

Pulp and Paper Research Institute of Canada exemplifies centralized research

SUSAN M. CLITES

For more than 60 years, PAPRICAN has been the "research department" of the Canadian pulp and paper industry.



"The concept of a central research organization isn't one that we have to defend too often in Canada," said Cyril D. Doucet, secretary-treasurer and vice president of administration for the Pulp and Paper Research Institute of Canada (PAPRICAN). "Part of the main reason is we've been around a long time, we have a very strong scientific record and, in the recent past, a very good record of responding to industry problems."

PAPRICAN's history began in 1925 when the Canadian Pulp and Paper Association (CPPA) entered into an agreement with the Canadian Federal Government to share the management and support of a pulp and paper research program that had been conducted at the Montreal branch of the Forest Products Laboratory. Industry would fund the construction of a building on the McGill University campus to house the program.

The building was completed in 1928 and a joint committee was appointed to administer a cooperative research program.

In 1950, members of the Canadian pulp and paper industry

established a nonprofit corporation with a board of directors, a president, and officers to support formal industrial research on a full-time basis. Shortly thereafter, said Doucet, CPPA and the federal government agreed to establish a much larger effort under the umbrella of this corporation.

For the next five years, the federal government and CPPA split the cost of supporting an industrial research and development (R&D) effort that was still located on the McGill campus in Montreal. In 1957, an agreement was reached whereby the federal government would pay for the cost of building a facility for PAPRICAN in Pointe Claire, PQ. PAPRICAN would pay the taxes and upkeep on the building, and industry—represented through CPPA—would provide the annual operating costs.

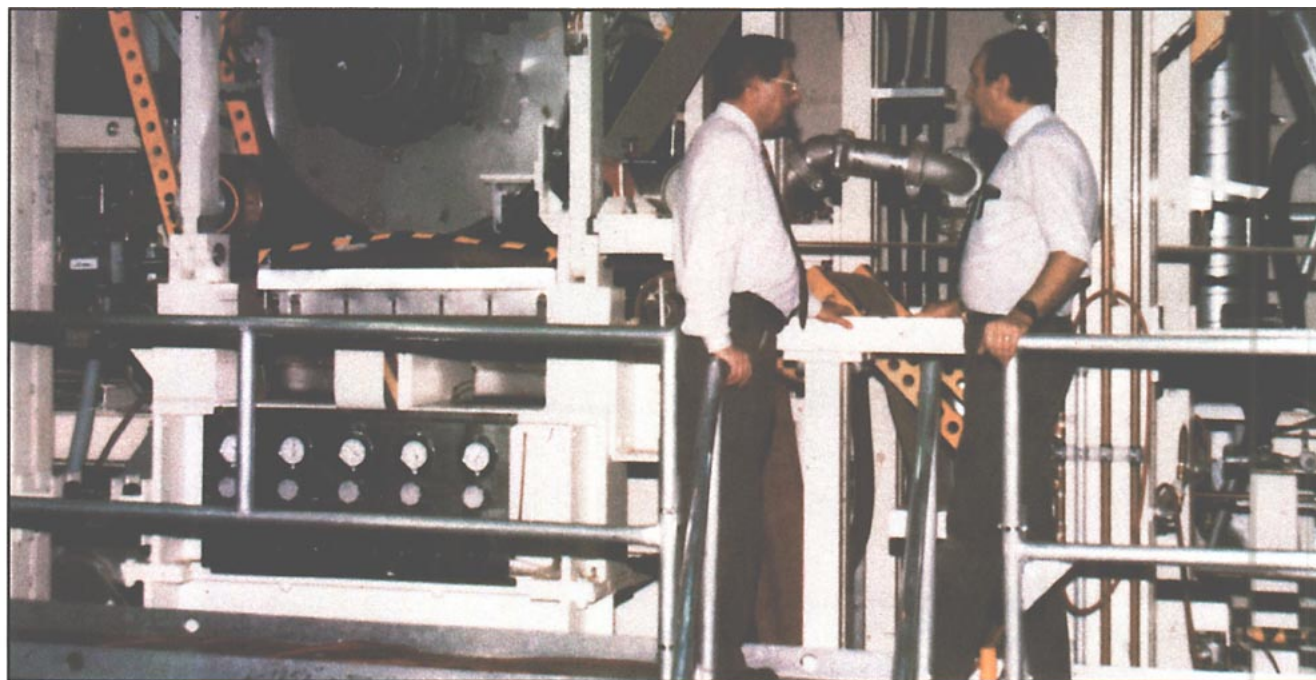
The federal government doubled the size of the Pointe Claire facility in the mid-1960s and in 1983 it provided funds to build a lab in Vancouver, BC, as an extension of the Pointe Claire operations.

Since 1957, PAPRICAN's growth has been strong: from 50

PAPRICAN's research facility in Pointe Claire, PQ



Impulse drying research is continuing on the Institute's pilot paper machine, where the first two-roll press has been replaced by an extended nip press.



people and an annual budget under CAD 1 million to some 375 employees and an annual budget exceeding CAD 31 million. In addition to its Pointe Claire and Vancouver facilities, PAPRICAN also maintains relationships with McGill University, the University of British Columbia (UBC), and École Polytechnique, where it has postgraduate research and education programs established to train researchers in disciplines related to pulp and paper. In addition, PAPRICAN offers a nonthesis master's program at McGill and UBC to encourage engineers to return to school for a year to get a sound grounding in pulp and paper science and technology and to utilize this knowledge in operations.

"Basically, we are feeding the pipeline with good researchers," said Doucet.

PAPRICAN is overseen by a 21-member Board of Directors whose members are designated by the federal government (2), McGill University (3), UBC (2), and CPPA (14). As defined by the bylaws of CPPA, unless covered under a grandfather clause, companies that are members of CPPA must be members of PAPRICAN, and vice versa.

PAPRICAN's daily operations are organized under a deputy of research and education and a deputy of administration. The deputy of research oversees three research disciplines (chemical sciences, engineering, and physical sciences) as well as the Vancouver laboratory, and the relationships with the three academic institutions. He also handles strategic and economic planning. The deputy of administration manages financial and information services as well as patents, licensing, and allied industry relationships.

The organizational structure enables PAPRICAN to accomplish its mission "to help enhance the technical competitiveness of its Maintaining Member Companies, through activities that support and supplement the research and technical efforts of the individual companies." PAPRICAN does this by defining the

PAPRICAN's research includes methods for deinking paper. Here, a medium-consistency pulper is used to reslush waste papers and to dislodge ink from the surface of fibers.



industry's technical issues, addressing them through the three research disciplines, and disseminating the results to the member companies through various information channels.

Starting with the issues

PAPRICAN's Research Program Committee (RPC), comprising one individual (mostly senior operating personnel) from 23 member companies, annually identifies the critical issues facing the industry through an issues identification process. Professional management in the Institute provide the RPC with reports on what projects are under way and why they are being pursued. From the reports, the RPC critiques the projects from a strategic point of view.

The more detailed technical reviews are done by the Technical Interaction Committees (TICs). Some 15 TICs involve approximately 60 people from industry; they operate as steering committees for a series of projects. Essentially, these individuals are responsible for hearing in detail what's happening with the projects PAPRICAN is pursuing and providing industry input to the PAPRICAN researchers. The information exchange is two-way: people in the TICs get a better idea of what PAPRICAN researchers are doing, and in turn, PAPRICAN researchers get a much better idea of what industry scientists want them to do on the working level.

While the RPC may determine that PAPRICAN should address ways to reduce the industry's energy consumption, PAPRICAN staff will work with the TICs to make the appropriate technical connections to address the need.

To determine the strategic issues facing the industry, the RPC also gets input from its member liaison representatives (MLRs): individuals identified by the CEO of each member company. In the case of one-mill operations, the MLR might be the technical superintendent or production manager. In some cases, it's the vice president of engineering or research, usually a high-level technical person in the company. That person is identified as being responsible for that company's contact with PAPRICAN.

The MLR is the company's contact point for PAPRICAN. He or she receives all of the information that PAPRICAN disseminates and meets with PAPRICAN staff annually. The MLR's priority is to maximize the PAPRICAN relationship for his or her company, whereas the RPC provides an industrywide focus.

From all of the input that it received, the RPC identified three categories of issues to pursue during 1992-1993: environment, cost-competitiveness, and product quality and value-added. Under these categories, specific technical issues were identified and projects that address the issues were categorized under five programs:

- Fiber supply and quality
- Mechanical pulping
- Chemical pulping
- Papermaking
- Paper and board quality.

Each of the five programs is overseen by a program committee that

reviews the projects and keeps them focused on meeting the industry's needs. In addition to the program committees, a subcommittee on education oversees PAPRICAN's cooperative education and research programs which include a postgraduate research program; a faculty associates program; a course master's program; a summer student program; a video program; and Papricourse, a program to teach operating personnel and technical staff of PAPRICAN member companies about the scientific and engineering basics of pulp and papermaking.

Out of the process of defining, evaluating, categorizing, and recommending, "came some very good dialogue and communication between industry people and [PAPRICAN] as to what we should be doing," said Doucet. "That whole interaction allows industry people to see what we're doing and that we are, in fact, doing what we say we're doing. It explains to them better what it is that we're doing and at the same time, we learn, so it's really a two-way thing."

Networking is critical

PAPRICAN uses a lot of what Doucet terms "traditional ways" to disseminate information.

"We produce about 100 reports a year and these are technical reports that are classified in a variety of ways," Doucet said. "Some of them are confidential to our member companies, others are review articles that are intended to establish the status of a certain problem or issue or knowledge base."

PAPRICAN also sends staff to industry conferences. A conference report is generated and sent to member companies. "What we try to do is have some of our people go to every conference and then we write a report on the conference and send it out to the rest of the industry so that they have some kind of window on that conference, even if they didn't get to go," said Doucet.

The Institute publishes a quarterly newsletter called "Communication," holds an extensive library collection, and houses a small print shop.

While the member liaison program provides ongoing communication from an individual at a member company with PAPRICAN, the PAPRICAN Liaison Program involves 20 of PAPRICAN's researchers with member companies. In addition to his or her research responsibilities, each researcher is assigned a company or a group of mills.

They meet annually with technical personnel at the company to update them on what's new at PAPRICAN. The objective is to become familiar with the company and its needs and to be the contact at PAPRICAN for that company. On average, 30 calls per day come to the PAPRICAN liaisons from member company personnel.

Another development that has had a big impact on the Institute is the network of centers of excellence, Doucet said. Established by the Canadian Federal Government to identify and address competitive issues that are important to Canada as a nation, the program solicits proposals that take an interdisciplinary approach to solve an issue. In 1989, PAPRICAN formed a proposal to bring together researchers from 12 Canadian universities, a total of 190 people, to research the brightening of mechanical and chemi-

Research and Development

mechanical pulps. The proposal was one of 14 accepted, and the research is funded by a CAD 14.6 million grant over four years. Reports indicate that the Canadian pulp and paper industry, through PAPRICAN's involvement, will make an in-kind contribution valued at CAD 2.5 million annually. This network is one of 15 national R&D networks under the federal government's Network of Centers of Excellence program.

PAPRICAN is also networking with other research organizations. In 1990, it signed a Memorandum of Understanding (MOU) with the National Research Council Canada (NRC) to share information and cooperate on research efforts. In 1991, a MOU was signed by PAPRICAN and Industry, Science, and Technology Canada to address the industry's environmental priorities. From this MOU, several research projects were undertaken that drew support from allied industry. Currently, alliances with 85 industry suppliers support PAPRICAN's research programs. PAPRICAN also looks to government programs to support its research and is receiving support from Energy, Mines, and Resources Canada as well as the Science Council of British Columbia.

Cost-effective "research department"

"Our revenue is basically assessments," said Doucet. "We get CAD 25 million directly from companies. They pay us on a quarterly basis, based on tonnage." This assessment averages out to be approximately 0.5% of a company's annual gross income, according to Doucet.

"Most of the companies would defend, with some justification, that it's the most cost-effective way of getting R&D," said Doucet, "certainly the most cost-effective way of getting fundamental research [done]."

"If one company puts in CAD 500,000 or CAD 600,000 on an annual basis into PAPRICAN, they're getting a CAD 30 million

organization working on [their] behalf."

In addition to being able to tap into PAPRICAN's precompetitive research, the Institute provides practical applications that can cover a company's membership assessment to PAPRICAN for several years. PAPRECYCLE, one such application, is a process that combines chemicals economically during the washing of recycled fiber.

PAPRICAN also produces several patents each year.

PAPRICAN finds that it must walk a fine line oftentimes, Doucet pointed out, between a relatively open pulp and paper industry and the precompetitive value of its research to its member companies.

"We are sensitive to the fact that even though we are a central research organization, we do get criticized for being too open," said Doucet. "We provide this information as quickly as possible to our member companies. We really feel that we give our member companies a one- to two-year lead time before anybody else finds out what's going on."

"We often call ourselves, and are referred to, especially in Canada, as a 'tripartite organization' where there's university, government, and industry cooperating to the benefit of a major industry," Doucet said. "We have to keep proprietary rights for our member companies, ...but then we have to be able, at some point, to publish in order to maintain our scientific organization."

For more than 60 years, PAPRICAN has been the "research department" of the Canadian pulp and paper industry, in a partnership that has evolved as the industry has matured.

"The trick to being successful," Doucet concluded, "is getting good people in these operations that are good scientists and good research engineers producing excellent, innovative results." ■

Susan Clites is associate editor, Tappi Journal, P.O. Box 105113, Atlanta, GA 30348