



Central Pulp &
Paper Research Institute



ANNUAL
REPORT **2014-15**

ANNUAL REPORT

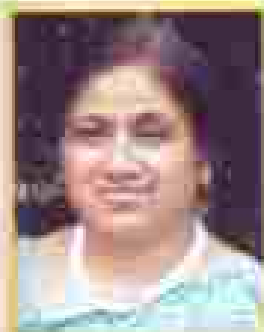
2014-15



Central Pulp &
Paper Research Institute

An Autonomous Organisation registered under Section 30A under the Administrative Control of Ministry of Commerce & Industry, Department of Industrial Policy & Promotion, Government of India.

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From the Director's Desk

It is my pleasure to present the progress and achievements of CPPRI during 2014 -15 through this Annual report.

During 2014 - 15, the progress of most of the 12th Plan Research Projects was fairly satisfactory and as per schedule. The progress of the projects were presented in the meeting of RAC committee held in June 2014. The valuable suggestions and feedback provided by the members were noted and have been incorporated in the work plan of the projects.

CPPRI association with Central Pollution Control Board (CPCB) involved assistance in evaluating Techno - Economic - Statutory Feasibility of installation of On-line Monitoring System in Pulp & Paper Mills of Ganga River Basin for Monitoring of Pollution Parameters. A detailed report on the study has been submitted to CPCB.

With the successful implementation of Charter for Water Recycling and Pollution Prevention for Pulp and Paper Industries in Ganga River Basin in over 30 mills of five identified clusters viz. Kashipur & Roorkee (Uttarakhand) and Muzaffarnagar, Meerut & Moradabad (Uttar Pradesh), the Charter has now been further extended to nine states. CPPRI played a key role in formulating the revised Charter Action Plan & Protocol, Charter Norms, Identification of Bare Minimum Technologies to achieve Charter Norms, Development of Chemical Recovery Protocol viz. CPPRI has also been selected as a third party to monitor and verify the progress of charter implementation. Similarly, CPPRI continued assisting Bureau of Energy Efficiency (BEE), Ministry of Power in various activities aimed at improving energy conservation in Pulp & Paper Industry.

Three Memorandum of Understanding (MoU) for joint collaborative studies were signed by CPPRI with National Council of Cement and Building Materials, Security Printing and Minting Corporation of India Limited and Tamilnadu Newsprint and Papers Limited.

CPPRI successfully conducted CPCB sponsored training programme on Treatment and Removal of TDS and Other Pollutants to Promote Zero Liquid Discharge in Pulp & Paper Mills which was attended by officials from Central & State Pollution Control Boards as well as mill officials. In addition, experts from various institutions, universities and colleges undertook training in various areas like, pulping and bleaching, paper making, paper testing, chemical recovery, environmental management and bio-technology. CPPRI also participated as a technical partner in interaction meet on Resourcing Wastable Fiber - Tetrapak Carton as an Option held at Coimbatore and organized a seminar in collaboration with Petroleum Conservation Research Association (PCRA) on Opportunities of Energy Efficiency in Pulp and Paper Industry at Kashipur.

Dedicated efforts made by the Institute in rendering technical, testing and consultancy services to various agencies has resulted in **Internal Revenue Generation (IRG)** of a ₹214.65 Lacs during 2014-15.

With an objective to maintain corruption free and transparent work culture, CPPRI has been strictly complying with the directives of **Right to Information Act, Central Vigilance Commission, Ministry of Culture National Archives of India** etc. The **Hindi Cell** also continued its efforts for further increase in use of Hindi in official work.

CPPRI as usual, observed with great fervor national and other important days during the year like **Independence Day, Republic Day, World Environment Day, Hindi Diwas, Vigilance Awareness Week** etc., through organization of meetings and functions for creating awareness among the staff and their families on the related issues. CPPRI officials participated actively in cleanliness drive (**Swachh Bharat Mission**) on **Gandhi Jayanti** i.e. October 2, 2014.

CPPRI would like to place on record the guidance and encouragement extended by **Shri Amitabh Kant, IAS, Secretary (IPP), Ministry of Commerce & Industry, Govt. of India** and **President, Council of Association (CoA) of CPPRI**. The Institute would also like to place on record the guidance and professional leadership provided by **Shri Shailendra Singh, IAS, Joint Secretary (IPP), Ministry of Commerce & Industry, Govt. of India** and **Chairman, Research Advisory Committee (RAC) of CPPRI**.

The valuable guidance and support extended by the Hon'ble Members of **Development Council for Pulp, Paper and Allied Industries (DCPPAI), Council of Association (CoA) of CPPRI** and **Research Advisory Committee (RAC) of CPPRI** is also sincerely acknowledged.

CPPRI also thank **Indian Paper Manufacturers Association (IPMA), Indian Newsprint Manufacturers Association (INMA), Indian Agro and Recycled Paper Mills Association (IARPMA)** and **Indian Recycled Paper Mills Association (IRPMA)** as well as all our valued clients from pulp, paper and allied industries for their continued support in various activities and projects being executed by CPPRI.

On behalf of CPPRI convey our heartfelt thanks to our outgoing Director **Dr. R. M. Mathur** who attained superannuation in July 2014 after over 40 years of dedicated services. His contribution in CPPRI progress and development shall always be remembered.

I also thank CPPRI's scientific, technical, administrative and accounts staff for their dedicated and sustained team work which has been a driving force for CPPRI's growth and progress.

Finally, CPPRI offer deep condolence on the demise of **Dr. Jan Folligi** who was the **Project Manager** of **FAQ/GOI Project - Alternative Raw Material for Pulp & Paper Making** (the conclusion of which finally led to the birth of CPPRI in 1980 with an objective to utilize the facilities, expertise and infrastructure created under the project in promoting and serving R&D needs of Indian Paper Industry. He was instrumental in setting up laboratories, pilot plant facilities and training of CPPRI scientists.

Dr. Vinodh Bist

**INDIAN PAPER INDUSTRY
CURRENT STATUS, TRENDS
&
RECENT ISSUES IN FOCUS**

INDIAN PAPER INDUSTRY : A BRIEF OVERVIEW OF CURRENT STATUS & TRENDS

(Reference CPPII Report : Census Survey of Indian Paper Industry)

Introduction

The paper forms an integral part of our lives today, fulfilling variety of our needs ranging from documentation to packaging of commodities, industrial and hygiene products. There are 759 number of paper mills in India producing nearly 13 million ton of Paper, Paper board & Newsprint against installed capacity of around 15 million tons per annum. This accounts for about 3% of the world's production of paper (accounting to 404 million tons per annum).

The estimated turnover of the industry is ₹ 50,000 Crore approximately and its contribution to the exchequer is around ₹ 4500 Crore. The industry provides employment to more than 0.5 million people directly and 1.5 million people indirectly. The per capita consumption of paper in India is around 11 kg which is far below the global average of 57 kg. Most of the paper mills are in existence for a long time and hence present technologies fall in a wide spectrum ranging from rather obsolete to the most modern fiber line technologies.

Structure of Indian Paper Industry

Indian paper industry is highly fragmented with varying sizes ranging from 10 tpd to 1150 tpd. The majority of mills are agro residue and recycled fiber (waste paper) based mills. There are merely 20 large mills based on woody raw materials (Eucaphitus, Casuarina, Subebul etc). Presently Indian paper sector is dominated by small and medium size agro residue and recycled fiber based mills. Number of mills of capacity 50000 tons per annum or more is not more than 50 accounting to almost 50% of the total production of paper, paper board and newsprint whereas only less than half a dozen mills account for almost 90% production of newsprint in the country. There is a growing need to modernize the Indian mills, improve productivity and build new capacities.

In all, the small & medium mills contribute to almost 9.0 million tons of production, whereas the large mills contribute to around 4.0 million tons of production.

Shift in Raw material Usage

The industry uses wide variety of ligno-cellulosic fibrous raw materials viz. wood, bamboo, agro residues (wheat straw, bagasse, rice straw, sarkanda etc.) and recycled waste paper as major raw materials for manufacturing of different varieties of paper like writing printing grades, packaging grades newsprint and small quantities of tissue paper etc. The use of raw material has changed significantly over the years. As indicated in Fig 1, of the total production of paper, paper board and newsprint, 63 % is contributed by recycled waste paper based mills, 26 % wood based

mills and only 11% are agro based mills which confirms a significant shift in raw material focus towards recycled fiber.

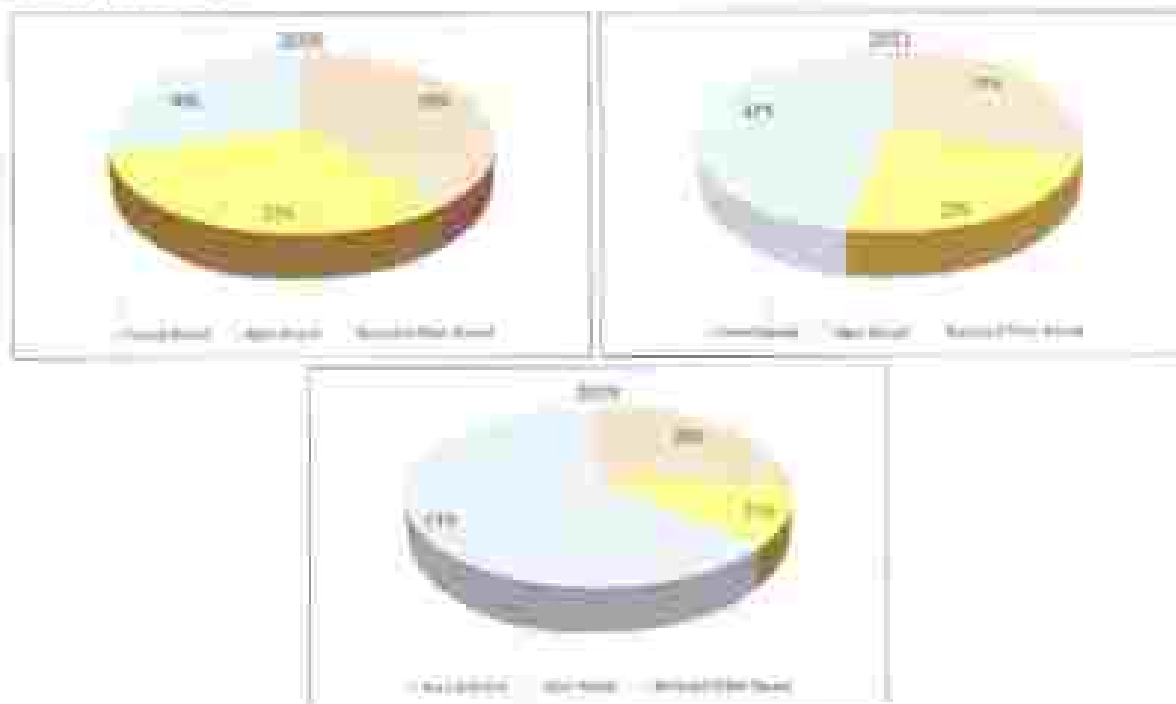


Fig 1

While the drop in share of wood based raw material has been marginal, there is a sharp decline in use of non wood based raw material which is predominantly due to environmental and technological issues.

These mills are scattered throughout the country with major clusters located in states of Gujarat & Maharashtra in Western part, Uttar Pradesh & Uttarakhand in Northern part and Tamilnadu & Andhra Pradesh Southern part of the country.

Paper Demand & Consumption in India

Indian paper industry holds its importance to the national economy. Demand of paper has been hovering around 8% for some time. So far, the growth in paper industry has mirrored the growth in GDP. In global context, India is one of the fastest growing market for paper and it presents an exciting scenario; paper consumption is poised for a big leap forward in sync with the economic growth and is estimated to touch 18.9 million tons by 2020. The increasing demand for paper brings with it new challenges of economies of scale, efficient usage of resources, need to develop and expand sustainable use of fiber, value chain management, etc. The gap between domestic demand and paper production is met through paper imports especially for certain speciality varieties and newsprint. **Table 1** gives the production, consumption, import and export trends for the past one decade.

Table 1 : Yearly Production and Consumption in Indian Paper Industry

Year	Million Tons				
	Capacity	Production	Export	Import	Consumption
2006-06	7.32	6.60	0.312	0.981	7.47
2006-07	7.69	7.15	0.345	1.138	7.96
2007-08	8.32	7.33	0.328	1.341	8.34
2008-09	8.83	7.64	0.340	1.407	8.71
2009-10	9.34	8.02	0.382	1.464	9.10
2010-11	12.70	10.1	0.527	1.582	11.15
2011-12	13.51	10.9	0.648	2.306	13.69
2012-13	13.90	11.8	0.578	1.98	13.2
2013-14	14.20	13.0	0.66	2.58	14.92

Source: Working Group report of 12th Five Year Plan

Implementation of CPCB Charter for Water Recycling and Pollution Prevention in Pulp and Paper Industries.

The first phase of CPCB Charter for Water Recycling and Pollution Prevention in Pulp and Paper Industries in Ganga River Basin has been successfully implemented. In over 80 pulp and paper mills located in five industrial clusters: **Kashipur and Roorkee in Uttarakhand & Muzaffarnagar, Meerut and Moradabad in Uttar Pradesh** resulting in significant improvement in technological and environmental status, reduction in fresh water consumption, waste water discharge and pollution load leading to improved compliance and sustenance of pulp and paper mills located in the selected clusters.

In the next phase, the Charter has been revised and updated with inclusion of wood based mills and specially paper mills under the scope and enforcement of further more stringent norms related to fresh water consumption, waste water discharge and pollution load. The revised Charter is specific to pulp and paper industries operating in Ganga River Basin of nine states namely, **Uttar Pradesh, Uttarakhand, Haryana, NCT of Delhi, Madhya Pradesh, Chattisgarh, Jharkhand, Bihar and West Bengal**.

The Charter envisages upgradation of the status of Pulp & Paper Industries in terms of process technology, practices and environmental performance, besides substantial reduction of fresh water consumption, wastewater generation and compliance with the prescribed environmental norms, to achieve desired level of environmental protection, zero effluent discharge to recipient river streams through interception, diversion & disposal of treated effluent for irrigation purposes and to meet objectives of the National Mission for Clean Ganga. Further The Charter also suggests **Bare Minimum Technology** as an indication of the set of desired technologies or its appropriate alternatives required for implementation by the Pulp & Paper industries operating in the Ganga River Basin States.

The norms to be complied under the Charter are as under:

(i) Fresh Water Consumption & Effluent Discharge Norms for Pulp & Paper Mills in Ganga River Basin States

Category	Fresh Water Consumption, m ³ /t paper		Waste Water Discharge, m ³ /t paper	
	Short Term March 2016	Long Term March 2017	Short Term March 2016	Long Term March 2017
A1: Wood Based Pulp & Paper Mills pulp, papers, paperboards & newsprint producing bleached grades of chemical	50	30	50	40
A2: Wood Based Pulp & Paper Mills utilising unbleached grades of chemical pulp, newsprint and paperboards	40	25	30	20

Category	Fresh Water Consumption, m ³ / t paper		Waste Water Discharge, m ³ / t paper	
	Short Term March 2016	Long Term March 2017	Short Term March 2016	Long Term March 2017
(I) Agro Based Pulp & Paper Mills producing bleached grades of chemical pulps, steams, paperboards & newsprint	40	30	60	40
(II) Agro Based Pulp & Paper Mills producing unbleached grades of papers and paperboards	40	25	30	20
(C1) RCF & Market Pulp Based Paper Mills producing bleached grades of papers, paperboards & newsprint	20	15	15	10
(C2) RCF & Market Pulp Based Paper Mills producing unbleached grades of papers and paperboards	15	10	10	05
(D) RCF & Market Pulp Based Specialty Paper Mills	50	30	50	40

Note: Effluent "Discharge" means effluent leaving the outlet of final wastewater treatment stage and includes losses applied on land within the mill or other mill-owned land. Such application on land is not to be drawn from any well before the outlet of the final wastewater treatment stage.

(iii) Norms for Treated Effluent Quality for Pulp & Paper Mills in Ganga River Basin States

Parameters	Integrated Pulp & Paper Mills Manufacturing Chemical Pulp	RCF and Market Pulp Based Pulp & Paper Mills
	Norms	Norms
pH	6.5 - 8.5	6.5 - 8.5
TSS: mg/l	30	30
BOD: mg/l	30	30
COD: mg/l	200	150
TDS: mg/l	1000	1000
Colour: PCU	250	150
AOX: mg/l	8	-
SAF	10	8

CPPRI has been actively involved in revising the Charter guidelines and updating the discharge norms for various categories of mills indicated in the charter as well as preparation of protocols / action plan related to Process Upgradation, Water Conservation and ETP Upgradation, Chemical Recovery Operation etc. CPPRI has also been involved by CPCB as Third Party for verification of action plan and monitoring of Charter implementation progress.

For details please visit http://www.uppcb.com/pdf/notice_10032015.pdf or <http://www.uppcb.gov.in/upload/content/File-53.pdf>

Online Continuous Monitoring of Effluents

Central Pollution Control Board vide its communication No. B-29016/04/06PCI-1/5401 dated 05.02.2014 has issued directions under section 18(1)(b) of the Water and Air Acts to the State Pollution Control Boards and Pollution Control Committees for directing the 17 categories of highly polluting industries such as **Pulp and Paper**, Distillery, Sugar, Tanneries, Power Plants, Cement, Oil Refineries, Fertilizer, Chlor Alkali Plants, Dye & Dye Intermediate Units, Pesticides and Pharma Sector, Common Effluent Treatment Plants (CETP) and STPs, Common Bio Medical Waste and Common Hazardous Waste Incinerators for installation of online effluent quality and common emission monitoring systems to help track the discharges of pollutants from these units.

Directions were also issued to Ganga Basin State Pollution Control Boards / Pollution Control Committees vide letter No.B-190019/NGRBA/CPCB/2011-12 dated 05.02.2014 for directing the industries discharging effluents directly into River Ganga or its tributaries for installation of **real time water quality monitoring systems** to monitor various industry pollution parameters. The directions envisage:

- Installation of online effluent quality monitoring system at the outlet of the identified units for the measurement of the parameters, pH, COD, BOD and other sector specific parameters as per the guidelines provided, not later than by March 31, 2015 and transmission of online data so generated to SPCB/PCC and CPCB as well.
- Installation of surveillance system with industrial grade IP (Internet Protocol) cameras having PAN, Tilt Zoom (PTZ) with leased line real time connection for data streaming and transmission of the same.
- Ensure regular maintenance and operation of the online system with tamper proof mechanism having facilities for online calibration.

In context of Pulp and Paper Industry the parameters to be monitored include pH, Total Suspended Solids (TSS), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD) and Effluent Flow Rate.

For details please visit : <http://www.cpcb.nic.in/FinalGuidelines.pdf>

MANAGEMENT

Council of Association (CoA)

The Council of Association of Central Pulp & Paper Research Institute (CPPRI) is the supreme body consisting of 18 members having representation from **Ministry of Commerce & Industry, Department of Science & Technology (DST), Council of Scientific and Industrial Research (CSIR), Indian Council of Forestry Research and Education (ICFRE), Indian Institute of Technology (IIT), Roorkee etc.** The President of Council of Association of CPPRI is appointed by Government of India. At present, **Shri Amitabh Kant, IAS, Secretary to the Government of India, Ministry of Commerce and Industry, Department of Industrial Policy and Promotion (IPP)** is President CoA. **Shri Shalendra Singh, IAS, Joint Secretary to the Govt. of India, Ministry of Commerce and Industry (IPP)**, was also closely associated with the affairs of the Council.

Composition of the Council of Association

President	Secretary to the Government of India, Ministry of Commerce & Industry (IPP)
Vice-President	Joint Secretary to the Government of India, Ministry of Commerce & Industry (IPP)
Member Secretary	Director, Central Pulp & Paper Research Institute
Members from Government	1
Members from Academic Institutions	1
Members from Scientific Institutions	3
Members from Paper Industry	10

MEMBERS OF COUNCIL OF ASSOCIATION OF CPPRI

- | | | |
|-----|---|------------------|
| 1. | <p>Shri Amitabh Kant, IAS
 Secretary,
 Government of India,
 Ministry of Commerce & Industry,
 Department of Industrial Policy & Promotion</p> | PRESIDENT |
| 2. | <p>Shri Shalendra Singh, IAS
 Joint Secretary,
 Government of India,
 Ministry of Commerce & Industry,
 Department of Industrial Policy & Promotion</p> | |
| 3. | <p>Smt. Gauri Karol
 Director
 IF Wing - IPI
 Govt. of India,
 Ministry of Commerce & Industry,
 Department of Industrial Policy & Promotion</p> | |
| 4. | <p>Chairman *
 Development Council for Pulp, Paper and
 Allied Industries (DCPPAI)</p> | |
| 5. | <p>Dr. G. S. Gonyea
 Deputy Director General (Research)
 Indian Council of Forestry Research and Education (ICFRE)</p> | |
| 6. | <p>Dr. Sanjay Mishra
 Scientist G,
 Department of Science & Technology,
 Ministry of Science & Technology</p> | |
| 7. | <p>Dr. (Ms) M. Lakshmi Kantam
 Director,
 Indian Institute of Chemical Technology</p> | |
| 8. | <p>Professor Y. S. Negi
 HOD
 IT-Roorkee (Banarsipur Campus)</p> | |
| 9. | <p>Shri R. C. Rastogi
 President,
 Indian Recycled Paper Mills Association (IRPMA)
 and CMD - Khatem Fibres Limited</p> | |
| 10. | <p>Shri Pramod Agarwal
 President,
 Indian Agro and Recycled Paper Mills Association (IARPMA)
 and CMD - Rama Paper Mills Limited</p> | |

11. **Shri Yogesh Agarwal**
President
Indian Paper Manufacturers Association (IPMA)
and CEO - Salarpur Industries Limited
12. **Shri P. S. Patwari**
President
Indian Newsprint Manufacturers Association (INMA)
and Executive Director - Enam Paper Mills Limited
13. **Shri Sanjay K. Singh**
President
Indian Pulp & Paper Technical Association (IPPTA) and
Divisional Chief Executive - ITC Limited - FSPD
14. **Shri Basant Khattar**
Managing Director
Wires & Fabrics (S.A.) Limited
15. **Shri M. V. Narasimha Rao**
Chairman-cum-Managing Director
Hindustan Paper Corporation Limited
16. **Shri Pradeep Dhobale**
Director
ITC Limited
17. **Shri Anil Kumar**
Executive Director and CEO
Broyers Industries Limited (Unit - Shreejaha Papers)
18. **Dr. Vinodan Bhat**
Director (in-charge)
Central Pulp & Paper Research Institute

MEMBER SECRETARY

* Mr. Pradeep Dhobale, Director ITC Limited is presently the Chairman of DCPPA.

Research Advisory Committee (RAC)

The Research Advisory Committee (RAC) of Central Pulp & Paper Research Institute (CPPRI) comprises of prominent scientists and technologists and also representatives from Department of Industrial Policy and Promotion, Ministry of Commerce & Industry, Govt. of India, Deptt. of Science and Technology (DST), Council of Scientific and Industrial Research (CSIR), Indian Council of Forestry Research and Education (ICFRE), Indian Institute of Technology (IIT), Roorkee etc. The RAC monitors the progress of various Five Year Plan Projects of the Institute periodically. Shri Shailendra Singh, IAS, Joint Secretary (IPP), Ministry of Commerce and Industry, as Chairman of RAC took keen interest in the R&D programmes of the Institute. Valuable suggestions and guidelines given by the Chairperson and members of the committee from time to time enabled the Institute to design R&D programme focusing on thrust areas of Indian Paper Industry.

Composition of the Research Advisory Committee	
Chairman	Joint Secretary (IPP) Ministry of Commerce & Industry
Member Secretary	Director Central Pulp & Paper Research Institute
Members from Government	3
Members from Academic Institutions	1
Members from Scientific Institutions	3
Members from Paper Industry and other organisations	10
Consultants / Technologists	3

MEMBERS OF RESEARCH ADVISORY COMMITTEE OF CPPRI

1. **Shri Shalendra Singh, IAS** **CHAIRMAN**
Joint Secretary,
Government of India
Ministry of Commerce & Industry
Department of Industrial Policy & Promotion
2. **Smt. Gauri Karol**
Director
IF-Wing - JPP
Government of India
Ministry of Commerce & Industry
Department of Industrial Policy & Promotion
3. **Mohd. Zakaria Khan Yusufzai**
Senior Development Officer (Enagg)
Govt of India
Ministry of Commerce & Industry
Department of Industrial Policy & Promotion
4. **Shri K. K. Sinha**
Industrial Advisor (IPP)
Government of India
Ministry of Commerce & Industry
Department of Industrial Policy & Promotion
5. **Shri M.V. Narasimha Rao**
Chairman-cum-Managing Director
Hindustan Paper Corporation Ltd.
6. **Professor Y.S. Negi**
HOD
IIT - Roorkee (Salwanpud Campus)
7. **Shri P. S. Patwarl**
President,
Indian Newspaper Manufacturers Association (INMA)
and Executive Director - Etnam Paper Mills Limited
8. **Shri R. C. Rastogi**
President,
Indian Recycled Paper Mills Association (IRPMA)
and CMD - Khosla Fibres Limited
9. **Dr. N. V. Satyanarayana**
Chief Scientist and
Head, Business Development
Indian Institute of Chemical Technology
10. **Shri R. Vardhan**
Consultant

11. **Shri Sandeep Shetty**
General Manager (Development)
J. K. Papers Ltd.
12. **Dr. Sanjay Nathani**
Head (C and P Division)
Indian Institute of Wood Science & Technology
13. **Dr. A. B. Akolkar**
Member Secretary
Central Pollution Control Board
14. **Shri N. K. Jain**
Director
Valmet Technologies Co. Pvt. Limited
15. **Shri Sanjay Kt. Singh**
President
Indian Pulp & Paper Technical Association (IPPTA) and
Divisional Chief Executive - ITC Limited - PSPD
16. **Shri Pawan Agarwal**
Chairman Kumaon Garhwal Chamber of Commerce
and Industry (KGCICI) - Paper Unit Chapter and
AMT - Wazir Group of Industries
17. **Dr. H. D. Kulkarni**
Vice President (Plantations)
ITC Ltd. - PSPD
18. **Shri Tushar Shah**
Director
Damodar Ganga Group
19. **Shri Anil Kumar**
Executive Director and CEO
Shreyans Industries Limited (SIL) - Shreyans Papers
20. **Shri Pawan Khattar**
Managing Director
Quantum Papers Limited
21. **Shri Arun G. Bijur**
Managing Director
SPBPC Limited
22. **Dr. Vinodh Bist**
Director (In-charge)
Central Pulp & Paper Research Institute

MEMBER SECRETARY

STAFF

As on April 1, 2014, CPPRI's core team includes **Scientists (23)**, **Technical Staff (40)** and **Administrative & Finance Staff (20)**. CPPRI staff is diligently engaged in providing quality services, support and assistance to Pulp, Paper & Allied Industries. The scientific staff is highly qualified and have vast experience in various areas of paper making like **Raw Material Preparation, Pulping and Bleaching, Stock Preparation and Paper Making, Paper Testing, Chemical Recovery, Energy Conservation, Environmental Management, Biotechnology, Product Development, Quality Control etc**. The list of staff along with qualification is annexed with this report. In addition to permanent staff, **Research Associates, Senior / Junior Research Fellows, Computer Assistants & Field Assistants** are also recruited periodically on temporary basis under various projects.

MAJOR ACHIEVEMENTS DURING 2014-15

The major achievements of CPPRI during 2014-15 are summarised as under:

Raw Material Preparation

- Development of bagasse depithing process to achieve 80% depithing efficiency with a residual pith content of less than 6-8%.

Pulping and Bleaching

- Successful mill scale trial of pulping & papermaking from jute waste (corn) (sponsored by Jute Corporation of India, Kolkata) at Madhya Bharat Paper Mills Limited, Champa, Chattisgarh.
- Successful completion of laboratory pulping and bleaching trials of agrifibres (sponsored by ITC Life Sciences and Technology Centre, Bangalore). The studies are now being scaled up for pilot trials.
- Successful completion of overseas projects on KOH AQ Pulping and ECF bleaching of bagasse sponsored by Queensland University of Technology Australia and on Additive Pulping of Acacia Wood sponsored by Solnia Singapore Private Limited, Indonesia.

Papermaking

- Developed technical know-how on improving the bursting strength and RCT value of kraft liners with natural additives and optimization of furnish blends.

Recycled Fibre Recovery

- Expertise developed on optimal utilization of Post Consumer Tetra Pak Carton as reinforced fibre for packaging paper industry.

Environmental Management

- Assistance to GPCB in formulating revised Charter Action Plan & Protocol, Charter norms, Identification of Base Minimum Technologies to achieve Charter norms, Development of Chemical Recovery Protocol etc.

Chemical Recovery

- Successful pilot scale trials on improving chemical recovery and energy efficiency through liquor heat treatment and desilication of wheat straw liquor at Safia Paper Mills Limited, Muktaar, Punjab.

Biotechnological Applications

- Successful mill trials on enzymatic refining of cotton comber and linter pulps. Studies indicate 20-25% reduction in energy demand during refining along with increased productivity due to enzymatic refining.

Conversion to Value Added Products

- Successful completion of PCRA sponsored project on **Improved energy efficiency through utilization of lignin based biomass from agro based paper mills.**
- Studies have indicated huge potential for lignin utilization as partial substitute of phenol in phenol formaldehyde resin (used in manufacturing of ply wood).
- Utilisation of lignin in concrete admixture improved compressive strength by 10%.
- Utilisation of lignin as partial substitute of carbon black filler in rubber composites resulted in over 35% reduction in curing time and consequently reduction in steam requirement.

Training / Skill Development

- Participation of CPPRI as Technical partner in interaction meet on **Resourcing Valuable Fibre - Tetra Pak Carton as an Option** - Sponsored by Tetra Pak and supported by South India Kraft Mill Association.
- Successfully organisation of CPCB sponsored five day Training Programme on **Treatment and Removal of TDS and Other Pollutants to Promote Zero Liquid Discharge in Pulp and Paper Mills.**
- Successfully organised in collaboration with Petrokurti Conservation Research Association (PCRA) a National Seminar on **Opportunities of Energy Efficiency in Pulp and Paper Industry.**

Technical and Consultancy Services

- Technical and consultancy services were rendered to various pulp and paper mills and allied industries, technology and chemical suppliers by way of evaluation of raw materials, pulp and paper samples, pulping additives, deinking chemicals, sizing chemicals, stockies control agents, evaluation of suitability of newer grades of imported waste paper, characterization and analysis of various fibrous and non-fibrous raw materials, environmental samples as well as providing assistance in trouble shooting, adequacy assessment, performance evaluation of various process operations, effluent treatment plant and pollution control equipments leading to internal revenue generation of around ₹ 214.65 Lacs.

Contract Agreement/ MoU Signed

- A MoU was signed between CPPRI and Security Printing and Minting Corporation of India Limited (SPMCIL) to provide technological support to SPMCIL and undertake joint projects in the area of development of processes for production of Currency and Security Paper using alternate raw materials.



Signing of MoU between CPPRI & SPMCIL

- A MoU was signed between CPPRI and National Council for Cement and Building Materials (NCCBM), Ballabgarh, Haryana for collaborative activities and partnerships in the area of energy efficiency, energy services and fuel conservation.
- A MoU signed between CPPRI and Tamilnadu Newsprint and Papers Limited (TNPL) for joint collaborative work on efficient de-pitching of bagasse.

Patents Filed

- **Novel Process for Efficient Processing of Black Liquor from Agro-Based Raw Material for Enhanced Efficiency of Chemical Recovery System.** (Indian Patent Application no. 3736/DEL/2014). - Rakesh Kumar Jain, Ashwini Kumar Dixit and Tarun
- **Removal of color from paper mill effluent using fly ash** (Indian Patent application no. : 430/DEL/2015.) - Rakesh Kumar Jain and Ashwini Kumar Dixit.

Research Papers Published

10 research papers were published in various journals during 2014-15. A paper on **Best Maintenance Practices in Pulp & Paper Mill to Improve Profitability** was adjudged as third best paper in IPPTA Zonal Seminar, July 17-18, 2014, Pune.

Reports Prepared

- Twenty Three (23) Technical / Consultancy reports were prepared during 2014-15.

Information Technology, Library & Documentation

- Digitization of CPPRI UNDP working Documents (5), X Plan RAC Project Reports (13), Training Manuals (10), CPPRI annual reports (22), News Bulletin, CPPRI brochure, Souvenir 2009 etc.

Infrastructure Development / Capacity Building

- Upgradation of infrastructure and facilities through purchase of the following instruments:



L&W crush tester for paper board testing



IIM puncture tester for paper board testing



Advanced electrochemistry meter for testing of water & waste water



Frank FTI tear tester for paper board testing



Automated sheet press for pressing of hand sheets



Remi centrifuge for separation of fluids



Incubator for incubation of microbial cultures



Spectrophotometer for water and waste water analysis



Viscometer for determination of black liquor viscosity

RECEIPTS & EXPENDITURE

During the year 2014-15, total receipts of the Institute were ₹ 1885.72 Lacs and total expenditure was ₹ 1178.84 Lacs (i.e. revenue expenditure ₹ 1067.90 Lacs + capital expenditure ₹ 90.94 Lacs).

Following are the broad heading of income & expenditure of the Institute during the year under review:

S. No.	INCOME	₹ in Lacs	S. No.	EXPENDITURE	₹ in Lacs
1.	Balance as on 1.4.2014	406.62	A.	REVENUE EXPENDITURE	
2.a.	Grants from Ministry of Commerce & Industry, DIPP Govt. of India.	326.00	1.	Salary & Allowances	665.59
b.	Basic level support through Development Council for pulp, paper & allied industries.	804.00	2.	Plant & Lab Maintenance	25.45
c.	Grants received from Development Council for pulp, paper & allied industries for Cess funded projects / Core Sec.	44.75	3.	Electricity charges	63.19
3.	Testing fees	113.93	4.	Repair of Assets	38.39
4.	Consultancy fees / Membership fee / License Fee against patent	44.56	5.	Miscellaneous	94.28
5.	Training fees/M.Sc. Fees	8.62	B.	CAPITAL EXPENDITURE	90.94
6.	Miscellaneous Receipts	48.84	C.	BALANCE WITH CPPRI	706.86
	TOTAL:	1885.72		TOTAL	1885.72

Internal Revenue Generation

CPPRI in its endeavour to become self reliant continued to make concerted efforts to generate internal revenue through rendering of technical and consultancy services to pulp, paper and allied industries. The efforts have translated into generation of internal revenue worth ₹ 214.65 Lacs during the financial year 2014 - 15.

R & D ACTIVITIES

(A) 12th Five Year Plan Research Schemes

(A) Raw Material and Product Development

I. Utilization of Rice Straw and other Non Conventional Raw Materials for Production of Various Grades of Pulp

Objective

- Identification of papermaking potential of cellulosic raw materials viz. rice straw, jute, banana fiber, coconut fiber, areca nut husk and other locally available grasses and production of different grades of pulp to supplement shortage of raw material in Indian paper industry.

Highlights

- Studies on impact of pre-treatment of rice straw with soda-methanol mixture on improvement in pulp yield and quality was carried out with rice straw procured from Punjab and Chandigarh. The studies indicated substantial improvement in pulp yield and quality due to wet cleaning of rice straw with methanol mix solution.
- Mella-dubia, a hardwood tree, has been identified as an alternative raw material for pulping and papermaking. Preliminary trials related to kraft pulping, oxygen delignification, ECF & TCF bleaching of this raw material (of different age) have indicated encouraging results. Further studies are in progress.

II. New Approaches in Processing and Paper Making of Recycled Fibre to Improve the Quality of End Product

Objective

- To improve the quality of recycled paper products such as packaging paper, newsprint and tissue paper employing selective approach i.e. dry and wet strength improvement of packaging paper, brightness and yield improvement of newsprint and softness improvement of tissue paper.

Highlights

- Studies carried out on furnish blends using Tetra Pak fiber as Reinforced Fibre (RF) has revealed significant improvement in strength properties of OCC furnish.
- The blended furnish have shown an improvement of 24-28% in Zero Span Tensile

Highlights

Bioethanol production from lignocellulosic biomass, bagasse pith and rice straw.

- Proximate chemical analysis of bagasse pith and rice straw was carried out to estimate the potential of bio-ethanol production.
- Process conditions were optimized for acidic pretreatment for recovery of xylose followed by enzymatic saccharification for maximum recovery of fermentable sugars. More than 90% xylose and 80% glucose were recovered.
- Studies on bio-ethanol production from fermentable sugars is under progress.

Development of indigenous capabilities for production of various enzymes and implementation of these enzymes in Indian Paper Industry.

- Isolation of micro-organisms from different soils and other degraded raw materials was carried out. Two potential cellulolytic & one lignolytic microorganisms were isolated.
- Time course study was conducted with identified microbial strains. Optimization studies were continued to enhance the activity level of indigenously developed rhymes.
- Cellulase activity was found 25 IU/g for CMCase and laccase activity was found 12500 IU/g by using wheat bran as substrate under optimum conditions.
- Indigenously developed enzymes were then evaluated for application in enzymatic refining and bio-bleaching.
- Biorefining of Bamboo pulp was conducted with commercial cellulase and indigenously developed cellulase enzymes. Comparable results in terms of energy saving and strength properties were obtained. Studies on Bio-bleaching with identified lignolytic-enzymes on hard wood pulp is under progress.

Bioremediation of Paper mill effluent

- Isolation of effective microbes for effluent treatment from effluent and sludge samples collected from various paper mills was carried out.
- Bioremediation studies were carried out with acclimatized bacterial strains using individual strain and in different combinations for removal of pollution load from paper mill effluent. About 30% reduction in colour and COD were achieved.

III. Water Conservation through Application of Kidney Technologies in Indian Pulp and Paper Industry

Objective

- To reduce fresh water consumption in pulp and paper mills by increased reuse and recycling of back water / treated effluent through application of kidney technologies.

Highlights

- The appearance of color in treated effluent is a major environmental concern which in general indicates the quality of treated effluent as well as quality of receiving streams.
- Studies were carried out on color removal of biologically treated pulp and paper mill effluents collected from two large integrated pulp and paper mills by fabricating a semi - auto resin based color removal unit. Initial results in batch scale study indicate around 80 - 90% reduction in color, 90 - 92% reduction in lignin and 65 - 80% reduction in COD.



Semi - Auto Resin Based Color Removal Unit and Color Removal After Resin Treatment

- A large integrated pulp and paper mill was visited to study the performance of color removal system recently adopted by the mill involving biological treatment through MBBR (Moving biofilm Bed Reactor) followed by physico - Chemical treatment. The results indicated 65% reduction in TSS, 70% reduction in COD, 80% reduction in color & 90% reduction in BOD.

- Studies were conducted on ozone treatment of treated pulp and paper mill effluent (Secondary Clarifier overflow) with the objective to reduce color and pollution load. Ozone generated through in the lab ozone generator was passed through reaction cell containing treated effluent for different time intervals. The preliminary results indicate encouraging reduction in terms of Color & Lignin (around 95%) and residual COD reduction of around 40%. Further studies are in progress. Studies have been initiated to determine the TDS and COD generation in back water from pulping of different grades of waste paper and consequently its build up. Studies are in progress.

C. Infrastructure Development and Capacity Building Activities

I. Setting up of Paper Board and Speciality Paper Testing Facilities at CPPRI

Objective:

- To develop complete facilities of the testing of paper board and speciality paper for benefit of manufacturers of paper board / corrugated board cartons and speciality paper.

Highlights

- Technical and commercial bids / quotations were received for equipments like micrometer for corrugated board, burst tester for corrugated board, crush tester and puncher tester etc.
- Out of these equipments puncture tester, crush tester and tear tester were successfully installed and commissioned in the laboratory.

II. Modernization of CPPRI Library

Objective

- Modernization of library by initiating application of ICT (Information Communication and Technology) in the library, strengthening of library to provide good quality services to user community, digital preservation of past records for future use and to develop an effective information network between CPPRI and Indian Paper Industry.

Highlights

Digitization of Documents

- During the period 2014-2015 following documents have been digitized for future use:

- Ten (10) Course manual of training programme organised by CPPRI
- Twenty Two (22) Annual Reports of CPPRI
- Thirteen (13) X Plan RAC Project Reports
- Five (05) UNDP working documents of CPPRI

Compilation

- Services - Current Awareness Services (CAS) and Table of Content (TOC) for the period of Jan 2014 - December 2014 compiled.

New Arrivals

- 37 new books related to Pulp and Paper and related subjects added into Library collection.

Infrastructure Upgradation

- During 2014 - 15 one heavy duty HP Colour LaserJet printer model M750dn, Four (4) UPS and Two (2) HP LaserJet P1606dn printer purchased

III. Strengthening of Training and Human Resource Development (HRD) in pulp, paper & allied industry

Objective

- To create infrastructure facilities for imparting training to the technical manpower of pulp, paper and allied industries across the country on sustainable basis.

Highlights

- Complete Layout Plan with detailed drawing of Training Centre has been prepared in accordance with Central Public Works Department (CPWD) drawings.
- The construction work will start after release of funds as per estimate provided by CPWD.

IV. Infrastructure and Capacity Building (Infrastructure for Civil / Electrical / Mechanical / Information Technology and Maintenance of R & D Facilities at CPPRI)

Objective

To upgrade the infrastructure and support systems (Electrical / Mechanical / Civil / Information Technology) in the Institute in order to ensure smooth functioning of the R&D activities and support services.

Highlights

- Installation of 11 KV indoor Vacuum circuit Breaker (V.C.B.) for protection of 1000 KVA Transformer in the Institute.
- Remodelling of road in CPPRI Residential Colony.
- Logistic support provided to the Institute like electrical, mechanical, civil maintenance, repair of instruments and equipments, upgradation and operation of pilot plant.
- Horticultural activities in official premises and residential colony.

(B) Cess Funded Projects

I. Census Survey of the Indian Paper Industry

Objective of the Project

- To enumerate the basic primary data of the Indian paper Industry such as consumption pattern, installed capacity, number of pulp and paper mills, imports and exports, demand and supply gap etc.
- The data base generated will form the basis for future planning and in policy framework pattern of the government.

Highlights

- Subsequent to the collection of primary and secondary data, list of 831 number of pulp and paper mills has been located with installed capacity of 19.74 million tons against the existing recorded information of 708 paper mills with installed capacity of 11.23 million tons. The exercise of re-verification of the list is under progress.
- Data of around 261 paper mills with installed capacity of 13.71 MT has been collected and traceability of around 411 mills with an installed capacity of 3.86 MT is under progress.

II. Improvement in Selectivity of Oxygen Bleaching (Joint Project of IPMA - SPB - ACIRD - CPPRI)

Objective of the Project

- To optimise the conditions and explore additives for oxygen delignification of different indigenous raw materials with the objective to reduce cellulose degradation, pulp shrinkage during oxygen delignification stage and to perform plant scale trial using optimized conditions with identified additive.

Highlights

- Fabrication of Oxygen bleaching reactor with capacity to bleach 250 g pulp.
- Proximate chemical analysis of eucalyptus chips.
- Preliminary studies on ODL initiated to evaluate the impact of different chemical and polymeric additives used during oxygen bleaching on pulp properties.



Oxygen Reactor

III. Achievement of Highest Brightness and Whiteness in Paper in a Cost Effective Manner through Selective Addition of OWA at Wet-end and Size Press (Joint Project of IPMA - TNPL - ACIRD - CPPRI)

Objective of the Project

To provide a scientific base for understanding the interaction chemistry of OWA with different types of cellulosic fibers and wet-end chemicals, and to help paper industry in selection of appropriate OWA for wet-end and size press with an added advantage of improvement in optical properties and reduction in cost.

- Procurement & characterisation of bleached mixed hardwood pulp, fillers and OWAs.
- Optimisation study of wet end conditions and chemical dosage with different OWAs using different proportion of mixed hardwood pulp.
- Study of impact of wet-end chemical addition sequence on optical properties of paper.

IV. Increase in Brightness Ceiling of Agro Residue Pulps in Cost Effective Manner Specifically for Wheat Straw (Joint Project of IARPMA - ACIRD - CPPRI).

Objective of the Project

- To study the reasons for low brightness development in agro residue pulp and carry out research on producing +65% ISO brightness pulp from Indian agro residues specifically wheat straw in a cost effective manner.

Highlights

- Study on impact of washing of wheat straw on pulp brightness - under progress.
- Comparative study of impact of low and high kappa no on pulp brightness
- Determination of optical and physical strength properties of bleached pulps obtained from above studies is in progress
- Study of impact of prebleaching treatment of pulp on final pulp brightness - under progress.
- Split addition of different O/WAs in wet end and surface sizing application - under progress.

V. Studies on Technological Status and Potential of Productivity Enhancement in Indian Pulp & Paper Industry under Existing Liberalization and Globalization Scenario

Objective

- To evaluate the technological status and explore potential of productivity enhancement in Indian Paper Industry, prepare a road map or action plan for implementation both by Industry as well as Government to improve the industry's over all sustainability and competitive ability in domestic and international market.

Highlights

- The revised tender document for invitation of bids from prospective agencies was advertised in leading dailies. In response one bid was received which was forwarded to bid evaluation committee for technical evaluation. The members of the committee have suggested to go ahead with the study. The matter will be put up before the Cess Committee after its reconstitution.

VI. Bio-chemical Abatement of Pollution Load in Waste Water to Meet the Future Stringent Norms for Agro based Pulp and Paper Mills. (Joint Project of IARPMA-ACIRD - CPPRI)

Objective of the Project

- Improvement in the biological treatment by augmentation of attached growth of organisms and/or dispersed nature of efficient organisms and development of techno-economical process for removal of ROM with coagulants and flocculants

Note : The project activities will start after release of funds.

VII. Continuing Education (Training Programme) for Technical Personnel in Pulp and Paper Industry (CPPRI)

Objective

- To update the knowledge of technical personnel of Indian Paper Industry which will enable them to utilize the resources, equipment & unit processes to the optimum level.

Highlights

- Identification of subjects, faculty and venue for training programme and preparation of training calendar - under progress.
- Preparatory work initiated for organising 13th Cess training Programme on Energy & Environment Management in Pulp & Paper Industry and 14th Cess Training Programme on Calibration and Quality Evaluation for Pulp and Paper Products in July 2015.

VIII. Development of Protocol for Deposit Control in RCF Based Mills for Better Machine Runnability (Joint Project of INMA & CPPRI)

Objective

- To develop / establish a methodology for measurement of Dissolved Colloidal Matters (DCM) to control deposition on paper machine and to study the affect of variation such as water hardness, furnish blends, paper making chemistry, white water clarity etc. on paper machine deposition.

Highlights

- Technical and financial bid of Total Organic Carbon (TOC) Analyser was opened and order has been placed for purchase of TOC Analyser so as to develop

establish a methodology for measurement of Dissolved Colloidal Matters (DCM) to control deposition on paper machine and to study the affect of variation such as water hardness, furnish blends, paper making chemistry, white water clarity etc. on paper machine deposition.

IX. Pilot Scale Studies on Efficient Depithing of Bagasse : A Process Developed by CPPRI (Joint Project of CPPRI & IARPMA)

Objective

- Develop, design and demonstration of pilot scale depithing equipment for efficient depithing of bagasse so as to provide good quality fibre for paper making to provide the pith as a source of fuel to the sugar mills.

Highlights

- Conventional depithing processes involving moist and wet depithing processes could remove only 55-60% pith from the bagasse with huge energy and water consumption. The present depithing technology developed by CPPRI was proved on bench scale which could remove more than 85% pith from bagasse making a fibre to pith ratio of 1:18. Studies have indicated that 85% pith removal could help in improving quality of pulp as well as reduce viscosity and facilitate better combustion of black liquor. The process is to be scaled up on demonstration level in a paper / sugar mill.
- Designing and fabrication of a demonstration plant has been initiated in the initial phase of the project.

(C) Assistance to Central Pollution Control Board & Mill Scale Trials

I. Implementation of CPCB Charter for Water Recycling and Pollution Prevention in Pulp & Paper Industries of Ganga River Basin -

Objective

- To reduce water consumption and waste water discharge from pulp and paper mills located in Ganga river basin through implementation of water conservation measures, process upgradation and ETP upgradation and ultimately reducing the overall impact on Ganga river quality.

Highlights

- Subsequent to the implementation of Phase - I in the five identified clusters of Kashipur and Roorkee (Uttarakhand) and Meerut, Muzaffarnagar & Moradabad

(Uttar Pradesh), the Charter has been extended to Pulp & Paper Industries located in nine Ganga River Basin States including Uttar Pradesh and Uttarakhand.

- CPPRI actively assisted CPCB in revising the Charter guidelines and updating the discharge norms for various categories of mills indicated in the charter as well as preparation of protocols / action plan related to Process Upgradation, Water Conservation and ETP Upgradation, Chemical Recovery Operation etc.

ii. Techno - economic - Statutory Feasibility of Installation of On-line Monitoring System in Pulp & Paper Mills of Ganga River Basin for Monitoring of Pollution Parameters

Objective

- To evaluate the techno - economic - statutory feasibility of on - line monitoring systems

Highlights

- Central Pollution Control Board constituted a six member committee under Chairmanship of Dr. R. M. Mathur, Director CPPRI to evaluate the Techno-economic-statutory feasibility of installation of on - line monitoring system in Pulp & Paper Mills of Ganga River Basin for monitoring of pollution parameters. Dr. S. Panwar & Dr. Nitin Enday assisted the committee as co-opted members in carrying out the study.
- As per the terms of reference of the committee, various on-line monitoring systems suppliers were explored and based on the presentation made by shortlisted suppliers two mill scale demo trials with spectrophotometric analyser as well as TOC analyser were arranged at an agro based and a waste paper based mills. CPPRI critically evaluated the trials and submitted a detailed techno-economic feasibility report on - line monitoring systems to CPCB.



Spectrophotometric Based on Line Analyser



TOC Analyser

III. Mill Scale Trial of Pulping & Paper making of Jute Waste (Core) (sponsored by Jute Corporation of India, Kolkata)

Objective

- The objective of the project to explore the utilization of Jute Waste (Core) a waste biomass from the Jute processing industry for Indian Paper Industry.

Highlights

- Subsequent to the successful completion of lab scale and pilot scale trials, a full mill scale trial was undertaken at Madhya Bharat Paper Mills Ltd. from November 2-8, 2014 under pre-optimised conditions.
- The evaluation of strength properties of the paper produced after blending of the Jute core pulp with the existing paper furnish (Rice straw and recycled waste paper) indicated that strength properties of the paper blended with Jute core pulp improved by more than 20% in respect of tensile index, tear index and burst factor.
- The black liquor characteristics indicated that it can be easily processed in the existing Chemical Recovery System. The black liquor properties were in fact found to be superior in respect of its chemical constituents and the viscosity was quite low (compared to the agro-residue black liquor) and as par with wood black liquor.
- The trials clearly indicated that the Jute Core, could be utilized as one of the potential alternate fibrous raw material for paper manufacturing.

PROJECTS SPONSORED BY PULP, PAPER AND ALLIED INDUSTRIES

Raw Material Evaluation, Pulping and Bleaching

Evaluation of Mixed Hard Wood Samples

- JK Paper Limited, Rayagada, Odisha

Evaluation of Eucalyptus Raw Material

- Orient Paper Mills Limited, Amal, Madhya Pradesh

Additive Pulping of Hard Wood Samples

- Corneil Brothers Co. (India) Private Limited, Mumbai, Maharashtra

Production of High Alpha Cellulose Pulps

- Godavari Biorefineries Limited, Mumbai, Maharashtra

Improved Digestibility of Lignocellulosic Residue - Rice Straw

- DSM India Innovations, Gurgaon, Haryana

Additive Pulping of Acacia Wood Chips

- Solenis Singapore Private Limited, Indonesia

Efficacy Studies of Mg(OH)₂ Dispersable Particles for Dissolving Grade Pulp Application

- Tata Chemicals Limited, Pune, Maharashtra

Additive Pulping of Wheat Straw

- Singhania Chemical Corporation, Muzaffarnagar, Uttar Pradesh

Laboratory and Pilot Plant Pulping and Bleaching Trials of Agrifibres

- ITC Life Sciences and Technology Centre, Bangalore, Karnataka

Pulp/Chemical Evaluation, Waste Paper Recycling and Paper Making

Understanding and Control of Pitch in Fiber Line

- Century Pulp and Paper, Lalitua, Uttarakhand

Evaluation of Softening Agent during Wheat Straw Pulping

- Singhania Chemical Corporation, Muzaffarnagar, Uttar Pradesh

Studies on Efficacy of Nano Dispersible Particles for the Dissolving Grade Pulp Application

- Tata Chemicals Limited, Pune, Maharashtra

Evaluation of Cooking Aid using Raw Material Wheat Straw and Eucalyptus Chips

- Rishabh Metals and Chemicals Private Limited, Mumbai, Maharashtra

Post Consumer Tetra Pak Cartons as a New Raw Material Furnish for Recycled Fiber Based Industry

- Tetra Pak India Private Limited, Gurgaon, Haryana

Repulpability of Tetra Pak Cartons and American OCC at Different Ratio

- Tetra Pak India Private Limited, Gurgaon, Haryana

Evaluation of Dry Strength Additives in OCC, Newsprint Furnish, Writing & Printing furnish and Duplex Board

- Ion Exchange (India) Limited, Hyderabad, Andhra Pradesh

Evaluation of Impact of Dry Strength and Wet Strength Resin Samples to Improve Physical Strength Properties of Different Grades of Paper

- Ion Exchange (India) Limited, Hyderabad, Andhra Pradesh

Repulpability of Waste Paper / Paper Adhesive Tapes

- Ahicom Papers Private Limited, Faridabad, Haryana
- Sangal Papers Limited, Meerut, Uttar Pradesh
- Grippo Solutions (India) Private Limited, Mumbai, Maharashtra
- Intek Tapes Private Limited, Bangalore, Karnataka
- Seascope Pulp and Papers Private Limited, Mumbai, Maharashtra
- Solis Global Solution, Dehradun, Uttarakhand

Repulping Study of Broke Generated during Manufacturing of Bank Note Paper

- Bank Note Paper Mill India Private Limited, Mysore, Karnataka

Stickles Audit of Deinking Street

- Shree Rama Newsprint Limited, Surat, Gujarat

Analysis of Talc / Soap Stone Powder for Abrasion Value

- Kumaon Geosource Private Limited, Haldwani, Uttarakhand
- Balaji Enterprises, Haldwani, Uttarakhand
- JM Huber India Private Limited, Bharuch, Gujarat
- Emami Paper Mills Limited, Balesore, Odisha
- Mahalaxmi Industries, Udaipur, Rajasthan
- Vimal Microns Limited, Ahmedabad, Gujarat
- The West Coast Paper Mills Limited, Uttar Kannada, Karnataka
- Udaipur Mineral Development Syndicates Private Limited, Udaipur, Rajasthan

Evaluation of Polysaccharides for Improving the Strength Properties of OCC Furnish

- Goodrich Agrochem Private Limited, Karnal, Haryana
- Serix Specialties, Surat, Gujarat

Evaluation of Modified Starch Sample

- Anil Limited, Ahmedabad, Gujarat

Testing of Poly Aluminium Content and Fibre Content in Tetra Pak Rejects

- Parison Machinery (I) Private Limited, Aurangabad, Maharashtra

Evaluation of Market RCF Pulp/ Moulded Tray for Fiber Quality

- VLS Fiber, Chennai, Tamilnadu
- Jai Traders, Chennai, Tamilnadu
- Everest Industries Limited, Haridwar, Uttarakhand
- Everest Industries Limited, Nashik, Maharashtra
- Ramco Industries Limited, Tamilnadu
- Archans Traders, Chennai, Tamilnadu
- Tradecore International Limited, New Delhi

- Custom Department, Amritsar, Punjab

Evaluation of RCF based Paper Mill for Yield Assessment

- Best Paper Mills Private Limited, Vapi, Gujarat

Environmental Monitoring Studies

- Bellapur Industries Limited, Yamunanagar, Haryana
- Bati Paper Mill Limited, Kashipur, Uttarakhand
- Century Pulp & Paper, Lalkuan, Uttarakhand
- Chandpur Enterprises Limited, Bijnor, Uttar Pradesh
- Chadha Papers Limited, Bilaspur, Uttar Pradesh
- EICL (Bharat Starch Div.), Yamunanagar, Haryana
- Grasim Industries Limited, Unit: Harihar Polyfibers, Kumarapatnam, Karnataka
- Hind Bricks Udyog, Gagaiheri, Uttar Pradesh
- HPC - Nagaon Paper Mill, Kagaj Nagar, Assam
- JK Paper Limited, Rayagada, Odisha
- JK Paper Limited, (Unit CPM) Fort Songadh, Gujarat
- Quantum Papers Limited, Safiakhurd, Punjab
- K.M. Papers Limited, Rudrapur, Uttarakhand
- Khaterna Fibers Limited, Khaterna, Uttarakhand
- Modinagar Paper Mills Limited, Modinagar, Uttar Pradesh
- Nani Tissues Limited, Kashipur, Uttarakhand
- Sandeep Paper Mills Private Limited, Noida, Uttar Pradesh
- Star Paper Mills Limited, Saharanpur, Uttar Pradesh
- Shreyans Industries Limited, (Unit: Bishabh Papers), Punjab
- Shreyans Industries Limited, Ahmedgarh, Punjab
- Siddharth Papers Limited, Kashipur, Uttarakhand

- Siddharth Papers Limited, (Unit-II), Kashipur, Uttarakhand
- Siddheshwari Paper Udyog Limited, Kashipur, Uttarakhand
- Shree Shyam Pulp & Board Mills Limited, Kashipur, Uttarakhand
- Sangat Paper Mills Limited, Meerut, Uttar Pradesh
- The West Coast Paper Mills Limited, Daundall, Karnataka
- Taminadu Newsprint and Papers Limited, Kagrithapuram, Tamilnadu
- Vishwakarma Paper and Boards Limited, Kashipur, Uttarakhand

Hazardous Waste Audit

- Century Pulp and Paper, Lakua, Uttarakhand

Biotechnological Application

Evaluation of Enzyme on Kraft Pulp Furnish for Stickies Removal Efficacy

- Advanced Enzyme Technologies Limited, Thane, Maharashtra

Enzymatic Refining of Cotton Comber and Linter Pulps

- Security Paper Mills Limited, Hoshangabad, Madhya Pradesh

Enzymatic Refining of Bamboo Pulp

- Hindustan Paper Corporation, Assam

Chemical Recovery Trouble Shooting

Improved Chemical Recovery and Energy Efficiency through Liquor Heat Treatment in Combination of Desulfication

- Satia Paper Industries Limited, Muktsar, Punjab

TECHNICAL & CONSULTANCY SERVICES

Technical Services

Technical services were rendered to the following mills and organizations by analyzing various samples of fibrous and non fibrous raw materials, pulp, paper, black liquor, lime, lime sludge, rice husk, green liquor, white liquor, effluents, ground water, solid waste, etc :

- Aadash Technologies, Thane, Maharashtra
- Aarushi Agri Products Private Limited, Sirsi, Punjab
- Aifitech Energycon Limited, Mumbai, Maharashtra
- Abhtech Energycon Limited, Solan, Himachal Pradesh
- Advanced Enzytech Solution Limited, Thane, Maharashtra
- Agrisul Duplex Board Mills Limited, Muzaffarnagar, Uttar Pradesh
- Abtoon Paper Private Limited, Faridabad, Haryana
- Aman Traders, Sultanpur, Uttar Pradesh
- Aril Limited, Ahmedabad, Gujarat
- Anna University, Chennai, Tamilnadu
- Archana Traders, Chennai, Tamilnadu
- Ashok Enterprises, Kolkata, West Bengal
- Awantha Centre for Industrial Research, Yamunanagar, Haryana
- Axom Satbha Siksha Adhyan Mission, Guwahati, Assam
- B. N. Mandal University, Machhapura, Bihar
- Ballarpur Industries Limited, Yamunanagar, Haryana
- Bahl Paper Mill Limited, Kashipur, Uttarakhand
- Balaji Enterprises, Haldwani, Uttar Pradesh
- Balaji Paper and News Print Private Limited, West Bengal
- Bark Note Paper Mills India Private Limited, Mysore, Karnataka
- Bennett Coleman and Company Limited, New Delhi
- Best Paper Mills Limited, Vapi, Gujarat
- Bhagwati Kripa Paper Mill Private Limited, Jaipur, Rajasthan
- Bihar Lok Prashashan Avam Gramin Vikas, Patna, Bihar
- Bihar State Text Book Publishing, Patna, Bihar
- Bihar Vidyalaya Pariksha Sairuti, Patna, Bihar
- BILT Graphic Paper Products Limited, Chandpur, Uttar Pradesh
- Bindola Duplex Limited, Unit-I Muzaffarnagar, Uttar Pradesh
- Bindola Duplex Limited, Unit-II Muzaffarnagar, Uttar Pradesh
- Bindola Papers Mills Limited, Muzaffarnagar, Uttar Pradesh

- Board of School Education Haryana, Bhiwani, Haryana
- Board of Secondary Education Orissa, Cutack, Odisha
- Boman Group, Mumbai, Maharashtra
- Burtis Druck India Private Limited, Greater Noida, Uttar Pradesh
- C.C.S. University, Meerut, Uttar Pradesh
- Cachar Paper Mill, Assam
- CBSE, Delhi
- Century Pulp and Paper, Lalkuan, Uttarakhand
- Chandpur Enterprises Limited, Bijnor, Uttar Pradesh
- Chandra Papers Limited Bhaupur, Uttar Pradesh
- Century Pulp and Paper, New Delhi
- Chandra Shekhar Azad University of Agriculture, Kanpur, Uttar Pradesh
- Chatingari Pathya Pustak Nigam, Raipur, Chattisgarh
- Chatrapati Shahu Ji Maharaj University, Kanpur, Uttar Pradesh
- Commissioner of Customs, Hazira, Bihar
- Commissioner of Customs, Tuticorin, Tamilnadu
- Corneil Bros Company India Private Limited, Parvel, Maharashtra
- DCRTPA, Yamunanagar, Haryana
- Delhi Bureau of Text Books, New Delhi
- Diata Paper Mills Limited, Vendra, West Godavari, Karnataka
- Dev Priya Industries Limited, Meerut, Uttar Pradesh
- Dev Priya Product Limited, Meerut, Uttar Pradesh
- Directorate of Evaluation, Patna, Bihar
- Directorate of Medical, Dehradun, Uttarakhand
- Disha Industries Limited, Muzaffarnagar, Uttar Pradesh
- DSG Paper Pvt. Limited, Patiala, Punjab
- East West Products Limited, U. S. Nagar, Uttarakhand
- EIGL (Bharat Starch Div), Yamunanagar, Uttar Pradesh
- Emami Paper Mills Limited, Balasore, Odisha
- Employment News, New Delhi
- Everest Industries Limited, Bhagwanpur, Uttarakhand
- Everest Industries Limited, Nashik, Maharashtra
- Everest Industries Limited, Roorkee, Uttarakhand
- Fibre Scientific Corp, Roorkee, Uttarakhand
- Galaxy Press Private Limited, Lucknow, Uttar Pradesh
- Genius Paper Boards Limited, Moradabad, Uttar Pradesh

- Goddard Bioetheries Limited, Mumbai, Maharashtra
- Good Luck Publishers Limited, Saharanpur, Uttar Pradesh
- Goodrich Agrochem Private Limited, Karnal, Haryana
- Govt. of National Capital Territory of Delhi, New Delhi
- Govt. Printing & Stationery, Gandhinagar, Gujarat
- Grasim Industries Limited, Unit : Hanjar Polyfibers, Kamarapatnam, Karnataka
- Gppo Solution Private Limited, Mumbai, Maharashtra
- Gujarat Indotech Limited, Ahmedabad, Gujarat
- Gujarat State Board of School Text Books, Gandhinagar, Gujarat
- H. T. Media Ltd., Greater Noida, Uttar Pradesh
- Hamman Agro Ind. Limited, Raipur, Chattisgarh
- Harsh Enterprises, Kanpur, Uttar Pradesh
- Hind Bricks Udyog, Gagalheri, Uttar Pradesh
- Hindustan Paper Corporation Ltd., Delhi
- HPC - Nagaoon Paper Mill, Kapaonagar, Assam
- Hindustan Paper Corporation Limited, Lucknow
- Holy Faith International Private Limited, New Delhi
- The Institute of Chartered Accountants of India (ICAI), Noida, Uttar Pradesh
- Indra Gandhi Open University (IGNOU), Coimbatore, Tamilnadu
- Indra Gandhi Open University (IGNOU), Near Delhi
- I&FB Education & Technology, Kolkata, West Bengal
- Indra Agrotech Private Limited, Mumbai, Maharashtra
- Infinity Security Paper Limited, Hyderabad, Andhra Pradesh
- International Paper, Rajmundry
- IPPTA, Saharanpur, Uttar Pradesh
- ITC Limited, Bangalore, Karnataka
- JK Paper Limited, Rayagada, Odisha
- JK Paper Limited, (Unit CPM) Fort Songadh, Gujarat
- J. K. Paper Limited, New Delhi
- J. M. Huber India Private Limited, Bharuch, Gujarat
- Janak Education, Bhaktapur, Nepal
- Jawahar Navodaya Vidyalaya, Saharanpur
- K. G. Printing & Allied Works, Mathura, Uttar Pradesh
- K.M. Papers Limited, Rudrapur, Uttarakhand
- K. R. Pulp & Paper Limited, Shahjhanpur, Uttar Pradesh
- Karayaliya Madhyamic Shiksha Mandal, Bhopal, Madhya Pradesh

- Karyalaya Zila Gramin Vikas Adhikaran, Buxar, Bihar
- Karyalaya Zila Gramin Vikas Adhikaran, Shivhar, Bihar
- Karyalaya Karkar Awam Nirvachan Adhikari, Katni, Madhya Pradesh
- Karyalaya Karkar Awam Nirvachan Adhikari, Riwai, Madhya Pradesh
- Karyalaya Karkar Awam Zila Nirvachan Adhikari, Banwari, Madhya Pradesh
- Karyalaya Karkar Awam Zila Nirvachan Adhikari, Balaghat, Madhya Pradesh
- Karyalaya Karkar Awam Zila Nirvachan Adhikari, Devas, Madhya Pradesh
- Karyalaya Karkar Awam Zila Nirvachan Adhikari, Dhar, Madhya Pradesh
- Karyalaya Karkar Awam Zila Nirvachan Adhikari, Harda, Madhya Pradesh
- Karyalaya Karkar Awam Zila Nirvachan Adhikari, Mandla, Madhya Pradesh
- Karyalaya Karkar Awam Zila Nirvachan Adhikari, Umaria, Madhya Pradesh
- Karyalaya Up Ayukt, CFS, Amritsar, Punjab
- Karyalaya Paper Mills Private Limited, Kastipur, Uttarakhand
- Khanna Paper Mills Limited, Gurgaon, Haryana
- Quantum Papers Limited, Sahasrabad, Punjab
- Khafra Fibers Limited, Khafra, Uttarakhand
- Kish International Private Limited, Agra, Uttar Pradesh
- Kishley Cables and Steel, Delhi
- Krishna Veni Traders, Tirupur, Tamilnadu
- Kumaon Desoutche Private Limited, Haldwani, Uttarakhand
- Quantum Papers Limited, Hoshiarpur, Punjab
- Labour Commissioner, Indore, Madhya Pradesh
- Lignois Technologies Private Limited, Mumbai, Maharashtra
- Lucknow Vasthvidyalaya, Lucknow, Uttar Pradesh
- Madhya Pradesh Textbook Corporation, Bhopal, Madhya Pradesh
- Madhya Pradesh Panchya Pustak Nigam, Bhopal, Madhya Pradesh
- Madhyam Shiksha Board Rajasthan, Ajmer, Rajasthan
- Madhyam Shiksha Mandal Madhya Pradesh, Bhopal, Madhya Pradesh
- Mahabaxi Industries, Udaipur, Rajasthan
- Marul Papers Limited, Shamli, Uttar Pradesh
- MCNLIC, Bhopal, Madhya Pradesh
- Mercury Paper, Bangalore, Karnataka
- Modinagar Paper Mills Limited, Modinagar, Uttar Pradesh
- Mudran Awam Lekhan Samaghi, Raipur, Chattisgarh
- Mukhya Chikitsa Adhikari, Varanasi, Uttar Pradesh
- Mukhya Nirvachan Adhikari, Patna, Bihar

- N. P. Enterprises, Meerut, Uttar Pradesh
- N. R. Agarwal Industries Limited, Valbad, Gujarat
- Naguon Paper Mills, Assam
- Naini Papers Limited, Kashipur, Uttarakhand
- Naini Tissues Limited, Kashipur, Uttarakhand
- Nalanda Sanghralaya, Nalanda, Bihar
- National Book Trust India, New Delhi
- National Health Mission, Panchkula
- National Institute of Open Schooling, Noida, Uttar Pradesh
- National Insurance Company Limited, Chandigarh
- National Jute Board, Kolkata, West Bengal
- Navodaya Vidyalaya Samithi, Bhopal, Madhya Pradesh
- Navodaya Vidyalaya Samithi, Chandigarh
- NCERT, New Delhi
- North Bihar Power Distribution Company Limited, Patna, Bihar
- North Western Railway, Ajmer, Rajasthan
- Office of the Asst. Commissioner of Customs, Ahmedabad, Gujarat
- Office of the Asst. Commissioner of Customs, Amritsar, Punjab
- Office of the Asst. Commissioner of Customs, Tuticorin, Tamil Nadu
- Office of the Commissioner of Customs, Cochin, Kerala
- Office of the Commissioner of Customs, New Delhi
- Office of the Commissioner of Customs, Tuticorin, Tamil Nadu
- Office of the Deputy Commissioner of Customs, Chennai, Tamil Nadu
- Office of the Deputy Commissioner of Customs, Cochin, Kerala
- Office of the Deputy Commissioner of Customs, Gandhinagar, Gujarat
- Orient Paper Mills Limited, Amial, Madhya Pradesh
- Paragon Machinery (I) Private Limited, Aurangabad, Maharashtra
- Parvatan K. Sam, Barnala, Punjab
- Parpat Paper Mills Limited, Muzaffarnagar, Uttar Pradesh
- Pathya Pustak Adhikari, Lucknow, Uttar Pradesh
- Pragya Publication Private Limited, Mathura, Uttar Pradesh
- Printing and Stationery Department Haryana, Chandigarh
- Punjab School Education Board, Mohali, Punjab
- Punjab State Lotteries, Chandigarh
- R. P. Printers, Noida, Uttar Pradesh
- Raj Dealers and Distributors, New Delhi

- Rajasthan Rajya Pathya Pustak Mandal, Jaipur, Rajasthan
- Rajasthan State Open School, Jaipur, Rajasthan
- Rajasthan State Road Transport Corporation, Jaipur, Rajasthan
- Rajya Kendriya Muktanayaka, Jaipur, Rajasthan
- Rama Shyama Paper Limited, Bareilly, Uttar Pradesh
- Ramco Industries Limited, Vellore, Tamilnadu
- Ravi Offset Printers and Publishers Private Limited, Agra, Uttar Pradesh
- Rayana Paper Board Industries Limited, Sarai Kabir Nagar, Uttar Pradesh
- Rishabh Metals and Chemical Private Limited Mumbai, Maharashtra
- Rishabh Metals and Chemical Private Limited, Jalgaon, Maharashtra
- Rudra Instruments, Roorkee, Uttarakhand
- Ruchika Papers Limited, Simla, Himachal Pradesh
- Sahota Papers Limited, Jaipur, Uttarakhand
- Sakshar Bharat Mission, Lucknow, Uttar Pradesh
- Sandeep Paper Mills Private Limited, Noida, Uttar Pradesh
- Sarai Shiksha Adhyain, Panchkula, Haryana
- Sata Industries Limited, Muktsar, Punjab
- Savitashra University, Rajkot, Gujarat
- Security Paper Mills, Limited, Hoohangabad, Madhya Pradesh
- Shaktiya Mudran Aam Stationery, Bhopal, Madhya Pradesh
- Shram Aayukt Karyalay, Indore, Madhya Pradesh
- Shree Venkatesh Paper Mills Limited, Meerut, Uttar Pradesh
- Shroyans Industries Limited, (Unit - Rishabh Papers), Punjab
- Shroyans Industries Limited, Ahmedgarh, Punjab
- Siddhant Papers Limited, Kashipur, Uttarakhand
- Siddhant Papers Limited (Unit-II), Kashipur, Uttarakhand
- Siddheshwar Paper Udyog Limited, Kashipur, Uttarakhand
- Shree Shyam Pulp and Board Mills Limited, Kashipur, Uttarakhand
- Sangal Paper Mills Limited, Meerut, Uttar Pradesh
- Shriam Institute for Industrial Research, Delhi
- Singhania Chem Corporation, Muzaffarnagar, Uttar Pradesh
- Sky Link Printing Publisher, Mathura, Uttar Pradesh
- Solenis, Singapore
- South Bihar Power Distribution Company Limited, Patna, Bihar
- Sepatti Paper & Boards (P) Limited, Sivakasi, Tamilnadu
- State Society for Ultra poor & Social Welfare (SSIJPSW), Patna, Bihar

- Star Paper Mill Limited, Bahamiput, Uttar Pradesh
- State Bank of Patiala, Patiala, Punjab
- State Educational and Training Center Chhattohari, Raipur, Chhattohari
- State Health Society Bihar, Patna, Bihar
- Suchna Aam Jansampark Vibhag, Patna, Bihar
- Joti Dakey and Mohan Limited, Ghazabad, Uttar Pradesh
- Sapphire Paper Mills Private Limited, Darjeeling, West Bengal
- Survey of India, Delhi
- Surya Chandra Paper Mills Limited, East Godavari, Karnataka
- Suyash Kraft Papers Limited, Mirzapur, Uttar Pradesh
- Syndicate Private Limited, Jaipur, Rajasthan
- Tamilnadu Newsprint and Papers Limited, Kanchipuram, Tamilnadu
- Tata Chemicals Limited, Pune, Maharashtra
- Tarn Pulp & Paper Limited, Mirzapur, Uttar Pradesh
- Tetra Pak India Private Limited, Gurgaon, Haryana
- The Assam State Text Book Production and Publication, Guwahati, Assam
- The Sandesh Limited, Ahmedabad, Gujarat
- The Spirit Paper Mills Limited, Gurgaon, Haryana
- The Tribune Trust, Chandigarh
- The West Coast Paper Mills Limited, New Delhi
- The West Cost Paper Mills Limited, Dandoli, Karnataka
- Trade Com International, New Delhi
- Trident Limited, Ludhiana, Punjab
- Udampur Mineral Development Syndicate Private Limited, Jaipur, Rajasthan
- Universal Engineering Corporation, Saharanpur, Uttar Pradesh
- UP Zila Nirvaahan Adhikari, Khargone, Madhya Pradesh
- Upper Shiksha Nidheek, Allahabad, Uttar Pradesh
- Valmet Chennai Private Limited, Chennai, Tamilnadu
- Vardhman Industries, Meerut, Uttar Pradesh
- Vardhman Mahaveer Open University, Kota, Rajasthan
- Veer Bahadur Singh University, Jhansi, Uttar Pradesh
- Veer Narmad South Gujarat University, Surat, Gujarat
- Vikram University, Ujjain, Madhya Pradesh
- Viral Mercedes Limited, Ahmedabad, Gujarat
- Vishwakarma Paper & Boards Limited, Kashipur, Uttarakhand
- Vishwanath Paper & Boards Limited, Kashipur, Uttarakhand

- Wholesale Stationery Products Limited, New Delhi
- Yash Paper Limited, Faizabad, Uttar Pradesh
- Yojana Aam Vikas Vibhag, Patna, Bihar
- Zila Gramin Vikas Abhikaran, Bhogpur Aam, Bihar
- Zila Gramin Vikas Abhikaran, Darbhanga, Bihar
- Zila Gramin Vikas Abhikaran, Jehanabad, Bihar
- Zila Gramin Vikas Abhikaran, Kamoor, Bihar
- Zila Gramin Vikas Abhikaran, Lakhiaani, Bihar
- Zila Gramin Vikas Abhikaran, Nawada, Bihar
- Zila Gramin Vikas Abhikaran, Rohtas, Bihar
- Zila Gramin Vikas Abhikaran, Siwan, Bihar
- Zila Nirvachan Adhikari, Bhopal, Madhya Pradesh
- Zila Nirvachan Adhikari, Hoshangabad, Madhya Pradesh

INTERNATIONAL COOPERATION

(a) **KOH-AQ Pulping and ECF Bleaching of Bagasse (Sponsored by Queensland University of Technology, Australia)**

- The objective of the project was KOH/AQ/ Ethanol pulping with a focus on minimizing the amount of chemicals required, particularly expensive KOH. Experiments involved pulping at different doses of KOH, Ca(OH)_2 , K_2SO_4 and Ethanol to produce unbleached pulp of desired kappa number.
- Bleaching of unbleached pulp by ECF/TCF with oxygen delignification to achieve targeted brightness was also performed alongwith evaluation of final bleached pulp for physical strength characteristics.

(b) **Additive pulping of Acacia Woods (Sponsored by Solenis Singapore Private Limited, Singapore)**

- The objective of the project was to evaluate the response of different additives on Kraft pulping of Acacia woods.
- The study included optimization of chemical dose for desired Kappa number, comparison of pulp characteristics viz. kappa number, screened and unscreened yield, rejects, viscosity, brightness, extractive contents, freeness etc. Project is completed and report has been submitted to sponsor.

(c) **Desilication of Rice Straw Black Liquor (Sponsored by Rakta Paper Mill, Egypt)**

- The objective of the project was to remove silica from rice straw black liquor at Rakta Paper Mill with desilication technology developed by CPPRI.
- Lab scale and plant scale studies have been successfully carried out at the CPPRI as well as at the mill site. After obtaining encouraging results the project was completed successfully and the final report of the project has been submitted to sponsoring mill.

MEETINGS DURING 2014-2015

Meetings of Development Council of Pulp, Paper and Allied Industries (DCPPAI) and Research Advisory Committee (RAC)

During the year 2014-2015, CPPRI coordinated the organisation of following meetings of DCPPAI and RAC:

Meeting of Development Council for Pulp, Paper and Allied Industries (DCPPAI)

The first meeting of reconstituted Development Council for Pulp, Paper and Allied Industries was organized at Udyog Bhawan, New Delhi on 13.3.2015 under the Chairmanship of Shri Prateep Dhobale, Executive Director, ITC Limited. The meeting was attended by Shri Shailendra Singh, Joint Secretary, DCPPAI, members of the Council as well as special invitees from DIPP, IARPMA, INMA, AIFMP, JK Paper Limited, Trident Limited and CPPRI. The agenda of the meeting was presented by Dr. R. K. Jain, Sc. F, CPPRI on behalf of Member Secretary DCPPAI. During the meeting various issues related to Indian pulp and paper industry, follow up action on the decisions of the last meeting, Status of Cess Funded Projects, reconstitution of Cess Committee etc. were taken up for discussion.

Meeting of Research Advisory Committee (RAC)

A meeting of Research Advisory Committee (RAC) was held on June 23, 2014 at, Udyog Bhawan, New Delhi. The meeting was chaired by Mohammad Zakaria Khan Yusufzal, Senior Development Officer (Engg.) on behalf of Shri Shailendra Singh, IAS, Joint Secretary (IPP), Ministry of Commerce and Industry, Government of India. The Committee reviewed the progress of on-going research schemes under XII RAC plan. The project leaders presented the progress and outcomes of various on-going research schemes. The valuable suggestions made by the members were noted for incorporation in the future work plan.

Meeting of Development Council for Pulp, Paper and Allied Industries (DCPPAI) , March 13, 2015 , Udyog Bhawan , New Delhi



Other Meetings Attended by CPPRI Scientists During 2014-15

- Dr. R. M. Mathur, Dr. S. Panwar and Dr. Nitin Endlay attended a meeting of Committee constituted by CPCB to evaluate **techno-economic-statutory feasibility of on-line monitoring systems in pulp and paper mills for monitoring of pollutional parameters** to finalize the recommendations and the report at CPPRI base office, April 29, 2014.
- Dr. Sangay Tyagi, attended a meeting at IGNOU, New Delhi on April 23, 2014 in context of **tender opening for procurement of maplitho paper**.
- Shri A. K. Goel visited National Council for Cement and Building Materials (NCCBM), Ballabgarh, Faridabad to attend a meeting related to **signing of MoU between CPPRI & NCCBM** on May 22, 2014.
- Shri A. K. Goel, visited ICF International, New Delhi on May 30, 2014 to discuss various **new energy projects** on May 30, 2014.
- Dr. R. M. Mathur, Dr. S. Panwar & Dr. Nitin Endlay attended a meeting at CPCB Delhi on July 2, 2014 to discuss the recommendations of the committee constituted by CPCB to **evaluate techno-economic-statutory feasibility of online monitoring systems in pulp and paper mills for monitoring of pollutional parameters**.
- Dr. B. P. Thepfiyal, attended several meetings at Bureau of Energy Efficiency, New Delhi in July 2014 regarding **revision of course for energy auditors, analysis of the energy data and waste heat recovery**.
- Shri A. K. Goel, visited ICF International, New Delhi on July 10, 2014 to finalise the draft **MoU between ICF International & CPPRI**.
- Smt. Rita Tandon and Shri Satya Dev Negi visited Punjab Vidhan Sabha on July 16, 2014 in connection with issue of writing/printing paper of a RCF based paper mill to be included in tender by Punjab Education Board.
- Dr. Shivaker Mishra and Dr. Nitin Endlay attended a meeting at CPCB, Delhi on July 23, 2014 preparation of **charter for water recycling & pollution prevention in pulp & paper industries, developing monitoring protocol of charter implementation and chemical recovery systems in agro based mills**.
- Dr. Nitin Endlay and Dr. Shivaker Mishra attended a meeting organized by IARPMA, at Hotel Le - meridian on August 6, 2014 to discuss the **draft charter for water recycling & pollution prevention in pulp & paper industries, monitoring protocol of charter implementation and chemical recovery systems in agro based mills**.

- Dr. A. K. Dixit attended a meeting at Petroleum Conservation Research Association, New Delhi from August 5 - 8, 2014 on **evaluation of progress of PCRA Sponsored project.**
- Smt. Rita Tandon and Shri Satya Dev Triagi visited Goodrich Agrochem Pvt. Ltd., Karnal on August 29, 2014 to discuss areas for future sponsored projects.
- Dr. Vinodhasthi Bhat, Dr. S. Panwar and Dr. Nithin Endray attended a meeting on September 23, 2014, convened by IPMA to discuss the issues related to **implementation of Charter for Water Recycling and Pollution Prevention in Pulp and Paper Industries across the country, notification and guidelines for online monitoring system and zero liquid discharge (ZLD) in the pulp and paper sector etc.**
- Dr. B. P. Thapliyal, attended **sectoral sub - committee meeting & meeting for finalization of Form I and Normalization** at Bureau of Energy Efficiency, New Delhi September 2014.
- Smt. Rita Tandon attended a meeting of **Research Advisory Committee of Avantha Centre for Industrial Research & Development (ACIRD) at ACIRD, Yamunanagar** on November 1, 2014.
- Smt. Rita Tandon attended a meeting at Tetra Pak India Pvt. Ltd., Gurgaon on November 12, 2014 to discuss the **potential of utilisation of used tetra pak cartons for paper making.**
- Dr. S. Panwar, Dr. S. Mishra and Dr. Nithin Endray attended a meeting on December 10, 2014 at Ministry of Environment & Forests, New Delhi to discuss the issue of **Hazardous Potential of ETP Sludge. Generated in Pulp & Paper Industry**
- Dr. S. Panwar and Dr. Nithin Endray attended a meeting on December 12, 2014, convened by IPMA to discuss the **Feasibility of Zero Liquid Discharge in Pulp & Paper Industry**
- Dr. S. Panwar attended a meeting on December 16, 2014, convened by CPCB to discuss the **Feasibility of Zero Liquid Discharge in Pulp & Paper Industry.**
- Dr. B. P. Thapliyal attended a meeting on December 18, 2014 at Indian Institute of Chemical Technology, Hyderabad to discuss about **areas for collaborative R&D between CPPRI & IICT.**
- Dr. B. P. Thapliyal attended a meeting on **PAT Implementation in Pulp and Paper Sector** at Bureau of Energy Efficiency, New Delhi, December 24, 2014.
- Dr. B. P. Thapliyal and Dr. Sanjay Tyagi attended the 13th CHD - 15 meeting at Bureau of Indian Standards, New Delhi on December 14, 2014.
- Dr. B. P. Thapliyal and Dr. R. D. Godiyal attended a meeting at Century Pulp and Paper,

Lalkuan on January 9, 2015 for Techno - economic discussions related to Joint Energy Audit of the mill by CPPRI and PCRA, New Delhi.

- Dr. B. P. Thapliyal attended a meeting, on January 12, 2015 at Reserve Bank of India, Fort, Mumbai for discussions on various issues related to longevity of Indian Bank Notes.
- Dr. B. P. Thapliyal, attended a meeting at Bureau of Indian Standards, New Delhi on February 14, 2015 to discussed various issues of Newsprint Standard Revision and Development of Standard for Handmade Papers.
- Dr. B. P. Thapliyal visited The Energy Research Institute (TERI), New Delhi on February 25, 2015 to discuss the issues regarding signing of MOU between TERI and CPPRI and for award of the study on Industry Status Report to CPPRI.
- Dr. Sanjay Tyagi attended a meeting related to technical bid of tender opening at Printing and Stationery Deptt. of Lucknow in February 2015.
- Dr. S. Panwar and Dr. Nitin Endray attended a meeting on Implementation of Charter for Water Recycling & Pollution Prevention in Pulp & Paper Industries (Phase II) at Paryavaran Bhawan, Central Pollution Control Board Delhi on March 10, 2015.
- Dr. B. P. Thapliyal, attended the 18th meeting of Chemical Division Council at Bureau of Indian Standards, New Delhi on March 17, 2015.
- Dr. S. Panwar and Dr. Nitin Endray attended a meeting convened by CPCB Chairman Shri Shaahi Shekhar at Ministry of Environment, Forests & Climate Change on Implementation of Charter for Water Recycling & Pollution Prevention in Pulp & Paper Industries (Phase II) on March 19, 2015 at Indra Paryavaran Bhawan, New Delhi.

NATIONAL & INTERNATIONAL DAYS OBSERVED BY CPPRI

Independence Day and Republic Day

CPPRI observed the Independence Day on August 15, 2014 and Republic Day on January 26, 2015 with usual fanfare and gaiety. After the guard of honour from CPPRI security staff, the Director Incharge Dr. Vimlesh Bial unfurled the national flag followed by singing of national anthem. She addressed the staff and their family, remembering the sacrifices of our national leaders, highlighting the activities of achievements of CPPRI and unveiling the future plans for growth of CPPRI. Meritorious students of CPPRI staff were rewarded for their excellent performance in Class X & XII examinations.

World Environment Day

World Environment Day was observed by CPPRI on June 05, 2014. To mark the occasion, a programme was held in CPPRI auditorium wherein Dr. R. M. Mathur, Director, CPPRI addressed the staff highlighting the significance and objective of observing World Environment Day every year. A presentation was made by Dr. Nitin Endray on the **theme of the World Environment Day 2014 i.e. - Small Island Developing States (SIDS)**. The presentation highlighted challenges, risk and impact of rise in ocean level because of global warming on these Small Island and ways to reduce global warming.

GLIMPSES OF INDEPENDENCE DAY CELEBRATIONS



GLIMPSES OF REPUBLIC DAY CELEBRATIONS



GLIMPSES OF WORLD ENVIRONMENT DAY 2014 CELEBRATIONS



Rajbhasha Hindi Pakhwada

Rajbhasha Hindi Pakhwada was observed at CPPRI from September 01 to 14, 2014 promote the use of Hindi in day to day work as well as Scientific and Technical works. To mark the occasion a meeting chaired by Dr. Vinlesh Bist, Director Incharge, CPPRI was convened on September 12, 2014. Senior scientists and officials of Administration & Accounts Division attended the meeting. The progress made by the institute in increasing use of Hindi was reviewed as well as strategies to further increase the use of Hindi were deliberated upon. It was informed that general information related to CPPRI is now available on CPPRI website in Hindi also and efforts are also being made to provide scientific and technical matter in Hindi. Hindi Poems written by CPPRI scientists namely Dr. Vinlesh Bist, Dr. Priti Shrivastava Lal and Shri Kumar Anupam got selected and published in Sugandhi 2013 - a Hindi magazine published by Ministry of Commerce & Industry (DIPP).

Swachh Bharat Abhiyan (Clean India Mission)

Swachh Bharat Mission (Clean India Mission) is a historic mass movement launched on Gandhi Jayanti (October 2, 2014) by the Government of India which aims at integrating 125 crore Indians to create a Clean India. This campaign was officially launched on Gandhi Jayanti i.e. at Rajghat, New Delhi, by Prime Minister Shri Narendra Modi. It is India's biggest ever cleanliness drive and 3 million government employees and school and college students of India participated in this event.

To mark the occasion Director Incharge CPPRI, Dr. Vinlesh Bist administered the **Swachh Bharat Oath** to CPPRI staff. The staff actively participated in the programme by carrying out cleanliness drive in the institute campus on October 2, 2014.

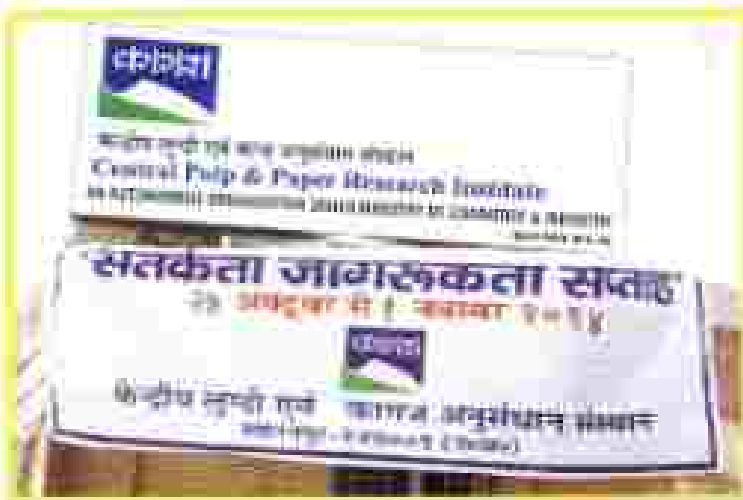
Vigilance Awareness Week

As per the directives of Central Vigilance Commission, the institute observed **Vigilance Awareness Week** from October 27, 2014 to November 1, 2014. The theme of observing the Vigilance Awareness Week for year 2014 was **Combating Corruption: Technology as an Enabler**. To mark the occasion the **Vigilance Pledge** was administered to the employees & students of the institute to fight against corruption by Dr. R. K. Jain, Chief Vigilance Officer (CVO). Posters and banners were displayed at the various prominent locations in the institute to create an awareness and promote transparency & integrity among the officials. The message of the His Excellency, President of India, Shri Pranab Mukherjee, Hon'ble Prime Minister, Shri Narendra Modi were read out by CVO. Dr. R. K. Jain also gave a lecture emphasizing the need for self driven good values, good practices, self discipline, good culture etc. to develop a corruption free institution.

**GLIMSPES OF OBSERVANCE OF SWACHH BHARAT ABHIYAN
(CLEAN INDIA MISSION) IN CPPRI ON OCTOBER 2, 2014**



GLIMPSES OF VIGILANCE AWARENESS WEEK 2014



TRAINING PROGRAMME ORGANISED / TRAINING RENDERED

Treatment and Removal of TDS and Other Pollutants to Promote Zero Liquid Discharge in Pulp and Paper Mills, February 09-13, 2015, CPPRI Saharanpur, Uttar Pradesh

CPPRI successfully organized a 5 day Training Programme on **Treatment and Removal of TDS and Other Pollutants to Promote Zero Liquid Discharge in Pulp and Paper Mills** from February 09 - 13, 2015 at CPPRI Saharanpur. The programme was sponsored by **Central Pollution Control Board (CPCB)**. Around 20 participants from various State Pollution Control Board, CPCB & CPCB Zonal office and pulp and paper mills attended the training programme. The objective of the training programme was to disseminate information on - Need & Benefit of Water Conservation, Strategies & approach to reduce water consumption, Guidance to mills for achieving improved environmental compliance etc. The faculty included Senior CPPRI scientists as well as from Pantnagar University, IIT Roorkee, Technology Suppliers & Mill Officials. Industrial visits for the participants to Star Paper Mills Ltd., Saharanpur & Hindustan Unilever at Sidcul Hardwar was also arranged.



Participants of the Training Programme along with CPPRI Faculty



Industrial visit of CPCB participants to Hindustan Unilever, Salem, Haridwar



Valedictory function of CPCB training programme

National Seminar on Opportunities of Energy Efficiency in Pulp and Paper Industry, October 17, 2014, Kashipur, Uttarakhand

CPPRI in collaboration with Petroleum Conservation Research Association (PCRA) organized a seminar on **Opportunities of Energy Efficiency in Pulp and Paper Industry** at Kashipur on October 17, 2014. Presentations were made by CPPRI Scientists and PCRA officials on energy saving opportunities and implementation of Perform, Achieve and Trade (PAT) Scheme. Around 20 participants from different paper mills located in Kashipur Cluster participated in seminar.

In addition, in-house training of one week to one - three month duration was provided to various officials nominated by their mills and students from following universities / colleges in the various area of pulp and paper making, biotechnology, environmental management and chemical recovery:

- Kurukshetra University, Kurukshetra, Haryana
- H.N.S. Garhwal University, Pauri Garhwal, Uttarakhand
- Doon P. S. College, Dehradun, Uttarakhand
- Banasthali University, Rajasthan
- NIMS University, Jaipur, Rajasthan
- Guna/Kangri University, Haridwar, Uttarakhand
- IITM University, Moradabad, Uttar Pradesh
- Rajiv Gandhi South Campus, Banabhis Hindu University, Mirzapur, Uttar Pradesh

Trainee from Abroad

Kamoga Omer Lwako Muhamadi, Ph.D scholar from Makerere University, Uganda, worked in CPPRI for three months from June - September, 2014 under the prestigious **C.V. Raman International Fellowship for African Researchers** - a visiting fellowship programme of Govt. of India.

PARTICIPATION IN SEMINAR, WORKSHOP AND TRAINING PROGRAMME

CPPRI scientists attended various seminars, workshop & training programme during 2014-15 to disseminate the information about the findings of various projects being executed by CPPRI as well as to update the knowledge about the latest developments on various aspects of pulp and paper technology. A brief summary of the seminar / workshop / training programme attended during 2014-15 is as under:-

- National Seminar on **Electronic Nose for Measurement of Obnoxious Odours from Pulp and Paper Industry**, Organised by C - DAC Kolkata & NEERI, Nagpur at India Habitat Centre, New Delhi from July 10, 2014 - Dr. Nitin Endlay and Dr. Karwaljeet Singh.
- IPPTA zonal seminar on **Best Maintenance Practices in Pulp and Paper Mill to Improve Profitability**, Pune from July 17 - 18, 2014 - Dr. B. P. Thapliyal, Dr. Sanjay Tyagi and Shri A. K. Goel.
- Consultative Workshop for the implementation of **Charter for Water Recycling and Pollution Prevention in Pulp and Paper Industries** Organised by the Central Pollution Control Board (CPCB) at Scope Complex New Delhi on September 29, 2014 - Dr. S. Panwar, Dr. Nitin Endlay and Mohd. Salim.
- A Workshop on **Dialogue on Industrial Pollution in Ganga** organized by National Mission Clean Ganga & Central Pollution Control Board on October 8, 2014 at New Delhi. - Dr. Vinodh Bist, Dr. Karwaljeet Singh and Dr. Nitin Endlay.
- Short Term Training Program on **Research Methodology and Design of Experiments**, October 27 - 31, 2014 at Department of Mechanical Engineering, Malaviya National Institute of Technology, Jaipur - Shri Kumar Anupam.
- **Paper Plus Conference on Recycling - The Future of Paper Industry**, November 7, 2014, Chennai Trade Centre, Chennai - Dr. Nitin Endlay and Shri Divaker Pandey.
- **Workshop on Plagiarism and Reference Management using Mendeley**, November 7, 2014, All India Management Association (AIMA), New Delhi - Smt. Sarita Sharma and Shri Anil Singh Pundir.
- IPPTA Workshop on **Modern Technologies in Paper and Paper Board Making and Converting / Finishing Ware Housing Operations**, November 27 - 28, 2014, Chennai - Dr. B. P. Thapliyal.
- **Workshop on Energy Efficiency Advancement Methods for Industries - Trends and Innovations**, Indian Institute of Petroleum, November 28 - 29, 2014, Dehradun - Dr. Sanjay Tyagi and Shri Akh Goyal.

- **National Conference on "Emerging Trends for Water Quality and Quantity Management"**, December 19 - 21, 2014, Poonima University, Jaipur - Dr. Titin and Chitra Gupta.
- **PAT Regional workshop** organized by BEE, New Delhi, March 4, 2015, Hyderabad - Dr. B.P.Thapliyal.
- **PAT Workshop** organized by BEE, New Delhi, March 20 - 21, 2015, Chandigarh - Dr. B. P. Thapliyal.
- **Training Programme on Laboratory Quality Management System and Internal Auditing in accordance with IS / ISO / IEC / 17025:2005**, jointly organized by Green Economy Initiatives Private Limited & Institute for Spatial Planning & Environment Research, January 8-11, 2015, Panchkula - Dr. Nitin Endley and Dr. Sanjay Tyagi.
- **CPCB Sponsored Training Programme on Analysis of Water, Waste Water, Soil and Hazardous Wastes**, Organised by G. B Pant University of Agriculture and Technology, January 28 - February 1, 2015, Pantnagar, Uttarakhand - Mohd. Saim.

PAPERS PRESENTED AND LECTURES DELIVERED

Papers Presented / Presentation Made

Meeting of Committee on On-line Monitoring Systems, CPCB Delhi, July 10, 2014

- Techno - Economic - Statutory Feasibility of Online Monitoring Systems in Pulp and Paper Mills for Monitoring of Pollutational Parameters - Dr. S. Parwar and Dr. Nitin Endrey

IPPTA Zonal Seminar on Best Maintenance Practices in Pulp and Paper Mill to Improve Profitability, July 17-18, 2014, Pune.

- Condition Based Diagnostic Techniques for Predictive Maintenance - A Key of Success to Paper Industry - Dr. Sanjay Tyagi
- Lubricating Oil for Paper Mill - Its Selection, Status of Reclamation, Purification and Recycling Practices in India - Dr. Sanjay Tyagi
- Application of IR Thermography as Condition Based Preventive Maintenance Techniques for Energy Conservation in Pulp and Paper Industry - Shri A. K. Goel

Interaction Meet on Resourcing Valuable Fibre - Tetra Pak Carton as an Option (Sponsored by Tetra Pak and supported by South India Kraft Mill Association), December 20, 2014, Coimbatore

- Quality Evaluation of Tetra Pak Cartons and Blends of Tetra Pak Carton with Indian OCC and American OCC - Smt. Rita Tandon
- Opportunities for Optimum Utilization of Tetra Pak Carton Fibre - Shri Satya Dev Negi

Paper Plus Conference on Recycling - The Future of Paper Industry November 7, 2014, Chennai Trade Centre, Chennai

- Charter for Water Recycling and Pollution Prevention in Pulp & Paper Industries - A Retrospective of the Success Story of Kashiapur Cluster - Dr. Nitin Endrey
- Chemical Recycling vs Enzymatic Recycling : Deinking of ONP mixed with OMG - Shri Divakar Pandey



Smt. Rita Tandon and Shri S.D. Negi at Interaction Meet on Resourcing Valuable Fibre- Tetra Pak Carton as an Option , December 20, 2014, Coimbatore



Dr.Nitin Endley & Shri Divaker Pandey at Paper Plus Conference on Recycling - The Future of Paper Industry, November 2014, Chennai

National Conference on Water Management, December 19-21, 2014, Poomina University, Jaipur.

- Efficient Decolouring of Bagasse for Reduction of Water Requirement in Pulp Mill - Dr. Tarun
- An Investigation of Bacteria and Their Degradation Efficiency Towards Pollution Load from Pulp and Paper Mill Effluent - Ms. Chetna Gupta

Mit Development Programme on Risk Analysis and Disaster Management, University of Petroleum Studies, Dehradun, February 19-20, 2015

- Reduction Water Footprint & Environmental Impact by Pulp and Paper Mills Case Study-Implementation of Charter for Water Recycling and Pollution Prevention in Pulp & Paper Industries of River Ganga Basin - Dr. Nitin Endrey

Meeting at Ministry of Environment & Forests and Climate Change, New Delhi, December 10, 2014

- Hazardous Potential of ETP Sludge Generated in Pulp and Paper Industry - Dr. S. Parwar and Dr. Nitin Endrey

CPCB Training Programme on Treatment and Removal of TDS and Other Pollutants to Promote Zero Liquid Discharge in Pulp and Paper Mills, February 09 - 13, 2015 at CPPRI Saharanpur

- Biotechnology - Emerging Technologies to Combat Environmental Pollution - Dr. R.K. Jain
- Impact of System Closure on Paper Making - Smt. Rita Tandon
- Water Conservation in Pulp and Paper Industry - Dr. S. Parwar
- Application of Water Pinch Analysis for Water Conservation in Indian Pulp and Paper Industry - Dr. B. P. Tripathy
- Prospects of Kidney Technology in Closing the Water Loop in Paper Industry - Dr. M. K. Gupta
- Significance of Pollutational Parameters, Their Source and Methods for their Reduction - Dr. S. Mehra
- System Closure in Indian Pulp & Paper Mills - Issues, Options & Feasibility - Dr. Nitin Endrey
- Latest Developments in Pulping & Bleaching Technologies to Reduce Water Consumption and Pollution Load Generation - Dr. Priti S. Lal
- Efficient Black Liquor Management Techniques to Reduce Pollution Load - Dr. A. K. Dixit

REPRESENTATION IN EXTERNAL COMMITTEES

Ministry of Environment and Forests, New Delhi

- Member Environmental Impact Assessment Committee, Ministry of Environment and Forests - Dr. R. M. Mathur.
- Expert Member Committee for Import Policy for Waste Paper Ministry of Environment and Forests - Smt. Rifa Tandon.

Ministry of Commerce & Industry / Ministry of Finance

- Member of Technical Committee constituted by DIPP, Ministry of Commerce & Industry for inspection / verification of plant and machinery at Cent Ply Pvt. Ltd., Assam and preparation of the inspection and assessment report related to subsidy claim of the mill under Central Capital Investment Subsidy Scheme 2007 - Dr. R. K. Jain and Dr. M. K. Gupta.
- Member of Technical Subcommittee of the Monitoring Committee constituted for Implementation of Revival Scheme of Ashoka Paper Mill, Dharbanga - Dr. M. K. Gupta and Shri S. D. Negi.

Kumarappa National Handmade Paper Institute (KNHPI), Jaipur

- Chairman Research Advisory Committee - Dr. R. M. Mathur.
- Member Council of Association - Dr. R. M. Mathur.
- Member Council of Association - Dr. R. K. Jain.

Central and State Pollution Control Boards

- Member Expert Appraisal Committee on "Environment", Punjab Pollution Control Board (PPCB), Patiala (Punjab) - Dr. R. M. Mathur.
- Member Committee for Protocol for Chemical Recovery System / Common Chemical Recovery System for Agro based Kraft Paper Mills. - Dr. S. Parwar.
- Member Committee for Drafting of Charter, Proposed Norms and Time schedule - Dr. Nish Endlay.
- Member Committee for Preparation of Monitoring Protocol for Charter Implementation - Dr. Nish Endlay.

Bureau of Indian Standards (BIS), New Delhi

- Member Sectional Committee CHD 15 of Bureau of Indian Standards (BIS), New Delhi for Development of Standards of Different Paper and its Products - Mrs. Rita Tandon, Dr. B. P.Thapliyal and Dr. Sanjay Tyagi (Alternate Member).
- Member Sectional Committee on Water Quality for Industrial Purposes, Bureau of Indian Standards (BIS), New Delhi - Dr. S. Panwar.
- Alert Panel Convener Paper and its Product Sectional Committee CHD15, Bureau of Indian Standard - Dr. B. P.Thapliyal and Dr. Sanjay Tyagi (Alternate Member).

Bureau of Energy Efficiency (BEE), New Delhi

- Expert Member of Committees for Normalization of Specific Energy Consumption in Pulp and Paper Sector - Dr. B. P.Thapliyal

Indian Pulp and Paper Technical Association

- Member Executive Committee - Dr. R. M. Mathur, Dr. Vimlesh Bhat and R. K. Jain
- Member Technical Committee - Mrs. Rita Tandon
- IPPTA Coordinator - Dr. B. P. Thapliyal

Ayantha Centre for Industrial Research & Development, Yamuna Nagar, Haryana

- Member RAC Committee - Smt. Rita Tandon

External Examiner

- Department of Paper Technology, IIT Roorkee - Smt. Rita Tandon, Dr. S. Panwar, Dr. B. P. Thapliyal, Dr. Nitin Endlay and Dr. Sanjay Tyagi (M. Tech Examiner)
- University of Petroleum and Energy Studies, Dehradun - Dr. Nitin Endlay. (Ph.D Examiner)

Others

- Member Bid Evaluation Committee NEPA - Dr. B. P.Thapliyal & Dr. Sanjay Tyagi
- Member Technical Advisory and Paper Purchase Committee (TAAPC) of IGNOU, New Delhi - Dr. Sanjay Tyagi
- Member of Technical Committee for purchase of paper for Printing and Stationary Department, UP Govt, Lucknow and Haryana Government, Chandigarh - Dr. R. D. Godiyal and Dr. Sanjay Tyagi.

PUBLICATIONS

- Jain; R. K., Ghosh; Debashish, Agarwal; Deepthi, Suman; S. K., Pandey; Divakar, Vadder, Vasanta Thakur, Dixit; A. K., Adhikari; D. K., Dasgupta; Dptarka. **Ethanol Production from Rice Straw using Thermotolerant Kluyveromyces sp. IIPE-453[®]**, Biomass Conversion and Biorefinery, August 2014, DOI 10.1007/s13399-014-0143-5
- Tyagi; Sanjay, Thapliyal; B.P., Mathur; R.M., Ray, A.K. **Condition based Diagnostic Techniques for Predictive Maintenance - A Key of Success to Paper Industry**, IPPTA, Vol. 26(3) 2014.
- Goel; A.K., Nair; N.K., Tyagi; Sanjay, Thapliyal; B.P., Mathur; R.M., **Application of IR Thermography as condition Based Preventive Maintenance Techniques for Energy Conservation in Pulp & Paper Industry**, IPPTA, Vol. 26(3) 2014.
- Sharma; M. K., Tyagi; Sanjay, Ray; A. K. **Lubricating Oil for Paper Mill - Its Selection, Status of Reclamation, Purification and Recycling Practices in India[®]**, IPPTA, Vol. 26(3) 2014.
- Sharma; A. K., Kumar; Anupam, Swaroop; Viney, Lal, Priji S., Bist; Vimlesh. **Pilot Scale Soda-Anthraquinone Pulping of Palm Oil Empty Fruit Bunches and Elemental Chlorine Free Bleaching of Resulting Pulp**, Journal of Cleaner Production, 2014 <http://dx.doi.org/10.1016/j.jclepro.2014.03.095>
- Kumar; Anupam, Swaroop; Viney, Sharma; A. K., Lal; Prii S., Bist; Vimlesh. **Sustainable Raw Material Selection for Pulp and Paper Using SAW Multiple Criteria Decision Making Design**, IPPTA, 27 (1)
- Endlay; Nitin, Mehra; Shreekar, Panwar; S., Fard; Mond., Salm; Mond., Vijayanthi; A. K., Agarwal; Pawan. **Charter for Water Recycling and Pollution Prevention in Pulp & Paper Industries - A Retrospective of the Success Story of Kashipur Cluster**, Proceedings of 3rd Paper+ 2014 conference Chennai, November 2014.
- Gupta; Chetna, Jain; Priyanka, Kumar; Dharmendra, Dixit; A. K., and Jain; R. K. **Production of cellulase enzyme from isolated fungus and its application as efficient refining aid for production of security paper**, International Journal of Applied Microbiology and Biotechnology Research, March 2015.
- Pandey; Divakar, Gupta; Chetna, Kumar; Dharmendra, Dixit; A. K., and Jain; R. K. **Chemical Recycling versus Enzymatic Recycling: Drinking of ONP Mixed with OMG** Proceedings of 3rd Paper+ 2014 conference Chennai, November 2014.
- Kumar; Anupam, Datta; Suman, Bhattacharyee; Chiranjib and Datta; Siddhartha. **Artificial Neural Network Modeling for Removal of Chromium From Wastewater Using Physisorption onto Powdered Activated Carbon**, Desalination and Water Treatment (2014) <http://dx.doi.org/10.1080/19443994.2014.967172>

REPORTS PREPARED

During 2014-15, following technical reports were prepared by CPPRI:

Pulping and Bleaching

- Laboratory and Pilot Plant Trial of Core Jute (Waste)
- Production of high alpha cellulose pulps (project sponsored by Godavari Biorefineries Limited, Mumbai, Maharashtra)
- Improved digestibility of Lignocellulosic Residue - Rice Straw (project sponsored by DSM India innovations, Gurgaon, Haryana)

Chemical/ Additives Evaluation

- Evaluation of Modified Starch (project sponsored by Aris Limited, Ahmedabad, Gujarat)

Stickies Audit of Deinking Plant

- Shree Rama Newsprint, Surat, Gujarat

Waste Paper Processing

- Post Consumer Tetra Pak Cartons as a new Raw Material Furnish for Recycled Base Industry (project sponsored by Tetra Pak India Private Limited, Gurgaon, Haryana)
- Repulping study of Tetra Pak and Indian & American OCC at Different Ratio (project sponsored by Tetra Pak India Private Limited, Gurgaon, Haryana)
- Repulping Study of Broke Generated during Manufacturing of Bank Note Paper (project sponsored by Bank Note Paper Mill India Pvt. Ltd., Mysore, Karnataka)

Enzymatic Application

- Evaluation of Enzyme on Kraft Pulp Furnish for Stickies Removal Efficacy - (project sponsored by Advanced Enzyme Technologies Limited)

Pitch Control

- Understanding and Control of Pitch in Fibre Line (project sponsored by Century Pulp and Paper, Lalkua, Uttarakhand)

Energy Conservation / Biomass Utilisation

- Improved Energy Efficiency through Utilization of Lignin Based Biomass from Agro Based Paper Mills (project sponsored by Petroleum Conservation & Research Association, New Delhi)

Environmental Management

- Charter for Water Recycling and Pollution Prevention in Pulp and Paper Industries of Ganga River Basin: Implementation Report - Kashipur, Roorkee, Muzaffarnagar, Meerut and Moradabad Cluster.
- Techno-Economic-Statutory Feasibility of Installation of On-line Monitoring System in Pulp and Paper Mills of Ganga River Basin for Monitoring of Pollution Parameters.
- **Adequacy Assessment of ETP**
- Modinagar Paper Mills Limited, Modinagar, Uttar Pradesh
- Bindias Duplex Limited (Unit II), Muzaffarnagar, Uttar Pradesh
- Agarwal Duplex Board Mills Limited, Muzaffarnagar, Uttar Pradesh
- Parijat Paper Mills Limited, Muzaffarnagar, Uttar Pradesh
- Shree Rishabh Papers Limited, Village - Barah, Punjab
- Suyash Kraft and Papers Limited, Muzaffarnagar, Uttar Pradesh
- Dev Rishi Paper Limited, Kashipur, Uttarakhand
- Kamakshi Papers Private Limited, Gajraula, Uttar Pradesh
- Ved Cellulose Limited, Hapur, Uttar Pradesh
- KR Pulp and Papers Limited, Shahjahanpur, Uttar Pradesh
- Bill Graphics Paper Products Limited (Unit Ballarpur), District Chandrapur, Maharashtra
- Bill Graphics Paper Products Limited, (Unit Sewa), Odisha
- **Audit Assessment of Hazardous Waste**
- Century Pulp and Paper, Lalkua, Uttarakhand

VISIT TO PULP & PAPER MILLS AND OTHER ORGANISATIONS

During 2014-15 CPPRI scientists visited various pulp and paper mills to provide technical and consultancy services and well as in connection with various RAC and Cewa projects as well sponsored projects activities. The scientists also visited various academic and scientific institutes and organizations, regulatory bodies, ministries etc. in connection with various collaborative activities, meetings and discussions etc. The summary of visits undertaken by CPPRI scientists during 2014 - 15 is as under :

Raw Material Evaluation, Pulping and Bleaching Trials and Project Studies

- Forest Research Institute, Dehradun, Uttarakhand - Shri Kumar Anupam and Shri Vinay Swaroop
- Aarathi Centre for Industrial Research and Development, Yamunanagar, Haryana - Dr. Priti S. Lal, Shri Arvind, Sharma and Shri Kumar Anupam
- Hindustan Paper Corporation (Unit : Cachar Paper Mills, Assam) - Dr. Sanjay Tyagi
- Madhya Bharat Paper Mills Limited, Champa, Chattisgarh - Dr. A. K. Dixit, Dr. Priti S. Lal, Dr. Tarun and Shri Dharmender Kumar

Implementation of CPCB Charter for Water Recycling and Pollution Prevention in Pulp and Paper Industries of Ganga River Basin

- Central Pollution Control Board, Lucknow, Uttar Pradesh - Dr. S. Panwar
- Shree Ram Chandra Straw Products Limited, Moradabad, Uttar Pradesh - Dr. S. Mishra

Evaluation of Zero Liquid Discharge Feasibility

- Gangotri Papers Limited, Roorkee, Uttarakhand - Dr. S. Mishra and Dr. Nitin Endley
- Gangeswar Paper Mills Limited, Baghpat, Uttar Pradesh - Dr. S. Mishra
- Anand Duplex Board Limited, Meerut, Uttar Pradesh - Dr. S. Panwar

ETP Adequacy Assessment / ETP Performance Evaluation / Trouble Shooting

- Bill Graphics Paper Products Limited, (Unit Ballarpur), Maharashtra - Dr. S. Panwar, Dr. Nitin Endley and Mohd. Salim
- International Paper (India) Private Limited (Unit : Kadiam), Rajahmundry, Andhra Pradesh - Dr. M. K. Gupta

- International Paper (India) Private Limited (Unit - APPM), Rajahmundry, Andhra Pradesh - Dr. M. K. Gupta and Mohd. Farid
- Bilt Graphics Paper Products Limited, (Unit Seva), Orissa - Dr. Shivaker Mishra and Mohd. Salim
- Rama Shyama Paper Mills Limited, Bareilly, Uttar Pradesh - Dr. Shivaker Mishra and Mohd. Salim
- Agarwal Duplux Boards Limited, Muzaffarnagar, Uttar Pradesh - Dr. S. Panwar
- Panjat Paper Mills Limited, Muzaffarnagar, Uttar Pradesh - Dr. Suresh Panwar
- Modinagar Paper Mills Limited, Modinagar, Uttar Pradesh - Dr. S. Panwar and Mohd. Salim
- Kamakshi Paper Mills Limited, Gajraula, Uttar Pradesh - Dr. S. Panwar, Dr. Shivaker Mishra and Mohd. Salim
- KR Pulp & Papers Limited, Shahganpur, Uttar Pradesh - Dr. S. Panwar, Dr. M. K. Gupta and Mohd. Salim
- Prolific Papers Limited, Kashipur, Uttarakhand - Dr. S. Panwar and Dr. Shivaker Mishra
- Ved Cellulose Limited, Ghaziabad, Uttar Pradesh - Dr. Shivaker Mishra and Mohd. Farid
- Suyash Paper Mills Limited, Muzaffarnagar, Uttar Pradesh - Dr. S. Panwar
- Bindas Duplux Limited, Muzaffarnagar, Uttar Pradesh - Dr. S. Panwar
- Modinagar Paper Mills Limited, Modinagar, Uttar Pradesh - Dr. S. Panwar and Mohd. Salim

Environmental Monitoring/Technical Services

- Century Pulp and Paper Limited, Lalkuan, Uttarakhand - Dr. Nith Endiw and Mohd. Salim
- JK Paper Limited (Unit: Central Pulp Mill), Fort Songadh, Gujarat - Shri Rajpal Singh and Mohd. Salim
- Bilt (Unit Shree Gopal) Yamuna Nagar, Haryana - Shri Rajpal Singh, Mohd. Salim and Mohd. Farid
- DCRTPP, Yamuna Nagar, Haryana - Shri Rajpal Singh, Shri Manjeet Singh, Shri M.S. Bhandari and Mohd. Farid
- Shreyans Industries Limited, Ahmedgarh, Punjab - Mohd. Farid

- Khatima Fibers Limited, Khatima, Uttarakhand - Shri R. P. Singh and Mohd. Salim
- BR Papers Private Limited, Jaspur, Uttarakhand - Mohd. Farid
- Ordinance Factory, Harsi, Madhya Pradesh - Mohd. Farid
- Star Paper Mills Limited, Saharanpur, Uttar Pradesh - Shri R. P. Singh, Shri M. S. Bhandari and Mohd. Farid
- Sandeep Paper Mills Limited, Noida, Uttar Pradesh - Dr. S. Panwar and Mohd. Salim

Hazardous Waste Audit

- Century Pulp and Paper Limited, Lalkuan, Uttarakhand - Dr. Nitin Endrey and Mohd. Salim Water Audit / Calibration of Flow Meter
- The West Coast Paper Mills Limited, Dandell, Karnataka - Dr. S. Mishra and Mohd. Farid

On line - Monitoring Trials

- Naini Paper Industries Limited, Kashipur, Uttarakhand - Dr. S. Panwar and Dr. Nitin Endrey
- Bindal Duplex Limited, Muzaffarnagar, Uttar Pradesh - Dr. S. Panwar, Dr. S. Mishra and Dr. Nitin Endrey

Fitcch Evaluation

- Century Pulp & Paper Limited, Lalkuan, Uttarakhand - Shri Satya Dev Negi, Shri Kuldeep Sharma and Shri Arvind Kumar

Process Evaluation

- Best Paper Mill, Vapi, Gujarat - Shri Satya Dev Negi

Energy Audit / Assistance to BEE / Collection of Energy Consumption Data

- Katyayini Paper Mills Private Limited, Kashipur, Uttarakhand - Dr. Sanjay Tyagi and Shri Alok Goyal
- Bitt Graphics Paper Product Limited (Unit : Bailarpur), Maharashtra - Dr. B. P. Thapliyal
- Raha Paper Mill Limited, Muzaffarnagar, Uttar Pradesh - Dr. R. D. Godiyal and Shri N. K. Naik
- Bindal Duplex Limited, Muzaffarnagar, Uttar Pradesh - Dr. R. D. Godiyal and Shri N. K. Naik

- Bageshwari Paper Mill Limited, Muzaffarnagar, Uttar Pradesh - Dr. R. D. Godiyal and Shri N. K. Naik
- Shakumbhari Pulp & Paper Mills Limited, Muzaffarnagar, Uttar Pradesh - Dr. R. D. Godiyal and Shri N. K. Naik
- Rama Papers Limited, Kiratpur, Uttarakhand - Dr. R. D. Godiyal and Shri N. K. Naik
- Katyayini Paper Mills Limited, Kashipur, Uttarakhand - Dr. R. D. Godiyal and Shri N. K. Naik
- Muthwal Paper Mills Limited, Kashipur, Uttarakhand - Dr. R. D. Godiyal and Shri N. K. Naik
- Cheema Paper Mills Limited, Kashipur, Uttarakhand - Dr. R. D. Godiyal and Shri N. K. Naik
- Navri Papers Limited, Kashipur, Uttarakhand - Dr. R. D. Godiyal and Shri N. K. Naik
- Siddharth Paper Mills Limited, Kashipur, Uttarakhand - Dr. R. D. Godiyal and Shri N. K. Naik
- Sahota Paper Mills Limited, Kashipur, Uttarakhand - Dr. R. D. Godiyal and Shri N. K. Naik

Chemical Recovery / Troubleshooting / Consultancy / Mill trials / Project Studies

- Madhya Bharat Papers Limited, Champa, Chhattisgarh - Dr. A. K. Dixit and Shri Dharamendra Kumar
- Satis Paper Industries Limited, Muktsar, Punjab - Dr. R. K. Jain, Dr. A. K. Dixit and Dr. Tarun
- DSM Innovations, Ludhiana, Punjab - Dr. R. K. Jain
- Yash Papers Limited, Faizabad, Uttar Pradesh - Dr. A. K. Dixit
- HPC - Nagaon Paper Mills Limited, Kapa, Nagar, Assam - Dr. R. K. Jain

Scientific / Academic Institutes & Other Organisations

- Ministry of Environment and Forest and Climate Change, New Delhi - Dr. S. Parwar, Dr. Niti Endray and Dr. Shveskar Mishra
- Central Pollution Control Board, Delhi - Dr. S. Parwar and Dr. Niti Endray
- Forest Research Institute, Dehradun - Dr. R. K. Jain
- Indian Institute of Forest Management, Bhopal - Dr. R. K. Jain

- Department of Chemical Engineering, IIT Roorkee, Roorkee - Dr. Nitin Endlay and Dr. Shivaker Mishra
- National Institute of Hydrology, Roorkee, Uttarakhand - Mohd. Farid
- Petroleum Conservation research Association, New Delhi - Dr. R. K. Jain and Dr A. K. Dixit

Collection of Newsprint Samples

- NR Aggarwal Industries Limited, Vapi, Gujarat - Shri Alok Kumar Goel and Shri Kumar Arupam
- Balaji Paper and Newsprint Private Limited, West Bengal - Shri Alok Kumar Goel and Shri N. K. Naik
- Hanuman Agro Paper Mills Limited, Raipur, Chattisgarh - Dr. Sanjay Tyagi and Shri N. K. Naik
- Sapphire Paper Mills Limited, Siliguri, Darjeeling - Dr. Sanjay Tyagi and Shri N. K. Naik

Industrial Visits of M.Sc (Cellulose & Paper Technology) Students

- Bindal Papers Limited, Muzaffarnagar, Uttar Pradesh - Dr. S. Parwar and Dr. Nitin Endlay
- Siddeshwari Industries (P) Limited, Muzaffarnagar, Uttar Pradesh - Dr. S. Parwar and Dr. Nitin Endlay
- Star Paper Mills Ltd., Saharanpur, Uttar Pradesh - Dr. Nitin Endlay and Mohd. Salim

Others

- Ashoka Paper Mill Limited, Patna - Dr. M. K. Gupta and Shri Satya Dev Negi (for identification of scrap & redundant material)
- HPC - Cachar Paper Mills, Panichgram, Assam - Dr. Sanjay Tyagi (to investigate the of cause of breakdown in continuous digester)



CPPRI Scientists at Mill Sites for Technical and Consultancy Services

VISITORS TO CPPRI

In addition to the regular visits of officials from various pulp and paper mills following international/national technocrats and scientists visited CPPRI during 2014-15:

International

- Kamoga Omar Lwako Muhamadi, Makerere University, Uganda
- Mr. Thomas Poinot & Ms. Charlene Xiaoyuan Fierl, Massachusetts Institute of Technology, Cambridge, United States

National

- Shri A. K. Vidyarthi, Additional Director, CPCB, Delhi
- Dr. A. K. Ray, Dr. Vivek Kumar, Dr. Abhijeet Maity and Dr. Sujay Chattopadhyay, IIT Roorkee (Saharanpur Campus), Saharanpur, Uttar Pradesh
- Shri M. S. Rana, CMD, Shri R. N. Radkar, Director (Technical) and Shri Rakesh Kumar, DGM Security Printing and Minting Corporation of India Limited
- Shri Atul Parmar, Assistant Environment Engineer, Himachal Pradesh State Pollution Control Board, Regional Office, Baddi, Himachal Pradesh
- Shri Anil Kumar, Environmental Officer, Karnataka State Pollution Control Board, Head Office, Peenya, Bangalore
- Dr. Ankur Kansal, AEO, Uttarakhand Environment Protection & Pollution Control Board, Regional Office, Roorkee, Uttarakhand
- Ms. Anka Srivastava, Junior Scientific Assistant, CPCB, PCI (SSI), Head Office, Delhi
- Shri D. N. Dev Choudhury, EES, Assam State Pollution Control Board, Guwahati, Assam
- Shri Deepak Jindal, Naini Tissues Limited, Kashipur, Uttarakhand
- Shri Gunasekaran R, Assistant Engineer, Tamilnadu State Pollution Control Board, Theothukudi, Tamilnadu
- Shri Himanshu Marwal, Siddharth Papers Limited, Kashipur, Uttarakhand
- Shri Jacob Mathew, Project Manager, The Canara Paper Mills Pvt. Ltd. Changanacherry, Kottayam District, Kerala
- Shri Mridul Boruah, Assistant Engineer, Assam State Pollution Control Board, Bongaigaon, Assam

- Shri Manmohan Murmu, Assistant Environment Engineer, State Pollution Control Board, Odisha, Regional Office, Balasore, Orissa
- Shri Mallikarjuna Rao, Surya Chandra Paper Mill Limited, East Godavari District, Andhra Pradesh
- Ms. Mala Mohini, Environmental Consultant, Enviroway, New Delhi
- Shri Naresh Kumar, Century Pulp & Paper, Lalkuan, Uttarakhand
- Shri Pawan Kumar, Junior Environment Engineer, Himachal Pradesh State Pollution Control Board, Regional Office, Paonta Sahib (Kala Amb), Himachal Pradesh
- Piyush Shah, Director, International Paper (India) Private Limited, Hyderabad
- Dr. R. S. Saini, Green Economy Initiatives Private Limited, Mohali, Punjab
- Dr. R. K. Srivastava, Associate Professor, G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand
- Shri Rakesh Kumar Mohanty, Asst. Env. Engineer, Odisha State Pollution Control Board, Regional Office, Rayagada, Orissa
- Shri Ravipal, Assistant Environment Engineer, Punjab State Pollution Control Board, Regional Office, Sangrur, Punjab
- Shri Ramesh D. Nak, Environmental Officer, Karnataka State Pollution Control Board Bangalore, Karnataka
- Shri R. Rajkumar, Scientist 'C', CPCB, Zonal Office, Bangalore, Karnataka
- Shri S. C. Desai, GM, Vaibhav Paper Mills Limited, Vapi, Gujarat
- Dr. S. Rajendiran, Assistant Engineer, Tamil Nadu State Pollution Control Board, Sriperumpudur, Tamilnadu
- Shri Sanket, World Wildlife Fund, New Delhi
- Shri Sanjay Jindal, Sirpur Paper Mills Limited, Gurgaon, Haryana
- Shri V. K. Tyagi, KR Pulp & Papers Limited, Shahjahanpur, Uttar Pradesh

M.Sc. (CELLULOSE & PAPER TECHNOLOGY)

[A Joint Collaborative Course of FRI (Deemed University) , Dehradun & CPPRI, Saharanpur.]

Activities

The final year classes of the students of the third batch (2013 -15) of **M.Sc. (Cellulose and Paper Technology)** were conducted at CPPRI. Both theoretical and practical knowledge on various aspects of pulp and paper making i.e. raw material handling and preservation, pulping and bleaching, stock preparation and paper making, chemical recovery, environmental management and biotechnological applications were imparted to the students by CPPRI scientists and guest faculty.

The students of went on industrial tour along with Dr. S. Panwar & Dr. Nitin Endray to Binda Papers Ltd. and Muzaffarnagar, Sodeshwan Industries (P) Ltd., Muzaffarnagar and Star Paper Mills Ltd., Saharanpur to get conversant about the technologies and process adopted by agro based, waste paper based and wood based pulp and paper mills for paper making as well as effluent treatment systems adopted by the mills.

The students also undertook a two month compulsory industrial training at various pulp & paper mills, companies and research institutes as a part of curriculum.

The students attended the training programme on GPCB Sponsored Training Programme on **Treatment and Removal of TDS and Other Pollutants to Promote Zero Liquid Discharge in Pulp and Paper Mills**

List of Students:

Anamika Kapruwan, Arvind Kumar, Abhay Pratap Singh, Deepa Rani, Kavita Bisht, Lavany Nidhi, Mansa Sharma, Poonam Mishra, Suchetna Chatterjee, Shwank Malik, Swami Kartik Nayak, Tarun Kumar Sahu, Tanusree Dey and Vivek Jain.

Placement

Most of the students got campus placement in reputed paper mills like Yash Paper Industries, Star Paper Mills Ltd., Khalema Fibers Ltd., JK Papers Ltd. and Satia Paper Mills Ltd..



M.Sc (Cellulose & Paper Technology) Students Batch 2013-15 with CPRI Faculty

**FINANCIAL REPORT
2014 - 2015**

CENTRAL PULP & PAPER RESEARCH INSTITUTE

An autonomous organisation registered under societies Act under the administrative control of the
Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

AUDITOR'S REPORT TO THE MEMBERS OF THE CENTRAL PULP AND PAPER RESEARCH INSTITUTE, SAHARANPUR (U.P.)

We have audited the attached Balance Sheet of CENTRAL PULP AND PAPER RESEARCH INSTITUTE, SAHARANPUR (U.P.) as on 31.3.2015 and Income and Expenditure account & Receipt & Payment Account for the year ended on that date, which is in agreement with the books of accounts maintained by the Institute. These financial statements are the responsibility of the institute's management. Our responsibility is to express an opinion on these financial statements based on our Audit.

We conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of audit. In our opinion proper books of accounts have been kept maintained by the Institute.

In our opinion and to the best of our information and according to the explanation given to us, the said account reads with notes thereon, give a true and fair view in conformity with the accounting principles generally accepted in India:

- i) In case of Balance Sheet, of the state of affairs of the Institute as at 31.03.2015 and
- ii) In the case of Income & Expenditure Account of the deficit for the year ended on 31.03.2015.

For ASN & Associates
Chartered Accountants

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

Date: September 28, 2015
Place: Saharanpur.



ASN & Associates
Chartered Accountants

A - 27, Pragati, Vasant Vihar,
Delhi Road, Saharanpur
Phone - (0132) 2723590

CENTRAL PULP & PAPER RESEARCH INSTITUTE

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POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

BALANCE SHEET AS AT 31.03.2015

Amount (Rs.)

PARTICULARS	Schedule	Current Year 2014-15	Previous year 2013-14
CAPITAL FUND AND LIABILITIES			
CAPITAL FUND	1	123648944.40	118002506.98
UN-UTILISED SP. PROJECTS & CONSULTANCY	2	14148.51	14148.51
UNUTILISED GRANTS	3	24956418.50	15928061.50
CURRENT LIABILITIES AND PROVISIONS	4	76618559.15	78262871.15
TOTAL		225238070.56	212807587.74
ASSETS			
FIXED ASSETS	5	102437717.29	107547167.91
CURRENT ASSETS, LOANS, ADVANCES ETC.	6	122800353.27	105260419.83
TOTAL		225238070.56	212807587.74

The Schedules referred above form an integral part of the Balance Sheet.

As per our separate report of even date.
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE.

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (Offg.)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 25, 2015

CENTRAL PULP & PAPER RESEARCH INSTITUTE

An autonomous organization registered under societies Act under the administrative control of the
Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED ON 31.3.2015

Amount (Rs.)

PARTICULARS	SCHEDULE	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
A: INCOME			
Income from Institutional & Consultancy fee	7	18436865.00	17842927.00
Grants from Govt. of India	8	99353094.00	74193113.50
Fees/Subscription	9	449000.00	702500.00
Interest earned	10	3650271.00	3052016.00
Other income	11	1041389.92	622178.80
TOTAL (A)		122930619.92	96413336.30
B: EXPENDITURE			
Establishment expenses	12	84525073.00	80815462.37
Administrative Expenses etc.	13	23362474.16	24310339.82
Exp. by IIP on Bagas Pith Project		2974200.35	
Exp. by DBT Delhi		1229550.00	
Depreciation for current year	5	14600433.59	15176443.59
TOTAL (B)		126977731.10	120102245.78
Excess of Expenditure over Income (B-A)		4047111.18	23689009.48
Excess of Income over Expenditure(A-B)		0.00	0.00

The Schedules referred above form an integral part of the Income and Expenditure Account.

As per our separate report of even date,
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (OPPG)

SECTION OFFICER (FAA)

Place: Saharanpur
Date: September 28, 2015

CENTRAL PULP & PAPER RESEARCH INSTITUTE

An autonomous organization registered under societies Act under the administrative control of the
Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15
SCHEDULE 1 - CAPITAL FUND

PARTICULARS	CURRENT YEAR 2014 - 2015		PREVIOUS YEAR 2013 - 2014	
	CAPITAL FUND			
Balance as at the beginning of the year	118602506.58		130735514.18	
Add:				
1. Grants towards Capital Fund	7003548.00		1000608.87	
2. Cash project(Capital purpose)	2090003.00		728673.95	
	127936055.58		142291418.00	
Less:				
Balance of net expenditure transferred from the income & expenditure account	4047111.18	123648544.40	23488509.48	118602506.58
BALANCE AS AT THE YEAR - END		123648544.40		118602506.58

As per our separate report of even date,
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., CISA

DIRECTOR (Ortg.)

SECTION OFFICER (F&A)

Place: Saharanpur,
Date: September 28, 2015

ASN & Associates
Chartered Accountants

A - 27, Pragati, Vasant Vihar,
Delhi Road, Saharanpur
Phone - (0132) 2723000

CENTRAL PULP & PAPER RESEARCH INSTITUTE

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POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15

SCHEDULE - 2- DETAILS OF UN-UTILIZED AMOUNT SPONSORED PROJECT/ CONSULTANCY

Sl.No.	NAME OF PROJECT	Current Year 2014-15 Amount	Previous year 2013-14 Amount
1	CPBC	13024.26	13024.26
2	DBT - Technological improvement of Process	1124.25	1124.25
		14148.51	14148.51

As per our separate report of above date.
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., OISA

DIRECTOR (Dttg.)

SECTION OFFICER (P&A)

Place: Saharanpur
Date: September 28, 2015

CENTRAL PULP & PAPER RESEARCH INSTITUTE

All autonomous organisation registered under societies Act under the administrative control of the
Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15

SCHEDULE - 3- DETAILS OF UN-UTILIZED GRANT

PARTICULARS	BALANCE	GRANTS RECEIVED & UTILISED DURING 2014-15				UNSPENT BALANCE	
	1.4.2014	RECEIVED	REFUNDED	NET FUNDS	UTILISED	31.3.15	31.3.14
	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT
Plan Grant	800000.00	800000.00	0.00	800000.00	700000.00	100000.00	800000.00
BASE LEVEL SUPPORT (NON-PLAN)		800000.00	0.00	800000.00	800000.00	0.00	
Cost funded project							
Two Scale Studies on air quality of paper mill area conducted by CPMI, CPMI	480000.00		0.00	480000.00	430000.00	47000.00	400000.00
Chemical Analysis for treated effluent in Pulp & Paper industry		100000.00	0.00	100000.00	35000.00	65000.00	
Costs incurred on laboratory fees	54000.00		0.00	54000.00	0.00	54000.00	54000.00
Setting up of a Pollution Data Collection Cell in India Pulp & Paper industry	150000.00		0.00	150000.00	25000.00	125000.00	150000.00
Research & Development activities related to pulp & paper industry at Govt. level	70000.00	70000.00	0.00	70000.00	25000.00	45000.00	70000.00
Proc. of technologies used and possible if feasible	100000.00		0.00	100000.00	0.00	100000.00	100000.00
Development of Pulp & Paper mill in Govt. level of pulp & paper industry	200000.00	200000.00	0.00	200000.00	150000.00	50000.00	200000.00
Investment in Study of Oxygen Recovery	30000.00		0.00	30000.00	2000.00	28000.00	30000.00
Total #	1300000.00	1174000.00	0.00	1174000.00	1004000.00	170000.00	1300000.00

As per our separate report of even date
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (C.M.)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 28, 2015

CENTRAL PULP & PAPER RESEARCH INSTITUTE

An autonomous organisation registered under societies Act under the administrative control of the Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15
SCHEDULE - 4-CURRENT LIABILITIES AND PROVISIONS

S.No	PARTICULARS	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
A	CURRENT LIABILITIES AND PROVISIONS		
	CURRENT LIABILITIES:		
	<u>Other Liabilities</u>		
1	Retention Money received	32792.00	32792.00
2	Security Received from Director	101829.00	16969.00
3	Current money received	117960.00	117960.00
4	Advance received for vehicle	214455.00	214225.00
5	Security received from Staffs	94000.00	20000.00
6	Security Received from Staff	25000.00	25000.00
7		501176.00	430016.00
	TOTAL (A)	501176.00	430016.00
B	PROVISIONS:		
1	Expenses payable	81125.00	52901.00
2	Amount Payable (Others)	140980.18	118009.18
3	Pro. for gratuity & encashment of leave	2496656.00	7703319.00
4	Asset tax payable	10000.00	10000.00
5	Performance Bank Guarantee	53112.00	53112.00
6	Fellowship payable	10000.00
7	Provision for CACE	100000.00
8	Ph.D. Fellowship payable	267000.00	7782900.18
	TOTAL (B)	7688303.18	7782365.18
	TOTAL (A+B)	7661855.18	7828281.18

As per our separate report of even date.
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DSA

DIRECTOR (Offg.)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 08, 2015

CENTRAL PULP & PAPER RESEARCH INSTITUTE

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Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15
SCHEDULES 5 - FIXED ASSETS

Sl. No.	PARTICULARS	GROSS BLOCK					WATER SUPPLY THE YEAR	NET BLOCK				
		TOTAL COST AS ON 1.4.2014	AMPLIFICATION IN 2014-15	DEPRECIATION IN 1.4.2014	ADDITION DURING THE YEAR 2014-15	DEPRECIATION DURING THE YEAR		COST AT THE YEAR END	AGE OF ASSETS IN YEARS	NET AT THE YEAR END	AGE AT THE YEAR END	
1	A. DEPRECIATED											
1	Land	100000.00	0.00	100000.00			100000.00	0%	0.00	100000.00	0%	100000.00
2	Buildings	45784.40	0.00	45784.40			45784.40	0%	0.00	45784.40	0%	45784.40
3	Plant	1000000.00	177777.78	1000000.00			1000000.00	0%	177777.78	1177777.78	0%	1000000.00
4	Office Furniture	140000.00	111111.11	251111.11	100000.00	10000.00	351111.11	0%	341111.11	692222.22	0%	310000.00
5	Transportation	80000.00	40000.00	120000.00	80000.00	20000.00	200000.00	0%	180000.00	160000.00	0%	140000.00
6	Plant & Machinery	240000.00	200000.00	440000.00			440000.00	0%	440000.00	880000.00	0%	440000.00
7	Plant & Machinery of P&I	100000.00	100000.00	200000.00			200000.00	0%	200000.00	400000.00	0%	200000.00
8	Lab Equipment	200000.00	100000.00	300000.00	100000.00	100000.00	500000.00	0%	400000.00	900000.00	0%	500000.00
9	Computer Hardware	100000.00	100000.00	200000.00			200000.00	0%	200000.00	400000.00	0%	200000.00
10	Software	100000.00	100000.00	200000.00			200000.00	0%	200000.00	400000.00	0%	200000.00
11	Motor Vehicle	100000.00	100000.00	200000.00			200000.00	0%	200000.00	400000.00	0%	200000.00
12	Stock and Inventory	100000.00	100000.00	200000.00			200000.00	0%	200000.00	400000.00	0%	200000.00
13	Computer	100000.00	100000.00	200000.00			200000.00	0%	200000.00	400000.00	0%	200000.00
14	Motor Vehicle of Progress	100000.00	100000.00	200000.00			200000.00	0%	200000.00	400000.00	0%	200000.00
	TOTAL OF CURRENT YEAR	4400000.00	2000000.00	1000000.00	2000000.00	2000000.00	11000000.00		1000000.00	12000000.00		10000000.00
	TOTAL OF PREVIOUS YEAR	4000000.00	1000000.00	1000000.00	1000000.00	1000000.00	7000000.00		1000000.00	8000000.00		7000000.00

As per our separate report of even date
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (OPtg.)

SECTION OFFICER (FAA)

Place: Saharanpur,
Date: September 29, 2015

CENTRAL PULP & PAPER RESEARCH INSTITUTE

An autonomous organization registered under societies Act under the administrative control of the
Ministry of Commerce & Industry (Dept. of India)

POST BOX - 174, PAPER MILL ROAD, HERMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.2015

SCHEDULE - 6 - CURRENT ASSETS, LOANS, ADVANCES ETC.

Sl.No.	PARTICULARS	CURRENT YEAR 2014-2015		PREVIOUS YEAR 2013-2014	
A. CURRENT ASSETS					
1	Cash				
2	Bank & Other Balances	16000000		20000000	
3	Receivables & Other Debts	4000000	10000000	2000000	10000000
4	Loans & Advances				
5	Short Term Investment (Other than Government Securities)				
6	Debt Securities		10000000		
7	Debt Securities (Other than Government Securities)				
8	Other Investments				
9	Assets held in trust				
10	Assets held in pledge				
11	Assets held in lien				
12	Assets held in other manner				
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248	Assets held in other manner				
249	Assets held in other manner				
250	Assets held in other manner				
251	Assets held in other manner				

ASN & Associates
Chartered Accountants

A - 27, Pragati, Vasant Vihar,
Delhi Road, Saharanpur
Phone - (0132) 2723590

CENTRAL PULP & PAPER RESEARCH INSTITUTE

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Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15

SCHEDULE - 7-INCOME FROM INSTITUTIONAL AND CONSULTANCY FEE

S.No.	PARTICULARS	CURRENT YEAR	PREVIOUS YEAR
		2014-15	2013-14
1	Testing fee	13538116.00	12108472.00
2	Consultancy fee	4177249.00	5225955.00
3	Laboratory fee	30000.00	0.00
4	Library fee	12000.00	0.00
5	M.Sc. course fee	681500.00	508500.00
	TOTAL	18436865.00	17842927.00

As per our separate report of even date.
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DSA

DIRECTOR (Omj)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 28, 2015



ASN & Associates
Chartered Accountants

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Delhi Road, Saharanpur
Phone - (0132) 2723590

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SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.2015

SCHEDULE - 8 - GOVERNMENT GRANT RECEIVED

S.No	PARTICULARS	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
1	Government of India - Plan	18402718.00	17707202.00
2(a)	Government of India through Development Council for Pulp, Paper & Allied Industries-Non Plan	80400000.00	53800000.00
(b)	Cois Secretariate for Development Council PPA& Industry		1450000.00
3	Government of India through Development Council for Pulp, Paper & Allied Industries for Cess Projects		
(a)	Continuous Education Training of Tech Personal	325415.00	702822.50
(b)	Ozone Treatment on Indigenous Paper		81115.00
(c)	Improvement in selectivity of oxygen bleaching	51811.00	
(d)	An integrated approach for utilization of Biogas as Pih	110877.00	224755.00
(e)	Statistical data collection cell for Indian Pulp & Paper Industry	23323.00	10000.00
(f)	Increase in Brightness	8850.00	
(g)	Studies on Technological Status and Potential of Productivity		127139.00
	TOTAL	99353094.00	74193113.50

As per our separate report of even date.
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (OMG)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 28, 2015

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SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15
SCHEDULE 9 - FEES/SUBSCRIPTION'S.

S.No.	PARTICULARS	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
1	Membership fees	249000.00	261000.00
2	Training fees/Registration fees	200000.00	441500.00
	TOTAL	449000.00	702500.00

As per our separate report of even date.
FOR ASH & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (Offg.)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 28, 2015

ASN & Associates
Chartered Accountants

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SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.2015 SCHEDULE 10 - INTEREST EARNED.

Sl No.	PARTICULARS	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
	INTEREST EARNED		
1	On Term Deposite with schedule Bank	3357723.00	2803083.00
2	On Loan to staff	202548.00	249533.00
	TOTAL	3650271.00	3052616.00

As per our separate report of even date
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIR)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (Dtlg)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 28, 2015.

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SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15
SCHEDULE 11 - OTHER INCOME.

Sl.No.	PARTICULARS	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
	OTHER INCOME		
1	Hostel rent	278525.00	119000.00
2	Lease rent	50000.00	0.00
3	Licence fee	647003.00	351454.00
4	Miscellaneous income	58080.92	131612.80
5	Sale of Publication	6791.00	20113.00
	TOTAL	1041389.92	622179.80

As per our separate report of even date,
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA

DIRECTOR (OMG.)

SECTION OFFICER (FAA)

Place: Saharanpur,
Date: September 28, 2015

ASN & Associates
Chartered Accountants

A - 27, Pragati, Vasant Vihar,
Delhi Road, Saharanpur
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CENTRAL PULP & PAPER RESEARCH INSTITUTE

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POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.2015 SCHEDULE 12 - ESTABLISHMENT EXPENSES:

S.No.	PARTICULARS	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
	ESTABLISHMENT EXPENSES		
1	Salary & Allowances	64885737.00	60641812.00
2	CPF Contribution	6285131.00	5992088.00
3	Gratuity	5391731.00	4838711.00
4	Encashment of leave	5377193.00	6311572.00
5	Reimbursement of medical expenses	2585281.00	2631279.37
	TOTAL	84525073.00	80615462.37

As per our separate report of even date.
FOR ASN & Associates
CHARTERED ACCOUNTANTS

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DSA

DIRECTOR (Mtg.)

SECTION OFFICER (F&A)

Place: Saharanpur
Date: September 28, 2015

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SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.3.15

SCHEDULE 13 - ADMINISTRATIVE EXPENSES ETC.

S.No	PARTICULARS	CURRENT YEAR 2014-15	PREVIOUS YEAR 2013-14
	OTHER ADMINISTRATIVE EXPENSES ETC.		
1	To Lib & Plant Maintenance	248541.80	355185.10
2	To Cartage & Freight	6702.60	60525.08
3	To Electricity and water	6319109.70	588511.00
4	To Insurance	1228.00	17779.00
5	To Repair & Maintenance of Assets	5889064.00	4755829.08
6	To Rent & Taxes	1189776.00	84000.00
7	To Postage & Telephone & Communication	671870.00	970904.45
8	To Printing & Stationery	1150794.55	1105771.72
9	To Travelling & Conveyance Exp.	1341679.00	1514197.90
10	To Exp on Seminar & Workshop	117006.00	253742.00
11	To Membership subscription	0.00	10000.00
12	To Audit fees	18000.00	19000.00
13	To Hospitality Expenses	11564.00	125915.00
14	To Legal & Professional Exp.	118662.00	170417.00
15	To News Paper	25451.50	0.00
16	To Training Expenses	0.00	482682.40
17	To Watch & Ward	3161448.00	3486480.00
18	To Bank charges	40858.00	1889.30
19	To Lveres	0.00	2670.00
20	To Advertisement	589422.41	427541.48
21	To Interest on Service Tax	0.00	275.00
22	To Testing fee paid	0.00	72479.00
23	To staff car maintenance	471769.00	768593.60
	TOTAL	23362474.16	24310339.82

As per our separate report of audit date:

FOR ASN & Associates
CHARTERED ACCOUNTANTS

(ICA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DIPA

FOR CENTRAL PULP & PAPER RESEARCH INSTITUTE

DIRECTOR (Orig.)

SECTION OFFICER (F&A)

Place: Saharanpur,
Date: September 28, 2015

CENTRAL PULP & PAPER RESEARCH INSTITUTE

An autonomous organization registered under societies Act under the administrative control of the
Ministry of Commerce & Industry (Govt. of India)

POST BOX - 174, PAPER MILL ROAD, HIMMAT NAGAR, SAHARANPUR (U.P.)

ANNEXURE

Significant Accounting Policies & Notes on Accounts

Overview:

CPPRI is an autonomous organization registered under the Societies Act under the administrative control of Ministry of Commerce & Industry (Govt. of India) vide Government of India Notification dated 7.8.1979.

Financial Accounts:

The financial statements are prepared on the basis of historical cost convention and the Accounting Policies used in preparation of those financial statements conform with the Accounting Principles generally accepted in India. The Institute follows the accrual method of accounting.

A. Significant Accounting Policies:

1. **Revenue Recognition:**
 - 1.1 Testing fee is accounted for on accrual basis.
 - 1.2 Lease Rent is accounted for on accrual basis.
 - 1.3 Government Grant Consultancy fee, institutional fee, Sponsored Project, Membership fee, Training and Registration fee are accounted for on receipt basis.
2. **Inventory valuation:**
The inventory comprises of stores and spares are valued at cost.
3. **Fixed Assets:**
Fixed Assets are stated at cost less accumulated depreciation.
4. **Depreciation:**
 - 4.1 Depreciation is provided on written down value methods, as per the rules specified in the Income Tax Act, 1961.
5. **Government Grants:**
Government grants received to the extent utilized for capital expenditure being added to the capital fund and to the extent utilized for revenue expenditure being treated as income in the Income and expenditure account and the un-utilized grant being carried forward. This is not as per the para no.14 of the Accounting Standard (AS-12) relating to Accounting for Government Grants. The Institute was advised to consider the guidelines on the subject in consultation with the concerned organizations/ agencies for implementation. The Institute in reply has confirmed that other similar organizations / agencies are also following the same pattern. This point was also discussed by the concerned officer in the training imparted by National Institute of Financial Management, Govt. of India during the course of training.
6. **Foreign currency transaction:**
Transactions in foreign currency are accounted at the exchange Rate prevailing on the date of transaction in Indian Currency.

B. Notes forming part of Accounts:

1. Information about the activities of the Institute:

The Institute running under the Administrative control of Ministry of Commerce & Industry, Dept. of IPAP is engaged to promote Research and other scientific work connected with pulp, paper & allied industries to establish and maintain laboratories, pilot plant, workshop and to edit, print, publish and exhibit books, papers and periodicals bearing upon the said industries. Besides that the Institute also undertakes Govt. funded projects and Sponsored projects from Govt. of India, government institutions and other organizations also.

2. Retirement Benefits:

2.1 Provision for gratuity payable on death/retirement of employees, during this year is ₹ 53,91,731.00 and for leave encashment is ₹ 53,77,193.00 payable to them based on accrual basis and as per the actuarial valuation certificate of Shri Broder Chamejee.

3. Current Assets, Liabilities & Advances:

Management has stated that the current assets, loans and advances have full value on realization in the ordinary course of Business.

4. Corresponding previous year figures have been re-grouped or re-arranged wherever necessary:

5. Total advances stand as on 31.3.2015 is ₹ 19447615.69 excluding advance to staff member for advance against supply of equipments.

6. As per Schedule No. 1 of the Balance-sheet, capital fund shows that Grant of ₹ 6063649 has been incurred as capital expenditure whereas as per Schedule No. 5 of the Balance-sheet relating to fixed assets shows an addition of ₹ 6770582.97. Regarding excess capital grant of ₹ 683433.97, it is stated by the management that it is due to adjustment/ payment to Suppliers as an advance for capital assets and of letter of credits in the current year.

7. The management has confirmed that:

7.1 The provisions of all known income, expenditure and liabilities have been made.

7.2 No contingent liability exist on the date of Balance-sheet.

7.3 No significant event has occurred from the date of Balance-sheet and audit.

For Central Pulp & Paper Research Institute

(SECTION OFFICER) (F&A)

(DIRECTOR) (CMA)

**For ASN & Associates
Chartered Accountants**

**(CA SACHIN JAIN)
(PARTNER)
B.COM, F.C.A., DISA**

Place: Bangalore,
Date: September 28, 2015

CPPRI STAFF LIST

Director's Secretariat

Director

- Dr. R. M. Mathur, M.Sc., Ph.D. (Superannuated on 31.07.2014)
- Dr. Vinlesh Bist, M.Sc., Ph.D. (Director-in-charge)

Private Secretary

- Shri A. Aniladoss, B.Com., P.G. Diploma in Business Administration

Technicians

- Shri R. K. Kapoor
- Shri Sunder Lal

Physical Chemistry, Pulping & Bleaching Division

Head (Scientist F)

- Dr. Vinlesh Bist, M.Sc., Ph.D.

Scientist E-I

- Dr. Ptd Shrivare Lal, M.Sc., Ph.D.

Senior Scientific Assistant

- Shri Arvind Sharma, M.Sc. & Diploma in Pulp & Paper Technology
- Shri Kumar Anupam, B.Tech (Chemical Engineering)

Technical Officer B

- Shri R.C. Mohali, Intermediate (Superannuated on 31.10.2014)

Technicians

- Shri D. P. Naitam
- Shri Mussadi Lal
- Shri N. S. Negi

Wet Laboratory

Incharge (Scientist E-1)

- Shri P. C. Pandey, M.Sc.

Scientist E-1

- Dr. Rajneesh Tandon, M.Sc., Ph.D.

Technical Officer B

- Shri Gyan Pal Singh, Certificate Course in Pulp & Paper Technology

Paper Testing & Energy Management Division

Head (Scientist E-1)

- Dr. B. P. Thapliyal, M.Sc., M. Tech., Ph.D., Passed National Certificate Examination for Energy Auditors

Scientist E-1

- Dr. R. D. Gudiyal, M.Sc., D.Phil.

Scientist - C

- Dr. Sanjay Tyagi, B. E. (Mechanical Engineering), M.E. (Pulp & Paper), Ph.D. and Passed National Certificate Examination for Energy Auditors

Technical Officer B

- Shri Karan Singh, Certificate Course in Pulp & Paper Technology

Technicians

- Shri Ashok Kumar Rawat

Chemical Recovery & Bio-Technology Division

Head (Scientist F)

- Dr. R. K. Jain, M.Sc., Ph.D.

Scientists E-1

- Shri Vipul Tara Chand Jarbade, M.Sc. (Deceased on 10.03.2015)
- Dr. A. K. Dole, M.Sc., Ph.D.
- Smt. Anuradha V. Jarbade, M.Sc.

Scientists-B

- Dr. Vasanta Vedde Thakur, M.Sc., M.Phil., Ph.D. (on deputation to Ministry of New & Renewable Energy, Govt. of India w.e.f. 07.11.2013)

Technical Officer A

- Shri Bishambhar Pandey, High School

Technicians

- Shri Avtar Singh
- Smt. Krishna Devi (Superannuated on 30.11.2014)

Environmental Management Division

Head (Scientist F)

- Dr. Suresh Kumar, M.Sc., Ph.D.

Scientists E-1

- Dr. M. K. Gupta, M.Sc., Ph.D.

Scientists E-1

- Dr. Shivaker Malviya, M.Sc., Ph.D.
- Dr. Nitin Endley, M.Sc., PGDIPM (PG Diploma in Industrial Pollution Management), Ph.D.

Senior Scientific Assistant

- Mohammad Saif, M.Sc.

Technical Officer B

- Shri M. S. Purohit, Intermediate (Superannuated on 01.10.2014)
- Shri Raj Pal Singh, Intermediate and Certificate Course in Pulp & Paper Technology

Technicians

- Shri Meghn Singh

International Co-operation and Pilot Plant

Head (Scientist F)

- Smt. Rita Tandon, M.Sc.

Scientist B

- Shri Satya Dev Negi, M.Sc., PG Diploma in Pulp & Paper Technology

Technical Officer B

- Shri Parraj Kumar Goley, B.Tech (Electrical)

Technical Officer A

- Shri Raj Kumar, Intermediate (Superannuated on 31.12.2014)

Technicians

- Shri Balbir Singh
- Shri Balwant Singh (Superannuated on 30.11.2014)

Technical Services & Co-ordination Cell (TSCC)

Head (Scientist F)

- Dr. R. K. Jain, M.Sc., Ph.D.

Scientist C

- Shri Anil Kumar Gool, M.Sc. and Passed National Certificate Examination for Energy Managers

Helper B

- Shri Gopal Singh

**Library &
Documentation
Division**

Incharge (Scientist E-I)

- Dr. R. D. Godiyal, M.Sc., D. Phil.

Library Officer A

- Smt. Sarita Sharma, M.A., MLISc

Technicians

- Shri N. S. Bisit
- Shri Bach Singh
- Smt. Shikala Thapa

**Engineering &
Maintenance Division**

Incharge (Scientist E-II)

- Dr. M. K. Gupta, M.Sc., Ph.D

Technical Officer C

- Shri R. S. Rawat, ITI Draughtsman (Mech.) & One year Training in Tool Designing
- Shri R. C. Sharma, Diploma in Mechanical Engineering
- Shri Brij Pal Singh, B. A., Diploma in Mechanical Engineering

Technical Officer B

- Shri N. K. Nair, Diploma Engineering (Industrial Electronics)

Technical Officer A

- Shri R. L. Gupta, Boiler Attendant/Certificate Course Driver,

- Shri Arvind Kumar
- Shri Shri Bhagwan Sharma

Technicians

- Shri Dushyant Kumar
- Shri Roup Singh
- Shri Sahari Singh
- Shri O. P. Koirala
- Shri Gopal Dutt
- Shri Sharma Kumar

Administration Division

Administrative Officer

- Shri Anil Kumar, M.Com. (DWA)(Inter)

Assistant

- Shri Y. K. Sharma, M.A., PGDPM and Office Management Course (ITMS)
- Shri B. K. Negi, M.A., P.G. Diploma in Journalism and Passed National Certificate Examination in Supervision from NPC

Accountant

- Shri L. D. Joshi, B.A.

Technicians

- Shri Ravinder Dutt
- Shri Satya Pal Singh

Special Officer

- Shri A. K. Saxena, M.Com.
- Shri B. K. Chaurasia, M.Com.

Personal Assistant

- Shri M. P. Sharma, M.A.

Accountant

- Shri O. P. Bhalia, B.Com.(Hons.)

Junior Assistant

- Shri Ram Bax, B.Com.
- Shri B. B. Chetry, M.A.
- Shri J. S. Bhat, B.A.
- Shri Naresh Kumar, M.Com.
- Shri H. C. Pandey, M.Com.

Technicians

- Shri Preet Singh

Finance & Accounts Division

**Store & Purchase
Division**

Section Officer

- Smt Y. C. Joshi, M.A. and Training Asst/ PA refresher course from ISTM (Superannuated on 31-03-15)
- Shri Rohani Lal, M.A.

Junior Assistant

- Shri Satya Pal Singh, B.A.

Technician

- Shri Nagesh Ai

**Industrial Co-operation
& Business
Development Division,
New Delhi**

Officer Incharge (Scientist E-1)

- Dr. Kawaljeet Singh, M.Sc., Ph.D.



Published by

CENTRAL PULP & PAPER RESEARCH INSTITUTE

Sahasrapur - 247001 (U.P.)

Technical Review

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*In Pursuit of Cleaner Production, Resource Conservation and
Quality Excellence in Pulp and Paper Industry*

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