Confederation of Indian Industry

Best Practices Manual for

PULP & PAPER SECTOR

Volume - 11

DISCLAIMER

While every care has been taken in compiling this Manual, CII-Godrej GBC accept no claim for any kind of compensation, if any entry is wrong, abbreviated, omitted or inserted incorrectly either as to the wording space or position in the manual.

The manual is only an attempt to create awareness on Energy, Water and Environmental management and sharing of best practices being adopted in Indian Paper industry and the international cleaner production technologies.

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Foreword

It is with great pleasure and a profound sense of responsibility that I introduce this "Best Practices Manual in Pulp and Paper Sector in India." The Indian pulp and paper industry has come a long way in its journey of growth and transformation. As the chairman of Papertech-2023, I consider it an immense privilege to represent an industry of the economy and environment that is of such significance to our country.

India's pulp and paper industry has made impressive strides in recent years thanks to technological developments, sustainability efforts, and a dedication to excellence. This manual is evidence of our collective efforts to keep this industry competitive while also being socially and environmentally responsible. It has excelled in today's globalized world where environmental concerns and sustainable practices are crucial. We have adopted advances that mitigate the impact on the environment and develop a socially responsible culture.

This publication serves as a thorough repository of the best practices that have developed within our sector. It is the result of the knowledge, commitment, and creativity of innumerable experts, organizations, and individuals who have relentlessly worked to improve our industry.

I want to take this opportunity to express my sincere gratitude to everyone who collaborated to make this manual possible. Their dedication to quality and their enthusiasm for our business are genuinely admirable. Our team at Papertech 2023, and I am also grateful for their consistent support. I also encourage all parties involved in the Indian pulp and paper industry to consider adopting the practices provided in this handbook, as per their plant conditions and cooperate in order to create a future in which our sector not only succeeds but also helps India become cleaner, greener, and more sustainable.

Mr. Ganesh Bhadti
Chairman, Papertech 2023 And
Director-Operations, Seshasayee Paper and Boards Limited

Preface

It is my distinct pleasure to present the "Best Practices Manual in Pulp and Paper Sector in India", a comprehensive resource that reflects the collective wisdom, innovation, and commitment of our industry. This manual is the culmination of extensive research, collaboration, and the dedication of numerous experts and stakeholders within the Indian pulp and paper industry.

The pulp and paper industry in India is an important part of the country's industrial structure. It has developed into a dynamic sector over time, distinguished by innovation, sustainability, and a dedication to excellence. This manual aims to compile the accumulated expertise and knowledge of individuals and groups that have aided in the development and transformation of our industry. The industry has met challenges in today's world where environmental responsibility and sustainable practices are of the utmost significance. To ensure that our industry not only thrives but also helps create a cleaner, more sustainable India, we have adopted cutting-edge technologies, eco-friendly methods, and responsible sourcing.

This manual is intended to serve as a thorough reference for professionals in the industry, students, policymakers, and anyone else interested in learning about the best practices that lead to success in the Indian pulp and paper business. It addresses a wide range of subjects, including sourcing raw materials, production procedures, mitigating environmental footprint, and energy efficiency.

I want to express my sincere gratitude to all the stakeholders who so kindly contributed their knowledge and wisdom to create this manual. They deserve praise for their devotion to developing our industry.

Finally, I would like to add that it is my sincere wish that this manual will stimulate the Indian pulp and paper industry's ongoing development, sustainability, and excellence. Let's adopt the ideas and methods presented here, since they could lead our industry to a better and more profitable future.

Pawan Agarwal
President, Indian Paper Manufacturers Association (IPMA), and
Managing Director, Naini Papers Ltd.

Acknowledgement

We wish to express our sincerest regards to the working group on "Make Indian Pulp & Paper Industry World Class" for their invaluable contributions.

We deeply express our sincere thanks to the following paper plants for sharing the technical information for the identified best practices:

- Seshasayee Paper and Boards Limited, Erode.
- ITC, Bhadrachalam
- ITC Ltd., Kovai
- J.K. Paper Ltd. Rayagada
- J.K. Paper Ltd., Songadh
- Umesh Board and Paper Mills Ltd.
- Shreyans Industries Ltd.
- Bindlas Duplux Ltd.
- Sripathi Paper and Boards (P) Ltd (SPBPL)
- South India Paper Mills Ltd.
- Emami Paper Mills Ltd., Balasore.
- Naini Tissue Ltd.

We also sincerely thank the following committee members for their contribution to bringing out the "Best Practices Manual for Pulp and Paper sector, Volume 11".

- Mr. Ganesh Bhadti (Chairman, Papertech 2023 and Director- Operations, Seshasayee Paper and Boards Limited)
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Executive Summary

The Indian pulp and paper sector has recently made number of efforts to enhance its environmental performance. However, the industry's top concerns remain to be energy, water, and the environment. Even the quantity and quality of water that the paper factories have access to present problems for everyday operation.

The latest government rules "Perform, Achieve and Trade" and "Renewable Purchase Obligation" have given the industry's efforts to increase their levels of energy efficiency and use renewable energy sources further impetus. The sector has faced various difficulties in order to comply with these standards at the same time.

The Indian paper industry has responded well to the challenges and initiated steps to deal with problems with water, energy, the use of renewable energy sources, and environmental performance.

Against this background, CII-Sohrabji Godrej Green Business Centre has been promoting the concept of "Make Indian Pulp & Paper Industry World Class" with the support of all the stakeholders in the Indian Pulp & Paper sector for the last 17 years.

The main objective is to facilitate continuous performance improvement in energy, water and environment, and help them in achieving the world class standards. This has been taken up through the following:

- Visit to the best operating pulp & paper industries in India and identifying the best practices adopted in various sections.
- Compiling the best practices in the form of a manual for information sharing amongst the paper plants.
- Identification and transfer of technologies suitable for Indian paper plants and adoption of the same.

DEVELOPMENT OF "BEST PRACTICES MANUAL"

The 11th edition of the Best Practices Manual has been developed with the support of various stakeholders. Apart from focusing on the performance of manufacturing units in the field of energy, water and environment, the 11th edition has a special focus on energy, environment and water conservation opportunities.

CII-Sohrabji Godrej GBC has prepared this "Best Practices Manual" with the intent of continuing knowledge transfer and facilitating Pulp and Paper manufacturing units to meet the benchmarking figures.

This manual contains projects, with investments ranging from Rs. 60,000/- to Rs. 10.5 Cr, with payback periods ranging from 1 month to 8.33 years. The case studies are related with savings in electrical energy, thermal energy, water conservation, process optimization, etc.

CII-Sohrabji Godrej GBC prepared a detailed questionnaire involving various key performance indicators related with energy and water consumption in the Paper industry to collect date required for this manual and shared it with relevant stakeholders in the industry.

The manual was created using data gathered from the projects implemented by top Indian technology providers and pulp and paper facilities. It contains 17 case studies, collected from 12 among the leading and most efficient paper manufacturing organizations in India.

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How to Use the Manual

The objective of this manual is to act as a catalyst to promote activities in the Indian Pulp & Paper industry towards continuously improving the performance of individual units and achieving world class levels (with thrust on energy, water & environmental management).

To set a clear goal for improving the performance and move towards international standards, the best practices adopted in some Indian Pulp & Paper plants and latest technologies from suppliers have been included as a part of the "Best Practices Manual Pulp & Paper Industry".

These best practices may be considered for implementation after suitably fine-tuning the requirements of individual units.

Suitable latest technologies may be considered for implementation in existing and future Pulp & Paper plants for achieving world class energy efficiency. Further investigation needs to be done for the suitability of these technologies for individual plant conditions.

The collated best operating parameters and the best practices identified from various plants need not necessarily be the ultimate solution. It is possible to achieve even better energy efficiency and develop better operation and maintenance practices.

Therefore, Indian Pulp & Paper plants should view this manual positively and utilise the opportunity to improve the performance and "Make Indian Pulp and Paper Industry World Class".

Best Practices Manual for
PULP & PAPER SECTOR
CASE STUDIES

CASE STUDY - 11

Multiplate Settler

Energy saving project

Title: Multiplate Settler, JK Paper Ltd, Unit: CPM

Introduction of the Plant

Figure 21 Micro-plate settler

JK Paper Ltd, leading player in manufacturing of office paper, coated paper and packaging board segments with total installed capacity of 7.61 Lac TPA. JK Paper Ltd, Unit: CPM is One of the three integrated pulp and paper manufacturing units of JK Paper Ltd. located at Fort Songadh (Gujarat). The installed capacity of the plant is 3.36 lacs TPA. These include:

Packaging board : 2.7 Lacs TPA

Writing & Printing Paper : 0.66 Lac TPA

Pulp mill : 1.5 lac BDMT/Year.

The end uses of the products are:

- Packing of Food, liquid, FMCG goods, Medicine, liquor, etc
- Writing and Printing
- MICR paper for cheque books

Background / Baseline Scenario

In JKCPM, the excess back from PM#4 clarified tower was going to ETP. Specific water consumption of PM#4 was 8.5 m^3/MT (FY 2019-20).

Project Details

To install multi plate settler and reuse machine back water for Pumps/refiner sealing, centri-cleaner and use as make up in vacuum pump CT. The settler reject will be sent to fibre recovery chest.

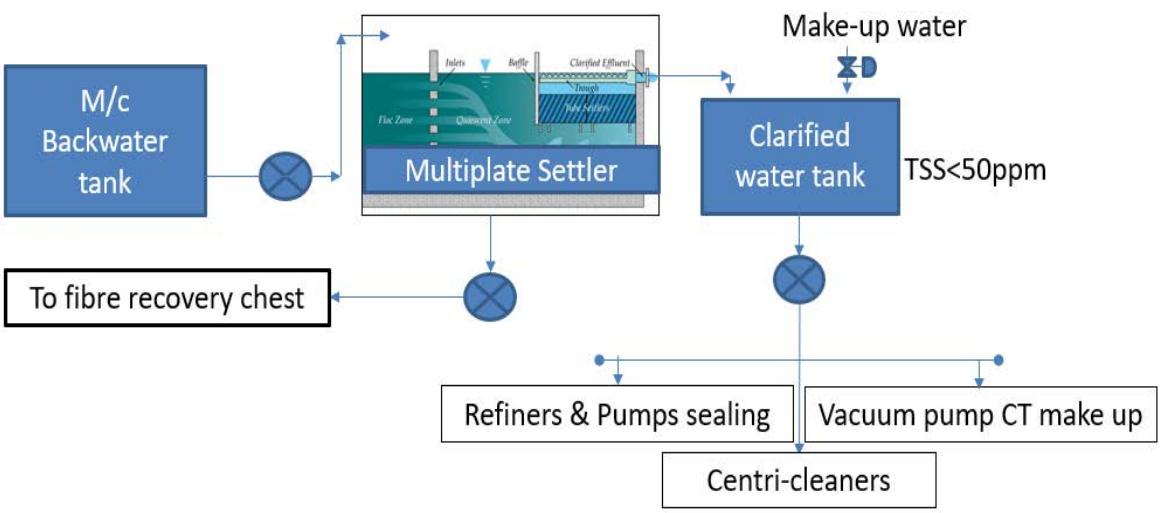

Figure 22 Flow diagram for multi-plate settler

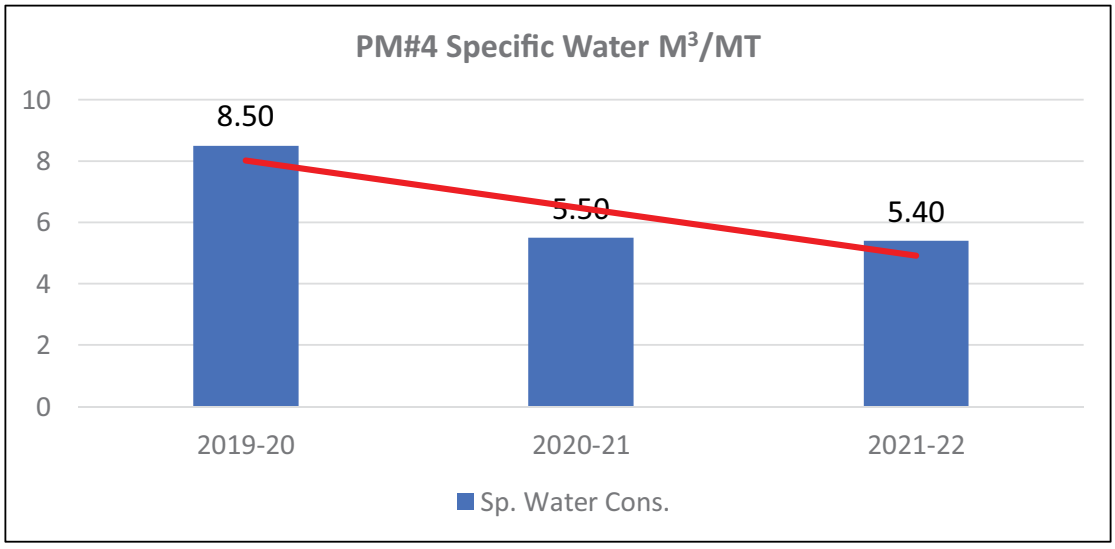

Figure 23 Specific water consumption trend

Investment & Savings

Investment : Rs 110 Lacs.
Savings : 30 m^3/hr
Monetary saving : Rs 62 lacs/Annum

Replication Potential

Low capital cost solution for reuse of Machine excess back water compared to Disc filter and clarifier.

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About CII:

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes. CII is a non-government, not-for-profit, industry-led and industry-managed organization, with around 9000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from 286 national and regional sectoral industry bodies. For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues. Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few. As India completes 75 years of Independence in 2022, it must position itself for global leadership with a long-term vision for India@100 in 2047. The role played by Indian industry will be central to the country's progress and success as a nation. CII, with the Theme for 2022-23 as Beyond India@75: Competitiveness, Growth, Sustainability, Internationalisation has prioritized 7 action points under these 4 sub-themes that will catalyze the journey of the country towards the vision of India@100. With 62 offices, including 10 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with 350 counterpart organizations in 133 countries, CII serves as a reference point for Indian industry and the international business community.

About CII-GBC:

CII-Sohrabji Godrej Green Business Centre (CII-Godrej GBC) was established in the year 2004, as CII's Developmental Institute on Green Practices & Businesses, aimed at offering world class advisory services on conservation of natural resources. The Green Business Centre in Hyderabad is housed in one of the greenest buildings in the world and through Indian Green Building Council (IGBC) is spearheading the Green Building movement in the country. The Green Business Centre was inaugurated by His Excellency Dr. A. P. J. Abdul Kalam, the then President of India on 14 July 2004. The Services of Green Business Centre include- Energy Management, Green Buildings, Green Companies, Renewable Energy, GHG Inventorization, Green Product Certification, Waste Management and Cleaner Production Process. CII-Godrej GBC works closely with the stakeholders in facilitating India emerge as one of the global leaders in Green Business by the year 2025.

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