Progressive companies take steps to make their mills competitive

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Capacity, new products, and exports are all part of the Finnish papermaking scheme.

With an annual capacity of 10.8 million metric tons of paper and board and 9.4 million metric tons of pulp[1], Finland is a formidable contender among paper and pulp producers worldwide. Here's a brief look at two pulp mills and a paper mill.

Joutseno-Pulp

United Paper Mills (UPM) is the largest producer of supercalendered magazine papers in the world. Joutseno-Pulp (JP), a business unit of UPM, southwest of Imatra, is a stone's throw from an area of Russia that produces large amounts of birch.

Supplied with Russian birch and Finnish pine, JP can support UPM's supercalendered and lightweight-coated (LWC) paper production, as well as a small amount of newsprint production. The mill's elemental chlorine-free (ECF) pulp is produced from birch and pine. Sixty percent of the 1.8 million m^3 of wood utilized by JP is domestic pulp wood, chips, and sawdust, according to Seppo Pursiainen, production manager. The other 40% comes from Russian birch in the form of pulpwood and slab. Production capacity is 300,000 metric tons/year.

After screening, chips are cooked in a 1000 tons/day capacity Beloit RDS batch digester, built in 1986. JP's five-stage conventional bleach plant was modified in 1984 and has been producing ECF pulp since October 1992 at 85 and 88 ISO brightness.

A 6.7-m ABB Flakt dryer running at 250 m/min produces 1100 metric tons/day of pulp; maximum capacity is 1350 metric tons/day. A Valmet cutter and layboy package the pulp in 1-metric ton bales. Five thousand bales are wrapped and exported; the balance supports UPM's operations.

Pulping by-products are tall oil and turpentine. UPM's Valke Chemicals refines the tall oil, and the raw turpentine is sold.

JP's expansion plans include a new steam press and two new dryer sections for a goal of 1700 tons/day. Projected startup of the new equipment is 1996; the expansion will hinge on company sales.

[1] *Pulp and Paper International* (July 1993, p. 38).

Joutseno-Pulp's pulp machine



Joutseno-Pulp: Sheets of pulp are cut and stacked.



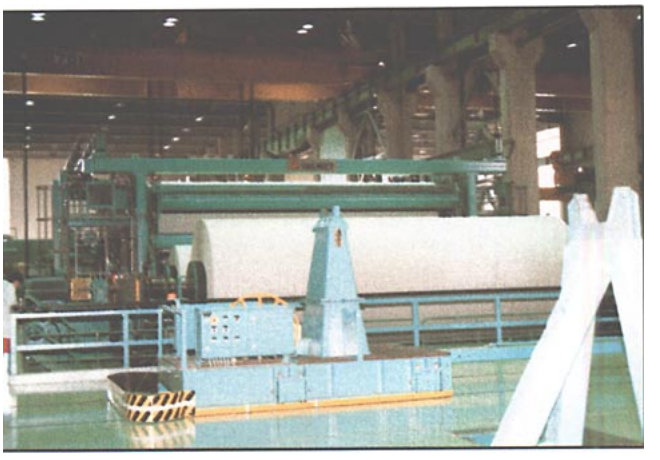
UPM, Jämsänkoski

In the southwestern quadrant of Finland lies Jämsänkoski, named for its location at the "rapids of Jamsan." The United Paper Mills supercalender (SC) paper facility houses four paper machines, one of which, PM 6, is the largest SC paper machine in the world.

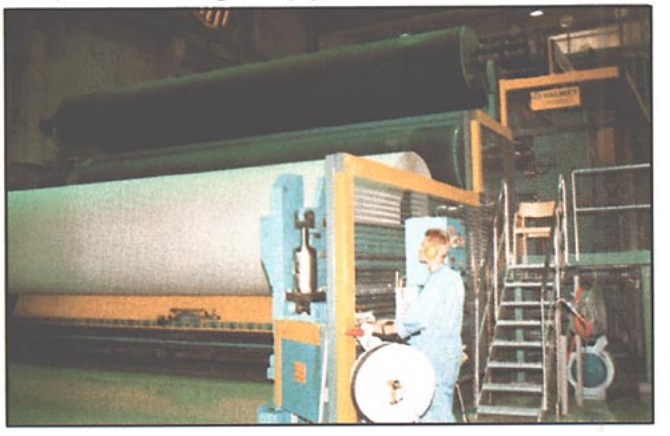
Joutseno-Pulp: The stacks are compressed and baled.



UPM Jämsänkoski: Gravure paper is wound on a reel as it comes off of the PM 6 line.



JPM Jämsänkoski: The gravure paper is rereeled.



The three grades produced—label, matte-coated offset (MFC), and SC paper—provide a total capacity of 680,000 metric tons/year. PM 3 produces 60,000 metric tons/year of label paper and woodfree face paper for self-adhesives. PM 4 produces 90,000 metric tons/year of heat-set offset, rotogravure, and matte-surfaced offset paper. PMs 5 and 6 produce gravure paper for magazines and sales catalogues. PM 5's basis weight range is 40–60 g/m^2, while PM 6's basis weight range is 45–65 g/m^2. With PM 5's production capacity at 230,000 metric tons/year, and PM 6's annual capacity at 300,000 metric tons/year, nearly half of the overall tonnage comes from PM 6, a US$ 300 million investment that came on line in October 1992.

Metsä-Serla

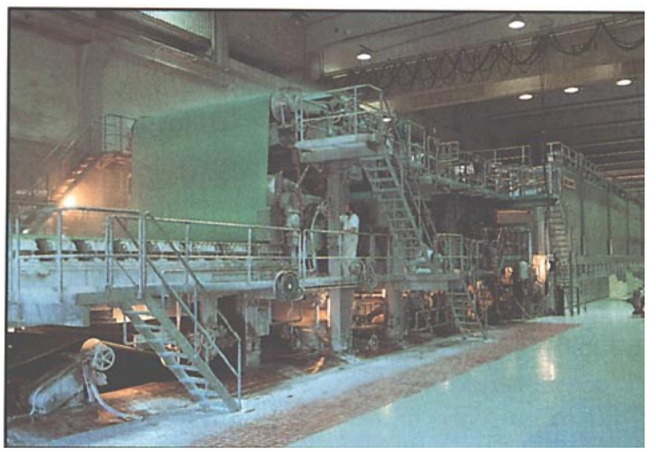
In the center of the southern half of Finland lies Äänekoski, the home of the Metsä-Serla Group which comprises three major production segments: paper and paperboard, tissue and corrugated board, and sawn goods and pulp chemicals. **Table I** shows the percent of sales derived from each segment in 1989 and 1992. As part of a long-term strategy, Metsä-Serla shifted to producing more high-quality, value-added products. While Finland buys 17% of Metsä-Serla's products, the company looks to France (6%), Sweden (7%), Germany (8%), Denmark (9%), the United Kingdom (19%), other European countries (21%), and other countries outside Europe (13%) to stay in the black. Innovative product development is another key to Metsä-Serla's success.

I. Metsä-Serla sales (%)

	1989	*1992*
Paper and board	26	45
Tissue and corrugated	25	35
Pulp and mechanical forest industry	47	14
Chemicals	2	6

The company's paper and board segment has magazine, fine paper, and paperboard divisions. Paperboard is a stable market and fine paper will face some price pressure due to overcapacity, says Jarmo Salonen, paper and board general manager, but the company will rely on its strong merchant network. The company sees improving LWC prices causing a shift from SC to coated grades.

Metsä-Serla, Äänekoski: The paper mill produces Gallery Art SC paper at 300 metric tons/day.



Metsä-Serla's Äänekoski pulp mill, Metsä-Sellu Oy, produces 450 metric tons/year of fully bleached softwood and hardwood sulfate pulp from pine and birch. The mill employs a staff of 280.

The company has paper mills in Äänekoski, Kangas, and Kirkniemi; board mills in Äänekoski and Tako; and a CTMP mill in Lielahti.

Of interest, the Äänekoski paper mill produces Gallery Art SC paper at a rate of 300 metric tons/day. Seventy percent of its production is exported: 50% is shipped to France, Germany, The Netherlands, and the United Kingdom; 10% to the United States; and 10% to Australia.

The Kirkniemi mill, a LWC mill, is scheduled to switch production to a new product, film coated offset (FCO) paper, this month. Between LWC and SC, FCO is, according to Juhani Hacklin, project marketing director, especially designed for low basis weights. Good optical properties, low ink absorption, low fiber roughening, and even coating coverage will bring savings in publishing, printing, and transportation, says Hacklin.

Though Hacklin wouldn't confirm that the film coating is a polymer, he did say that the paper is recyclable. Kirkniemi's PM No.1 will run the FCO at a capacity of 190,000 metric tons/year. Hacklin believes that the licensed FCO technology is two years ahead of any competitive developments in this market.

It's not unusual for forest companies to have chemical operations, says Yrjö Sippola, assistant director of marketing for Metsä-Serla Chemicals Oy, a Metsä-Serla company with plants in Äänekoski, Finland; Nymegen, The Netherlands; and Skoghall, Sweden. The plants produce sodium carboxymethyl cellulose (CMC) at capacities of 45,000, 10,000, and 20,000 metric tons/year, respectively.

In addition to the paper and board applications for CMC at the wet end, coating, and surface sizing for low- and medium-viscosity paper grades, CMC is used in detergents, textiles, oil drilling, food, mining, paints, adhesives, ceramics, welding, pharmaceuticals, and cosmetics. Paper and board applications comprise over 40% of the company's CMC sales. TJ

***Clites is associate editor of* Tappi Journal.**