



CII - National Award for Excellence in Water Management 2007



A. PADMANABHAN, General Manager (Projects)

N Alagiri - Energy Manager, Ch Satyanarayana - Environmental Manager

VM Kalyani – Energy Manager

M/s ITC Limited – Paperboards & Specialty Papers Division,

Unit: BHADRACHALAM



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Company profile

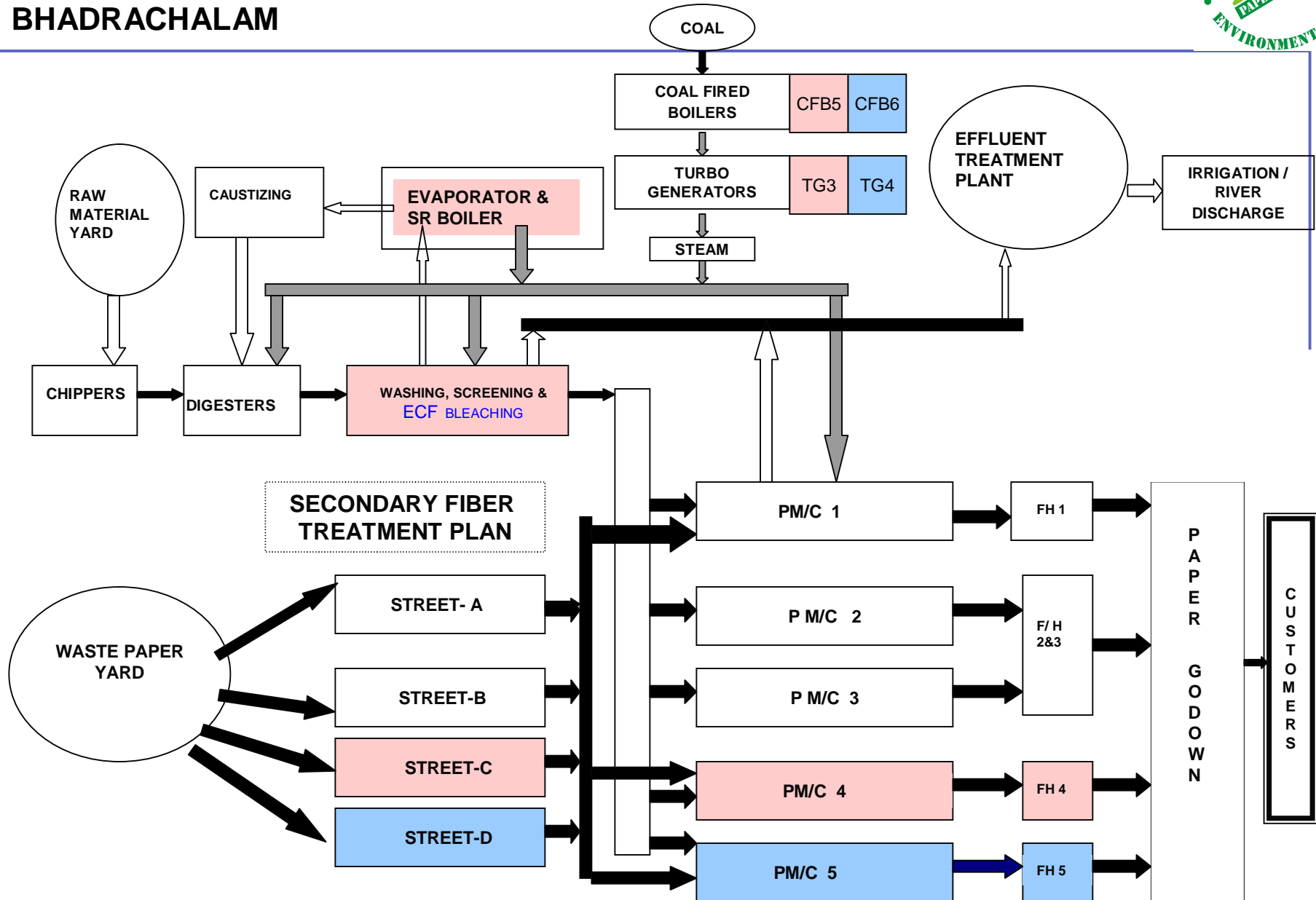


- n PSPD consist of Unit Bhadrachalam, Unit Kovai, Unit Tribeni, Unit Bollaram
Bhadrachalam turnover is Rs.1500 Cr
- n Unit Bhadrachalam is India's largest single location integrated paperboard company of capacity 3.0 lac TPA.
- n 99% self sufficiency in power requirement through co-generation.
- n ISO 9001:2000, ISO 14001 and OHSAS 18001 are a proof of Quality, Environment, Health and Safety Systems.
- n Core competency in
 - Energy Management
 - Environmental & Waste Management
 - Social & Farm Forestry (Plantation)



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PROCESS FLOW - BLOCK DIAGRAM





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Water Conservation efforts



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Water Conservation Measures implemented in 2006-07



SI No	Title of Water Saving project implemented	Annual Water Savings		Invest	Payback Period (Months)
		m ³	Rs. Lac	Rs. Lac	
1	Recycling of Pm-5 top layer excess back water for ring dilution of bleached pulp tank	280000	9.8	20	25.00
2	Recycling of recausticising plant cooling and sealing water to clarifloculator	455000	16	13.2	10.00
3	Recycling of excess back water of PM1 for ring dilution of unbleached tower during kraft run	79200	2.77	8	35.00



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Water Conservation Measures implemented in 2006-07



Sl No	Title of Water Saving project implemented	Annual Water Savings		Invest	Payback Period (Months)
		m ³	Rs. Lac	Rs. Lac	
4	Reeuse of PM-5 excess back water during MG triplex run for SFT-A & B for pulp slushing	57600	1.44	9	75.00
5	Reduction in DM water consumption due to increase in process condensate recovery by 0.8%	65000	13	0	0.00
6	Arresting water piping leakages including fire hydrant piping by clamping	82125	3.5	2	4.00
7	Recycling of Paper machine primary clarifier outlet water for miscellenous purpose at plant	115500	2.5	0	0.00
	Total for 2006-2007	1134425	49.01	52.2	13.00



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Water conservation - Summary



S.No	Year	Annual savings		Investment	Payback
		m ³	Rs.Lac	Rs.Lac	month
1	2002-03	1815000	36	5	2
2	2003-04	1326600	36	13	4
3	2004-05	579150	5	5	12
4	2005-06	2175690	76	237	38
5	2006-07	1134425	49	52.2	13

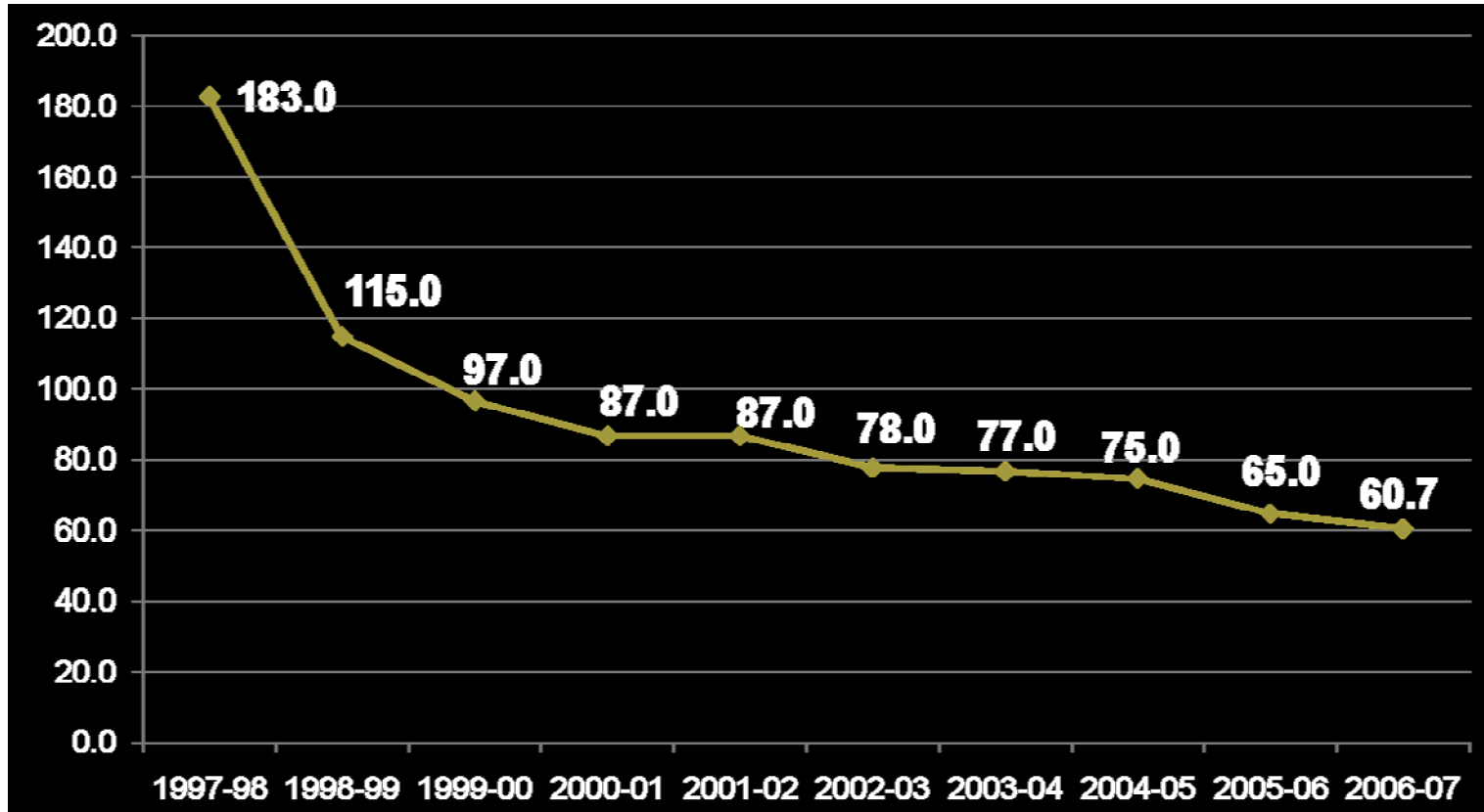
Proposals implemented in 2006-07 includes zero investment proposals resulting saving of 180500 m³ and rest through investment route.

Various water saving proposals undertaken who's payback is larger than 4/5 years, in view of water being precious resource.



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Specific water consumption – Trend

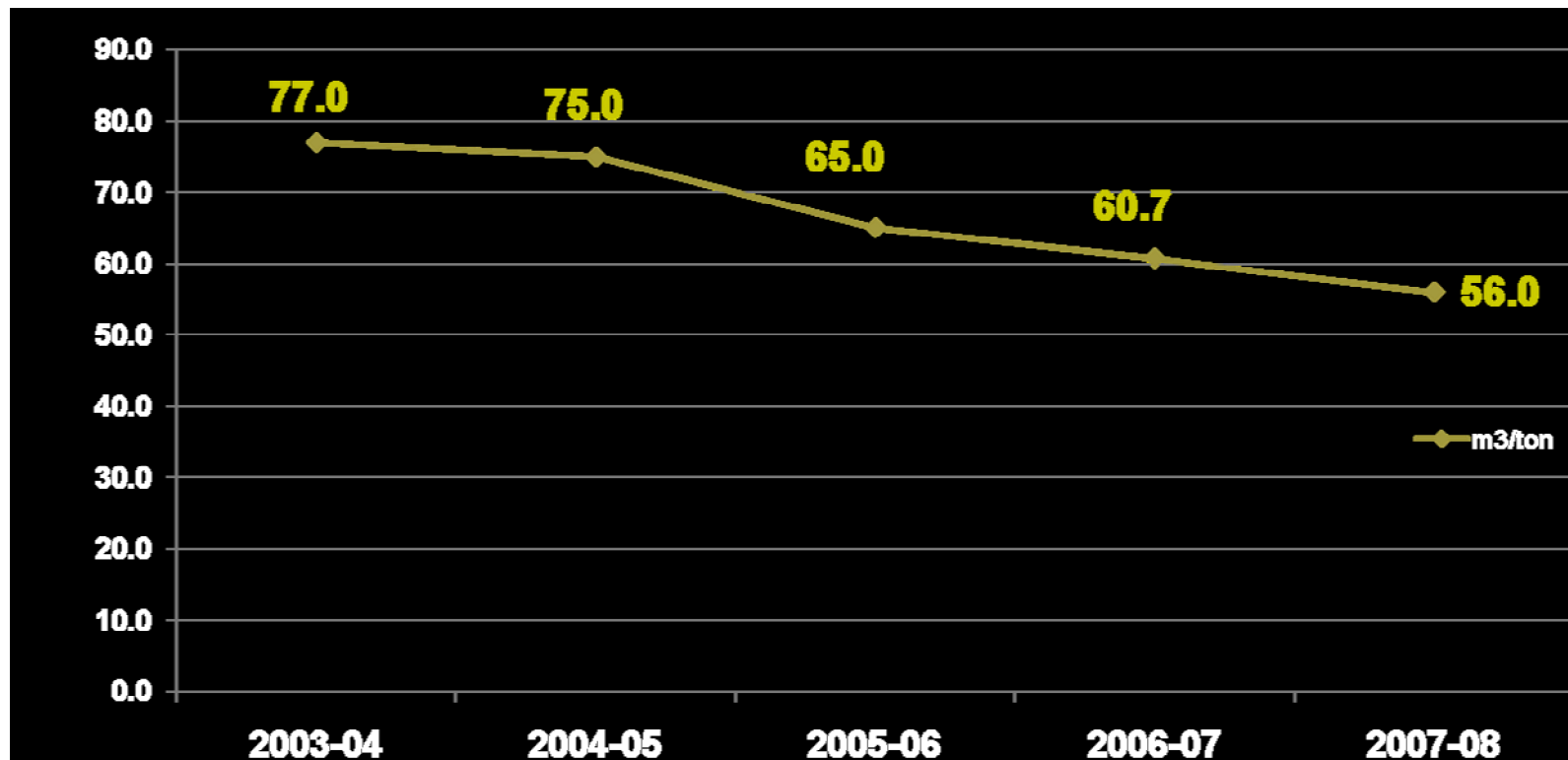


Consistent efforts for water conservation over a decade through 3R as resulted in 66.8% reduction in specific water consumption.



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Specific water consumption(m³/ton)



Note: Consistent efforts for water conservation through 3R for last 4 years resulted 21% reduction in specific water consumption. As on today, achieved 56m³/ton and targeting for 50m³/ton



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Water Consumption & Production



ITC Ltd PSPD Unit Bhadrachalam has recorded 88% growth in production since 1998-99 but fresh water intake increase is

2%

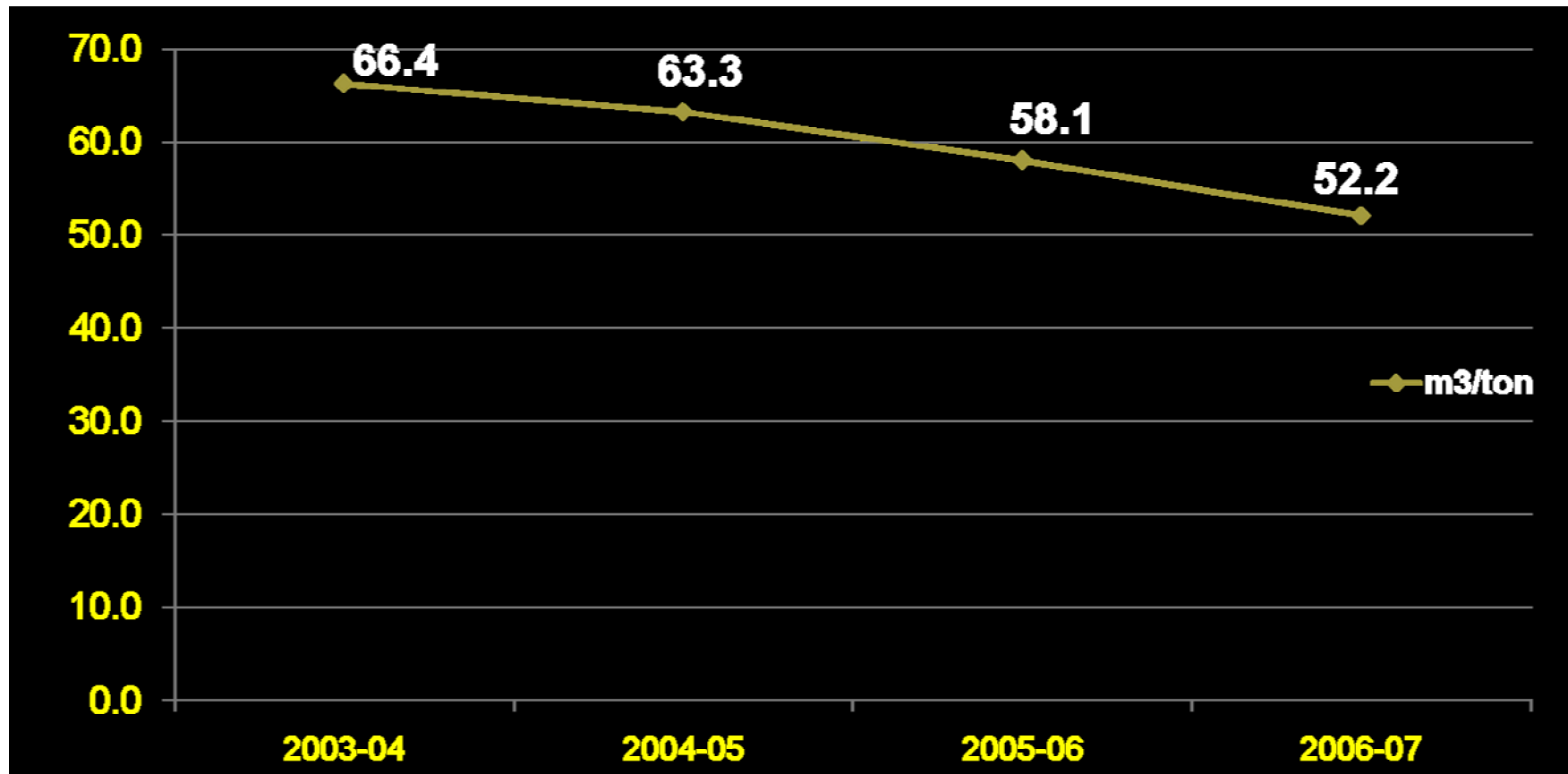
This was possible due to sustained water conservation efforts through 3R and adoption of latest technology.

Source: ITC Limited - Sustainability Report 2006



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Sp. Water discharge



Consistent efforts for water closure for last 4 years resulted 21% reduction in specific water discharge.



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Per Capita Consumption



Sl. No	Industrial			Colony water consumption		
	Consumption m ³	Average employees per day	Per capita consumption per person/day	Consumption m ³	No of persons	Per capita consumption / per person/day
1	424423	4500	258 [*]	432160	5000	236 [*]

*(Consumption includes plantation, greenery development, fly ash brick mfg, school, bank, Project activities, hostel, guest house and restaurant)



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Global Benchmark



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Global Benchmark



	National Standard	International Standard	ITC PSPD BHADRACHALAM
Specific Water consumption (m ³ /ton)	150	35-40	60.7

Source: Report on water conservation in Pulp and Paper Mill in India. M/s National Productivity Council. New Delhi under guidelines of CPCB.

Global bench mark refers to large pulp & paper mills with high capacity paper machines,

Unit Bhadrachalam has multiple machines of different capacities due to expansion of facilities.

However, efforts are consistently applied to reduce water intake by technology and conservation.



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Global Benchmark



S.No	Country	Avg. sp water consumption (m ³ /ton)	Source
1	US	64.00	Avg for year 2000. Appendix W of report on status of pulp & paper in US by Michiel P.H Brongers and Aaron J.Mierzwa
2	Australia	28.66	APIC: Public Eco-Efficiency Report 2003.
3	Europe	40.00	APIC: Public Eco-Efficiency Report 2003.
4	Canada	67.00	APIC: Public Eco-Efficiency Report 2003.
5	Finland	40.00	Pulp Fact: Env. implications of the paper cycle. By Nigel Dudley, Sue Stolton and Jean Paul Jeanrenand WWF International 1996
6	Spain	30.00	Pulp Fact: Env. implications of the paper cycle. By Nigel Dudley, Sue Stolton and Jean Paul Jeanrenand WWF International 1997

Source: NPC study under CPCB. Executive summary Page 5,6/14 under table, E-4 (Region/Country specific average water consumption in large scale wood based pulp and paper mills).



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Road map for Global Benchmark



*Commissioning of 400tpd state-of-art
(Feb08) India's and South East Asia's
only Ozone based pulp mill and adopting
same technology in existing ECF fiberline
and
350tpd Paper machine (May08)
without
additional intake of water.*



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Springboard

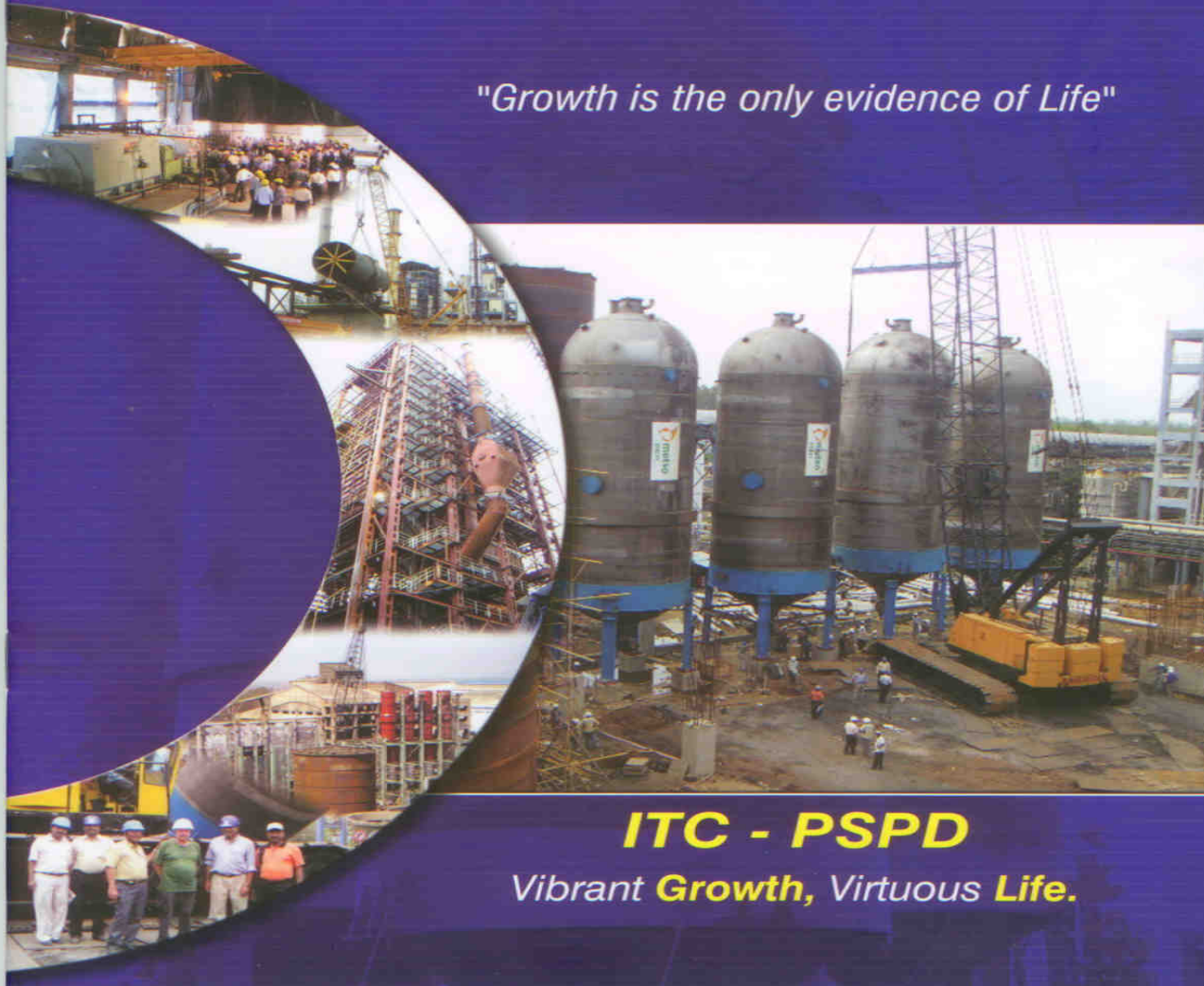
In-house magazine of ITC Limited - PSPD
Unit - Bhadrachalam



Vol. 13 No. 1

July 2007

"Growth is the only evidence of Life"



ITC - PSPD

*Vibrant **Growth**, Virtuous **Life**.*



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Road map for Global Benchmark



08-08-2006

To Whom It May Concern:

This is to certify that ITC Limited - PSPD, Unit Bhadrachalam has placed an order for Design, Engineering, Supply and Supervision of Erection & Commissioning of 800odt/day capacity cooking plant with Super batch displacement technology and new fiber line of capacity 400odt/day and retrofit for 300 odt/day with ozone bleaching plant based on latest technologies which includes Oxytrac™ oxygen delignification and Light ECF bleaching with ZeTrac™ ozone bleaching. Bleaching sequence is (Ze)DP.

ITC PSPD is the first company in India to adopt environmental friendly super batch technology for pulp cooking & ozone bleaching for the new fiber line from Metso.

For Metso Paper Sundsvall AB

Klas Birve
President



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Road map to Global Benchmark



Proposals under implementation to reduce water consumption

Description of scheme	Savings
✓ Recycling of PM5 top layer water through disc filter	: 1200 m ³ /day
✓ Reuse NFL cooling water & PM1 sealing water	: 800m ³ /day
✓ Reuse treated colony sewage water for gardening	: 1200m ³ /day
✓ Reuse of cooling tower blow down water	: 500 m ³ /day
✓ Reduction of mill domestic water in mill by push taps	: 500m ³ /day.
✓ Recycling of cooling water at new chemical recovery	: 500m ³ /day



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Road map for Global Benchmark



Bhadrachalam wins Cleaner Production Technology Award

ITC's Unit at Bhadrachalam has won the Award for "Cleaner Production Technology and Climate Change Mitigation Measures" during 2006-07, from the Andhra Pradesh Pollution Control Board.

Sri Satrucharla Vijaya Rama Raju, Hon'ble Minister for Environment, Forests, Science & Technology, Government of Andhra Pradesh, presented the citation and certificate to Mr A Padmanaban, General Manager (Projects), ITC Bhadrachalam, at a function in Hyderabad on the occasion of World Environment Day celebrated on June 5, 2007.





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Innovative projects



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Innovative projects (06-07)



1. Recycling of causticizing plant wastewater to reduce 1400 m³/day.
2. Reuse of Paper machine-5 excess top layer backwater to save 700 m³/day for suction dilution of Pulp.
3. Reuse of evaporator hot foul condensate for Fiberline bleach plant to save 900m³/day of hot water.



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Causticizing plant cooling water - Recycling



Trigger:

- 4 ECF fiber line commission in Aug 2002 with 1,00,000 TPA pulp.
- 4 Causticizing plant upgraded to meet the quality & quantity of alkali demand. As a part of up gradation of plant, ClariDisc filter, causticizer, slakers are installed.
- 4 Plant water consumption increased.

Analysis:

- 4 Water consumption increased on account of above from 1000 to 2000 m³/day to meet cooling water requirement of the plant.



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Causticizing plant cooling water - Recycling



Action:

4 Collection of all the sealing water to a pit with conductivity meter sensor.

4 Pump and piping installed to transfer water to raw water treatment plant to reduce temperature by mixing with raw water and for treatment.

- Capital invested is Rs.15.28 Lac

Benefit:

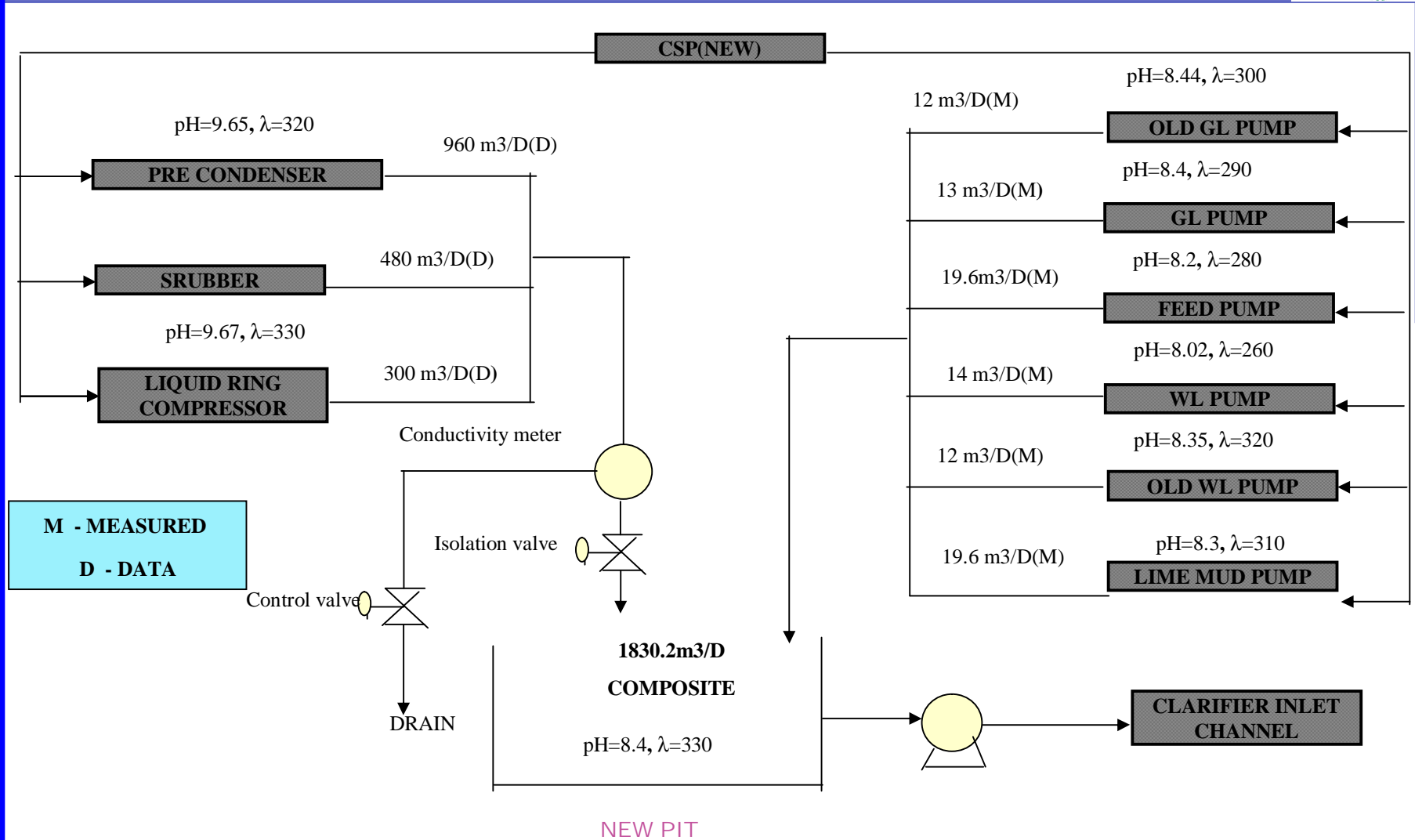
4 Achieved reduction of fresh water consumption by 1200 m³/Day.

4 Payback of the scheme was 19 months.



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Water conservation through recycling in New Causticizing plant





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PM5 excess back water – Reuse



Trigger:

- 4 Paper Machine 5 has disc filter to maximize recycling of machine back water for water and fiber recovery.
- 4 Machine produces value added and Non-VAP Products
- 4 Specific water consumption of machine is 21 m³/ton

Analysis:

- 4 Water balance study carried out at PM5
- 4 Study revealed availability of 31m³/hr excess backwater from top layer.
- 4 Analysis of top layer backwater revealed suitability for dilution of pulp at pulp mill final tower.



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PM5 excess back water – Reuse



Action:

- 4 System installed to transfer excess backwater to pulp mill tower. (Piping, motor capacity enhanced 11kw to 18.5kw)
- 4 Necessary automation incorporated at paper machine
- 4 Investment for the proposal was Rs.14.0 Lac

Benefits:

- 4 Achieved fresh water saving of 700 m³/day
- 4 Payback of the scheme was 30 months

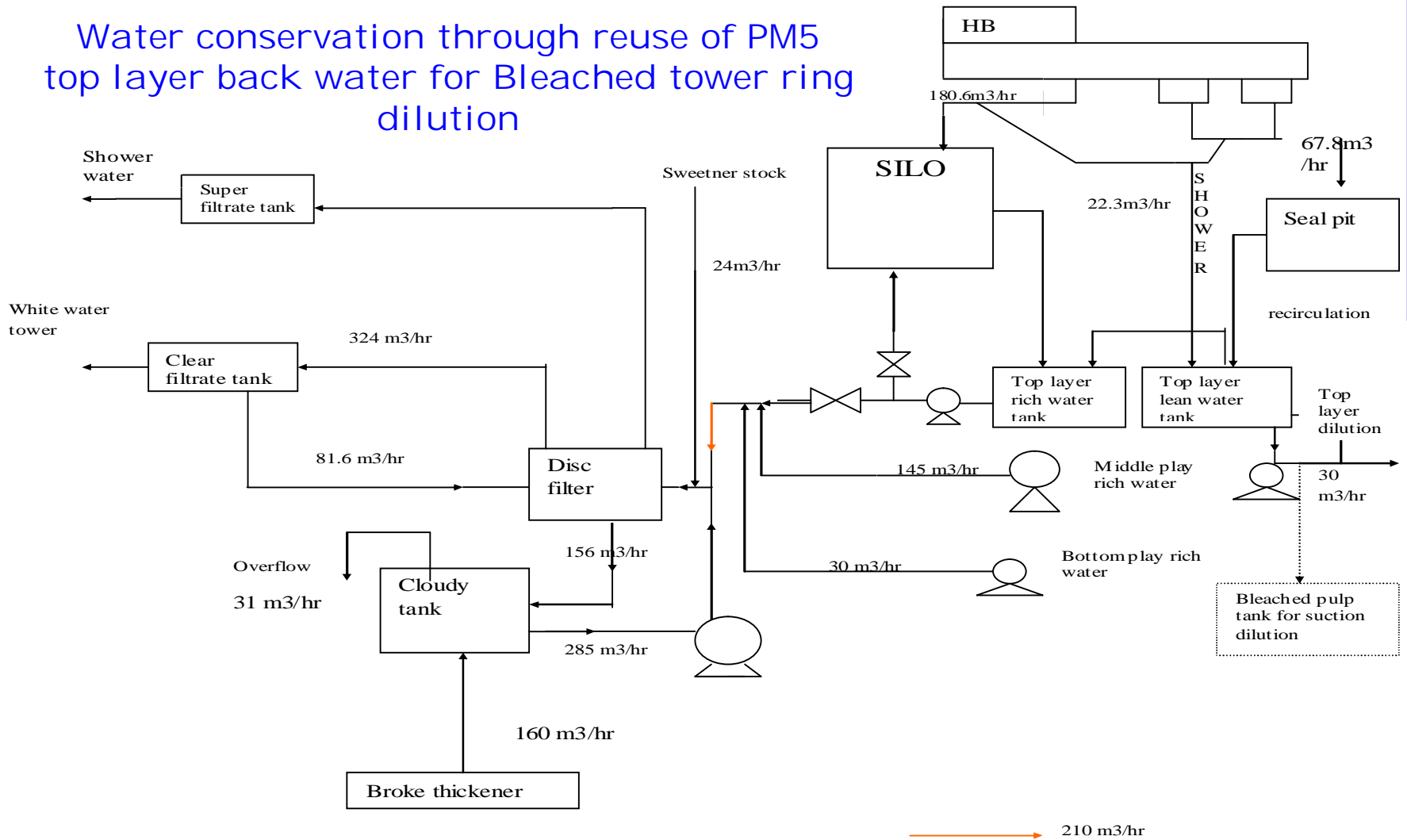


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PM5 excess back water – Reuse



Water conservation through reuse of PM5 top layer back water for Bleached tower ring dilution





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Evaporator foul condensate - Reuse



Trigger:

- 4 Foul condensate is generated in black liquor evaporator.
- 4 Water evaporation capacity is 125TPH, of which 110TPH is the foul condensate.
- 4 70TPH of secondary (foul) condensate is utilized for hot water generation at causticizing plant. Balance 40TPH is unutilized.
- 4 Additional ETP load due to organic matter contamination

Analysis:

- 4 Water analysis of foul condensate carried out.
- 4 R&D dept after thorough analysis found suitable for reuse in PO2 filtrate tank as hot water.



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Evaporator foul condensate - Reuse



Action:

- 4 Modification carried as per the schematic attached.
- 4 Necessary automation installed to have control on quality of condensate
- 4 Capital investment for the proposal was Rs.10.0 Lac

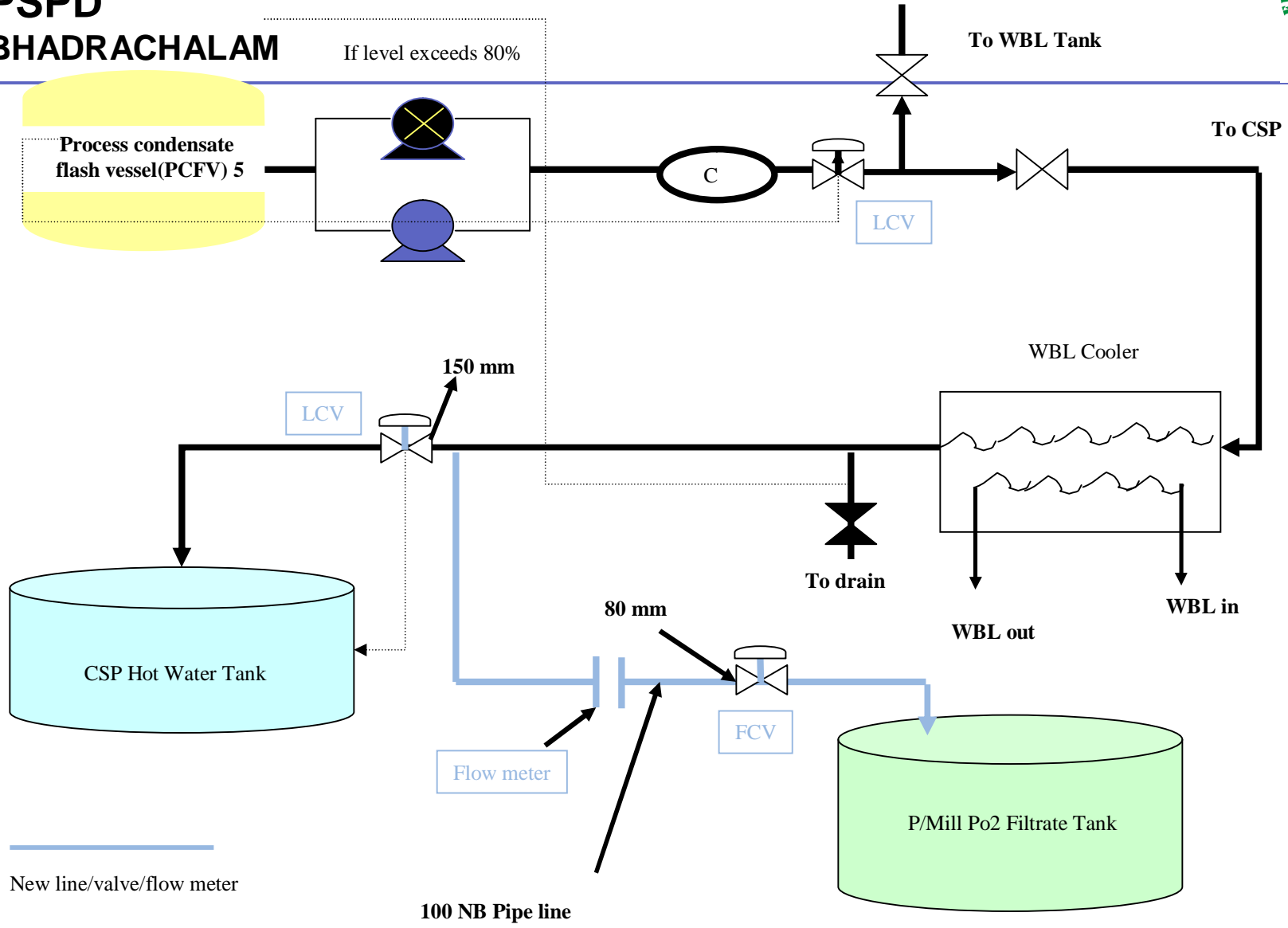
Benefits:

- 4 Fresh water saving of 900 m³/day.
- 4 Steam saving for 900m³/day of hot water generation.
- 4 Payback of the scheme was 14 months



Water conservation through reusing of secondary hot condensate at pulp mill

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New line/valve/flow meter

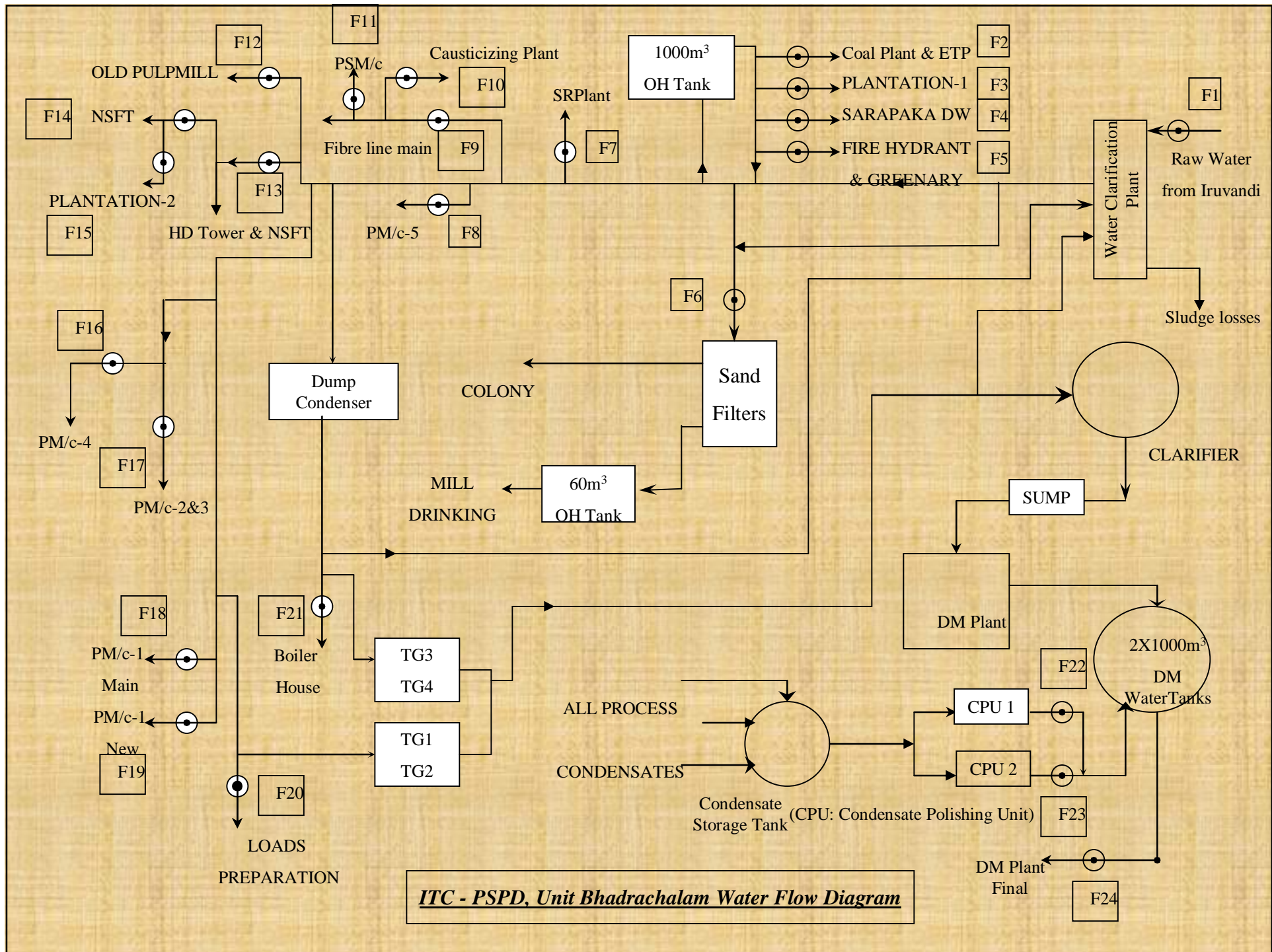
100 NB Pipe line



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Sustainability



ITC - PSPD, Unit Bhadrachalam Water Flow Diagram



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Sustainability



Monitoring:

- 4 Entire plant is DCS operated for control and consistency.
- 4 Monitoring of water consumption on real time basis.
- 4 Norms for water consumption; plant wise and process wise.
- 4 EC Cell to monitor consumption daily basis against norm.
- 4 EC Cell to report back any deviation seeking reasons.
- 4 Metering facility over entire plant integrated with DCS.
- 4 Total employee participation through mill wide TPM initiative.
- 4 Water conservation as KRA for managers in annual appraisals.
- 4 Capital scheme for water conservation with 5-7 year payback is also implemented.



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Sustainability



Monitoring:

- 4 Central lab monitors on shift basis, process plant drains leading to ETP to monitor discharge of effluent water and fiber.
- 4 Central lab shift in charge informs immediately, in case of abnormal flow to process S/I to take corrective action.
- 4 Water audits through experts and consultants.
- 4 Water balance carried out on monthly basis, department wise.
- 4 Capital and revenue budget provided to monitor and control water consumption.
- 4 Calibration of flow meters are done per schedule through calibrated external flow meter.



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Sustainability



Reporting:

- 4 Daily water consumption reporting through IMIS to monitor section wise consumption.
- 4 Access of MIS Water reports to all the departments through lotus notes.
- 4 Monitoring plant wise water consumption to arrive at specific water consumption to monitor, report and compare with best practices in Global Pulp & Paper Industry.
- 4 Monthly unit level review meeting to review consumption against norm.
- 4 Central lab to monitor consumption trends of department and report back to process heads on monthly basis.



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Sustainability



MIS Report

UTR019

Power Consumption Monitoring Report

AS ON 31/12/2006

11/09/2007

Generation	Today (kWH)	Todate (kWH)	Production	Today (Ton)	Todate (Ton)
TG 1	0	0	PM1	214	6145
TG 2	144610	4408248	PM2	70	2147
GRID POWER (APSEB A/C)	800	82600	PM3	21	443
TG 3	338900	10647927	PM4	434	12153
TG 4	404000	11732000	PM5	262	8227
DG	0	4320	Total	1001	29115
Total	888310	26875095	SelfGen%	99.91	99.68
SP.consumption					
power (kwh/ton)	872	911			
steam (ton/ton)	4.96	5.05			
water (m3/ton)	49.83	55.59			



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Monitoring tool- Sustainability





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Sustainability



*Centralized control room for monitoring for energy
& resources for Sustainable development.*

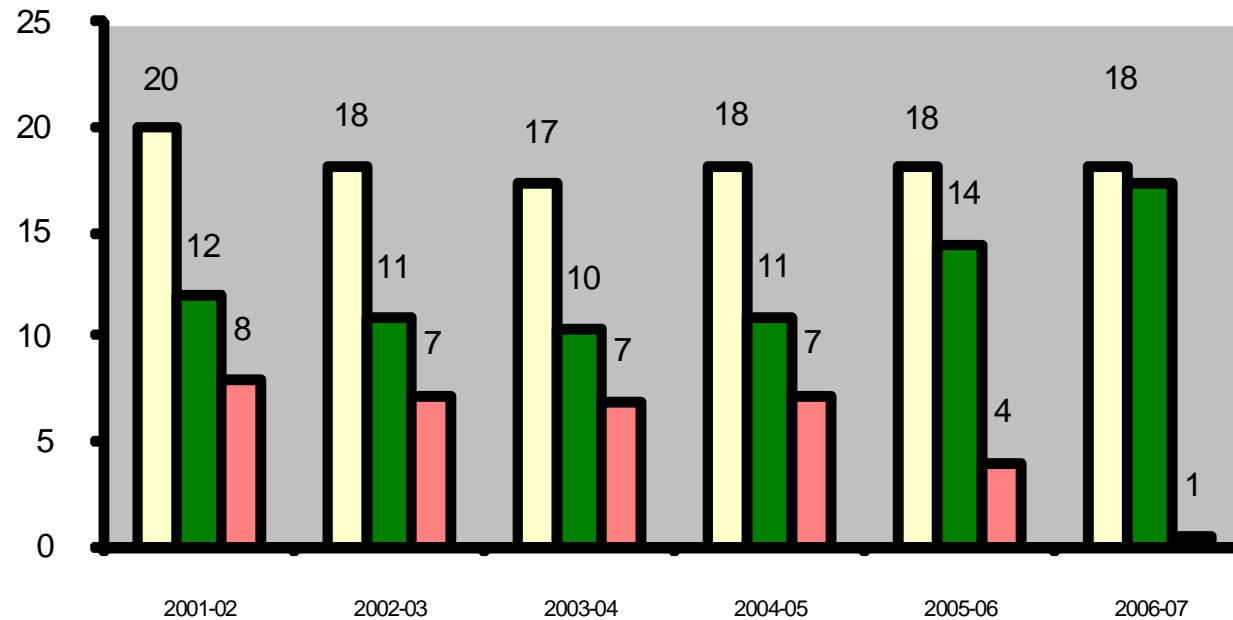


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Zero Discharge to river

95% of the treated effluent discharge is utilized for plantation/crops





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Road map for zero discharge



Balance 5% of the effluent is utilized for (a) Greenery of the entire plant,(b) Fruits, vegetables & Banana
Additional 1000 acres of land to be irrigated as permitted by APPCB.



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Usage of treated effluent





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Awareness

(Employee, Community Involvement)



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Employee participation





SUSTAINABILITY THROUGH PEOPLE

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Intranet Based Training System



WELCOME TO ITC PAPER BOARDS & SPECIALTY PAPER DIVISION - Hacked by Achitasin & ???? ???

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Recycle Bin Mail Print Run

Address http://10.35.12.71/ Go Links

NAVIGATION . 1

DEPARTMENT:


- Marketing
- HR
- IS
- Engineering
- Plantation
- Raw Materials
- Projects
- Process
- Planning
- Safety
- Security
- Training
- Prod Development
- Finance
- Quality Policy

Policy

Contacts

- External
- Internal

LAYOUT BY: GENERATIONEXT



PSPD Vidyalyaya

SITE NEWS . UPDATES

About ITC PSPD :

The **Paperboards & Specialty Papers Division** came into existence in November 2002 with the amalgamation of ITC Bhadrachalam Paperboards Ltd with ITC Ltd. and incorporates Tribeni Tissues.

ITC entered the field of paperboards in 1975 when it incorporated **Bhadrachalam Paperboards Ltd**. The new company was setup as an integrated paperboard manufacturing facility and commenced operations at **Bhadrachalam** in Andhra Pradesh, 300 km east of Hyderabad. The Bhadrachalam mill today produces 210,000 TPY of papers & boards and is the largest single location mill in India. The mill is focused on producing paperboards for packaging and graphics segments and product range includes **Cyber XLFac (folding box boards)**, **Pearl/Saphire Graphik (solid bleached boards)**, high value boards apart from the Ecoviron range of recycled boards. The mill also makes **liquid packaging boards** for Tetrapak in India.

Very recently (Sep 2002) the Bhadrachalam mill also commissioned India's only **Elemental Chlorine Free** pulp mill with a capacity of 100,000 tonnes a year. This location will also see the commissioning of a 80,000 TPY board machine from Voith by June 2004. The Bhadrachalam location today has two board machines and two smaller paper machines. The unit is ISO 9002:2000 series accredited. The unit is also ISO 14001 certified for **Environment Management Systems**.

Quality Policy :

We at ITC PSPD commit to consistently meet our customers' quality expectations of product and service at competitive cost in an environment fostering continuous improvement of products, processes, safety and hygiene.

For more information about ITC and its group of companies, Please visit <http://www.itcportal.com/>

NAVIGATION . 2

: LIBRARIES :

- Plantation
- Guide Lines-Safety
- Talk
- Safety Talk

: Training :

- Presentations & training materials.

Done Local intranet

start PBU 1 Microsoft PowerPoint ... WELCOME TO ITC PA... 10:42 AM



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Employee Awareness



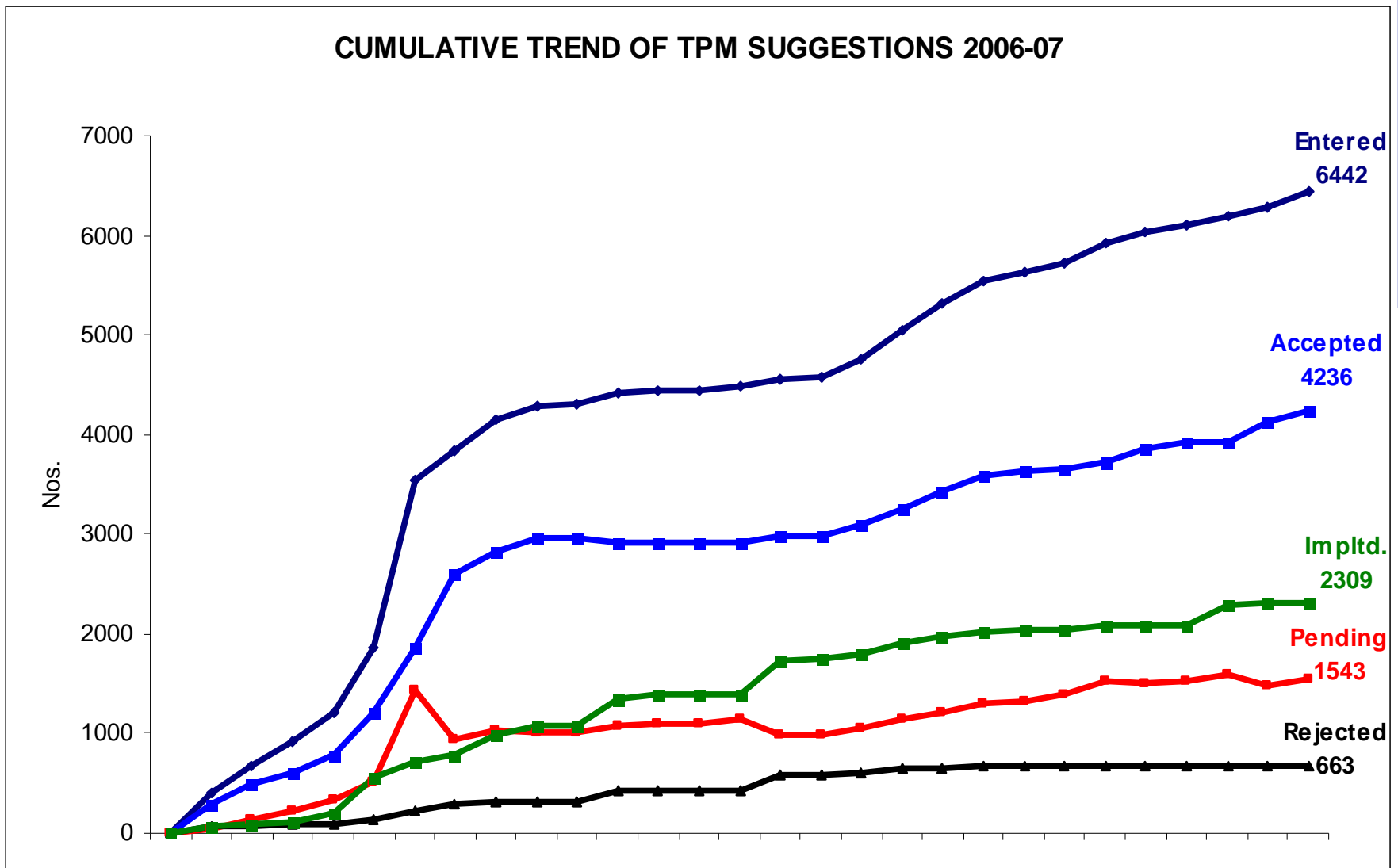


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Employee participation through TPM



CUMULATIVE TREND OF TPM SUGGESTIONS 2006-07





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Employee participation through TPM



Suggestions received between 01-04-2006 to 31-03-2007

« Total number of suggestions received	1503
« Total number of suggestions accepted	0821
« Total number of suggestion pending processing	0601
« Total number of suggestions rejected	0081
« Total number of suggestions implemented	0412
« Benefit accrued through suggestions (Rs. Lac)	0139

In view of TPM advanced techniques practiced by all employees, suggestions received are huge in number.



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Employee Awareness





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Employee recognition

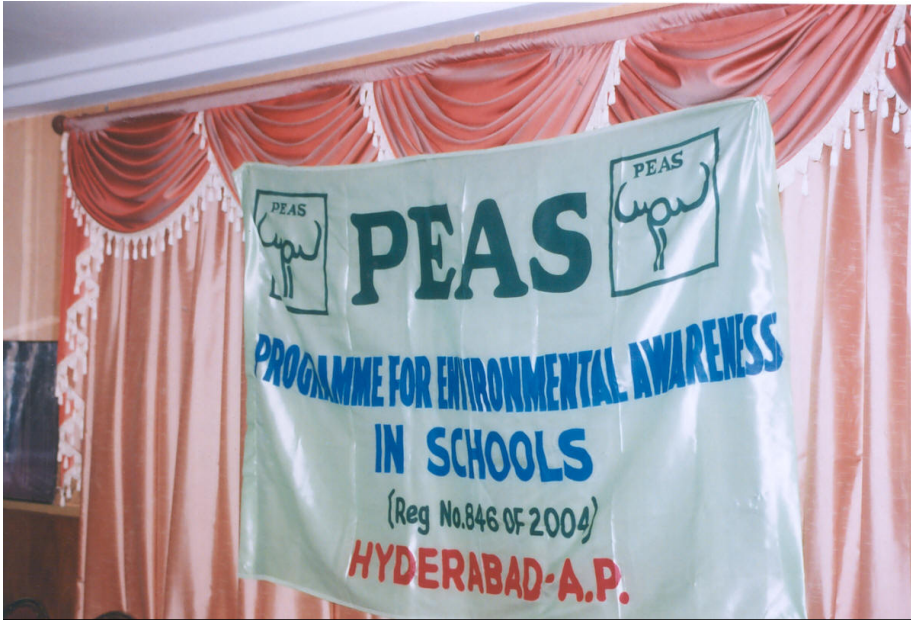




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Employee recognition





School students on Zero waste management – Program conducted by ITC-PSPD-(BCM)





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Awareness - World environment day



World Environment Day

World Environment Day was celebrated on June 5, 2007 with the following activities.

Banners on environment protection were erected at different locations in the mill and the colony. Bulletins on environment were circulated via the local group mail. Saplings of fruit bearing trees were distributed in the colony to residents to plant in their house premises. Good video programmes on the theme were screened on the cable TV network. Pamphlets were distributed to employees. In the evening, after the shift timing, a competition on group and solo songs on the environment theme was conducted near the factory gate.



Environment Achievements for the year 2006 - 07

Statutory Levels

- ▶ SPM levels of all boilers, soda recovery boiler and lime kiln are within APPCB norm of 115 mg/Nm³
- ▶ Quality of treated effluents meets the standards stipulated by APPCB
- ▶ ECF bleaching reduced the Absorbable Organic Halide (AOX) level to 0.0089 kg/ton of product. (National standard of 1.5 kg/ton)

Water and Waste Management

- ▶ Waste water discharge is reduced to 52 m³/ton (2006 -07) from 58 m³/ton (2005-06)
- ▶ Specific fresh water consumption reduced to 65 m³/ton (06-07) from 61 m³/ton (05-06) of Paper and Paperboard
- ▶ 100% fly ash utilisation for brick making, cement companies and construction
- ▶ 100% utilisation of waste fibre generated at ETP for making sun dried hand made boards

Plantation

- ▶ 280 million saplings planted in an area of 66,000 ha, till March '07.
- ▶ Plantations over 66,000 ha, have made ITC a "Carbon Positive" company and helped to reduce Carbon dioxide emissions.

Energy Conservation

- ▶ Mill distribution voltage optimized from 425V to 410V
- ▶ Reduction of generation frequency from 49.8 Hz to 49Hz at TG-2
- ▶ Replacement/modification of pumps with energy efficient pumps
- ▶ Installation of 250kw VFD for process water pumps
- ▶ Annual savings of Rs. 67.7 Lacs during 2006-07.
- ▶ Power consumption per ton of Paper & Paperboard reduced from 992 kwh (05-06) to 954 kwh (06-07)
- ▶ Steam consumption/ton of Paper & Paperboard reduced from 7.04 MT (05-06) to 6.8 MT (06-07)

CDM Projects Registered with UNFCCC

- ▶ Cleaner technologies and various energy conservation proposals implemented in manufacturing pulp and paperboard are qualified for CDM projects under Kyoto Protocol. CDM projects registered with UNFCCC (United Nations Framework Convention on Climate Change) are as follows:
- ▶ Project title: "Demand Side Energy Efficiency Programmes for Specific Technologies at ITC Bhadrachalam Pulp & Paper Making Facility in India" Annual emission reduction: 15500 tonne Co₂

- ▶ Project title: "Optimization of Steam Consumption by Applying Retrofit Measures in Blow Heat Recovery System". Annual emission reduction: 15669 tonne CO₂
- ▶ Project title: "Optimization of Steam Consumption at the Evaporator". Annual emission reduction: 46572 tonne CO₂

Awards Won

- ▶ "National Award for Excellence in Energy Management-2006" by CII for sixth year in succession.
- ▶ "Best Paper Mill of the Year Award 2006" from Indian Paper Makers Association.
- ▶ "National Award for Excellence in Water Management 2006" by Confederation of Indian Industry.
- ▶ "Greentech Environment Management Excellence Award 2006" by Greentech Foundation.

World Environment Day Celebrations 5th June

MELTING ICE a HOT TOPIC?



ITC Limited
Paperboards & Specialty Papers Division
Unit: Bhadrachalam



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Awareness - World environment day



Let's make everyday World Environment Day.

For over three years ITC Sunfeast has been promoting Hara Banao, a campaign which has been actively involved in educating children on ways to "Save the Environment". In the year 2005 Sunfeast created a programme to plant over 3 lac saplings in just 20 minutes and in 2006, distributed over 1 crore seeds to children through this campaign.

Sunfeast also contributes 25 paise to the Hara Banao Campaign for every pack of Sunfeast Dream Cream, FitKit, Pasta Treat and Bennevitita you buy.

Join us today in this campaign to plant more and more saplings with just a single SMS.

SMS "Sunfeast" to 6263 now and ITC Sunfeast will plant a sapling on your behalf for every SMS you send*.

**SMS
"Sunfeast"
to 6263**



Visit us at: www.sunfeastharabanao.com

"Send this mail to all your friends and encourage them to join in this mass movement for a greener world. Imagine what a billion people can do with just an sms!!!

On World Environment Day, sms "Sunfeast" to 6263 & ITC Sunfeast Hara Banao will plant a sapling for every sms sent"



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ETP Greenary photo



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Operational Excellence



has fallen

The **International Pulp & Paper Editor's review on ITC**, "Emissions of nutrients, which have fallen to less than a third of the levels recorded in the 1980s." The increase in fish stocks from mill towns (including the return of valuable species) is a clear indicator of improvements in water conditions.

It is not only in Finland (or indeed Europe), that effluent treatment and water quality downstream of mills has improved in leaps and bounds. Visiting the ITC Bhadrachalam mill in India earlier this year (*PPI* August 2006, pp. 17-21), I saw how carp and other fish were living in 100% treated effluent in a pond at the plant. The mill treats its wastewater using an activated sludge process.

In Latin America, best available water treatment is also becoming a necessity rather than a luxury. As this

Unit
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up front

UP FRONT

Sink or swim

By Justin Toland, Editor



WATER HAS ALWAYS been a precious commodity in the pulp and paper business. But the industry's impact on water systems has long been a contentious issue. One only has to consider the current dispute over Botnia and Enece's pulp mill projects in Uruguay. The crux of the dispute is the fact that Uruguay and Argentina share as a border the River Uruguay. Argentina alleges that the river will be polluted by discharges from the two mills, a claim rejected by the Uruguayan government and the companies behind the mills. It is an accusation that in July was also rejected by the International Court of Justice (ICJ) in The Hague. Nonetheless, protests about the mills continue.

Yet, as the ICJ judges recognized, the industry has taken great strides over recent years to reduce waterborne emissions. As the Finnish Forest Industries Federation (FFIF) points out in a new report, "In five decades, the production volumes of paper and board (in Finland) have increased over threefold and pulp production volumes have more than doubled. Over the same time, the burden on water systems caused by the pulp and paper industry has fallen **Pulp & Paper**

The **International Pulp & Paper Editor's review on ITC**, "Emissions of nutrients, which have fallen to less than a third of the levels recorded in the 1980s." The increase in fish stocks from mill towns (including the return of valuable species) is a clear indicator of improvements in water conditions.

It is not only in Finland (or indeed Europe), that effluent treatment and water quality downstream of mills has improved in leaps and bounds. Visiting the ITC Bhadrachalam mill in India earlier this year (*PPI* August 2006, pp. 17-21), I saw how carp and other fish were living in 100% treated effluent in a pond at the plant. The mill treats its wastewater using an activated sludge process.

In Latin America, best available water treatment is also becoming a necessity rather than a luxury. As this month's *PPI* shows, in both Brazil (pp. 29-29) and Chile (pp. 35-36), mills are installing effluent treatment plants incorporating state-of-the-art moving bed biofilm reactor (MBBR) technology. In both countries, emissions limits

are stricter than ever and an active environmental lobby is ready to pounce on any failure to meet the new standards.

Today's best available techniques are also reducing the amount of process water the industry needs. In Finland, for instance, "In the 1970s, the amount of raw water used per tonne of finished product was 250 m³ in pulp manufacturing; nowadays it is only 20-50 m³," says the FFIF.

Brazil's Lwarcel mill, subject of this month's cover story (pp.15-20), sources its process water from an aquifer, rather than a river or lake. The purity of the water not only means that it requires little treatment before use, it also means Lwarcel requires only 25 m³ of water to produce one tonne of pulp. In Australia, Visy Smithfield mill's installation of a process water recycling system (pp.31-32) has garnered awards as well as cost savings.

Recognizing the limits

Although it is possible for pulp and papermakers to cut emissions still further, Professor Olli Dahl of the Helsinki University of Technology argues that taking such steps would be prohibitively expensive and would have little environmental benefit: reducing emissions into water would mean increasing air emissions and solid waste discharges. Further purification processes would also be very energy-intensive. "From an environmental perspective, the best solution is to predict and manage disturbances instead of increasing the amount of purification equipment," reckons director of resources and environmental issues, FFIF, Alina Ruonala-Lindgren.

R.I.P. Martin

PPI was saddened to learn of the recent death, after a short illness, of Martin Swayne, a longtime member of the pulp and paper press corps. Martin, who most recently edited the journal *Pulp & Paper Technology*, lived up many an industry gathering over the years. He will be sorely missed.

Email: jtoland@risinf.com



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Operational Excellence



FISH POND

Quality of treated effluent is par excellence with respect to best practices of European paper mills



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Aqua culture in treated effluent





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Community Involvement



Bhadrachalam initiatives

Farm and Social forestry

Irrigation with treated effluent

Drinking water supply to villages

Bore wells for remote villages

Water shed mgt – Rain water harvesting structures

Recycling of waste paper

Recycling of fly ash



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Plantation drive



Through a novel plantation drive, under Sunfeast “Hara Banao”, ITC planted 3,00, 587 saplings in 20 minutes with 16,317 people in 16 villages covering 264 Acres (105.6ha) in Khammam District, Andhra Pradesh.

This has surpassed the Guinness Book of world Record held by Canada with 1,34,000 saplings planted in 1 hour with 23,000 people.



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Plant nursery



Plantation has created 4.2 Lac jobs in activities such as nursery, planting, maintenance, logging etc



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High yield Clones



The average net income from clonal plantation is around Rs.25,000/ha/yr under rain fed conditions and Rs.40,000/ha/yr with irrigation on a four year rotation cycle, as compared to Rs.12,500/ha/yr and Rs.20,00,00/ha/yr respectively realized from traditional crops.

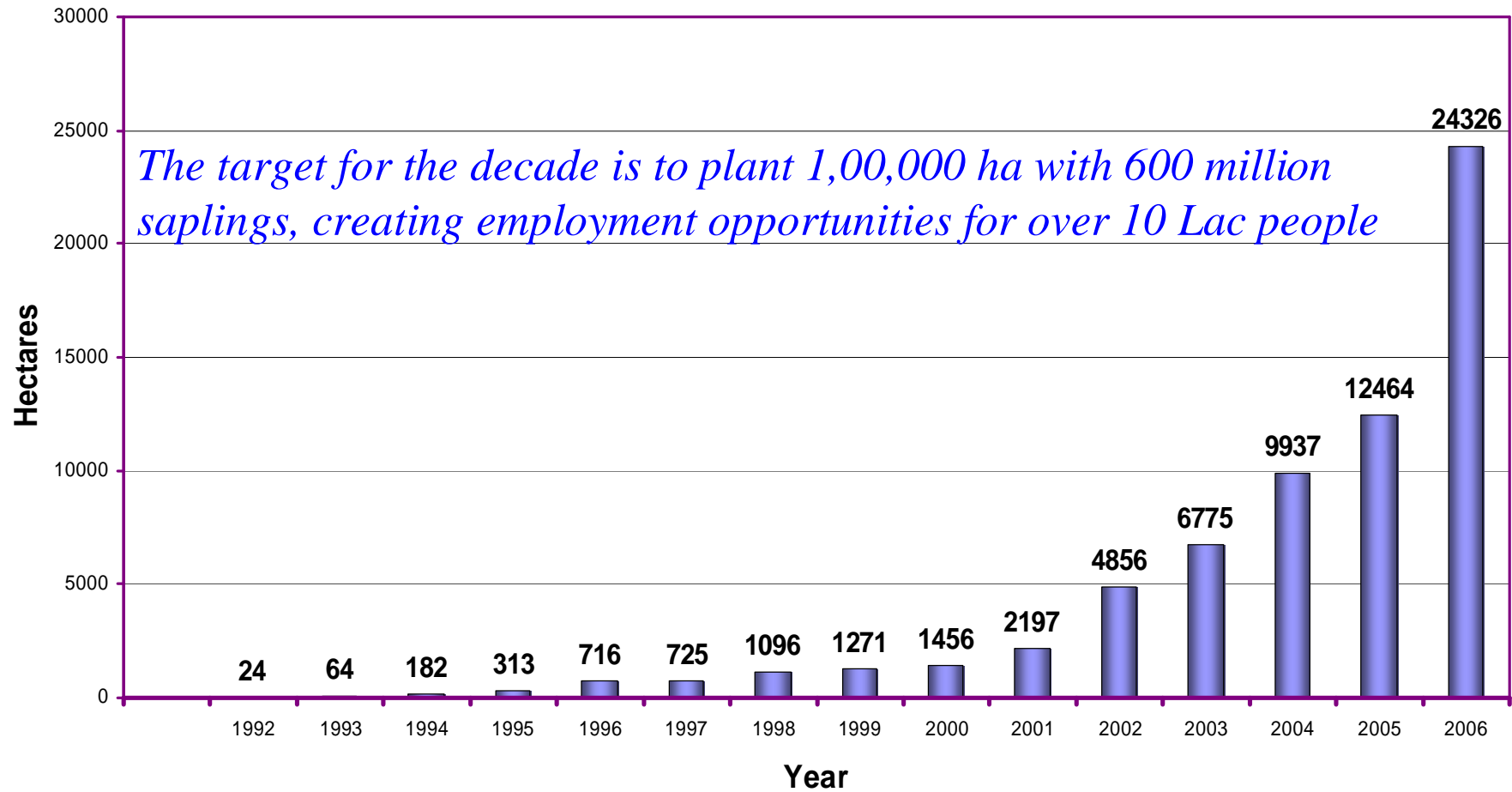


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Farm & Social forestry



Graph 1: Covered 66,326 ha Area from 1992-93 to 2006-07



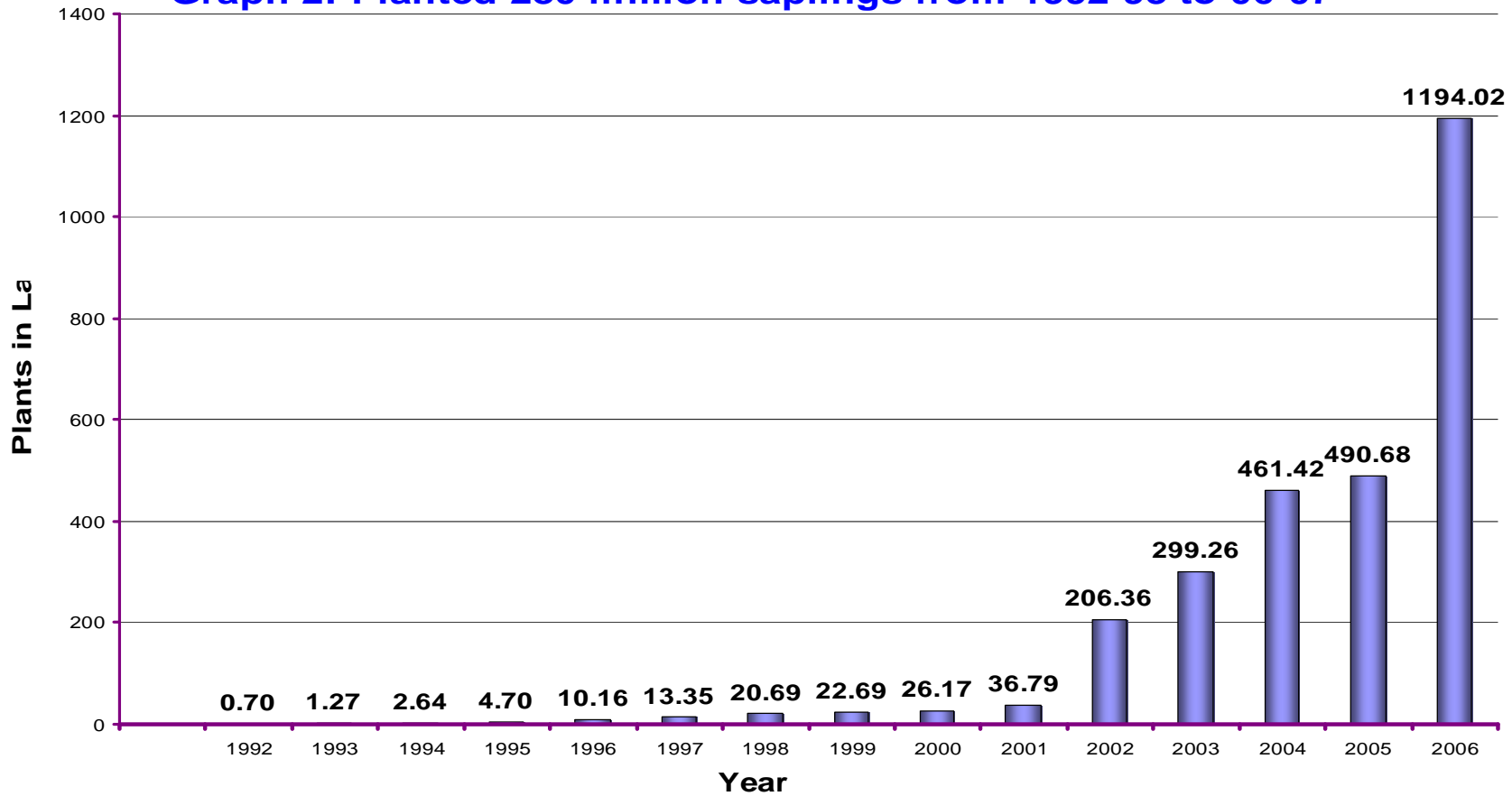


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Farm & Social forestry



Graph 2: Planted 280 million saplings from 1992-93 to 06-07





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Sustainable plantation-Social forestry



Social Forestry Best Farmer Award function in Bhadrachalam

ITC Mission Sunehra Kal organised the Social Forestry Best Farmer Awards ceremony in Bhadrachalam on April 4, 2007, to recognise Social Forestry beneficiaries who have cultivated and efficiently managed their pulpwood plantation with maximum survival and yield.

Nine Best Farmer Awards and an equal number of Runner-up Awards were given. Mr Budda Prakash Jyothi, Plantation Officer, ITDA was the Chief Guest at the function. Mr Sasi Kumar, Vice President, Unit Bhadrachalam, Paperboards and Specialty Papers business, encouraged other farmers to cultivate their plantation effectively. Mr Bhaskara Reddy, Plantation Officer, shared quality inputs and experiences. Awardees also shared their experiences in growing pulp wood plantations and how the programme had transformed their lives.




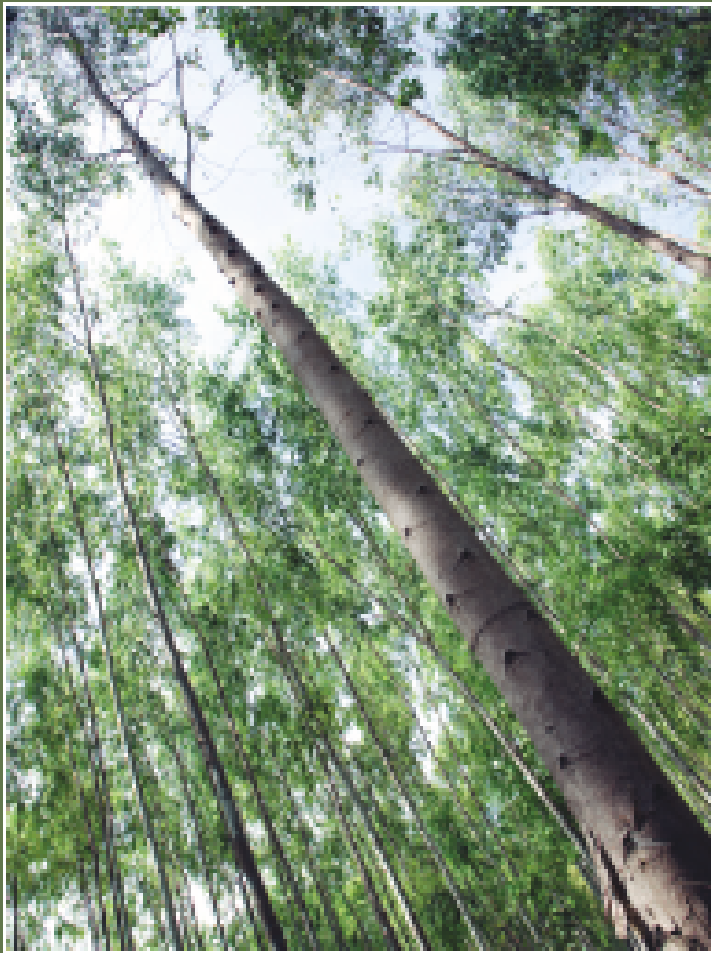


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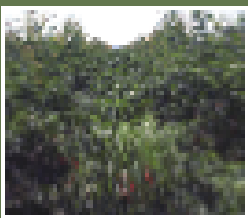
Intercrop plantation




Intercrops in Pulpwood Plantations



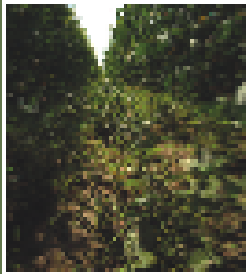
Euca & Chili



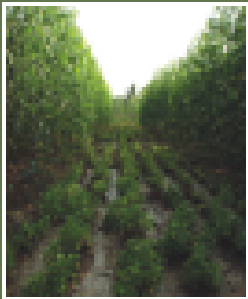
Euca & Tomato



Euca & Tobacco



Euca & Pulses



Euca & Coleus



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Remote sensing of plantation



Remote sensing of plantations

The ITC plantations are now mapped using remote sensing techniques through National Remote Sensing Agency (NRSA). The GIS data base is maintained for plantations to provide vital information on periodic wood generation.

The ITC Plantations are now mapped using remote sensing technique through National Remote Sensing Agency (NRSA). The GIS data base is maintained for plantation to provide vital information on periodic wood generation.



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Carbon sequestration



ITC is now a 'Carbon Positive Corporation'

Total Green House Gas (GHG) emissions from all the ITC units during the year amounted to 1,202 kilotonnes of CO₂ (1,058 kilotonnes in 04-05).

ITC continued to rapidly upscale its farm and social forestry initiatives and added another nearly 12,000 hectares of plantations in 2005-06.

The total area under ITC's farm and social forestry plantations now amounts to nearly 41,000 hectares. This initiative has not only led to raw materials sustainability for ITC's Paperboards business, but has helped sequester 1,244 kilotonnes of CO₂, thereby making ITC a 'Carbon Positive Company'.

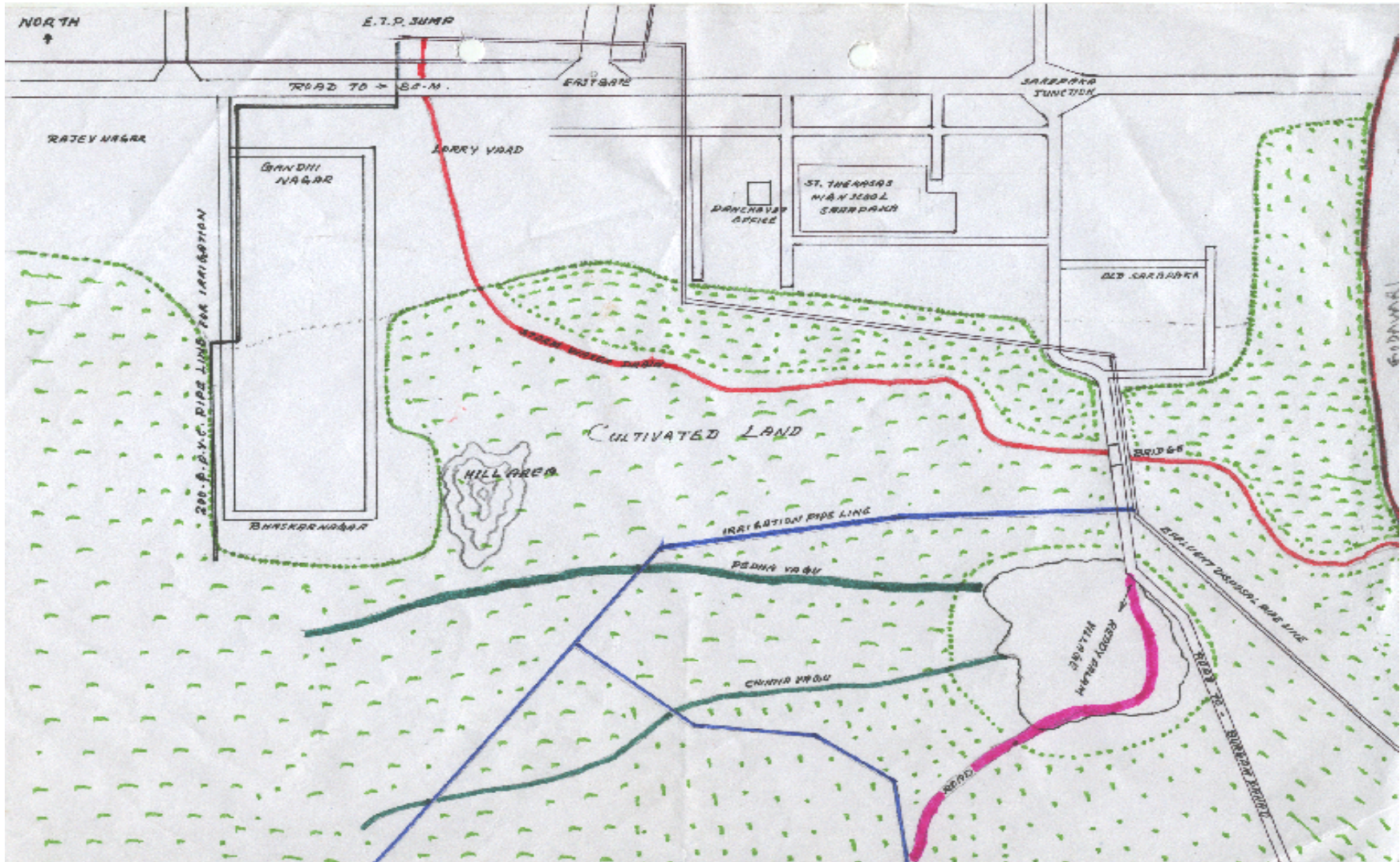
	Unit	03-04	04-05	05-06
CO ₂ released (Manufacturing and Freight)	Kilotonnes	1013	1058	1202
CO ₂ sequestered	Kilotonnes	311	906	1244
CO ₂ sequestered	Percent	31%	86%	104%

Source: ITC Limited – Report & Accounts 2007



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Distribution of treated effluent





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Quality of discharge water



The average Absorbable Organic Halides (AOX) level in Bhadrachalam effluent is 0.0025 kg/t of paperboard.

Average discharge level of Indian Paper/Paperboard mill is 2kg/t.

World Bank guidelines for new paper mill stipulate a level of 0.2kg/ton

Source: ITC Limited - Sustainability Report 2006

Significant reduction in AOX level in discharge was achieved by adopting cleaner technologies across production process. Adoption of light ECF with Ozone bleaching (under commissioning) will reduce the AOX level and color further significantly.



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Irrigation through treated effluent





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Paddy cultivation thro treated effluent





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Community Drinking water



Inauguration of supply of drinking water to nearby villages (Iruvandi, Reddypalem, Sarapaka) for 5000 families.

Bore wells were provided for remote villages as water source.



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Water shed programs





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Water shed programs





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Waste paper recycling



- « Educated around 2.0 Lac teachers & children in 350 schools across Andhra Pradesh on paper recycling initiative.
- « ITC Ltd PSPD, as a part of this initiative reached an understanding with Satyam Computers, Infosys, Wipro, GE, ITC Grand kakatiya, Suryapet Municipality, National Institute of Nutrition, Heavy Water Project, Secunderabad Cantonment and several schools and residential colonies, to join the Recycling Initiative and help improve the environment
- « Started procuring news papers from various agencies and residential colonies in twin cities as a road map for others to follow.



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Waste paper recycling



Member secretary (APPCB) Mr. Tiwari. IAS inaugurating school waste paper (note books) to unit BHADRACHALAM for recycling.



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Waste paper recycling



Recycle Initiative on June 5



In order to propagate the idea of recycling among general public, we have been seeking support from various agencies and All India Radio came forward to arrange a talk show on their FM Channel "RAINBOW FM 101.9". On World Environment Day, AIR arranged a talk show between 10 and 11am. Our team participated in it and the hour long discussions, with public interaction over telephone, was well received.

The talk show focused on ITC's concern and initiatives taken to protect the environment, plantation activity, importance of source segregation and recycling, how all citizens of the country from various walks of life can support this idea by participation and what the major benefits are.



Clean India Campaign

Sukuki Eerora, an NGO dealing with solid waste management, conducted Clean India - 07, a two-day Conference and Exhibition on solid waste management on 23rd & 24th February 2007 at Shilparamam, Hyderabad. The event highlighted the best practices and applauded the work done in solid waste management. It brought people from different backgrounds and different countries to brainstorm for practical solutions. The speakers included, Ms. Ajanta Pereira from Sri Lanka and Ms. Vandana Singhal from South Central Railways.

Mr. A Das, DGM (Technical) made a presentation on 24th February on the various practices followed by ITC, PSPD regarding waste management. Also a presentation on InBhadra- Mitr was made by Ms. Manjula Kannan, Chief Manager (Finance), DHQ.

Mr. Koneru Ranga Rao, Minister for Municipal Administration, Urban Development and Sericulture, presented a memento to her for the efforts made towards sensitizing school children about waste practices.

ITC, PSPD put up a stall in the exhibition displaying waste management initiatives, plantations, and products made from recycled boards. Visitors included Dr. Raja Sekhar, Film Artists, Dr. Srinivas Reddy, Assistant Medical Officer, NCH etc.





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Waste paper recycling



blue planet >>>

Save Nature

ITC PSPD, DHQ, as a part of Corporate Social Responsibility(CSR), made a modest beginning to introduce the concept of waste management in the residential colonies. Mr. Jogarao, Vice President (Commercial) and his team conducted an awareness campaign for residents of Hyderabad City at Park View Enclave, Manovikas Nagar, Hasmahpet on March 18, 2007. He explained the need for waste avoidance, source segregation, maximum recycling and minimizing landfill, to help improve the environment and work towards a clean and green society.

ITC, PSPD plans to support this initiative by joining hands with various residential colonies, multi storied buildings etc.

The company looks forward to wholehearted participation and support from all citizens in this initiative. Please get in touch with Mr. Sanjeev Goel / Mr. N. Yadagiri Reddy or Ms. A. Sarada at 040-27846566 to 73.



Digital Painting by
Meghana, D/o. Suma Kumar, DHQ

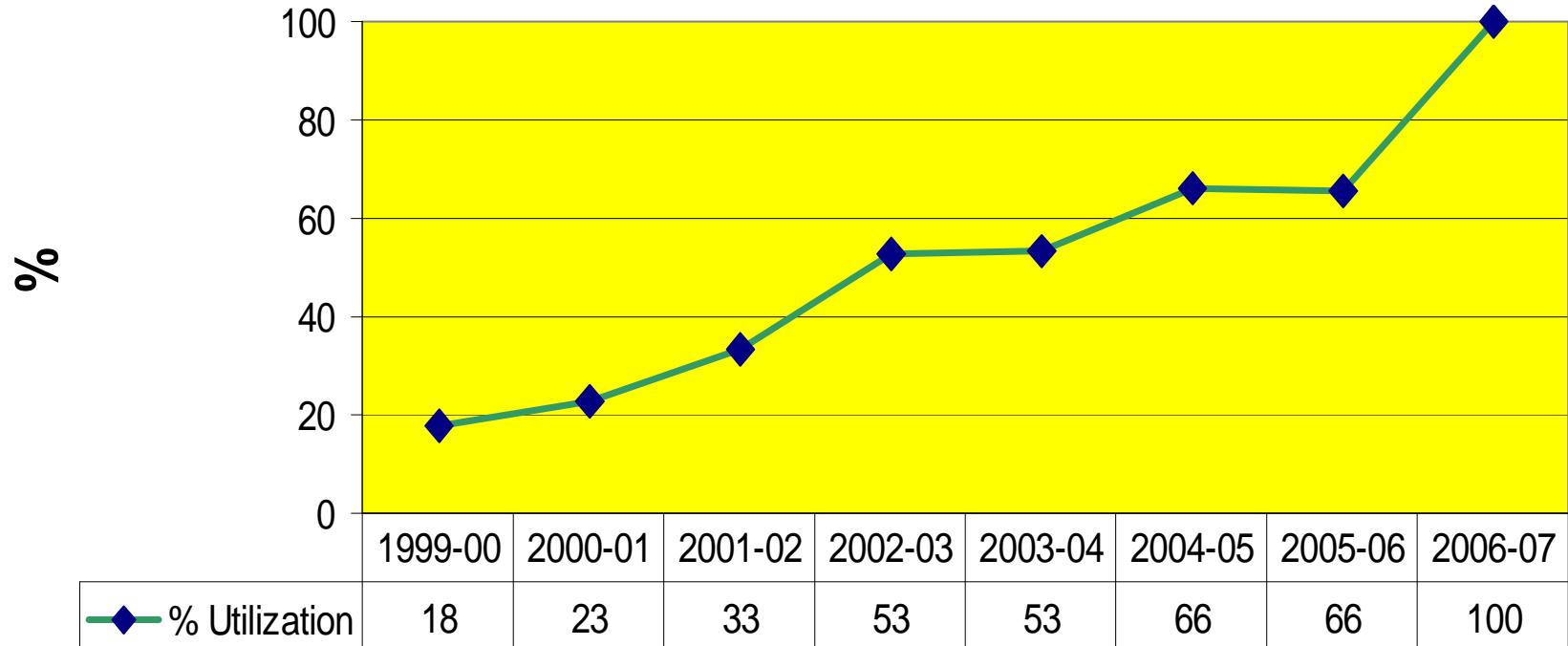


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Solid waste recycling



Fly Ash utilization





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PROJECTS ON ECONOMY OF SCALE 400TPD Paper Machine



Entire building construction with fly ash bricks



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Waste Recycling Initiatives



Unit Bhadrachalam recycles 75.8% of the solid waste.

Unit Bhadrachalam generated 2,10,987 tones of solid waste in 2005-06 (Only 8.4% higher than the previous year in spite of 17.7% volume growth)

Specific waste reduced to 700kg/t of production in 2005-06 from 760kg/t of production in 2004-05

According to CSE study on "Green Rating of Indian Pulp & Paper Industry 2004" specific solid waste generation by large scale Indian Paper mills is 1200kg/ton of production.

Source: ITC Limited - Sustainability Report 2006



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Drive initiated during flood relief





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Drive initiated during flood relief



Boat carrying food packages and drinking water for flood effected villages



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Drive initiated during flood relief



BCM employees making food packets for flood effected Villages.





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Drive initiated during flood relief



Dr. Y.S. RAJASEKHARA REDDY



**CHIEF MINISTER
ANDHRA PRADESH**



HYDERABAD

August 29, 2006

Dr. Y.S. Rajasekhara Reddy

The recent heavy rains and floods have caused untold hardship and misery to the people resulting in disruption to normal life in many parts of the State. Government had to undertake massive relief and rehabilitation programmes to the affected families. I understand that the staff and management of your organization rose to the occasion and gave a helping hand to those unfortunate flood victims, especially in distributing them about 45,000 food packets per day till the situation returned to normality. I commend their efforts in providing timely assistance to the flood victims which also helped us overcome the situation quickly.

The Government would like to place on record the excellent services rendered by the management and the staff of M/s. ITC Paperboards, Bhadrachalam, Khammam in extending assistance to the flood victims. Please convey my sincere thanks to all those who participated in the relief work and also for their kind gesture.

With best wishes,

Yours sincerely,

(Dr. Y.S. RAJASEKHARA REDDY)

Sri Pradeep Dhobale,
Chief Executive,
M/s. ITC Paperboards & SPD,
Bhadrachalam,
KHAMMAM DIST.

ITC-PSPD Unit Bhadrachalam Strongly believes

...ENSURING

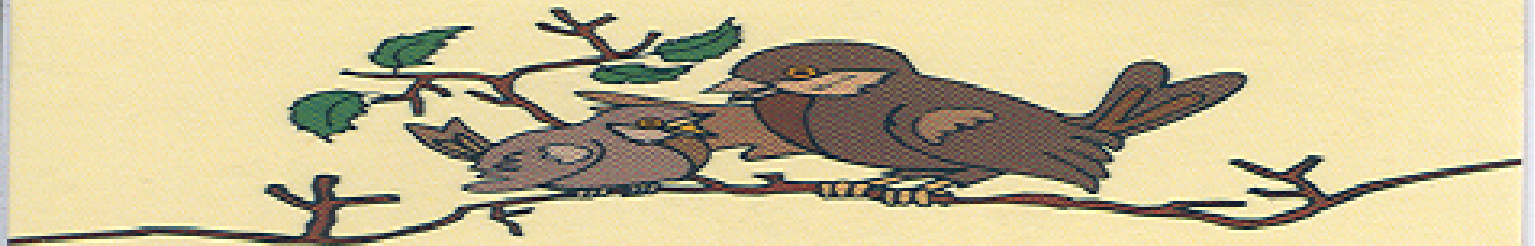
NA  URE

LIVES IN PEACE.



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While producing
world class
paperboards and
specialty papers,



we take care of
their world too!



ITC Limited
**PAPERBOARDS &
SPECIALTY PAPERS DIVISION**



See who is thanking us now!



PAPERBOARDS & SPECIALTY PAPERS DIVISION



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Thank You





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Community Development
through
Use of treated effluent for irrigation



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Irrigation by treated effluent





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Awareness
through
Employee participation



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Community Development
through
Supply of drinking water



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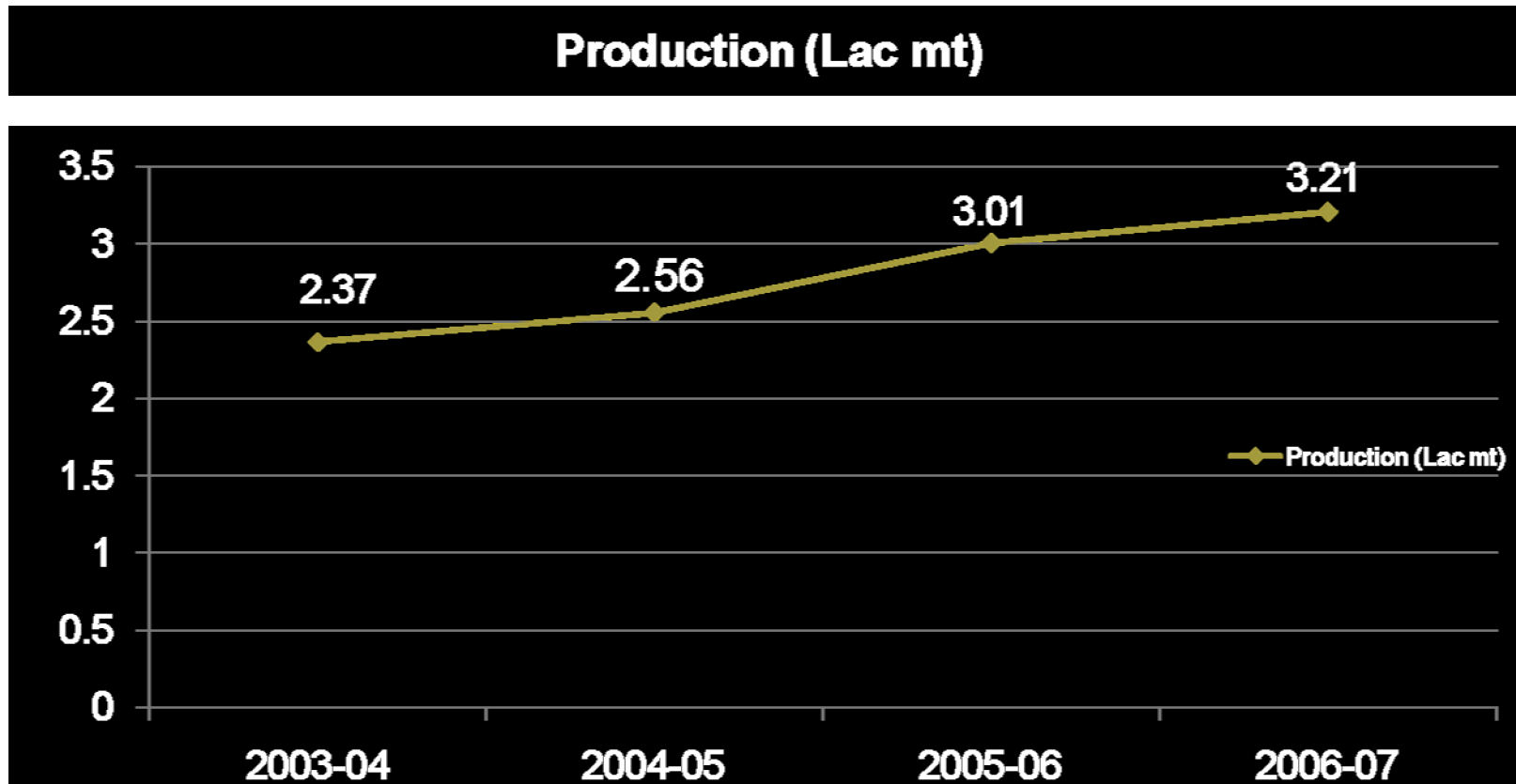


Community Development
through
Waste paper recycling



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Total Paperboard production

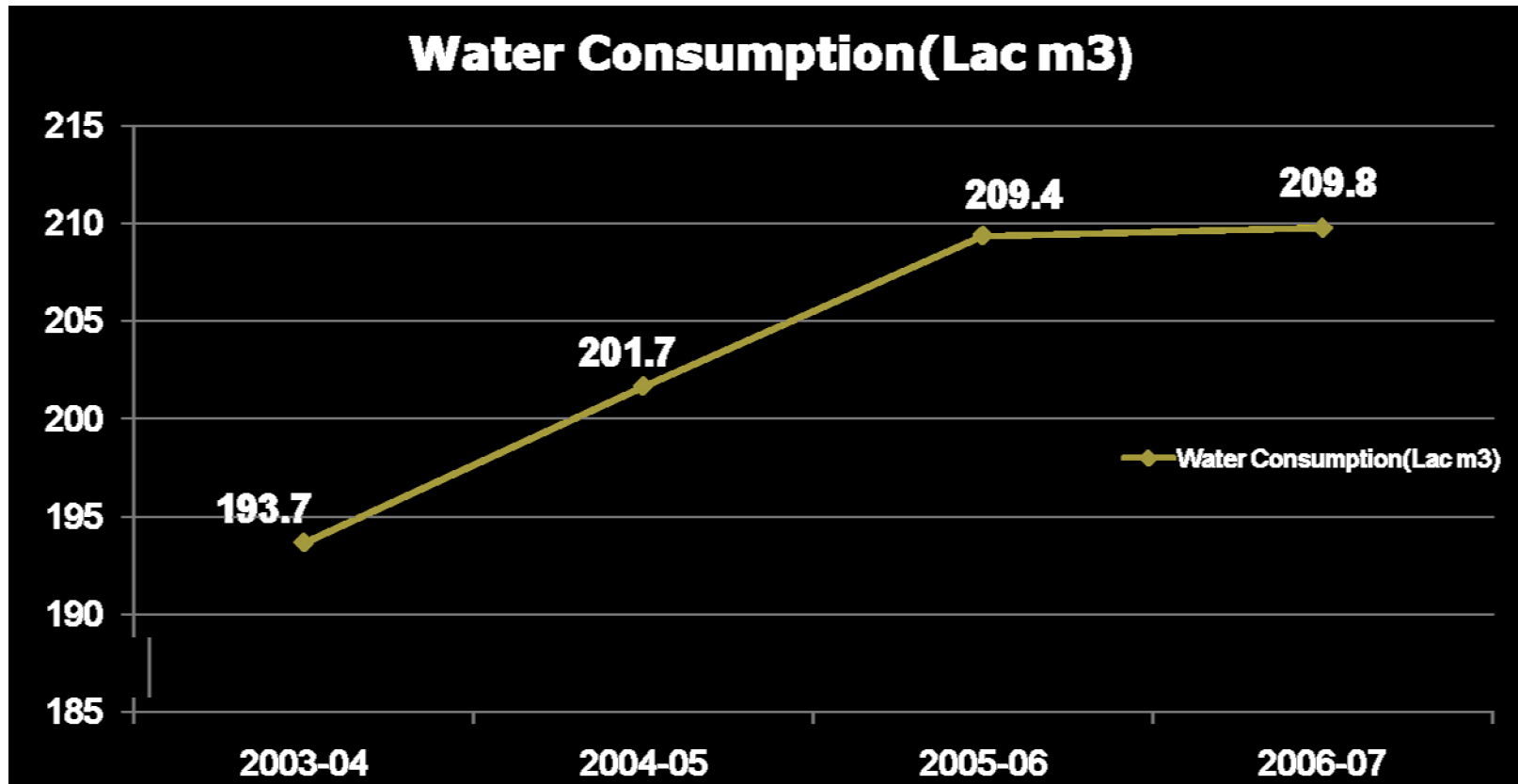


Production increased by 35.4% over a period of 4 years through Capacity utilization and expansion.



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Total water consumption

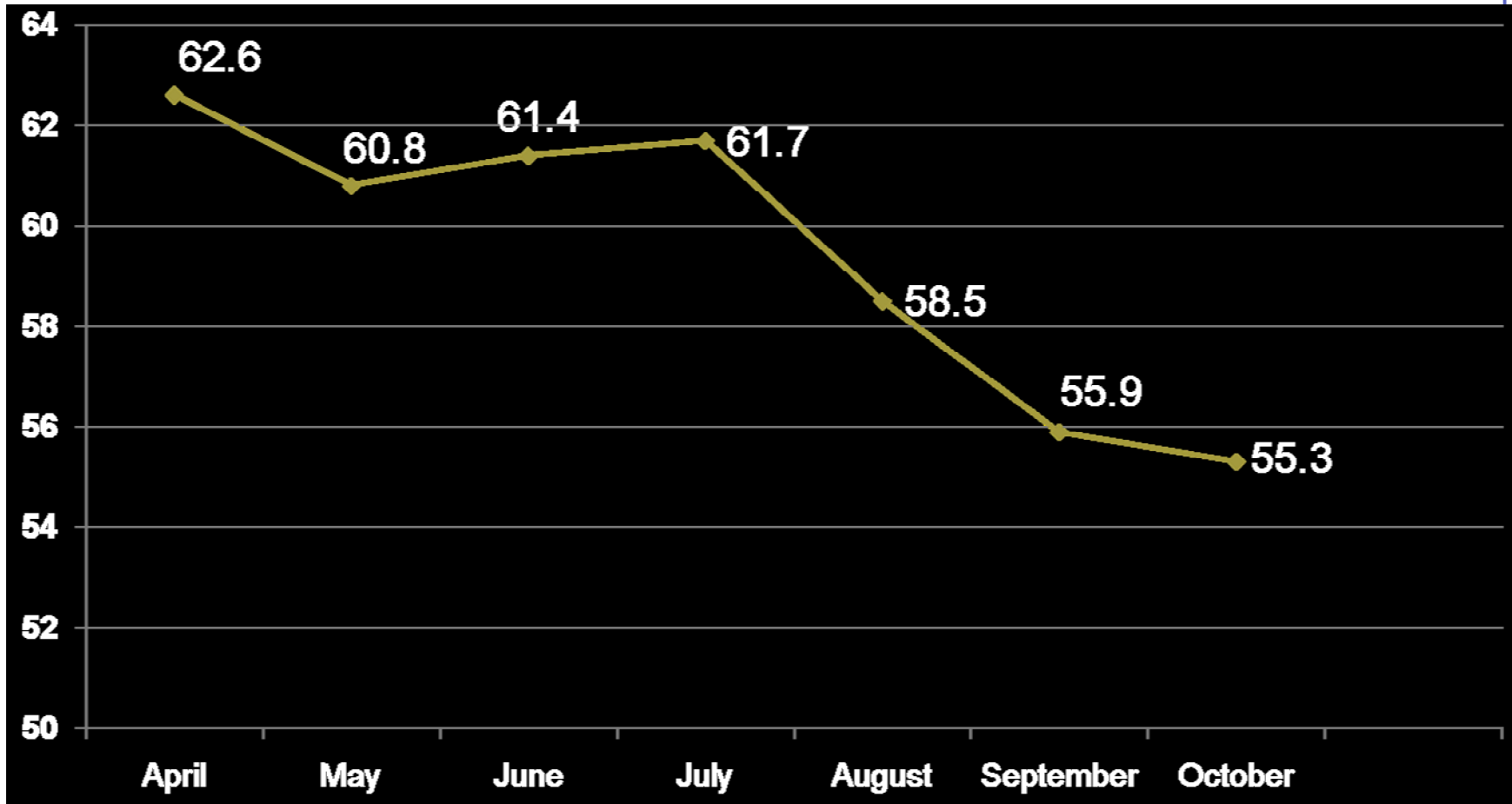


Consistent efforts for water conservation through 3R for last 4 years resulted only 8.3% increase in total water consumption for 35.4% Increase in paperboard production.



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Sp. water consumption (07-08)





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Usage of Treated effluent





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Usage of treated effluent





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Plantation - Mist chamber





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Global Benchmark

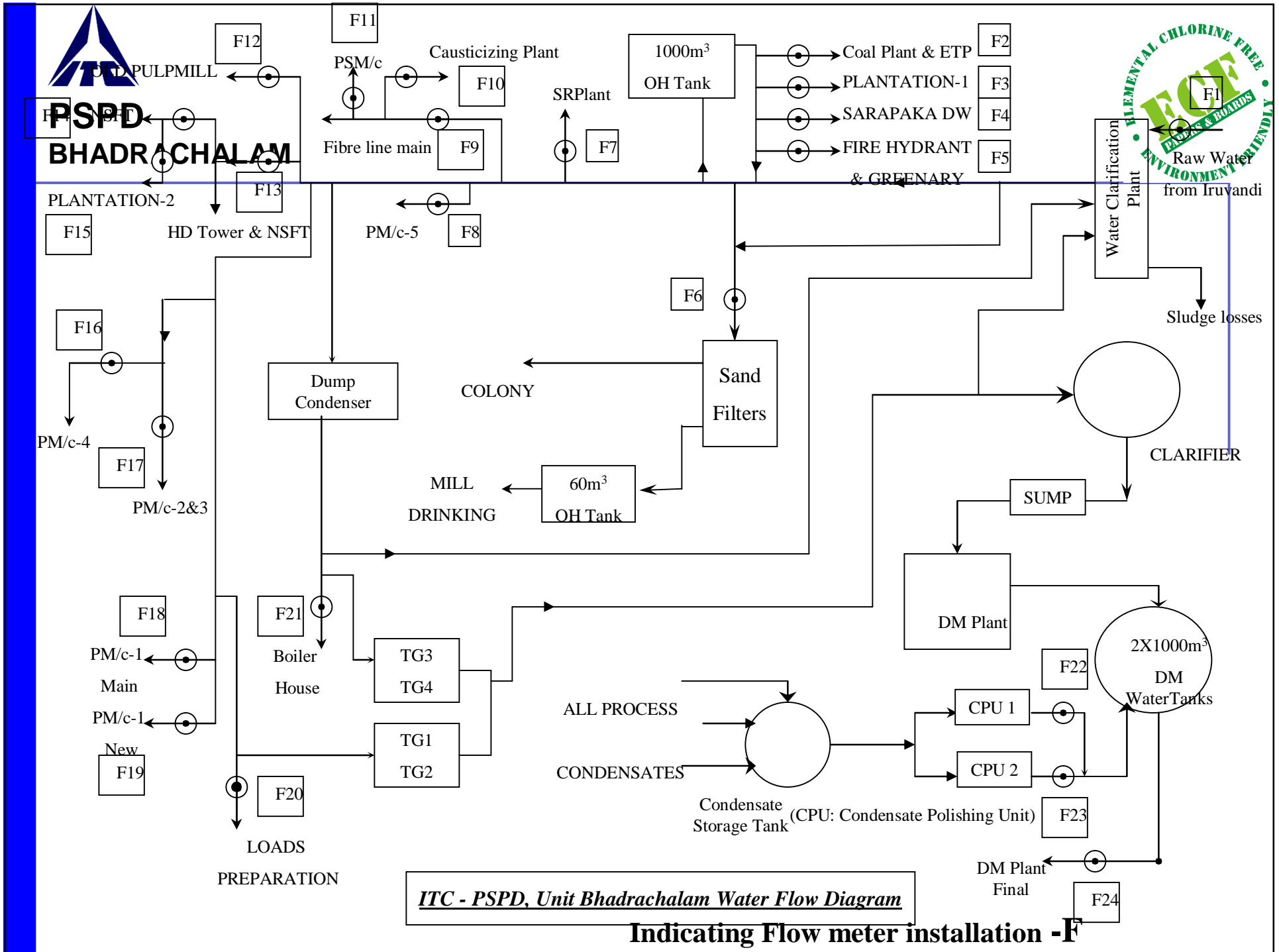


Pulp & Paper Mills	National Benchmark	International Benchmark
	m ³ /ton	m ³ /ton
Wood based Pulp & Paper Mill	135 - 150	30 - 70

Source: Report on water conservation in Pulp and Paper Mill in India. M/s National Productivity Council. New Delhi (Executive summary page 6/14). CSE Report 2002.

Unit Bhadrachalam sp. water consumption for 07-08 is 55m³ to 58m³.

Commissioning of 400tpd pulp mill and 350tpd Paper machine is planned without additional intake of water. Water conservation projects are underway to conserve water to utilize for upcoming projects.





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Thank You