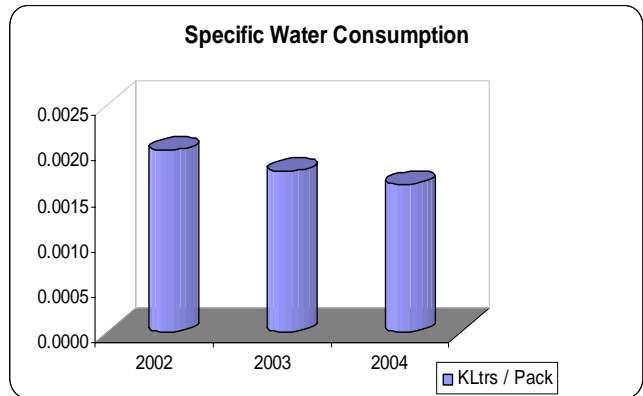
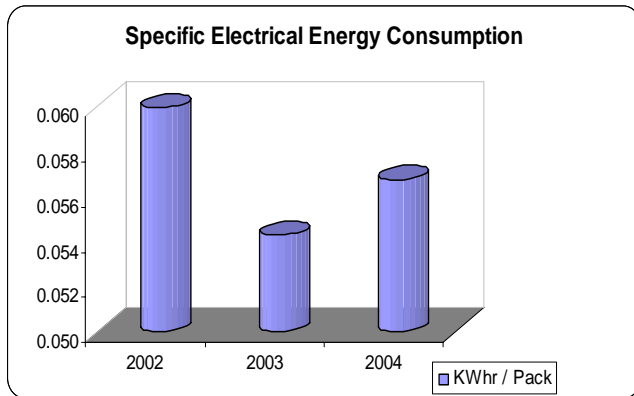
**( ii ) Energy Consumption :**

A proactive approach towards implementation of Energy conservation measures as well as productivity improvement initiatives has resulted in sustaining the leading position in present competitive pharmaceuticals market. **“To produce more quality products with efficient & effective use of resources”** is the current mantra of the site. The status on yearly production, resources consumptions & the trends on specific consumption of water, electricity & Furnace oil are stated below for ready reference.

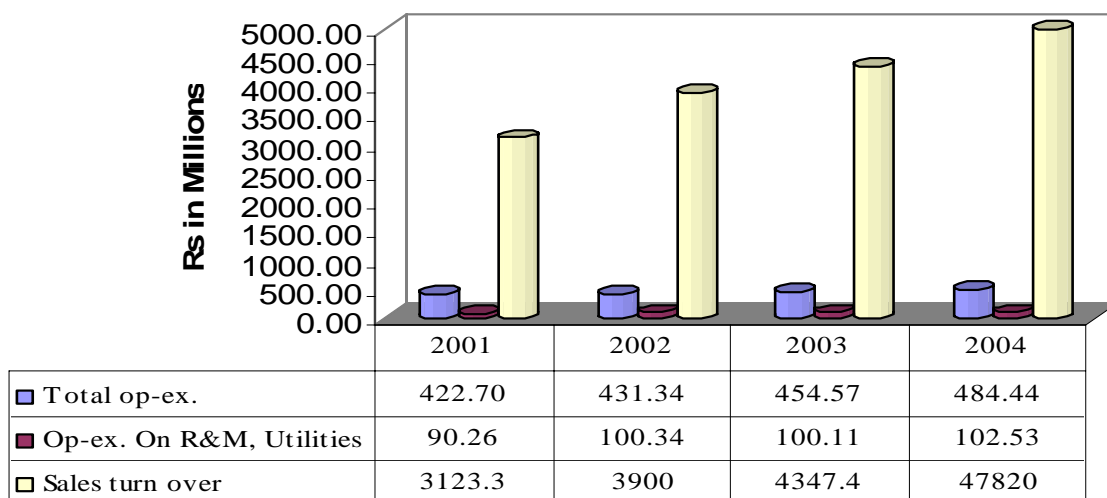
YEAR	PRODUCTION in Lacs of packs	ELECTRICAL in Lacs Kw hr.	F.O. Consumption in Lacs Ltr	Water in Lacs of KLtr.	LPG in Lacs Kg
2002	1397.5	83.74	9.34	2.8	0.19611
2003	1527.2	82.91	10.75	2.7	0.19465
2004	1657.6	94.05	12.15	2.7	0.17751

**Trends of specific resources consumptions:**

YEAR	Kw hr / pack	F.O. Ltrs/Pack	Water KLtr/Pack	LPG in Kg/ Pack
2002	0.060	0.0067	0.0020	0.00014
2003	0.054	0.0070	0.0018	0.00013
2004	0.057	0.0073	0.0016	0.00011



## Op-ex. vs. Sales Turn Over of the Unit



### Commitment:

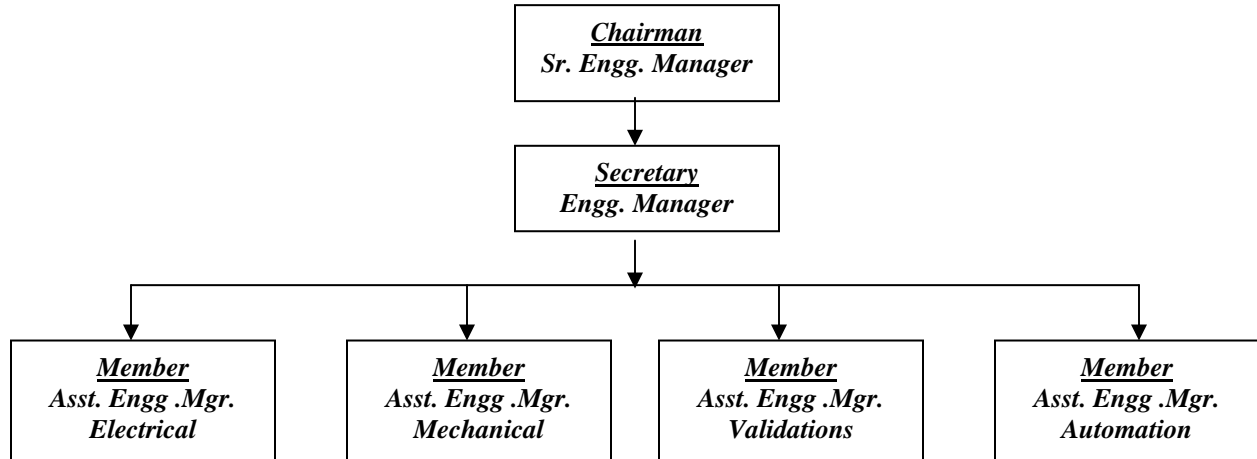
GlaxoSmithKline Pharmaceuticals Limited, India, is committed to high standards of Energy Management as an integral part of business activities, in line with corporate values and continuous improvement. GlaxoSmithKline Pharmaceuticals Ltd., India's guiding principle is that "**energy saved is energy generated**".

### Policy:

It is the policy of GlaxoSmithKline Pharmaceuticals Limited, Nashik to:

- To have customer focused approach as an integral part of energy management functions to ensure consistency in meeting customer demand effectively in a most economic way;
- Operate our business in an energy efficient, environmental friendly and socially responsible manner;
- Commit to continuous improvement to excel in meeting the target on key performance indicators in energy management;
- Comply with legal requirements and global GSK Standards;
- Make Energy conservation an integral part to all GSK Pharmaceuticals business processes, planning and decision making;
- Establish Energy conservation strategies that optimally utilize resources and prevent pollution to ensure the long-term sustainability of the company as well as the global environment;
- Ensure that all engineering employees work with due regard to operational excellence in energy management. Their attitude to energy conservation will be a factor in determining their career advancement.
- Promote the use of effective systems, metrics and goals in the energy management activities at site.

### Organizational Setup:



### Execution of Energy Conservation policy:

Approach:

- ✚ A distinct approach i.e. operational excellence in Energy Conservation has been adopted by the company in order to make the GSK-Nashik as the most energy efficient pharmaceuticals manufacturing facility of the world.
- ✚ What is O.E.?  
Operational Excellence is a new way of working for our organization. It combines the best of whatever went in past and is fresh approach to achieving excellence in Energy Management.
- ✚ O.E. Components:
  - Common language & processes, Education & training.
  - Knowledge Management
  - Lean Sigma, plus methods & tools to continuously measure & improve.
  - Performance management & bench marking.
- ✚ In addition to the fourth component of O.E. i.e. "*Lean Sigma, plus methods & tools to continuously measure & improve*" the second component i.e. Knowledge Management is being included as a part of effective energy management & conservation initiatives to initiate & implement the energy conservation measures across the site.

The implementation of lean sigma concept in energy management & conservation has resulted in identifying, analyzing & elimination of waste & variations in a realistic & more scientific way in order to make the system most energy efficient / economical in all respect.

#### ( iv ) Major Energy Conservation Projects executed during the year 2004

1. Installation of Self powered Turbine Type ventilators in place of conventional electrical powered exhaust blowers:

**Status before implementation of the project :**

- Area ventilation through electrically powered exhaust blowers
- Electrical Energy Cons. – 482 Kwhr / day.
- Op-ex. per annum – Rs. 4,99,753.00

**Status After implementation of the project :**

- Area ventilation through self powered turbine type ventilators.
- Electrical Energy Consumption – Nil
- Op-ex per annum – Nil

**Benefits per annum After implementation of the project :**

- Reduction in electrical energy consumption per day – 482 Units.
- Expected Savings per annum – Rs. 4,99,753.00
- Savings during 2004 – Rs. 2,48,000.00



2. Installation of Ultra filtration Plant for supply of WFI quality water for sterile washing activities in Ampoule Block :

**Status before implementation of the project :**

- Multi column distillation plant utilized for generation of WFI Quality water which requires huge amount of steam for producing WFI quality water.
- Steam consumption per day – 12600 Kg.
- Op-ex on steam per year – Rs.43,22,340.00

**Status After implementation of the project :**

- The WFI quality water for washing activities is produced by Ultra filtration plant which does not require steam supply for operation.
- Steam consumption – Nil
- Op-ex on steam per annum – Nil

**Savings per annum After implementation of the project :**

- Savings per annum – Rs. 43,22,340.00
- Savings during 2004 – Rs. 8,72,000.00



3.

B

**Status before implementation of the project :**

- Mechanical control on loading & unloading of reciprocating compressor of A/C Plant through TEV'S based on setting of loading control mechanism resulting in fluctuating conditions, frequent switching operation under fluctuating loading conditions.
- Electricity consumption per annum – 289450 Kwhr.
- Op-ex per annum – Rs. 1331470.00

**Status After implementation of the project :**

- Smooth control through VFD with closed loop feed back control signal of chilled brine return temperature to run the motor at low speed during unloaded mode of operation & maintaining desired temperature of chilled brine resulting in favorable conditions with energy savings.
- Electricity consumed per day – 233220 Kwhr.
- Op-ex per day – Rs. 1072812.00

**Savings After implementation of the project :**

- Savings per annum – Rs. 258658.00
- Savings during 2004 – Rs. 1,15,000.00



**4. Installation of chemical based A/C dehumidification system:**

**Status before implementation of the project :**

- Dehumidification in A/C System through additional CHB, Steam coil system in air handling system.
- Electrical Energy Cons. – 1236 Kwhr / day
- Steam consumption – 1800 kg/day
- Op-ex. per annum – Rs. 29,49,718.00

**Status After implementation of the project :**

- Drykor Dehumidification system having Chemical based ( LiCl ) dehumidification with refrigeration cycle for regeneration process.
- Elect. Energy Consumption :386 Kwhr/ day
- Steam consumption – 700 kg/day
- Op-ex per annum – 9,88,713.00

**Benefits per annum After implementation of the project :**

- Expected Savings per annum – Rs. 1961005.00
- Savings during 2004 – Rs. 3,83,000.00



5. Installation of refrigerated air dryer in place of heatless air dryer :

**Status before implementation of the project :**

- a. Compressed air is dried using heatless air dryer where in the loss of compressed air is in the range of 10 – 14 % of rated capacity.
- b. Cost of Waste due to air loss per day Rs. 460.00
- c. Cost of waste per annum – Rs. 1,10514.00

**Status After implementation of the project :**

- a. The desired dew point of C.A. is achieved through refrigerated air dryer.
- b. Op-ex per day – Rs. 53.00
- c. Op-ex per annum – Rs. 12797.00

**Savings per annum After implementation of the project :**

- a. Savings per annum – Rs. 97716.00
- b. Savings during 2004 – Rs. 92,000.00



**Status before implementation of the project :**

- Mechanical control on loading & unloading of reciprocating compressor of A/C Plant through TEV'S based on load unload mechanism, resulting in fluctuating CHB Temp., frequent switching operation under fluctuating loading conditions.
- Electricity consumption per day : 621 Kwhr.
- Op-ex per day – Rs. 2859.00

**Status After implementation of the project :**

- Smooth control through VFD with closed loop feed back control signal of chilled brine return temperature to run the motor at low speed during unloaded mode of operation & maintaining desired temperature of chilled brine resulting in favorable conditions with energy savings.
- Electricity consumed per day – 528 Kwhr.
- Op-ex per day – Rs. 2430.00

**Savings After implementation of the project :**

- Savings per annum – Rs. 1,56,550.00
- Savings during 2004 – Rs. 55,000.00



1	Rationalization of L.P. Compressed air system
2	Avoid running of garden water pump during high tariff zone
3	Replacement of 7.5 HP vacuum pump with 1.5 HP vacuum pump for mollins m/c at pkg-IV

4	Replacement of 30 HP motor of Beta Vacuum blower with 15 HP motor
5	Modification in potable water distribution system to reduce the power consumption of pumping system from 40 HP to 30 HP.
6	Relocation of Betnesol compression m/c from suit no. 6 to betnesol compression area to avoid running of supply services eqpt. Of suit no. 6 in 2nd Shift.
7	Replacement of unwanted flame proof fixtures with clean air fixtures
8	Stop running the additional vacuum pump in capsule filling m/cs.

**(v) Productivity Improvement initiatives to ensure effective & economic use of resources:**

**Knowledge Management:** As a part of O.E. Approach towards **“Producing more quality products with efficient & effective use of resources”** Knowledge management was considered to be the key component towards achieving KPI Targets. To execute the same knowledge sharing camps were arrangement for various cross functional teams of the site.

**Knowledge Camps:**

People connect Liblink – 92 Participants

Visual Factory – 74 attendees

Knowledge management camps

Site director addressing the camp during inauguration

KPI Team member presenting the concept of Visual factory

Understand complaints & documentation (appro- DE Allocated) 50 UREs Identified

understanding 68 from OE team

Brain storming session during the camp

Collaborative tools – 74 Participants

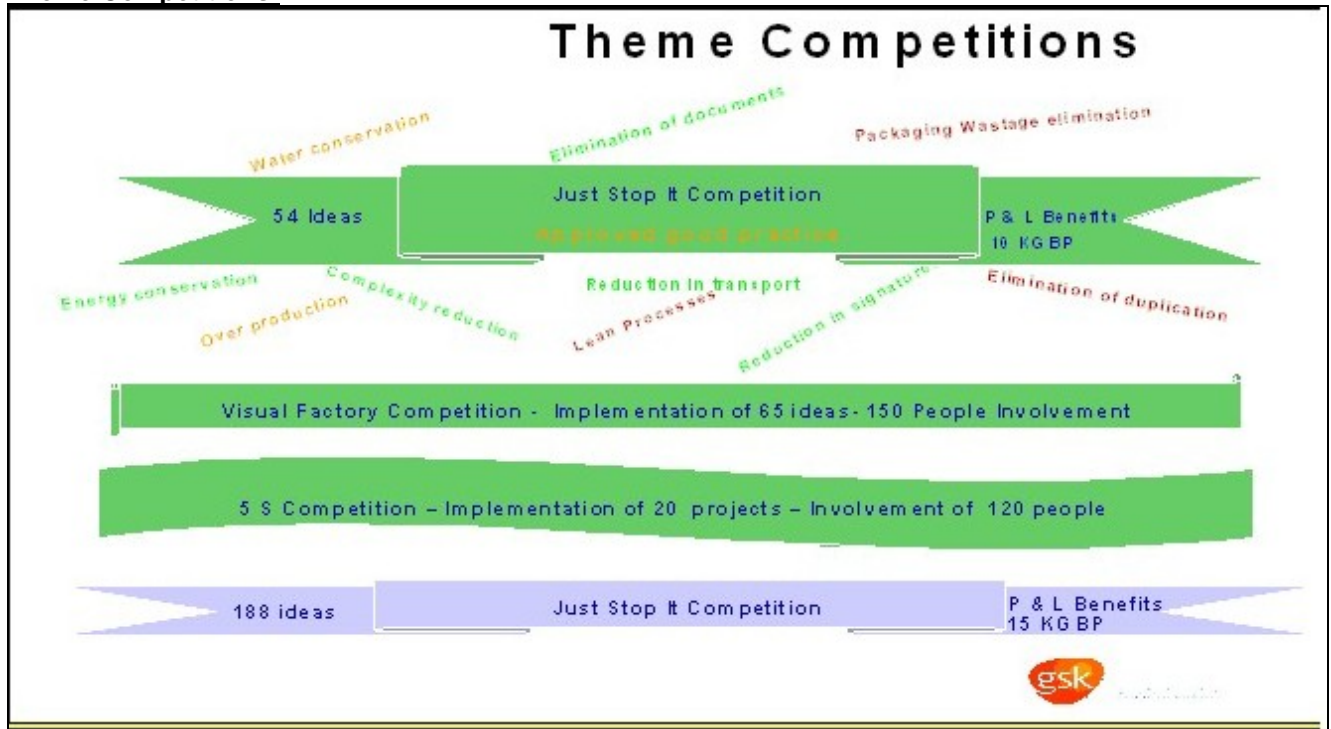
Up-dating internal customers on opportunities

**Knowledge Camps**  
**Divisional ERA award 2004**  
**Approved as Good practice**

The mes identified through Kmap process  
 One camp each month  
 Camp followed by the me competitions  
 Presentations with best in class examples  
 Benefits –  
 Building of OE culture  
 Bridging the knowledge gap  
 Learning through practice

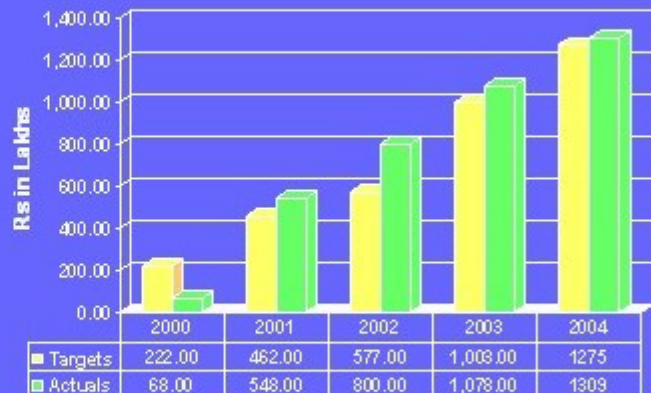
**gsk** GlaxoSmithKline

**Theme Competitions:**



## Progress On Our Commitment towards Operational Excellence

- The Nashik Site performance is exceptional in Operational Excellence where in the energy conservation, productivity improvements through system up gradation, adopting latest state of art technologies has resulted in crossing the yearly targets given by the management towards savings in Rs. ( Lakhs ).



**Productivity Improvement Initiatives:**

Sr. no.	Description of the Project	Expected Yearly Savings in Lacs Rs.
1	Sampling frequency reduction in Dry Vial	5.64
2	Blister Packing of Ampoules instead of rondo packs	20.00
3	Installation of high speed compression m/c	13.20
4	Removal of carton from Pir MU & CS	4.86
5	Automation of coating pan	6.60
6	Improvement in efficiency of Ampoule washing activities	1.44
7	Installation of NFD on Zinetac packing line no. 6	1.50
8	Tablet Batch size rationalization	7.20
9	Modification in strip layout of Betnesol packs	12.00
10	Installation of Mollins for Banocide Forte	3.35
11	Modification in cobadex capsules from diamond knurling to straight knurling	10.80

**( vi ) Energy Conservation Plans:**

Sr. no.	Energy conservation initiatives	Anticipated savings in Rs. Per annum in Lacs	Approximate Investment in Rs.( Lacs )	Project commencement & completion year
1	Procurement, installation & commissioning of bio fuel based briquette fired furnace to existing 2.5 Ton / Hr. boiler.	12	30	2005 - 06
2	Improving system capability & overall system efficiency through VFD'S for Reciprocating A/C Plants, air compressors & non-critical air handling systems.	15	20	2005 - 06
3	Procurement & installation of energy efficient blowers	3	1.5	2005
4	Up-gradation of dust extraction system.	4.5	8	2005
5	Up-gradation of manufacturing facility by procurement & installation of energy efficient, improved productivity manufacturing eqpt.	20	40	2005-2006
6	Up-gradation of lighting system throughout the factory	3.28	5	2005
7	Implementation of condition monitoring system for utility eqpt.	1.5	2	2005
8	Up-gradation of dust extraction system for Tablet manufacturing facilities	5	10	2005 - 06
9	Up-gradation of cooling water system at Utility - I	6	11.5	2005 - 06
10	Improvements in steam supply & distribution system & condensate recovery system throughout the factory	8	12	2005 - 06

**(vii) Energy Conservation Targets:**

Year	Electrical*	Thermal*	Reduction over the year 2004	
	kWh/pack	kcal/pack	Electrical%	Thermal%
2004(Base year)	0.061	73.45	-	-
2005	0.058	66.11	5	10
2006	0.055	62.43	10	15

**(viii) Environment, Health & Safety:**

GlaxoSmithKline Pharmaceuticals Limited, Nashik, is committed to high standards of Environment, safety and Health management as an integral part of business activities, in line with corporate values and continuous improvement. GlaxoSmithKline Pharmaceuticals Ltd., Nashik's guiding principle is that **"all accidents are preventable and all identified Health risks are containable"**.

GlaxoSmithKline, Nashik is committed to implement the environmental, health & safety policy laid down by the global organization. To meet the requirements of policy, objectives & targets, Nashik site has agreed to implement the environmental management system as a tool. The entire EMS system is based on OE principals & PDCA cycle.

**Policy Statement**

GlaxoSmithKline Pharmaceuticals Limited, India, is committed to high standards of Environment, safety and Health management as an integral part of business activities, in line with corporate values and continuous improvement. GlaxoSmithKline Pharmaceuticals Ltd., India's guiding principle is that all accidents are preventable and all identified Health risks are containable.

It is the policy of GlaxoSmithKline Pharmaceuticals Limited, Nashik to:

- Protect the health and safety of our fellow employees, contractors, visitors and others affected by our operations;
- Operate our business in an environmentally and socially responsible manner;
- Commit to continuous improvement of Environment, Health and Safety performance;
- Comply with legal requirements and global GSK Environment, Health and Safety Standards;
- Make Environment, Health, Safety and Loss Prevention integral to all GSK Pharmaceuticals business processes, planning and decision making;
- Establish business practices and Environment, Health, Safety and Loss Prevention strategies that optimally utilize resources and prevent pollution to ensure the long-term sustainability of GSK Pharmaceutical Ltd, India and the global environment;
- Adopt a comprehensive approach to product stewardship, which includes key suppliers and contract manufacturers;
- Interact and cooperate actively with key stakeholders in resolving issues and improving performance.
- Ensure that all employees work with due regard to their own safety and health and that of others. Their attitude to safety will be a factor in determining their career advancement.
- GSK Pharmaceutical Limited, India will use effective systems, metrics and goals in the management of all of our Environment, Health and Safety activities.

C.V.Chimote  
Sr.General Manager, Nashik Factory

Issued on: Jan. 2003.

**Execution of Policy Statement:**

