

**Introduction:** In collaboration with IPPTA (Indian Paper Pulp and Paper Technical Association), a delegation comprising representatives from approximately 20 Indian paper industries embarked on a knowledge trip to Japan. Over a span of 7 days, the delegates had the opportunity to visit prominent paper mills in Japan, including Nippon Paper, Oji Corporation, Hokvetsu Corporation, Rengo Corporation Mill, and Ichikawa etc.

### Key Observations:

**Discipline, Cleanliness, and Punctuality:** The Japanese paper mills exhibited unparalleled discipline, cleanliness, and punctuality, which are renowned traits of Japanese culture. This adherence to strict standards was evident throughout the tour, reflecting a meticulous approach to operational excellence.

**Responsibility Culture:** A notable aspect observed was the pervasive "Everyone is the boss for his own responsibilities" culture, emphasizing individual accountability and ownership within the organizational hierarchy. This contributed to streamlined operations and enhanced efficiency.

**Environmental Practices:** Japanese paper mills demonstrated excellent handling of mercaptans and other Non-Condensable Gases (NCGs), resulting in the absence of odour within mill premises despite utilizing Sulphate pulping with 28% sulphidity. This reflects advanced environmental management practices aimed at minimizing impact on surrounding environments.



**Technology Integration:** The adoption of system-driven technologies or we can say technology-driven systems was evident, reducing dependency on human intervention and mitigating operational variations. With only 0.14 manheads per ton of paper, Japanese paper mills showcased significantly lower reliance on manual labour compared to the Indian Paper Industry, enhancing operational consistency and productivity.

**Safety and Cleanliness Culture:** A strong emphasis on safety and cleanliness was observed throughout the mills, exemplified by the implementation of "great yellow line and white line culture." This meticulous approach ensures adherence to safety protocols and maintains cleanliness standards across all operational areas. Japanese prioritize Safety over Productivity and Quality shows their commitment to safety. During the sightseeing excursion in Tokyo, while

passing through a roundabout, the delegation encountered a noteworthy display screen bearing the message "No accidents since last 15 years here." This display served as a compelling testament to Japan's unwavering commitment to safety and accident prevention in both industrial and public spaces.



**Energy Efficiency and Material Optimization:** Japanese paper mills prioritized HVAC optimization, energy efficiency measures, and strategic material choices, reflecting a commitment to sustainable practices and resource conservation. These initiatives contribute to reduced environmental footprint and operational costs.

**Technological Advancements:** Japanese paper mills showcased the latest technological advancements, resulting in lower rejection rates and minimal production variations. The world's second-largest deckle paper machine with a 10.7m deckle highlighted Japan's leadership in adopting cutting-edge technologies for enhanced productivity and quality control.

**Per Capita Consumption Disparity:** Japan's per capita consumption of paper stands at 200kg, significantly higher than India's 20 kgs. This observation underscores potential areas for growth and development within the Indian paper industry, leveraging insights gained from Japanese best practices.

**Artistic and Patriotic Culture:** Echoing Swami Vivekananda's sentiment, the artistic and patriotic nature of Japanese culture was evident throughout the trip, particularly in the meticulous attention to cleanliness and aesthetic harmony within the paper mills. This cultural aspect enriches the overall industrial landscape, fostering a sense of pride and dedication among workers.

#### **Brief details of the Mills visited:**

##### **1. Ichikawa Mills:**

Establishment Year: Established in 1949 & then upgraded in 1964 & then in 1996

Manufacturing Sites: Kashiwa Mill & Iwama Mill

Number of Employees: 687

Main Products: Shoe Press Belt, Industrial felt, Transfer Belt, Paper Making Felt

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## 2. Rengo Co., Ltd. Yashio Mill:

Establishment Year: Established in 1947

Number of Employees: 361

Main Products: Chipboard, Tubeboard, Liner Board, Corrugating Medium

Paper Machines Details:

PMc	Deckle, mm	Capacity, TPD	GSM	Products
PM-01	6.65	1100	115-200	Corrugating Medium
PM-02	2.4	85	255-710	Tube Board
PM-03	1.93	70	350-850	Chip Board
PM-05	5.24	1000	120-210	Liner Board
PM-07	7.83	1100	90-125	Corrugating Medium



## 3. Oji Material Co. Ltd., (Fuji Mill):

Establishment Year: Established in 1908 and merged with Oji in 1933.

Number of Employees: 160

Main Products: Coated Board & Corrugating Medium

PMc	Deckle, mm	Capacity, TPD	Speed,mpm	Type
PM-01	4.51	560	1000	Twin Wire
PM-02	4.7	750	800	Five layer with 4 online coater & 2 soft nip calender



#### 4. Nippon Paper Crecia Co., Ltd. Koyo Mill:

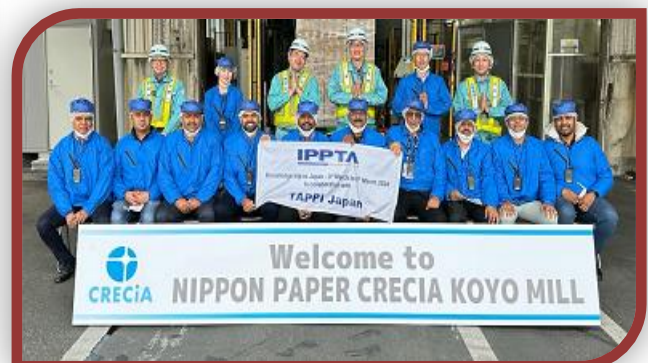
Establishment Year: Established in 1943 and merged with Nippon in 2012.

Number of manufacturing sites in Japan: 05

Number of Employees: 175

Main Products: Castcoated paper, Toilet Tissue, Coated Board

PMc	Deckle, mm	Capacity, TPD		Type
PM-01	2.06	40		7 layer with online coater
PM-02	2.03	30		Cast coated with offline coater
Tissue	3.36	100		Beloit Crescent former, fully automatic



#### 5. Hokuetsu Corporation Nigata Mill:

Establishment Year: Established in 1914 and upgraded in 1964.

Integrated Pulp & Paper Mill

Number of Employees: 175

Main Products: Coated Board, Coated Paper, Corrugating Medium, Uncoated Fine Paper, Lightweight Coated Paper

Pulp Mill: Hard wood Kraft Pulp Mill: 1870TPD & 680TPD Recycled based Pulp Mill

PMc	Deckle, mm	Capacity, TPD	Coater
PM-03	3.8	170	
PM-04	2.9	160	Online Coater
PM-05	6.25	460	Tri nip Calender
PM-06	5.89	350	
PM-07	5.88	510	Online Coater
PM-08	8.05	980	Online Coater
PM-09	10.7	1080	Online Coater, 1600mpm, 2 shoe presses, four soft nip calenders



**Conclusion:** The knowledge trip to Japanese paper mills organized by IPPTA provided invaluable insights into the operational methodologies and technological advancements of Japanese paper industries. The experiences garnered during the tour underscored the significance of disciplined practices, technological innovation, and cultural ethos in driving excellence within the paper manufacturing sector. By leveraging these observations, Indian paper industries can strive towards enhancing operational efficiency, environmental sustainability, and overall competitiveness in the global market.

In conclusion, the tour not only enriched the understanding of Japanese industrial practices but also served as a catalyst for fostering international collaboration and knowledge exchange within the global paper industry landscape.

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