

GLAXO SMITH KLINE CONSUMER HEALTH CARE LTD.

NABHA PLANT

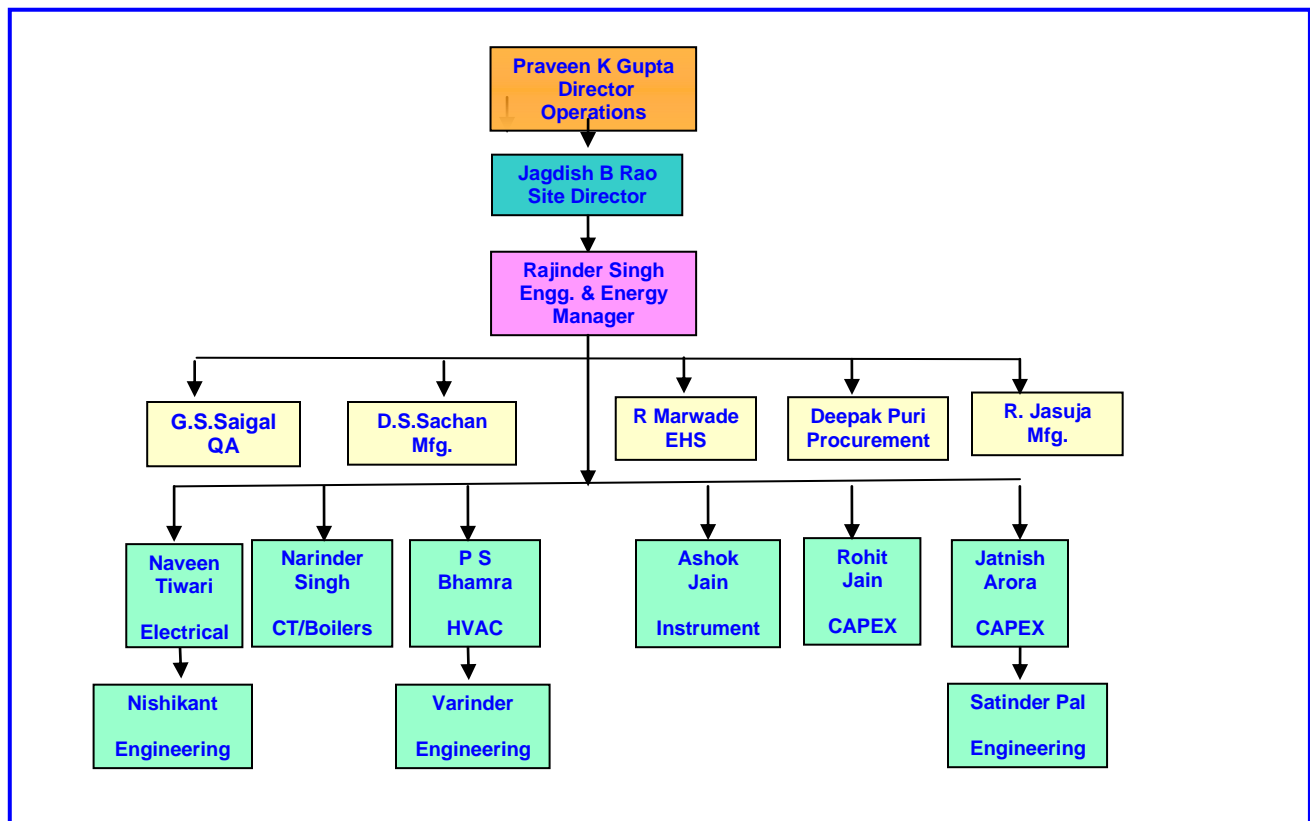
Unit Profile

Glaxo Smithkline ltd, an Indian group company/associate of Glaxo SmithKline plc U.K , is a leading market player in consumer food drinks in India. GlaxoSmithKline Consumer Healthcare, Nabha (Punjab), commissioned in 1960, manufactures the prestigious health food brands Horlicks, Boost, Junior Horlicks and Mother Horlicks with present capacity of 52.2KT on product mix. The site is accredited with ISO 9001:2000, ISO 14001:2001, OHSAS 18001 and HACCP certification and is located over a total area of 14.8 Acres and employing workforce of 1500 .

Energy Conservation Commitment, Set Up and Policy

Energy conservation has been always a major performance area for the GSK Nabha and the site has responded to its energy optimization targets with full adherence to EHS, Regulatory Norms and Global Quality guidelines.

The site has a well defined cross functional Energy management cell. Besides Qualified and experienced engineers and experts cell have **BEE certified managers** also. The Structure of Cell is as attached below



The site executes its energy management activities through a sound energy policy and structured energy plan considering implementation of emerging technologies, energy efficiency, renewable energy utilization, waste reduction, reuse & recycling, awareness programmes etc.



Energy Management Policy

GlaxoSmithKline Consumer Healthcare Limited in pursuit of excellence in energy management is committed to:

- Utilize energy resources efficiently by upgrading and deploying effective energy management systems and technology.
- Maximize the throughput of process operations through de-bottlenecking.
- Eliminate waste and improve energy efficiency of all operations (including, process, storage, transport) through Operational Excellence principles.
- Minimise additional energy consumption and running cost from new capital investments.
- Comply with applicable environmental regulation and develop opportunities to increase the proportion of renewable and sustainable energy used.
- Benchmark our performance continuously against the best-in-industry standards.
- Train employees to make GSK a pace setter by enriching experience in the area of energy conservation.
- Recognize efforts of employees under energy conservation initiatives.
- Enhance utilization of Renewable & non-conventional energy resources.



B Jagdish Rao
Site Director, Nabha
Date: 20.04.2007

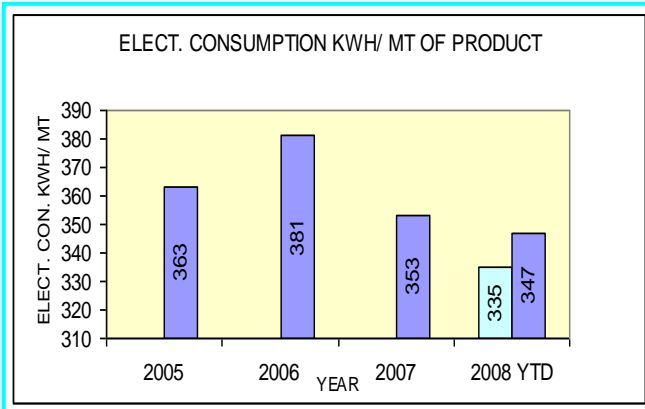


Praveen K Gupta
Director Operations
Date: 20.04.2007

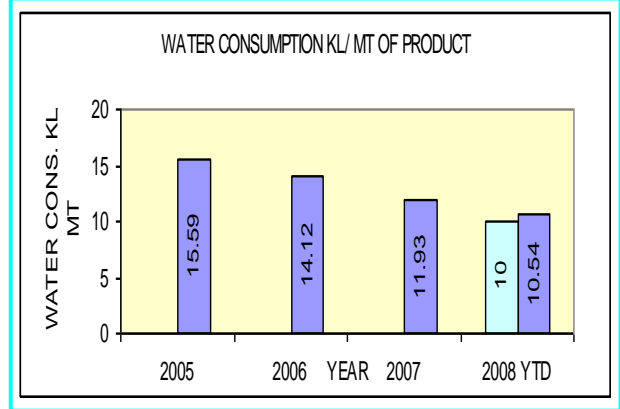
Energy Consumption

Energy Utilization Details	Units	2005	2006	2007
Production	Tons	31242	37230	39349
Total Energy Consumption/Annum	KWH (Lakhs)	113.42	141.90	138.94
Total Thermal Energy Consumption /Annum	MKCL	56622	64231	66227
Total Energy Cost	Rs. Lakh	1073.5	1343.7	1354.9
Overall Energy Consumption/ Ton of Production	GJ/TOP	8.96	8.63	8.46
Energy Reduction During the Entire Period (2007 Vs 2005)				5.60 %
Energy Reduction in last year (2007 Vs 2006)				1.94 %

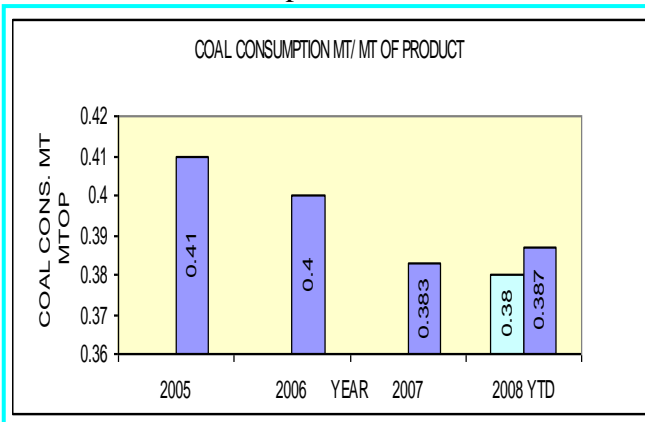
Energy Consumption Graphical Representation



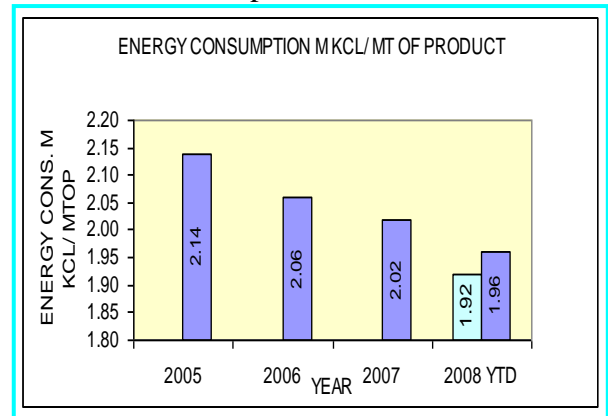
Graph-1



Graph -2

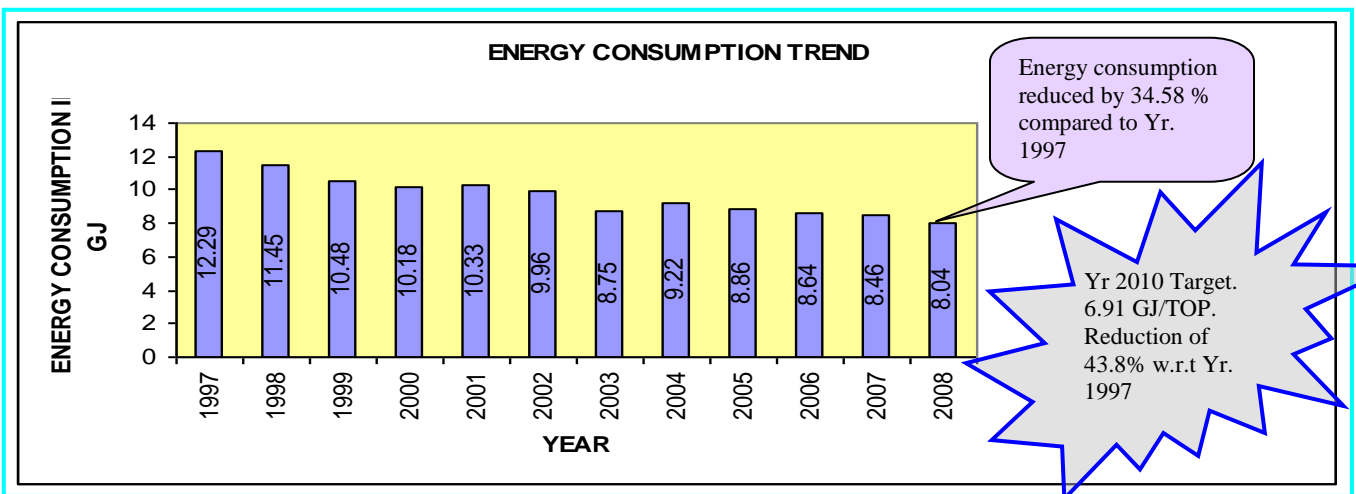


Graph -3



Graph - 4

Energy conservation drive has started from year 1997 and very intensively work was done which is evident from graph no. 5. Due to extensive energy conservation measure in past 10 years, saving potential are further becoming challenging. In order to meet this challenge and our commitment toward energy, site is exploring and implementing new energy conservation measures through emerging technologies, renewable energy alternatives and energy efficient equipments etc.



Graph -5

ENERGY CONSERVATION MEASURE IMPLEMENTED IN 2007-2008

1 Mist Cooling System

GSK Nabha successfully installed a Mist Cooling System in place of the conventional seven cooling towers exhibiting its belief in innovation & exploring energy efficient technology to the extreme. The mist cooling system includes intensive atomization and was installed to eliminate use of cooling towers for cooling process hot water being used for generation of vacuum for food processing.

Power saving (KWH/PA) : 372000
Cost Saving (INR) : 1800480
Investment (INR) : 6717000
PayBack (Years) : 3.73

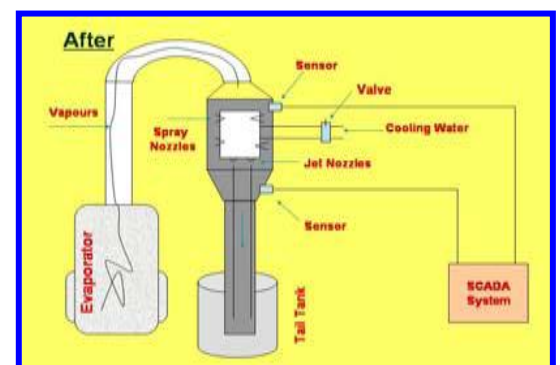


2 Automated Condensers for single effect evaporators

Evaporation is one of the key operations in Horlicks manufacturing. In old condensers vacuum is generated in second stage evaporator with help of 7.5 HP vacuum pump. The new auto condenser system is a technological innovation in terms of higher energy efficiency and cost effectiveness. Vacuum is generated by jet nozzles without use of any vacuum pump. The entire working is based on the co current concept. Condenser is connected to common SCADA system where all parameters like cooling tower water inlet temp, pressure, flow, tail water temp and vacuum is monitored online.

Power saving (KWH/PA) : 466000
Cost Saving (INR) : 2255440
Investment (INR) : 7900000
PayBack (Years) : 3.50

Condensers



3 Magnetic Flux Conditioners for multiple effect evaporators

Magnetic flux conditioners (26 in numbers)" are installed for avoiding scale formation at different locations of Multiple Effect Evaporator at 5L plant. High Mineral content in food, results in the crystallization of mineral compounds that form deposits as the temperature increases. Heat sources promote scale formation by increasing the collision rate of oppositely charged particles. Magnetic flux conditioner generates high strength magnetic fields that alter the reaction between scales forming due to repulsion between the particles and thereby reduction in scaling.

Power saving (KWH/PA) : ---
Cost Saving (INR) : ---
Investment (INR) : 925000
PayBack (Years) : ----



4 Pulse Batteries

The Diesel Generator sets were equipped with conventional Acid Lead batteries for initial start up. These conventional batteries consume more power and required dedicated battery charger. In addition, these batteries are hazardous as explosion may occur due to gas pressure, maintenance intensive and having a life cycle of 2 years at the maximum. 8 new Pulse batteries have been installed as replacement for conventional batteries in DG room to start the generators.

Power saving (KWH/PA) : 9800
Cost Saving (INR) : 47432
Investment (INR) : 165000
PayBack (Years) : 3.47



5 Submersible Agitator for IBT

We have replaced conventional surface mounted agitators of 5.5kWx2 numbers with Submersible mixers of 0.75 kWx4 numbers, for Ice bank tank. The desired temperature is met by these innovative submerged mixers as the quality of mixing water is highly effective due to uniform wave formation inside the tank.

Power saving (KWH/PA) : 33000
Cost Saving (INR) : 159720
Investment (INR) : 425000
PayBack (Years) : 2.66



6 Back Pressure Turbine

Currently steam is generated at the pressure of 9 kg/ sq. cm from the boilers and the required steam pressure in the plant is 1kg/sq cm. A back pressure steam generator is now installed in place of pressure reducing station and is producing 120kW/hr by reducing the steam pressure from 9 kg/cm² to 1kg/ cm². The turbine is capable of operating at optimum efficiency at varying steam loads.

Power saving (KWH/PA) : ---
Cost Saving (INR) : 4060000
Investment (INR) : 12700000
PayBack (Years) : 3.12



7 Replacement of ammonia based chiller with non ODS screw chiller

Energy efficient R-134a based screw compressors 150 TR (2X75 TR) capacity equipped with fully Microprocessor based controlled panel are installed in place of refrigeration plant employing R-22 & ammonia based reciprocating screw compressors.

Power saving (KWH/PA) : 146074
Cost Saving (INR) : 707000
Investment (INR) : 5700000
PayBack (Years) : 8.06



8 Light Energy Saver

All light appliances in admin block are operated at 240 volts whereas the rated voltage is 220 volts, this voltage is required by the arc discharge lamps only at the time of starting. To ensure continued running, a much reduced voltage 205 volts is also sufficient to deliver appropriate illumination level and ensuring saving of 20% in electricity.

Power saving (KWH/PA) : 12000
Cost Saving (INR) : 58080
Investment (INR) : 130000
PayBack (Years) : 2.23



9 Non ODS efficient technology at Air Conditioning Plant

Energy efficient R-134a based screw compressors 150 TR (2X75 TR) capacity equipped with fully Microprocessor based controlled panel are installed in place of refrigeration plant employing R-22 & ammonia based reciprocating screw compressors.

- Reduction in CO₂ Emission - 123 Ton/Annum
- Non ODS energy efficient refrigerant plant
- Reduction in R-22 (ODS) refrigerant by 190kg
- Reduction in Ammonia (Toxic & Hazardous refrigerant) storage by 150kg
- Reduction in sound level from 90dB to 70 dB measured at 1 meter distance

Power saving (KWH/PA) : 146000
Cost Saving (INR) : 706640
Investment (INR) : 4873000
PayBack (Years) : 6.89



10 High Wall Fan Coil unit

ODS based Air Conditioning units - 6 numbers and old outdated conventional type Fan Coil Units - 2 numbers have been replaced with high wall Fan Coil Units - 8 numbers. The New High wall Fan Coil Units are equipped with 3 way motorized valves for efficient temperature control, cordless remote control, 3 speed fan control and thermostat

Power saving (KWH/PA) : 23000
Cost Saving (INR) : 111320
Investment (INR) : 104000
PayBack (Years) : 0.93



11 Solar Lamps for lighting

Presently the boundary wall lights are illuminated with Electrical power for 10 hours a day on an average in a year. Two solar lamps are installed for implementing usage of renewable energy.

Power saving (KWH/PA) : 1860
Cost Saving (INR) : 9000
Investment (INR) : 35000
PayBack (Years) : 3.88



12 Hurricane Fans

Hurricane ventilator runs on the principle of wind siphoning and centrifugal force created by rotating head of the turbine due to the wind. Hurricane Turbine Ventilators provide efficient and cost effective natural ventilation system employing non conventional renewable wind energy in place of conventional electrical exhaust fans exhaust fans.

Power saving (KWH/PA) : 10950
Cost Saving (INR) : 53000
Investment (INR) : 169000
PayBack(Years) : 3.18



13 Translucent Roof Sheet For Natural Light

In this green building initiative, areas with high lighting were identified & checked for feasibility of natural lighting in those areas. Flexible thinking has been exhibited by providing translucent sheets on roofs, Ventilators in walls & View Glasses in doors. Wide range of areas covered for Natural lighting like warehouses, production halls, cleaning bays, Change room corridors etc.

Power saving (KWH/PA) : 5888
Cost Saving (INR) : 28500
Investment (INR) : 60000
PayBack (Years) : 2.10



Energy Conservation Plans & Targets

Sr. No.	Energy Conservation - Project Description	Anticipatory Saving in INR Lacs/Annum	Approx Investment in INR Lacs	Savings in GJ	Completion Year
1	FBC Boiler	150	1044	51643	Dec'09
2	GEM Steam Traps	13	40	3000	Dec'09
3	Hydrofoil Agitator	2.5	10	162	Nov '09
4	AIRE O2 - Tiron Aerator for Aeration Tank at ETP	9.0	32	308	Feb'09
5	LED Lighting & Sun Pipe	0.25	5	103	Aug'09
6	Oil free Screw Air Compressor	6.33	22	380	Dec'09
7	Centralized AC Plant for 9L and Admin Block with Mono Screw.	18.5	80	1024	Apr'10
8	Heat recovery wheel	3.6	9	233	Dec'09

Environmental Awareness Culture

- ਧਰਤੀ ਬਚਾਓ ਸਪਾਤਾਹ-2008**
1. ਧਰਤੀ ਨੂੰ ਹਰਾ ਕਰਾ ਬਣਾਓ: ਲਈ ਕੋਈ ਵੀ ਕਾਰੀਬੇ ਦਿੱਸੋ?
 2. ਬਿਜਲੀ ਦੀ ਬਚਤ ਤੁਸੀਂ ਕਿਵੇਂ ਕਰ ਸਕਦੇ ਹੋ?
 3. ਵਾਤਾਵਰਣ ਵਿਚਲਾ ਹਰ ਸਾਲ ਕਿਵੇਂ ਮਨਾਇਆ ਜਾਂਦਾ ਹੈ?
 4. ਕੁਦਰਤ ਵੱਲੋਂ ਨਾਨੂੰ ਕਿਹੜੇ ਕਿਹੜੇ 3 ਸੋਮੇ ਦਿੱਤੇ ਗਏ ਹਨ?



GSK Earth Week – 09th - 14th Jun'08

**Dirty Water, Polluted Air
Purify this dangerous pair.**

GlaxoSmithKline Consumer Healthcare Ltd. Nabha

GSK Earth Week – 09th - 14th Jun'08

**ਰੁੱਖ ਲਗਾਓ, ਰੁੱਖ ਬਚਾਓ ।
ਵਾਤਾਵਰਣ ਨੂੰ ਸਾਫ਼ ਸੁਥਰਾ ਬਣਾਓ ।।**

GlaxoSmithKline Consumer Healthcare Ltd. Nabha

GSK Earth Week – 09th - 14th Jun'08

**Save Energy, Water and Tree
Keep the Environment Pollution Free**

GlaxoSmithKline Consumer Healthcare Ltd. Nabha



TV Show

Banners Displayed



Tree Plantation

ਪਾਣੀ ਦੀ ਹਰ ਡੂੰਢ ਅਨਮੋਲ ਹੈ

ਕ੍ਰਮ	ਕੰਮ	ਕਾਰਜ	ਲਿਟਰ ਪਾਣੀ ਬਚਾਓ	ਕੁਝ ਹੋਰ ਸੁਝਾਵਾਂ	ਪਾਣੀ ਡੂੰਘੇ ਖਰਚੋ	ਲਿਟਰ ਪਾਣੀ ਬਚਾਓ
1.	ਭੋਜ ਬਚਾਓ	ਦੁੱਧੀ ਖਾਣੀ ਨੂੰ ਠੀਕ ਠੀਕ ਖਾਓ	4-5 ਲਿਟਰ	ਬਾਜ਼ਾਰ ਖਰੀਦੋ	10-5 ਲਿਟਰ	4-5 ਲਿਟਰ
2.	ਭੋਜ ਬਚਾਓ	ਦੁੱਧੀ ਖਾਣੀ ਨੂੰ ਠੀਕ ਠੀਕ ਖਾਓ	1-2 ਲਿਟਰ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ	3 ਲਿਟਰ	2 ਲਿਟਰ
3.	ਭੋਜ ਬਚਾਓ	ਦੁੱਧੀ ਖਾਣੀ ਨੂੰ ਠੀਕ ਠੀਕ ਖਾਓ	1-2 ਲਿਟਰ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ	3 ਲਿਟਰ	2 ਲਿਟਰ
4.	ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	200 ਲਿਟਰ
5.	ਓਫਿਸ ਡੂੰਘੇ ਖਰਚੋ	ਓਫਿਸ ਡੂੰਘੇ ਖਰਚੋ	100 ਲਿਟਰ	ਓਫਿਸ ਡੂੰਘੇ ਖਰਚੋ	100 ਲਿਟਰ	100 ਲਿਟਰ
6.	ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	200 ਲਿਟਰ
7.	ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	200 ਲਿਟਰ
8.	ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	200 ਲਿਟਰ
9.	ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	ਸ਼ਾਇਰ ਬਾਜ਼ਾਰੀ ਕੱਚੇ ਸੁਭਾਲੋ	200 ਲਿਟਰ	200 ਲਿਟਰ

ਵਾਲੋ : ਗਲੈਕਸਮਿਥਕਲਿਨ ਕੰਜ਼ਮਰ ਹੋਲਕਰਿਕਾਰ ਲਿਮਿਟਿਡ, ਨਾਬਾ

Water Saving Pamphlet

ਧਰਤੀ ਬਚਾਓ ਸਪਾਤਾਹ ਦੇ ਮੌਕੇ ਤੇ ਪਾਣੀ ਅਤੇ ਊਰਜਾ ਨੂੰ ਬਚਾਓਣ ਸਬੰਧੀ ਸੁਝਾਓ 12 ਜੂਨ 2008 ਤੱਕ ਈ. ਐਚ ਐਸ ਵਿਭਾਗ ਵਿੱਚ ਦਿਓ

ਕਰੋ ਸੋਚੋ ਸੋਚੋ, ਸੋਚੋ

ਹਰ ਸੁਝਾਓ ਦੇਣ ਵਾਲੇ ਨੂੰ ਇਨਾਮ ਦਿੱਤਾ ਜਾਵੇਗਾ ।

Idea Generation

Environmental Awareness Culture

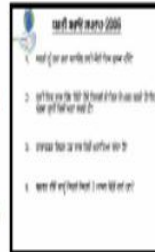
Idea Scheme



To share the knowledge and expertise the workers possess, an 'idea scheme' was launched under which 59 ideas were received. The theme for the ideas was 'Greener Earth'. To create excitement among the workmen there were some token gifts kept which were given in lieu of each idea received. The key attributes that were kept for evaluating the ideas include novelty, cultural impact and ultimately the benefits.

Quiz competition

A quiz competition was organized for staff as well as workmen. The theme for the quiz was Environment protection under which we received 52 entries from staff and 101 entries from workmen.



[Quiz Competition](#)

[Workmen participate in the quiz competition](#)

TV show

TV show was organized for workmen in canteen in which movies on issues like 'Global Warming, Water Conservation and Pollution' were played. This show was carried out for 3 days in canteen under which around 900 workmen were made aware of the way they can contribute towards making earth a better place to live in.



Embedding a Culture of Care



Bio-diesel Plantation



250 bio-diesel saplings were planted by employee's children at Eco-plantation site

Poster Competition

The EHS team Hosted a Poster competition for employees' children at staff club to involve them in this drive to 'Protect Earth'. In this competition 40 children participated and 6 best entries were acknowledged with exciting prizes.



Distribution of Stickers to Workmen



1500 Stickers on Water Conservation and Energy Saving were distributed to the employees to help them and the people living in their surroundings realize the importance of conserving natural and non-renewable resources.

Awareness for Children

Awareness session on environment, water conservation and road safety was conducted. The overall aim of this session was to make children acquire an appropriate level of knowledge of key concepts involved in environment protection. The session concluded with the speech of Mr. Bhagat Singh Sr. Manager Engg. in which he discussed about the need to protect our planet Earth. Stickers and pamphlets on Energy and Water Conservation were distributed to the children.



[Awareness session for children](#)

Distribution of Plants to Employees

To involve the employees' families, 250 plants were distributed to employees for plantation at home.



Embedding a Culture of Care



Embedding a Culture of Care

