

BRIEF WRITE UP OF NAGAON PAPER MILL

(i) Unit profile:

Nagaon Paper Mill, a unit of Hindustan Paper Corporation Limited (a Govt. of India Enterprise) started commercial production in October, 1985 to produce 1,00,000 MT per annum of writing & printing paper. NPM is the first paper mill in the world to produce Kraft Pulp in Kamyra Continuous Digester using 100% bamboo as raw material. Challenging all odds like locational disadvantage, infrastructural and communication bottleneck, continuous ethnic problems etc., NPM never looked back. The mill attained 100% of its installed capacity in 2000-01 and since then the mill has been showing continuous rise in production attaining 115.125% of its installed capacity in 2007-08 last year. NPM has been certified with ISO 9001:2000, EMS 14001:2004, OHSAS 18001:1999 by Det Norske Veritas (DNV) of Netherland.

Over and above meeting 17% of Indian market share of Cream wove variety and a good share of education sector requirement, NPM has been exporting paper to countries like Nigeria, Bangladesh, Myanmar, Logos & USA etc. The major activities involved in manufacture of paper in NPM are shown in the Flow diagram enclosed.

(ii) Energy consumption:

Steady decrease in specific electrical and thermal energy (process steam) consumption has been achieved through the implementation of various energy conservation schemes.

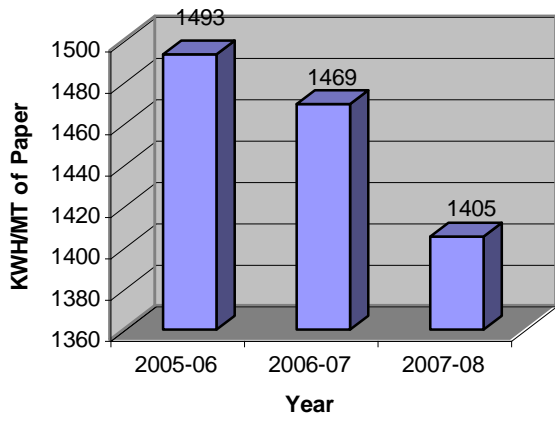
a. Energy consumption in terms of percentage of manufacturing cost;

Description	Unit	2005-06	2006-07	2007-08
Annual production of paper	MT	106437	105160	115125
Total Electricity consumption	Lakhs kwh	1589.40	1544.78	1617.59
Total Thermal energy consumption.	M Kcal	740620	817736	837563
Total Manufacturing Cost	Rs. per MT of Paper	24829.00	27688.00	26510.00
Total Energy Cost	Rs. per MT of Paper	2571.58	2969.00	2819.00
Energy cost as % of Total Manufacturing Cost	%	10.36	10.72	10.63

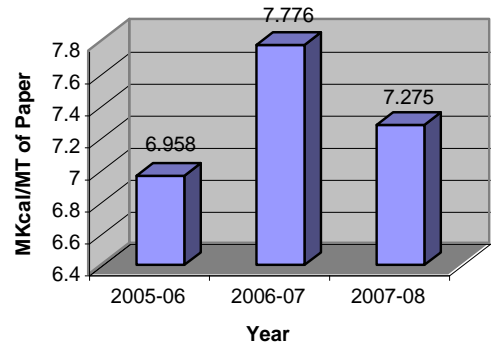
b. Specific energy consumption:

Year	Electrical energy		Thermal energy	
	Consumption (kwh/MT of Paper)	% Reduction over 2005-06	Consumption (M Kcal/MT of paper)	% Reduction over 2005-06
2005-06	1493	--	6.958	--
2006-07	1469	1.61	7.776	No reduction
2007-08	1405	5.89	7.275	No reduction

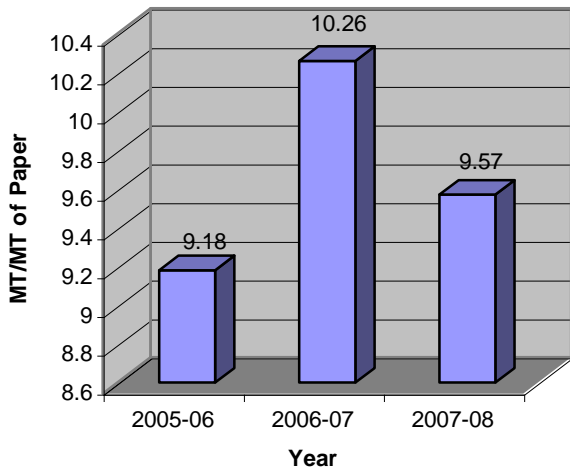
Electrical Energy Consumption



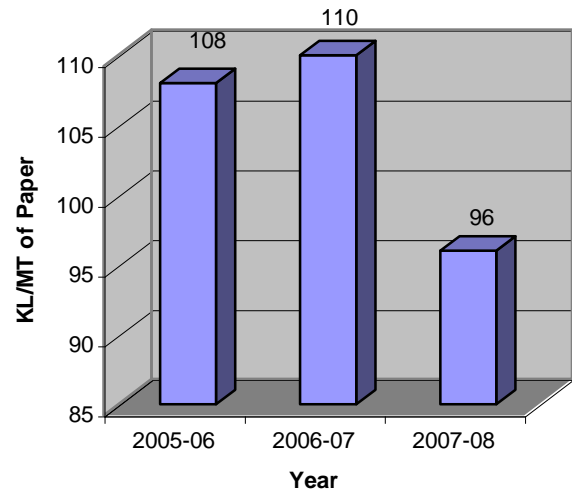
Thermal Energy Consumption



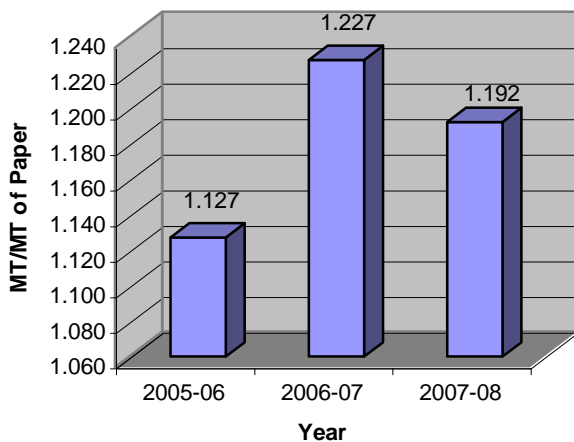
Specific Steam Consumption



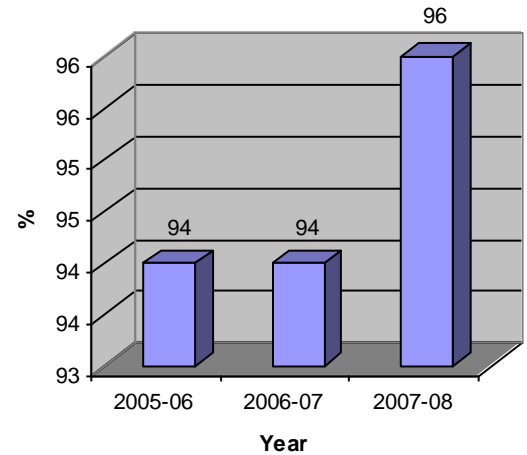
Specific Water Consumption



Specific Coal Consumption



Process Condensate Return



(iii) Energy conservation commitment, Policy and Organizational set up:

The scope of saving energy includes optimization of boiler efficiency, reducing steam/air distribution losses, better heat transfer in various heat exchangers, reduction of water consumption, optimization of condensate recovery, power loss in distribution, efficient running of equipment etc.

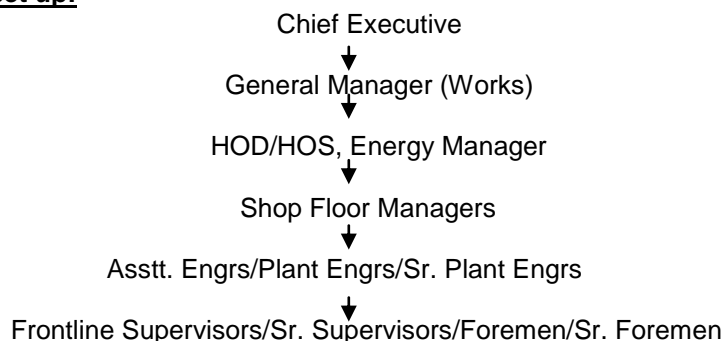
To identify the scope for energy conservation and implementation of energy conservation measures there is an Energy Conservation Cell headed by an Energy Manager who monitors the trend of consumption on daily basis and each year set target for the next year in consultation with respective HOD and concurrence of the Chief Executive. The Chief Executive also reviews the daily energy consumption figures against the set norms in the production meeting and concerned HODs and Managers are asked to explain in case of any deviations and necessary corrective measures.

Energy Management Policy:

Hindustan Paper Corporation Limited is committed to conservation of energy through –

- Use of energy – efficient and environment friendly technologies
- Optimal utilization of natural resources and undertaking a war on wastages
- Continual review of the specific energy consumption norms for bench marking with the best in the industry
- Carrying out regular energy audits internally and through external experts
- Promoting awareness amongst the employees and other stakeholders

Organizational set up:



**(iv) Energy Conservation Achievement:
Energy Conservation Projects completed during
the year 2007-08 are listed below.**

1. Fitting of 110 KW motor in Paper (Utmal) machine PV air fan

In Paper machine, 110 KW motor is fitted in the place of 160 KW motor

Investment made: Rs. 0.25 Lakhs

Saving: Power saved 619 kwh per day

Monetary saving: Rs. 3.24 lakhs per annum

2. Fitting of gang filter in Paper (Utmal) machine wire shower

In Paper machine, gang filter was fitted to use filtrate clear water in place of fresh mill water.

Investment made: Rs. 1.10 lakhs

Saving: Water saved 300 KI per day

Monetary saving: Rs. 0.22 lakhs per annum

3. Using of Paper (Jessop) machine Main Condensate collection tank vent steam for false sealing ventilation

Paper (Jessop) machine main condensate vent was going to atmosphere. It was utilized in false sealing ventilation for LP steam saving

Investment made: Rs. 0.20 lakhs

Saving: LP steam saved 17 MT per day

Monetary saving: Rs. 15.08 lakhs per annum



Some other energy conservation schemes completed during 2007-08:

- (a) Interconnection of Disc Save all filtrate transfer pump 101 & 102 in Paper machine
- (b) Auto mode running of Paper (Jessop) machine re-pulper agitator.
- (c) Auto mode running of Paper (Jessop) machine press pit agitator.
- (d) Utilization of save all filtrate water in chemical preparation solution.
- (e) Regulation of drinking water through overhead tank by installing a separate pipeline.

(v) Energy conservation Plans and Targets:

Energy Conservation Measures (Planned)	Anticipated savings	Approx. investment	Project Commencement & Completion year
	Rs. in Lakhs	Rs.in Lakhs	
1. Installation of one Fluidised Bed Boiler of capacity 50 TPH	156.75	1500.00	Commencement: March'2003 Completion: December'2008
2. Replacement of Existing Cast Iron blades with FRP blades in the exhaust fans	4.81	18.00	Commencement: Apr'2007 Completion: March'2009
3. Installation of 2 nos Energy saving CT fans	1.35	3.00	Commencement: Apr'2007 Completion: December'2008
4. Fitting of Mechanical seals in Evaporator Surface Condensate Water Pump 2 nos	3.54	10.00	Commencement: Aug'2007 Completion: March'2009
5. Recycling of pump sealing / cooling water of Evaporator and Recovery Boiler	0.25	6.00	Commencement: Apr'2007 Completion: March'2009

(vi) Environment and Safety:

Parallel to quality of product, NPM is equally conscious for protection of environment in and around the mill premises as well as safety of its employees and equipments. As a result of its sincere efforts towards these areas, NPM has been certified with ISO 14001 : 2004 for its Environment Management System by BVQI of United Kingdom in 2002 and OHSAS 18001 : 1999 by DNV in December 2003. Nagaon Paper Mill is the first Paper mill in India to get this certificate.

The Environmental Policy and Occupational Health & Safety Policy of NPM are under.

i. Environmental Policy:

NPM, a unit of HPCL is committed to

- ☞ Adopt an environment friendly approach in all activities related to its products and services.
- ☞ Ensure compliance of all relevant legislative enactments, statutory regulations and orders.
- ☞ Evolve eco-awareness among its members, affiliates and the community at large.
- ☞ Minimize the use of non-biodegradable substances.
- ☞ Upgrade process controls and operating practices to contain and counter pollution at source.
- ☞ Reduce the consumption of natural resources through conscious efforts to reuse and recycle wherever possible.
- ☞ Promote compensatory afforestation through community initiatives to reciprocate the gift of virgin fiber.
- ☞ Disseminate information through frequent exchange and interaction with internal and external constituents on the progress in implementation of Environmental Management Plan (EMP)

Environmental schemes under implementation :

A. Major schemes under CREP:

- ☞ Lime mud re-burning plant
- ☞ Conversion to membrane cell in Chloro Alkali plant

B. Other schemes:

- ☞ Installation of FBC Boiler

ii. Occupational Health & Safety Policy:

- Promote and maintain the Occupational and Health & Safety (OH&S) standards to protect its Human Resources (including interested parties), properties and environment from foreseeable work hazards associated with its integrated Pulp & Paper manufacturing process including captive units.
- Comply with all relevant statutory provisions and other requirements in respect of OH&S.
- Continually improve the OH&S standards through all reasonable efforts of risk reduction activities.

NPM has bagged “**Greentech Environment Award – Silver**” for 2006-07 for its outstanding achievements in Safety and Environment Management respectively.