

ICETT

The Sixth Workshop for Asia to support CTI

**THE APPLICATION OF CLEANER PRODUCTION
IN VIET NAM PAPER CORPORATION**



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VINAPIMEX

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I. Preface

- Paper is one essential human need in daily life, which is used in communication, education, market, packaging ...
- The consumption level of paper is considered as one of the level of living standard.

E.g: - USA \approx 322kg/head

-Indonesia \approx 23.6kg/h.

- Japan \approx 250 kg/head

- Viet Nam \approx 11.4kg/h

- European countries \approx 210kg/h

- The pulp and paper industry is one of sectors emitting a lot of pollutants both into water and to air.
- And Vietnam Paper Corporation is not an exception.

II. The situation of VINAPIMEX

II.1 Current situation:

- VINAPIMEX is one government organization, covering 21 members.
- In which there are 07 pulp and paper companies.
- Total production:
 - Pulp: 145,000 ton/year
 - Paper: 245,000 ton/year

Out put of VINAPIMEX

Companies	Pulp (t/y)	Paper (t/y)	2002
1.Bai Bang	50,000	80,000	75,865
2.Tan Mai	60,000	65,000	59,973
3.Dong Nai	15,000	20,000	20,557
4.Viet Tri	15,000	40,000	21,158
5.Hoang Van Thu	5,000	17,000	4548
6.Van Diem	4,000	15,000	2908
7.Binh An		8,000	6989
Total	145,000	245,000	192,998

The actual production of the year 2002 equivalent to 66.5% of designed capacity, achieving 37% of total whole country (560.000t/y)

- The pulp and paper companies in Viet Nam have a small size compared with the other countries in the region.
e.g: Out put of Advance Agro in Thailand is 600,000 t/y - bigger than total VN paper sector.
- The present capacity of domestic paper production can meet about 55 to 60% of the country's demand and thus Viet Nam has to import an average of 200,000 to 250,000 tons of paper annually.
- Viet Nam has to import a significant amount of pulp. VINAPIMEX can produce 140,000 tons of pulp and has to import 70,000 to 80,000 tons of pulp every year.

- The pulp and paper technology in Viet Nam is considered obsolete, low efficiency due to
 - Machines, equipments designed in decade 70
 - Non recovery chemical.
 - Bleaching by Chlorine ...
- Poor environmental protection measures.
- Discharge effluent having high emission concentration to river.

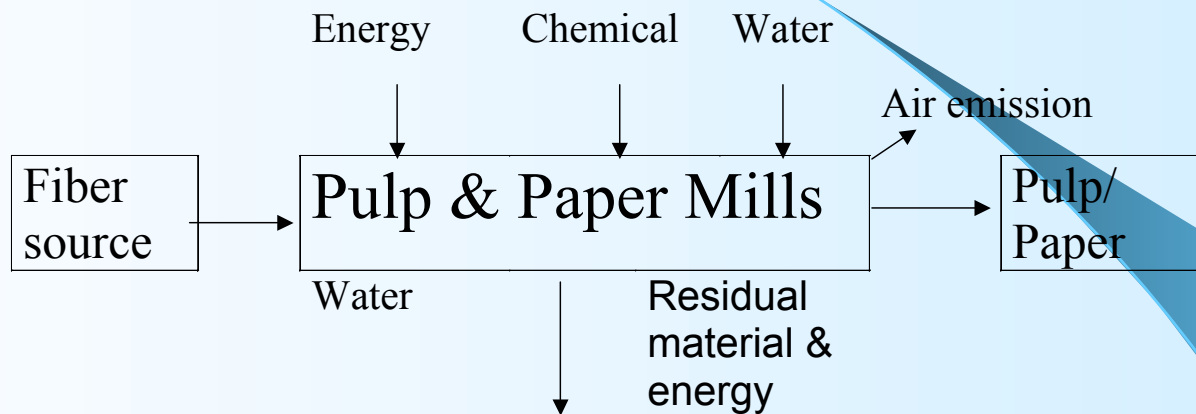
Specific Water Consumption of VINAPIMEX

Company	Pulp (m ³ /t)	Paper (m ³ /t)
Bai Bang (Sunfat)	77	45
Tan Mai (CTMP)	35 - 50	45 -50
Dong Nai	200	80-200
Viet Tri	150	50 -145
Hoang Van Thu	200	120
Van Diem	245	125
Binh An	-	120
Best Available Tech (BAT)	30 –50/sunfat 15 – 20/CTMP	10 -15

Water emission parameters of mills

Company	pH	SS mg/l	COD mg/l	BOD₅ mg/l	Color Pt-Co
Bai Bang	6	105	377	-	1308
Tan mai	7.6	248	778	356	450
Dong nai	6.1	420	1907	500	1400
Viet tri	7.5	50	70	50	-
Hoang Van Thu	9	118	1185	450	-
Binh An	7	120	110	75	-
Van diem	9	135	1185	450	-
TCVN (A)	7	50	50	20	

According to results above, mills can not satisfy Vietnam regulation , a big gap between government rule and real situation.



- The basic input and output from pulp & paper making
- Activities of pulp and paper process cause major serious emissions to environment

II. 2 Future outlook

- In September 1998, the Government has approved the master plan for pulp and paper industry development until 2010.
- One of the goals of the plan is to satisfy 85 to 90% of domestic paper demand in 2010.
- Several new investments have been performed:
 - Kontum project with 130.000 tons pulp/year.
 - Thanhhoa project with 50.000 tons pulp/year.
 - Backan project with 50,000 tons pulp/year.
 - Enlarge capacity of Baibang mill up to 130,000 tons pulp/year and 100,000 tons paper/year...

III. The application of CP in VINAPIMEX

- Since 1997, three mills have been applied CP with the help of Viet Nam CP center belonged to the Hanoi Technical University:
 - Hoang Van Thu Paper Co.
 - Van Diem Paper Mill.
 - and Dong Nai Paper Co.
- Then Viet Tri mill starts CP in 2000 and is considered as a CP example.

1. The measures have been performed to save energy and efficient energy in mills of VINAPIMEX:

- Using electrical equipment as optionally as possible, avoiding the use pumps, fans, motors having over capacity.
- Reducing the loss of steam, particular in drying section by equipping an automatic control instrument, minimizing the loss of heat surrounding.
- Insulate the surface of pipe line to reduce steam pressure and temperature drop.
- Minimize steam leak.

- Use black liquor of cooking process as fuel in chemical recovery.
- Regularly implement the schedule of maintenance facilities related to energy such boiler, turbine, pumps to ensure their efficiency.
- Establish a new boiler to reduce fuel consumption and also reduce amount of emission to air.
- Optimize the combustion in boiler.
- Use soft water as boiler fed water to reduce scaling of boiler tube and thus increased boiler efficiency.

2. Obtained results saving energy from CP

2.1. Bai Bang mill: The consumption of

- Water reduced from 77 m³ /ton product to 32 m³/ton product.
- Coal reduced from 162kg/t to 67kg/t.

2.2. Dong Nai mill:

- Water from 120 m³ /t to 67 m³/t.
- Electricity from 1164 kWh/t to 926 kWh/t.
- F.O. fuel from 394 l/t to 326 l/t

3.3 Viet Tri Mill

- Electricity from 1062 kWh/t to 996 kWh/t
- Reduced 5,000m³ effluent/year.

3.4 Tan Mai Mill

- F.O. from 259.6 l/t to 216 l/t.
- Electricity from 945 kWh/t to 840 kWh/t

3.5 Hoang Van Thu Mill

- Electricity from 990 kWh/t to 730 kWh/t

3. Limited matters

3.1. Internal

- Specific consumption is still higher because of using old machines, obsolete technology so losses are much due to leakage, breakdown ...
- Poor handling due to lack of skills.
- Lack of finance to invest equipments treatment.
- There are mills without CP.
- There are still CP opportunities to pay attention.
- ...

3.2. External:

- Viet Nam Government sets up environmental parameter standard too strict so that paper sector cannot meet requirements, especially parameter standard for industrial effluent.
- And there is only one standard for various industrial sectors.
- Products have to meet marketing both quality and price.
- And being friendly environment.
- ...

IV. Conclusion

- Generally, in order to carry out our goals:
 - Increase production both quantity and quality.
 - Develop forwards clean technology.
 - Approach ISO 14000.
 - Sustainable development.
- VINAPIMEX have to face much more challenges to look for both technology and economic solutions. In which CP is one of the best necessarily to promote.



Thank you

and
Good luck !