

# TOPIC- KNOWLEDGE EXCHANGE TRIP TO CHINA

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# 1. Introduction

## 1.1 IPPTA: INDIAN PULP AND PAPER TECHNICAL ASSOCIATION

- Setup in 1964
- First Seminar : 11<sup>th</sup> April 1964 in Vigyan Bhawan, New Delhi
- Located: CPPRI campus at Saharanpur, Uttar Pradesh
- Membership: Over 2500 including 100 Overseas members

## 1.2 CPICC: CHINA PAPER AND PULP INDUSTRY CHAMBER OF COMMERCE

- Setup in July 2006
- Membership: Over 300 from 20 different provinces in China
- CPICC consists of the key enterprises in various sectors of Chinese paper industry., including Huatai group, Sun paper, Nine dragons, China Paper, Bohui paper, vinda, Huazhang, Jingxing paper, Jianhui paper, Shengda group, Vonov group, Asia symbol, Hengan.
- The head of Poyry in China, Mr Dali Yand, Director was with the visiting team during the visit of 7 workshop & 8 Paper plant. As per total Paper market demand of china is around 105-110 million tons where as installed capacity is around 125 million tons.
- Where as Paper market demand of India is around 12.5 million tons.



# 2. Location of Main Workshops & Paperplants



# 3. Premium Machinery supplier of China

**3.1 Sino CPMC (Chinese Paper Machinery Corporation)** established in 2012 with a tie up with PMT Italia.

- Sino CMPC acquired 18% shares of PMT Italia and now has rights to use their technical know-how.
- Their workshop facility is best in China and comparable to Voith / Valmet. They can supply complete paper /board machine out of China or mix from China / PMT Italia.
- They have in-house capability for engineering whereas for basic / detail engineering of complete machine they outsource / hire China Engineering Company.

## 3.2 Hengxing Machinery

- Established in 1984. Earlier it was a subsidiary of Mitshubishi.
- They can manufacture complete machine other than critical equipments viz head box, shoe press and coaters.
- They also expertise in calendar manufacturing, they do only zonal control type (better technology) and not swimming roll type.
- They have references of machines and recently they have supplied board machine to Mehali, India excluding head box, coaters and calendars.

## 3.3 Changhua Machinery

- The machinery has large workshop including casting facility where they can manufacture complete machine other than head box, calendars and coaters.
- They have recently supplied a machine to Krishna Tissue, India.
- They have many references of machine but looking to the age of their workshop and reference visit, we do not find them as a potential supplier for complete machine.

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# 3. Premium Machinery supplier of China

## 3.4 Hicredit Machinery

- They are mainly into Tissue Machine, Pulp Drying Machine and Winders.
- The workshop facility is good and equipped with high quality machinery like CNCs and latest laser machines for SS sheet metal parts.
- The Winder technology is transferred to them by Metso under Chinese program of technology transfer for entry into China.

## 3.5 Zhong Tai Machinery

- The machinery was established in 1990 and Voith transferred the hydraulic head box manufacturing technology as a part of technology transfer for entry into China.
- They are no. 1 for hydraulic head boxes in China.
- They have supplied around 450 head boxes till now.

## 3.6 Yunda Machinery.

- They have 500 + references including Nine Dragon and Sun Paper in stock preparation and approach flow equipments like pulpers, conveyors, pressure screens, thickeners, agitators and refiners etc.

## 3.7 SLMC

- They are expert in coaters and auxiliaries. In most of the Chinese board machines, they have supplied the coaters and recently to Mehali in India.



# 4.1 Century Sunshine Paper Group Company

Sr No	Particulars	Details
1	Paper Capacity	12 lakh TPA (Kraftliner grades)
2	<b>PM-1 Details</b>	
2.1	Capacity	120,000 TPA
2.2	Year of installation	2004
2.3	Speed	600 MPM
2.4	Width	3400mm
2.5	GSM	120-200
2.6	Product	Kraftliner / Testliner – brown & white top (no coater & no size press)
2.7	Raw material	AOCC + OCC Local
2.8	Supplier	Local - Chinese
2.9	Machine Configuration	Ground floor machine
	Wire part	4 layer
	Press part	2 nos jumbo roll
	Dryer part	Conventional
	Calendar	Single nip SNC
	Power consumption	460 pm/c + 120 pulping - kwh/ton
	Steam consumption	1.5 pm/c + 1.2 pulping - kwh/ton
	Water consumption	4 m <sup>3</sup> /ton
	RCT value of 200 GSM	440 kpa



# 4.1 Century Sunshine Paper Group Company

Sr No	Particulars	Details
3	<b>PM-5 Details</b>	
3.1	Capacity	500,000 TPA
3.2	Year of installation	2010
3.3	Supplier	Metso
3.4	Speed	1000-1200 MPM
3.5	Width	6600mm
3.6	GSM	125-235
3.7	Product	Kraftliner / Testliner – brown & white – Mainly coated white top
3.8	Raw material	AOCC + OCC Local ; Virgin Pulp (HW86% in TL & 15% SW); DIP Pulp
3.9	Machine Configuration	Metso Symrun
	Wire part	3 layer with top former
	Press part	Tandem shoe nip
	Dryer part	Conventional
	Size press	Metso Valsizer
	Coater	2 nos combi coater (Metso Valcoat +Powedry plus))
	Calendar	Single nip SNC (Metso Valsoft); cooling group after SNC
	Pope reel	Metso Valreel
	Power consumption	440 pm/c + 120 pulping - kwh/ton
	Steam consumption	1.5 pm/c + 1.2 pulping - kwh/ton
	Water consumption	4 m <sup>3</sup> /ton
	Winder	2 nos Metso
	Reel packing line	1 No
	Sheeters	5 Nos Pasaban
	GSM distribution for 200 GSM	25 (Coating) + 30 (HW+SW) + 30 DIP + 115 (OCC)
	Project Cost	Around 550\$ per ton





## 4.2 Shandong Sun Paper Industry

- we visited 4 machines. 2 nos. (300,000 & 450,000 TPA) for high end brown kraftliner without coating supplied by **Voith**. 1 no. (300,000 TPA) machine of writing and printing paper with gap former technology supplied by **Voith**. 1 no. (600,000 TPA) board machine mainly producing LPB supplied by **Metso**.
- Out of 4 million TPA capacity, board is 1.5 million TPA. They do not have chemical pulping plant but have BCTMP plant of 800,000 TPA and RGP of 300,000 TPA. The ASRS for Reel supplied by Chaint Machinery China was running ok.
- Sun paper have also made museum which shows history of paper making and they display their products also over there. It is one of its own kind.
- The CEO of Sun Paper in interaction with IPPTA team chairman expressed his desire for a JV with a good company in India.

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# 4.2 Shandong Sun Paper Industry

		Details
1	Capacity	5 Million TPA (Pulp, RGP, Paper, Kraftliner & Packaging Board) established in 1982
2	<b>PM-31 Details</b>	
2.1	Capacity	450,000 TPA
2.2	Year of installation	2016
2.3	Speed	1150 MPM operating (1250 Design)
2.4	Width	6600mm
2.5	GSM	160-250
2.6	Product	Kraftliner / Testliner – brown grades
2.7	Raw material	OCC Local
2.8	Supplier	Voith
2.9	Machine Configuration	
	Stock Preparation	Most equipments from Kadant, US, disc filter from Voith & refiners from Andritz.
	Wire part	3 layer, no top former
	Press part	Tandem shoe nip
	Dryer part	Conventional
	Size Press	Speed flow / sizer
	Calendar	Single nip SNC
	Winder	A Celli - 1
	Power consumption	
	Steam consumption	
	Water consumption	
	RCT value of 160 GSM	Around 8
	QCS & MCS	Voith
	DCS	Honeywell
	ASRS (Reels)	By Chaint (31000 locations & 47000 tons) for Pm-31 & 32; 400 reels/hr, dia=700-1500mm, width = 800-2000mm; Height = 21 mtr, 3D stacker, Fire fighting system like smoke detector, showers etc



# 4.2 Shandong Sun Paper Industry

3	<b>PM-32 Details (Same as above, only below changes)</b>	
3.1	Capacity	3000,000 TPA
3.2	GSM	90-140
3.3	Machine Configuration	
	Wire part	2 layer (2 ply head box)- single wire with top former
	Winder	A Celli – 2 nos
4	<b>PM-29 Details</b>	
4.1	Capacity	300,000 TPA
4.2	Year of installation	2015
4.3	Speed	1800 MPM
4.4	Width	7280mm
4.5	GSM	55-90
4.6	Product	Offset paper, writing & printing paper
4.7	Raw material	Imported pulp (90%HW & 10%)
4.8	Supplier	Voith
4.9	Machine Configuration	
	Wire part	Gap former
	Press part	Tandem shoe nip with nipco flex
	Dryer part	Conventional
	Size Press	Speed sizer
	Calendar	Single nip SNC - Nipco
	Winder	Metso - Optiwinder
	Reel Packing line	By Chaint (Capacity 150 reels per hr), fully automatic with robots
	Sheeters	5 nos by Pasaban



# 4.2 Shandong Sun Paper Industry

5	<b>PM-26 Details</b>	
5.1	Capacity	600,000 TPA
5.2	Year of installation	2012
5.3	Supplier	Metso
5.4	Speed	1000-1200 MPM
5.5	Width	6100mm
5.6	GSM	170-400
5.7	Product	FBB, LPB, SBS
5.8	Raw material	Imported HW/SW Pulp, Own BCTMP
5.9	Machine Configuration	
	Wire part	3 layer with top former (Sym former)
	Press part	Tandem shoe nip + 3 <sup>rd</sup> smoothing press (Val press)
	Dryer part	Conventional (Metso Sym dry)
	Size press	Metso Valsizer (Film press)
	Coater	5 nos coaters (Metso Valcoat jet +Powerdry air dryer) – 3 top + 2 bottom Coating – 30-35 GSM top & 12-15 GSM bottom
	Calendar	Single nip HNC (Opti hard) ; Single nip SNC (Tandem Nipco – running -1); cooling group after SNC
	Pope reel	Metso Valreel



# 4.3 Zhejiang Yong Tai Paper Mills, Zhejiang

Sr No	Particulars	Details
1	Capacity	250,000 TPA
2	Year of installation	2010
3	Speed	460 MPM
4	Width	4450 mm
5	GSM	250-450
6	Product	WLC (Grey Back and White Back)
7	Raw material	Waste Paper, market pulp (HW/SW)
8	Supplier	Changhua Machinery, China
9	Machine Configuration	
	Wire part	5 layers without top former
	Press part	Suction pickup, 2 nos. Jumbo Presses and 1 no. Smoothing Press
	Dryer part	Two tier with closed hood
	Size Press	Film press
	Coaters	5 nos. (in operation 4 nos., 1 no. removed for maintenance) supplied by SLMC with air dryers.
	Calendar	1 no. HNC with swimming roll ; tandem SNC (1 working 1 standby) supplied by Tailing, China. Temperature of SNC 180°C.
	Rewinder	Supplied by A Celli, Italy Coat weight around 50 gsm (15, 25 and 10); slitters supplied by Ziehl-Abegg, ESPO.

## 4.3 Daoqin Paper Co. Ltd

Sr No	Particulars	Details
1	Capacity	250,000 TPA
2	Year of installation	2015
3	Speed	450 MPM
4	Width	4500 mm
5	GSM	250-450
6	Product	WLC (Grey Back and White Back)
7	Raw material	Waste Paper, market pulp (HW/SW)
8	Supplier	Hangzhou North Star Machinery; some parts of stock preparation and pulping line by UNDA, China like drum pulper, screens and refiners.
9	Machine Configuration	
	Wire part	5 layers + top former; 4 air cushion head boxes and 1 hydraulic head box with dilution control supplied by MCN.
	Press part	1 Suction press pickup, 2 nos. Jumbo Presses and 1 no. Smoothing Press
	Dryer part	Two tier with closed hood (38 pre dryers and 10 after dryers of Dia 1800 mm)
	Size Press	Pond type
	Coaters	5 nos. (3 nos. Top and 2 nos. Bottom) – local manufacturing by Daoqin.
	Calendar	Multi zone deflection compensation hard calendar supplied by JiangYin Guoguang. No SNC.



# 5. Fabric plant visited

## 5.1 Sanghai Jingxiong Fabrics Co., Ltd

- Gobear and Vanov are two strong brand of paper machine fabric. The Jingxiong is part of Vanov group and felt are produced in this factory.
- The wire and screen are produced in another company named Sichuan Vanov Technical Fabrics located at Chengdu.
- We noticed during our visit to Sun Paper & Sunshine paper that fabric from international company like Voith, Aster Johnson , Albany ... is used on all high speed machines of Valmet/ Voith. We could see Chinese manufacturer fabrics only on relatively lower speed kraftliner paper machine in relatively smaller paper mills.



# 6. Major learning / Take away

- Housekeeping in China is very good, both in general & in plant.
- Skill of operation is very highly improved.
- Project completion time in China is low.
- In China most of the Paper Machines above 200,000 TPA and Paper Board Machines above 250,000 TPA are supplied either by Voith or Valmet. The machines ranging from 100,000 tons to 250,000 tons are mostly supplied by Chinese manufacturers with most of the parts / equipments manufactured in China.
- One common thing observed in many installation of Chinese manufacture that they have learn the things by copying from the others like Voith / Metso / Andritz.
- They are reluctant to share the details and otherwise also language is big issue to communicate directly with technical persons.
- Some chinese companies are also reluctant to commit the guarantees unlike European suppliers and may falter on agreed contract terms if found short during start ups.







CPICC&IPPTA INDIA PAPER MAKING ENTERPRISES CHINA VISIT  
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**THANK YOU**

31 members of IPPTA visited in the knowledge trip

