Laja mill a modern pioneer in Chile

Empresas CMPC is keeping its oldest mill in peak condition.

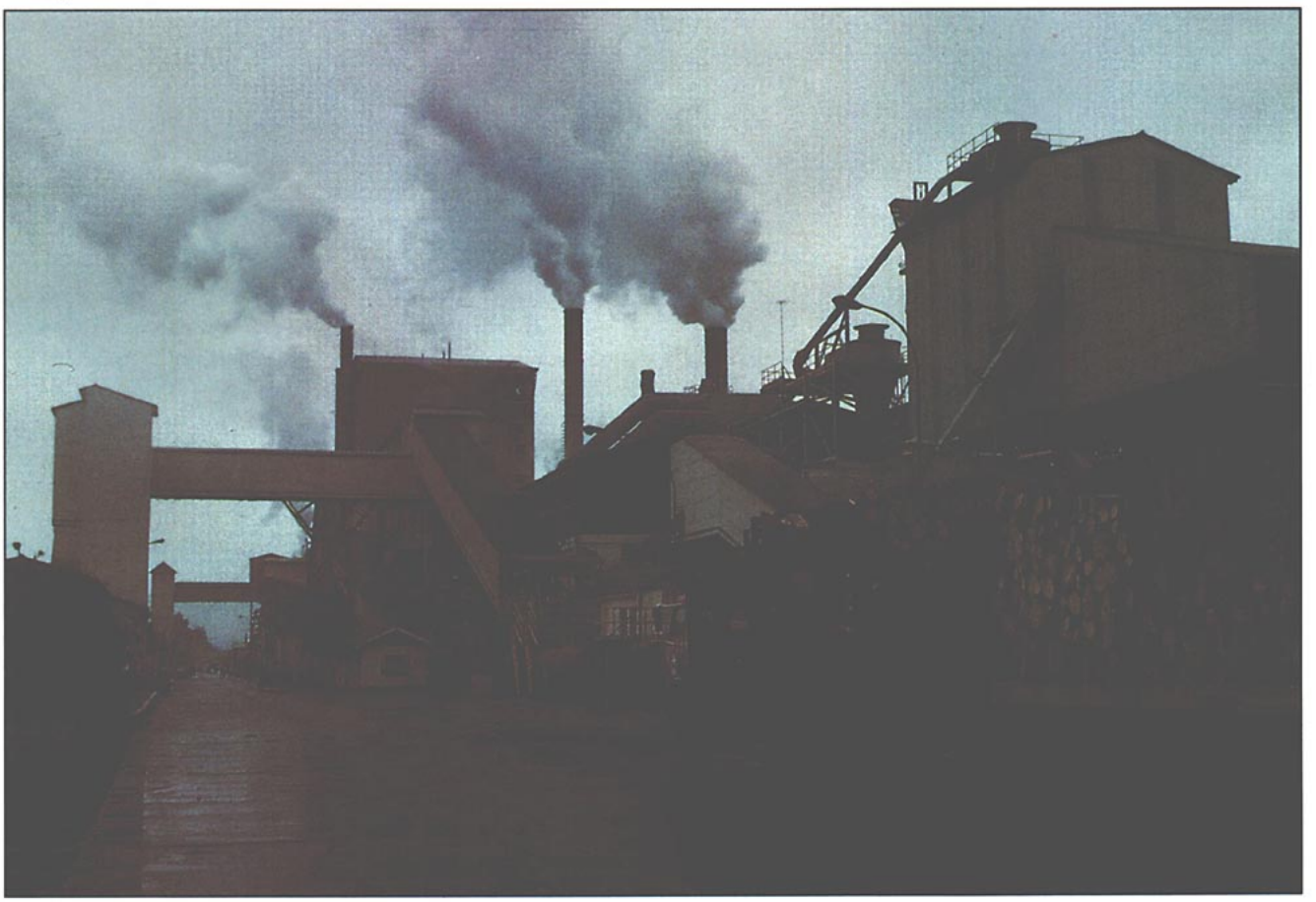
DONALD G. MEADOWS

The Rio Bío-Bío flows southeast from Concepcíon through the heartland of Chile's pulp industry. Within a 100-km radius are the Santa Fe, Arauco, and Celulosa del Pacifico mills. Among those relative newcomers lies the Laja mill of Compañia Manufacturera de Papeles y Cartones S.A. (CMPC), now called Empresas CMPC S. A.

The mill has two pulp production lines, one built in 1959, the other in 1965. The oldest uses six "discontinuous" batch digesters and 12 diffusers for washing. It uses a D/C-E-H-E-D bleaching sequence and can handle hardwood or softwood. The newer line has more than twice the capacity (700 a.d. metric tons/day vs. 280 a.d. metric tons/day). Pulp goes through three washing stages after it leaves the hydraulic Kamyr digester, plus a D(Eop)D-E-D bleaching sequence.

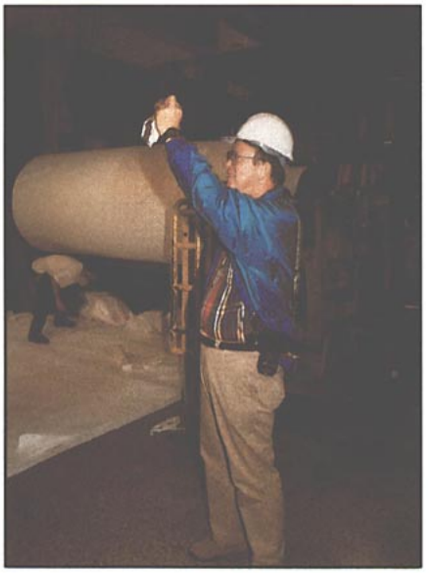
Laja was the first mill in Chile to have a continuous digester, according to Gustavo Vera, the mill's technical superintendent and director of ATCP-Chile. It's now looking to replace the existing digester and one recovery boiler. The old boiler is badly overloaded and inefficient, Vera said. The new boiler will greatly reduce air emissions. Those and other upgrades to the mill will cost about US$ 120 million.

The Laja mill

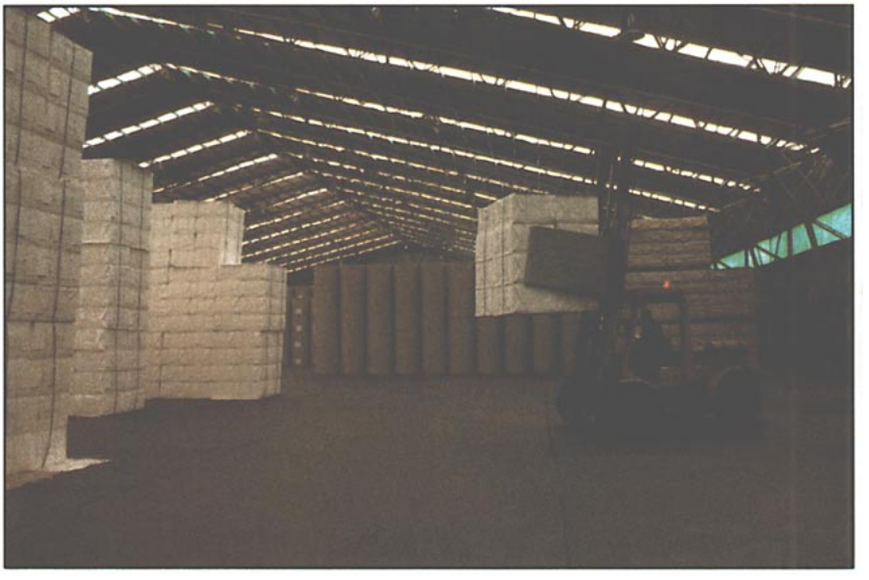


Short logs being loaded into a barking drum

One of Laja's fourdriniers



Ron Estridge examines a sample of paper produced at Laja.



Pulp bales waiting for shipment

Engineering for a primary treatment system was to begin this year, with construction scheduled for completion in 1995. For now, the mill lacks both primary and secondary treatment. Chile has lagged behind other countries in regulating emissions, although Santiago and some federated areas have set pollution limits. Even so, Laja wants to be set to comply with stricter limitations and to remain competitive in international markets.

Pulp production at the Laja mill topped 311,000 tons during 1992. A new chlorine-soda plant started at Laja in April of that year, followed by completion of a chlorine dioxide plant that November. CMPC invested about US$ 10.5 million to make the mill's bleaching process elemental-chlorine free. Improvements to the No. 2 dryer to increase "fluff" pulp production were completed in early 1993.

The mill exports a little over half the pulp it produces, while nearly all of the 70,000 tons/year of paper produced at the mill is sold within Chile. The mill also has two paper machines: PM 12, a Voith machine, can produce 100 metric tons/day of kraft wrapping paper; PM 15, a Beloit machine, produces 130 metric tons/day.

Just over 9 million hectares of Chile are forested, Vera said. Of that, 7.6 million ha are covered by native woods, 1.24 million ha grow *radiata* pine, and 0.2 million ha grow other species. CMPC owns roughly 359,000 ha of that forest, of which nearly 218,000 ha are planted with *radiata* pine and almost 12,000 ha are growing eucalyptus.

About half of the wood used at the mill comes from its own plantations, the rest comes from third parties. The more wood the mill gets from outside suppliers, the better it can maintain its own reserves.

In its 1992 annual report, CMPC notes that eucalyptus plantations, in particular, "have skyrocketed" in recent years because of demand for the fiber. The trees—both eucalyptus and *radiata*—provide an excellent means to reclaim degraded farm land and make use of poor soils. They also produce

superior yields on richer soil. Unfortunately, "the conversion of agricultural land into timber plantations is causing the displacement of farm workers, who need retraining to be able to work in other economic sectors."

Much of the growth in Chile's forestry sector can be attributed to the 1974 Decree Law No. 701. The law, which was scheduled to expire this year, encouraged the creation of timber plantations "through state subsidies covering 75% of the standard development costs," according to CMPC.

A basic research committee at the mill has been studying *radiata* pine, eucalyptus, and other tree species, along with various bleaching alternatives. For now, the mill plans to retain its existing bleaching sequence and will probably convert to an elemental-chlorine-free process as the need arises. About 60% of the research is conducted with universities.

The newest companion to the Laja mill is Celulosa del Pacifico S.A., owned jointly by CMPC with Simpson Paper Co. Located in Mininco, the mill began production in February 1992. It has a design capacity of 315,000 metric tons of bleached kraft market pulp per year, which it produces from *radiata* pine.

***Meadows is editor of* Tappi Journal.**