

CANADA COMMERCE

A photograph of a person in a white lab coat and glasses looking through a microscope. The scene is lit with a warm, yellowish light. In the background, there is a library stamp that reads "Industry, Trade and Commerce", "MAY 3 1983", and "Library" and "Bibliot".

February 1983

**COSTPRO: A New Role
in the Private Sector – Page 1**

**Design Canada Scholarship
Program – Page 9**

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The Honourable Edward C. Lumley
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The Honourable William Rompkey
Minister of State for Small Business and Tourism

Managing Editor:
Liette Vinet-Venne

Editor:
John Hughson

Contributing editor:
Bob McDonell

Designer:
Stephen Shewchuk

Correspondence to:
Canada Commerce (98)
Departments of Industry, Trade and
Commerce and Regional Economic
Expansion
Ottawa, Ontario K1A 0H5

Telephone:
(613) 995-8900

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Following 10 years of growth and development, the Canadian Organization for the Simplification of Trade Procedures (COSTPRO) is taking a new form with increased goals. In this article, specially prepared for Canada Commerce, COSTPRO's president outlines the past and looks to the future.

COSTPRO: A New Role in the Private Sector

by A.R. Elliott, President

The results of 10 years of studying trade procedures, developing practical implementation approaches that cut the cost of processing trade documentation dramatically, and testing these approaches in field trials have taken COSTPRO (the Canadian Organization for the Simplification of Trade Procedures) to a new plateau. This work has proved the benefits, and cost savings, to companies of applying COSTPRO methods to existing procedures with either manual or automated systems.

Now COSTPRO is ready to go beyond its relatively small membership base to offer its solutions to simplifying trade procedures to the entire Canadian trade community.

Before explaining COSTPRO's new role in the private sector, it is worth reviewing its achievements to date. In 1972, a group of far-sighted individuals from government and trade associations started to meet regularly to address the issues of trade simplification as it applied to the documentary procedures between all the usual parties in trade. Calling themselves the Canadian Organization for the Simplification of Trade Procedures (COSTPRO) they tackled the problems involved with the paperwork process of international trade, using as a base similar concerns being expressed at meetings in Geneva by many national governments.

Prompted by the Canadian Export Association, the Canadian Shippers Council and the Trade Development Agency of Transport Canada, which supplied limited secretarial support, much of the early work consisted of adopting aligned techniques (whereby the same information is placed on each document in the same position) to Canadian needs, and integrating other agencies' studies into a common approach.

In those days some 28 companies and government agencies could be involved in an export

shipment, generating an average of 46 forms with 360 copies for each transaction. These forms involved close to 150 different data segments. Simply aligning the forms, so that carbon could be placed between the forms allowing a one-time typing process to replace multiple typings, generated significant time savings in filling in the forms.

COSTPRO also sent representatives to Geneva to the United Nations' Economic Commission for Europe Working Party on the Facilitation of International Trade Procedures which was the focal point for the early studies. The initial goals were to reduce the number of different data segments required by various countries; to eliminate procedures and requirements that were uneconomic; and to assist in the technical discussions involved in standardizing the layout of the forms to facilitate the aligned techniques. A secondary issue then (but prime now) was how to computerize and electronically communicate the same information.

Initial Goals

Many of the initial goals have been reached. Today COSTPRO recommends that companies install the Canadian Trade Document Alignment System (CTDAS) in their import/export departments when using manual (paper) methods. In December 1982 this standard was approved by the Canadian General Standards Board and published as document No. CAN 2-200-3-M82. Some 40 country organizations similar to COSTPRO have adopted the UN-approved aligned documents and meet twice yearly in Geneva at UN-sponsored meetings to address outstanding issues.

By 1974, it was evident to COSTPRO's pioneers in trade simplification that computer/communications systems would be the dominant information processing medium in the 1980s. Accordingly, they requested extra resources from the federal government to assist in more advanced research in the manual side, to perform extensive studies in computer techniques, and to research the legal issues involved in changing from a paper medium to an electromagnetic one.

The federal cabinet responded in 1975 with an offer of \$4.425 million to be spread over five years. These funds would be used for research, and for the salaries of a larger supporting secretariat of five Ministry of Transport employees to coordinate the research activities. COSTPRO was incorporated as a non-profit organization, and its membership base (for a fee) opened up to companies and individuals. The intent of this government support was to assist COSTPRO in developing and promoting The Canadian Trade Information System, which includes the CTDAS mentioned above but expands these standards to an international system for the electronic preparation, transmission and reception of trade documentation.

Federal funding was to be slowly reduced over a five-year period with COSTPRO moving to a goal of self-sufficiency by the early 1980s.

With the government funds and a growing membership base, COSTPRO augmented its staff, conducted extensive reviews of the Canadian trade process, conducted many research studies using Canadian companies and university researchers, held many seminars across the country with trade industry participants, and developed a prototype TRADEX terminal incorporating many of the essential trade requirements. By 1977 it had developed a Canadian approach to electronic paperwork incorporating the UN manual standards.

In 1978 the COSTPRO secretariat support was transferred to the then Department of Industry, Trade and Commerce and its offices moved from Montreal to Ottawa. COSTPRO spent the next three years refining the systems design, promoting aligned documents, and developing working software. A contract with AES in 1980 resulted in the fundamental prototype approach to electronic manipulation and transmission being transferred to a word-processor environment (the TRADEX-I system). The resulting terminals and software were delivered in late 1981 and are being tested in field trials amongst some 10 of the member companies of COSTPRO. Most of the trials are expected to end early in 1983.



TRADEX I being tested.

As a result of these trials in operational situations, COSTPRO is currently completing work on a TRADEX-II mini-computer-based system. A more sophisticated version of the word-processor environment, TRADEX-II contains extensive user-oriented features such as automatic back-order forms filling, and consolidation and deconsolidation features. In addition, its electronic mail uses background transmission techniques. Because of this, operators can still enter data while the system is automatically transmitting previous information. The system contains both the current European and U.S. electronic data interchange standards, as well as being capable of sending Telex messages in a "trade-form" format. Operational trials of the TRADEX-II system are planning to be completed by October of 1983.

With the status of this work nearing completion, the federal government decided, in early 1982, to have COSTPRO become a totally private agency. It agreed to offer some limited support to its future secretariat operation until April of 1984, with the proviso that COSTPRO utilize the management expertise and industrial links of the Canadian Export Association during this period. In addition, the government would consider supporting research projects that would complete and/or complement COSTPRO's mandate for up to \$550K for each of the two fiscal years from 1982 to 1984.

This new role was accepted by the board of directors of COSTPRO, and a new president was selected. Dr. Ronald Elliott joined COSTPRO in June of 1982, and presided over the June annual general meeting during which the official agreements between the government, the Canadian Export Association and COSTPRO were signed. During the meeting, a new board of directors was elected, with a stronger industry orientation.

The transition of the secretariat to a totally private status took the next four months. Floor space changes, signing leases, adopting a new private telephone number ((613) 234-4333), acquiring new furniture and office equipment, appointing staff, and evaluating COSTPRO's assets, strengths and weaknesses dominated the management activities. During this time, COSTPRO also conducted an extensive market survey of the industry, continued its software research, and initiated new projects to transfer the "turn-key" system under development (TRADEX-II) into software modules capable of being run on the newer business micro-computers. This software module work is expected to be completed in late 1983.

The board convened again in late October and adopted a motion that COSTPRO plan to expand its mandate to include general business documentation standards, and that it examine its activities and "products" with a view to having a strong business orientation. Some new activities based on COSTPRO's extensive knowledge of international trade were proposed.





The signing of the agreement between COSTPRO, the Canadian Export Association (CEA) and the Government of Canada. Left to right: John Gratwick, COSTPRO chairman of the board; Tom Burns, CEA president; and Graham Lockhead, director, Transportation and Distribution Services, Department of External Affairs.

Based on this direction, and several planning sessions with members and committees, COSTPRO, at a January 1983 meeting of the board, reformed itself into three distinct divisions. Each is designed to be self-sufficient, with major support from the industry itself. The board also directed that arrangements with companies to act as marketing agents for COSTPRO's standard systems could be explored. The objective would be to quickly disseminate the results of COSTPRO's 10 years of research to the Canadian trade community. In return royalties are likely.

New Role

COSTPRO's new role in the private sector will continue to have COSTPRO operate as a non-profit, member-based organization dedicated to the simplification of the information-flow requirements contained in intercompany transactions. The primary objective will be to assist the business community in becoming more productive through the application of business interchange standards and systems, applied to the complex information structures used by companies throughout the world.

COSTPRO's role will be that of a facilitator between business, associations, governments and regulatory agencies for the development, promotion and adoption of worldwide standards that will assist in the effective utilization and communication of information, within and between companies. A particular emphasis will be on how to transfer the effectiveness concepts to Canada's large group of small to medium sized companies.

To perform these functions, COSTPRO will reorganize into three distinct divisions — members services; information/education services; and systems services. The members services division will act as a problem definition/resolution unit. Through committees, research studies, field trials and negotiations, this unit will concentrate on resolving problems and developing standards that will simplify the interchange of business documentation. The education division will concentrate on publications, seminars and information dissemination.

The systems services division will offer consulting services and custom installations of COSTPRO's manual and automated systems. It is expected that this division will utilize Canadian companies that can offer consulting expertise to install and customize COSTPRO's standard systems. COSTPRO hopes to have affiliated consultants across Canada so that local regional consultants can be used by the Canadian trade community. As the number of installations grows, COSTPRO would expect other groups to install various systems with COSTPRO receiving licence and royalty fees from those groups using COSTPRO-developed standard products.

COSTPRO will also actively explore how other Canadian companies or outlets can act as the marketing channels for standard products. In general, these companies would not be involved with customized installations. COSTPRO expects to maintain and update the standards, marketed through these channels.

As COSTPRO adapts its strategies to the needs of the business community in Canada, its future will depend on the willingness and desire of business to improve its productivity through effective interchange of business data.

COSTPRO expects to become a dominant influence in assisting in information-flow productivity improvements and in promoting Canadian achievements in this area.

The goals and objectives of COSTPRO are important to Canadian companies. Assistance through membership committees, and a direct involvement in new research areas can offer Canada a head-start in worldwide business interchange systems, and a strong influential role in setting standards with operational requirements as a key component.

**COSTPRO can be contacted at:
151 Sparks Street, Suite 302
Ottawa, Ontario
K1P 5E3
Tel: (613) 234-4333**

Unique Technology Niche: World Market Behind Fathom's Success

Product diversification, quality production and export markets add up to a strong balance sheet and a bright future for Fathom Oceanology Limited.



Streamlined underwater towed vehicle from Fathom.

"Solving problems in depth" has become the slogan of Fathom Oceanology Limited which, since its founding in 1968, is looking nowhere but up.

The equipment and skills of the Mississauga, Ontario, company are oriented to the ocean environment in both commercial and defence applications — on ships, submarines, submersibles and offshore oil platforms, and in the form of sophisticated microprocessor-based instruments used to evaluate, monitor and survey the water column of the ocean.

The founding of the company was based on the application of underwater engineering to the development and manufacture of towing systems for the Canadian navy for use in anti-submarine warfare and mine countermeasures. The company then expanded this technology to suit the needs of "small ships" navies, the offshore oil and gas exploration industry and the scientific ocean-study community.

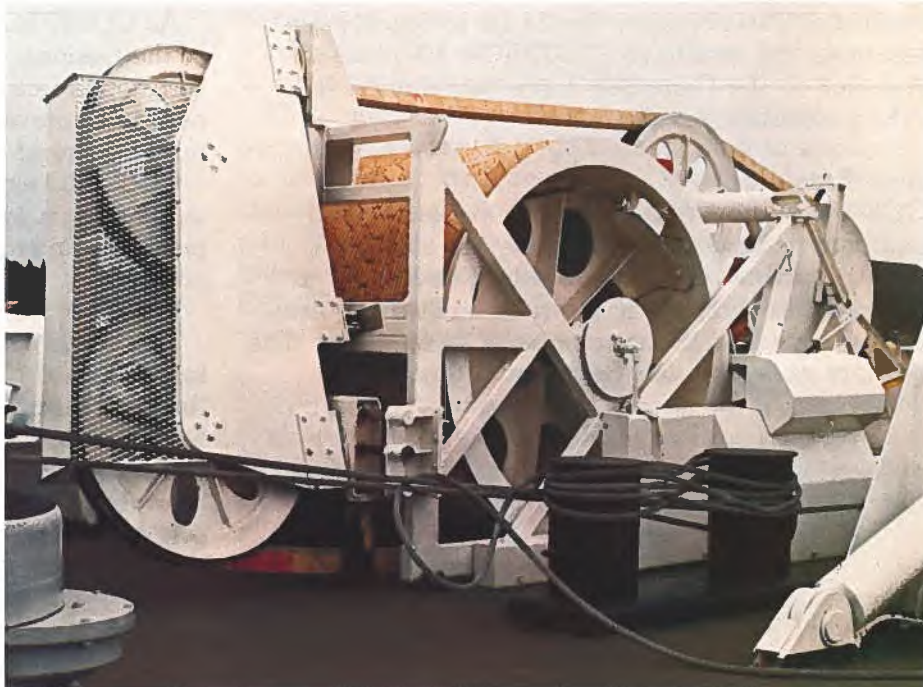
The period from 1970 to 1975 was one of intense research and development, an activity which received federal support through the Defence Industry Productivity Program (DIPP), the Program for the Advancement of Industrial Technology (PAIT) and the program of grants under the Industrial Research and Development Incentives Act (IRDIA). (PAIT and IRDIA have since been absorbed by the Enterprise Development Program (EDP) administered by Industry, Trade and Commerce/Regional Economic Expansion (ITC/REE); DIPP is another of the department's current programs.)

In 1976 the decision was made to broaden the company's markets and product base. By utilizing the tech-

nology of faired cables — the cornerstone for towing systems — giant fairings for pipes and drill risers were developed and successfully sold to several Texas-based offshore drilling companies. Following the entry into this market, other associated developments were triggered. The company has continued its work in this area, and today Fathom maintains a worldwide leadership position for the design and applications of underwater towing systems, towed bodies and fairings.

"Fathom's success, however, is attributed to its unique market niche — the ability to develop, custom-design and manufacture variable depth sonar (VDS) handling systems for shipboard applications, and to the specifications of the navies of the world," says Gene Kottick, Manager of Corporate Services.

The company's engineers have a diversity of skills for this market: hydrodynamic, electronic, oceanographic, electrical, mechanical, structural, chemical, hydraulic, and acoustical. Stress analysis, corrosion analysis and an overall understanding of the vagaries of the sea under various conditions also influence the



POWERPULL™ oceanographic winch designed and manufactured by Fathom.



Fathom's PIPESTREAM™ fairing for marine drill risers.

company's design output, as well as modelling and testing in tow tanks and wind tunnels.

Fathom's manufacturing facility is set up for project-oriented work as opposed to mass production. Because the volume of products is low, inventory control and material savings on quantity purchases are not factors to be considered. What is important is the ability to accurately forecast the cost and time element of projects and to eliminate the guesswork.

To achieve this, a capital expenditure program has been launched to increase the number of numeric-control and computer-numeric-control machines, with increased productivity and greater assured quality as anticipated extras. The company's commitment to an ongoing improvement in facilities will ensure its competitive position in a world market where quality control to the most rigid of defence standards is of vital importance.

Another move to secure Fathom's future has been the acquisition, during the last two years, of three companies which complement the Mississauga operations.

Almondbury Ltd. of Britain is an engineering and consulting company whose contributions to Fathom in the areas of microprocessor-based controls, control software development, mathematical modelling to determine hydrodynamic stability, and project management have enabled the company to broaden its overall systems capability.

Data Industries Inc. of Middletown, Rhode Island, U.S., was purchased last April. Its contribution is a design, development, prototype-manufacturing and testing capability for specialized test equipment for submarines, surface ships, airborne data systems, oceanographic instruments, and water-quality and current-measuring sensors for the military and commercial ocean markets.

AIS Ltd. of Dartmouth, N.S., (since renamed Fathom Atlantic Limited), specializes in the maintenance, repair and calibration of electronic and mechanical instruments for various industries. Fathom recognized in AIS the opportunity to expand its activities in Atlantic Canada where it will serve the military and scientific communities and be in a position to satisfy the needs of the developing offshore oil and gas industry.

In its efforts to sustain aggressive marketing around the world, Fathom welcomes the support it receives from the ITC/REE Program for Export Market Development (PEMD). The program covers 50 per cent of the costs of export marketing trips and attendance at recognized trade fairs. The ongoing PEMD grants, which are repayable in the event that sales are generated from the areas visited, continue to help the company win orders in an increasingly competitive world market.

Two orders won as a result of marketing efforts supported by PEMD and DIPP were a Swedish Royal Navy contract for two VDS systems valued at \$1,800,000; and a joint venture of the Federal Republic of Germany and Canada for a "deep-tow" system, which involved Fathom and a West German company.

To keep pace with increased orders, the company moved last August to a new facility containing 1,020 m² (11,000 sq. ft.) of office space and 3,810 m² (41,000 sq. ft.) of manufacturing space. At the same time, it took advantage of another DIPP grant for capital assistance which was available to qualified suppliers of defence or defence-related products.

Thriving in the international marketplace, its products used in all seven seas, its marketing and manufacturing facilities in operation in three locations on two continents, and benefiting from sales representatives in all maritime countries, Fathom is looking nowhere but up.

"Marketing High Tech" was one of the more popular seminar topics at the recent Ottawa High Technology Show (Canada Commerce, December/January '82/'83). This well-attended seminar, reported here, is of interest not only to the micro-electronics industry to which it was primarily addressed but also to a wide spectrum of the business community.

Marketing is a Commitment

Peter Lawrence, President, Landspan Group of Companies, and a major consultant to a large number of high tech firms in Canada, claims that Canadian lack an aggressive, well organized hustle in the field of marketing to complement their skills as entrepreneurs and financiers.

Addressing the recent Ottawa High Technology Show, Lawrence warned that marketing was not synonymous with selling and that the firm that put all its emphasis on sales without regard to the other facets of marketing would be among those which would not be in business for long.

"Marketing is satisfying customers' needs from all aspects. Sales is the actual point at which the customer pays for his goods," Lawrence continued.

"The whole process of marketing begins and ends with the customer. It begins with his needs and demands and ends only when he is fully satisfied."

Using charts he outlined the process of marketing as composed of several well defined steps:

- Market Research and Analysis — an attempt to listen to market needs. The information thus produced controls your evolving strategies and product mix. In other words, don't sell what you can make but only what you can sell.
- The designs are evolved and produce the early blueprint of the product or service.
- A make-test-adjust cycle now follows including redefining the product with the market research groups.

- A promotion program is undertaken to complement the market research findings and to dovetail with the overall strategy that is taking place.
- Distribution channels must be defined, for example, direct sales, original equipment manufacturers, distributors, etc., and these channels must be directly related to your overall strategy.
- The follow-up is to ensure satisfaction on delivery, service, operations and fulfillment of the customers need. This also acts as your market intelligence for the improvement to product or the next product generation.

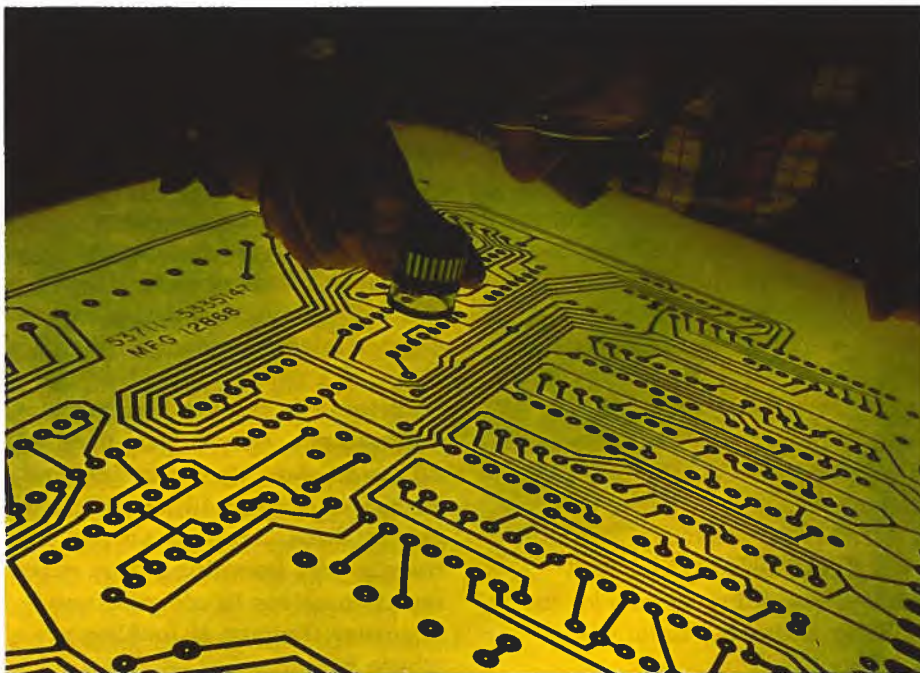
Marketing Philosophy

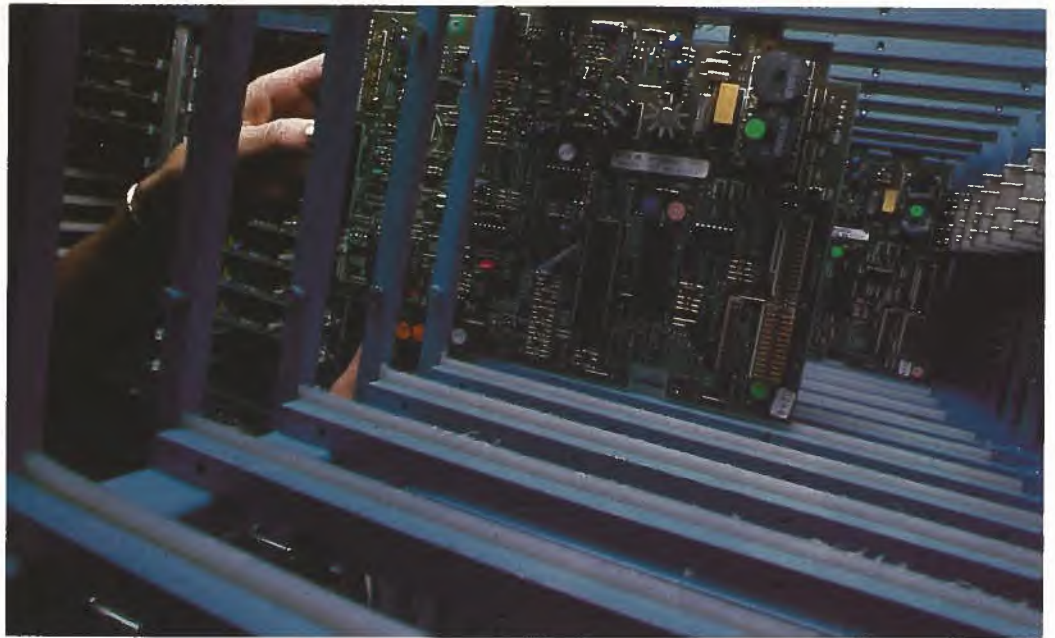
Having defined in general terms the complete range of marketing functions, Mr. Lawrence then discussed marketing philosophy. He advised his audience to look past the immediate technology and product of their business and look towards the generic activity that their industry addressed.

He gave as an example the railroad industry that in its early days was under the impression that its business was railroads. In fact those that survived realized early that their business was transportation. This failure to properly define a company's product is referred to as "Marketing Myopia".

To free itself of this problem, the successful business must not fall in love with its particular technology or product. It must learn to think of itself, not as producing goods and services but as buying customers . . . as doing the things that will make people want to do business with it.

The successful business must think of itself not as producing goods and services but as buying customers — doing things that will make people want to do business with it.





The chief executive has the responsibility for creating the environment, the attitude, the viewpoint, the aspiration, that set the company style, its direction and goals.

This means that the chief must know precisely where he or she is going, and make sure the whole organization is enthusiastically aware of where that is. This is a first requisite of leadership, for unless the company knows where it is going, any road will take it there, and there is little need for a figurehead at the top. The firm's customers will soon know it and react accordingly.

Thus, the first objective within the marketing framework is to focus upon and define objectives to establish priorities. It is most important to understand that a company is in business to satisfy a need, not to make products.

By qualifying the direction, generally well achieved by the Canadian hi-tech community, it then becomes a matter of strategy and planned marketing functions.

High technology firms need a comprehensive framework of analytical techniques to help clarify the industry as a whole and more importantly to predict the industry's future evolution.

These techniques are needed to understand the competitor's position so that it can be translated into a competitive strategy.

If there is a strategy, has it been developed explicitly through a planning process, or evolved implicitly through activities of the firm's various operational groups? A systematic analysis is required to define the firm's approach and strategy.

Mr. Lawrence outlined three strategies which can be used separately or in a combined way to approach a marketing program — cost leadership, differentiation and focus. Implementation of any of these requires total commitment and supporting organizational agreements.

To establish **cost leadership** a firm must undertake a vigorous cost

reduction program by instituting a tight cost and overhead control; by avoiding marginal customer accounts; and minimizing costs on R&D, service, sales, etc. — all in the pursuit of efficiency. But Mr. Lawrence stressed that quality and service cannot be ignored.

The cost leadership approach will produce an above average return in a strong competitive industry, provide a defence against rivalry both from competitors and powerful buyers and sellers who wish to put a firm in a squeeze position. It also provides a barrier against others entering the firm's field of endeavor.





This strategy has a wide market appeal and promises to be profitable due to the size of market.

The **differentiation** approach to marketing suggests that industry wide it is considered unique. Images of differentiation include: design or brand name — Rolls Royce-Heinz Ketchup; technology — Hughes-Coleman; features — Mitel switches; customer service — Maytag; dealer network — Ford-Macdonalds. Of course, some of these companies count on more than one image which ideally differentiates the firm in several dimensions thereby creating a stronger position in the market.

This in turn provides the firm with customer brand loyalty and low sensitivity against price. It increases profit margins, deters the competition and protects against supplier power. Used alone, of course, it does not provide a large share of the market. It is, however, a viable strategy for the quality products in the high tech markets.

The **focus** strategy rests on the premise that the firm is in the position to serve a narrow segment of the market more effectively or more efficiently than competitors who are after the broader market. The firm thus has lower costs for its particular targeted market.

Each of these strategies in its own way allows a firm to cope with the five competitive forces exerted upon

it — rivalry, powerful buyers, powerful sellers, entry by potentials and substitutes.

Having established a marketing strategy, officers of a firm must decide whether they have the capability to undertake the full range of the marketing activity. Is the investment a valid one? Does the firm have qualified and capable people?

For the most part, high technology firms have grown out of the entrepreneurial spirit — following research and development of new products and raising the necessary capital to finance. To reap the full benefit of their efforts, according to Peter Lawrence, they must either develop the wide range of marketing skills in-house or contract the work out to specialists such as trading houses. This is of particular importance if the marketing strategy includes sales to overseas markets.

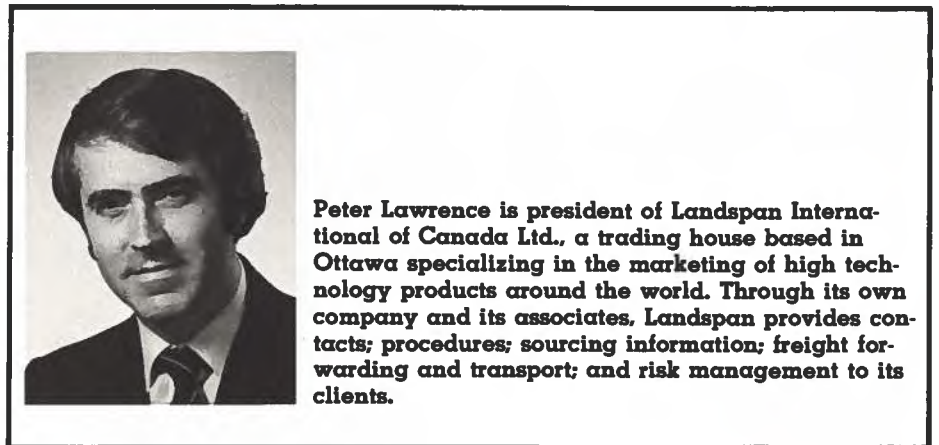
Since the Canadian market for high tech products is relatively limited, firms should always consider the world as a market. By establishing a niche in this market they arrive at economies of scale much more quickly and this is important in rapidly changing technology.

Because such a move entails a whole new set of operating conditions from customs to intermodal transportation, most small to medium sized firms farm out many of these functions to outside experts.

While Canadian firms face worldwide competition in export markets, they also have a number of advantages: Canada does not appear as a super power to the Third World and is not resented; Canadians are highly accepted because of our cultural heritage and multilingual background since this provides a built-in knowledge and appreciation of conditions in foreign countries.

While it is possible to turn over the marketing function entirely to outside consultants, Peter Lawrence concluded, a combination of outside and in-house development of the necessary expertise is advisable.

The capabilities that a firm should look for whether in-house or outside are: technical awareness, track record, international connections and associates and sales capabilities. A company's success in marketing will to a large degree determine whether or not it will be in business next year or the year after.



Peter Lawrence is president of Landspan International of Canada Ltd., a trading house based in Ottawa specializing in the marketing of high technology products around the world. Through its own company and its associates, Landspan provides contacts; procedures; sourcing information; freight forwarding and transport; and risk management to its clients.



Portable computer terminal designed by scholarship graduate and now marketed commercially.

Design is a major factor in creating products that sell! Since selling products both at home and abroad is of vital importance to Canada, it follows that anything Canadians can do to develop design capabilities deserves a good hard look. As it happens, this country is one of the few nations in the world with a comprehensive government-sponsored design scholarship program — one that is being watched with considerable interest by other countries.

Scholarships with Designs on Canada's Economy

Design is a verb, not a noun! (Don't rush to the dictionary, please, where you will doubtless find both definitions.)

Design is a function that, along with a number of others, creates an end-product to achieve certain objectives — it is not an end-product in itself.

This represents the philosophy of Design Canada of the Department of Industry, Trade and Commerce and Regional Economic Expansion (IT&C/REE) in talking about the Design Canada Scholarships Program.

According to Design Canada, products are purchased on the basis of many factors which tend to differ from culture to culture, society to society, and from market group to market group within each culture and society. These factors include such items as price, performance, reliability, status, ease and cost of maintenance, availability of parts, appearance (colour, size, shape, style, etc.), uniqueness, novelty, satisfaction of physical needs.

To ensure that designers, developers and promoters of Canadian products are made aware of, and

are capable of satisfying, these requirements, the Design Canada Scholarships Program was instituted some 20 years ago.

It has as its objectives:

- To assist in the growth and maintenance of a healthy Canadian economy;
- To improve the competitive position of Canadian products in both domestic and world markets by improving the design capabilities of Canadian designers and the awareness and understanding of them by related professionals;
- To encourage a high standard of excellence in Canadian schools teaching design and related subjects.

Emphasis is on the design of industrially mass-produced products and in the improvement of design and other related skills necessary for their development and sale.

As a Design Canada official has put it, the whole idea is to help improve Canada's economy by developing Canadian design capability to create products that sell.

The program, which is open to Canadian citizens, is specifically directed to "upgrading the essential

capabilities of Canadian designers and related professionals by providing financial assistance to the most appropriate applicants to help them pursue further studies relating to design." It is essentially focused on post-graduate education.

Scholarships are offered to qualified individuals to pursue advanced education at the best schools available. Conditions for eligibility are stringent and applicants must first be accepted by an appropriate accredited school. Material is submitted by applicants to a highly selective and independent jury.

According to an official brochure, scholarships are available "to industrial interior and graphic designers for advanced studies in design, business, engineering or education. Applications will also be considered from graduates with degrees from other disciplines (e.g. business,



A feeding aid for victims of cerebral palsy designed by scholarship graduate.

engineering and architecture) for study in industrial design *only*." Eligible areas of study include advanced study in industrial design, product design, furniture design, textile design, interior design, graphic design, business, engineering, education (teaching).

Scholarships are adjudicated and awarded by the independent jury on the basis of:

A submitted portfolio or slide presentation for evidence of:

- creativity, logic and practicality of design;
- logical presentation of information and visual material;
- how much an applicant might benefit from further study and how much Canada might benefit as a result.

Documentation that includes:

- previous achievements;
- appropriate planned program of study and academic level;
- potential impact of the applicant's program of study on the improvement of design in Canada.



Freezer containers designed by scholarship graduate and now marketed commercially.

The whole idea behind the Design Canada scholarship program is to improve the country's economy by developing the Canadian design capability to create mass-produced products that sell. It is essentially focused on post-graduate education.



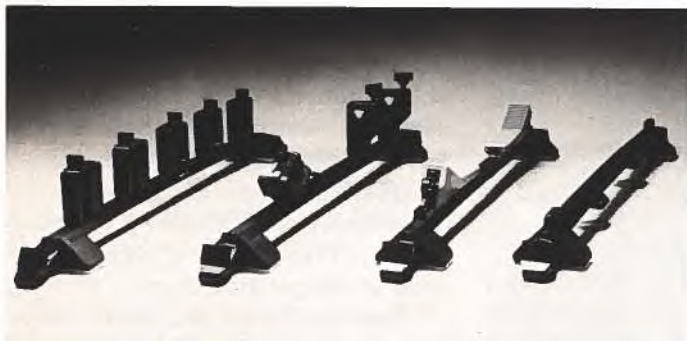
Sturdy, protective hockey helmets designed by scholarship graduate and now marketed commercially.

The scholarship program was begun in 1962 and was combined with Design Canada's grants program until 1972 when it split off on its own. In 1979 design-related programs were made available to scholarship winners (i.e. the education, engineering and relevant business programs). The philosophy was that, since nothing operates in isolation, such a program would permit a designer to contribute more effectively to a client's goals if he or she was more fully aware of the problems and perspectives of the business community.

Benefits over the years have been many. Graduates have designed successful, competitive products ranging from X-ray, farm and sports equipment to office furniture systems. Those now teaching have helped raise design course standards.



Racher paint packaging designed by scholarship graduate.



Cartop racks for skis and many other things designed by scholarship graduate and now marketed commercially.



Cross-country ski bindings designed by scholarship graduate and now marketed commercially.

Up to \$13,000 a year may be given to a student who may take up to three years in study, but the amount must be justified.

From 1962 to 1982, at least 200 students were granted scholarships worth more than \$1,571,000 and it has been estimated that 90 per cent of the current active key industrial designers and many key educators have passed through the scholarship program. Since 1971 at least 10 fully qualified designers have been added to the work force each year and virtually all of the graduates practice in Canada. There were 12 scholarships awarded under the program in 1982.

Benefits over the years have been many. Graduates have designed successful, competitive products ranging from X-ray, farm and sports equipment to office furniture systems. Many have turned to teaching and are directly responsible for raising the standards of Canadian design courses.

They can be found in industry, in design offices as consultants or as design entrepreneurs, as part or full-time educators, in federal or provincial governments and some have talents being sought abroad.

Canada is one of the few nations in the world with a comprehensive government-sponsored design schol-

arship program and it is being watched with considerable interest by other countries.

The whole idea of design, as proposed by Design Canada, is to produce something that is marketable — it is not design for the sake of design, according to S.R. (Ron) Hacker, registrar of the program.

He gives the example of a drill bit. A bit, he said, is produced to do a specific job and neither industrial design nor aesthetics have anything to do with it — it is a purely engineering solution to the specific problem. However, industrial design, packaging design, aesthetics, etc., are significant where marketing, ego, status (among others) are major factors along with performance.

This harks back to the philosophy that design is a function, not an end-product and to the further criterion that design must enhance the economic competitiveness of the product.

Once established in industry, in entrepreneurial pursuits or in design education, scholarship graduates are "contributing to the improvement of the Canadian economy and the 'quality of life' and that's what this program is all about," concludes Ron Hacker.

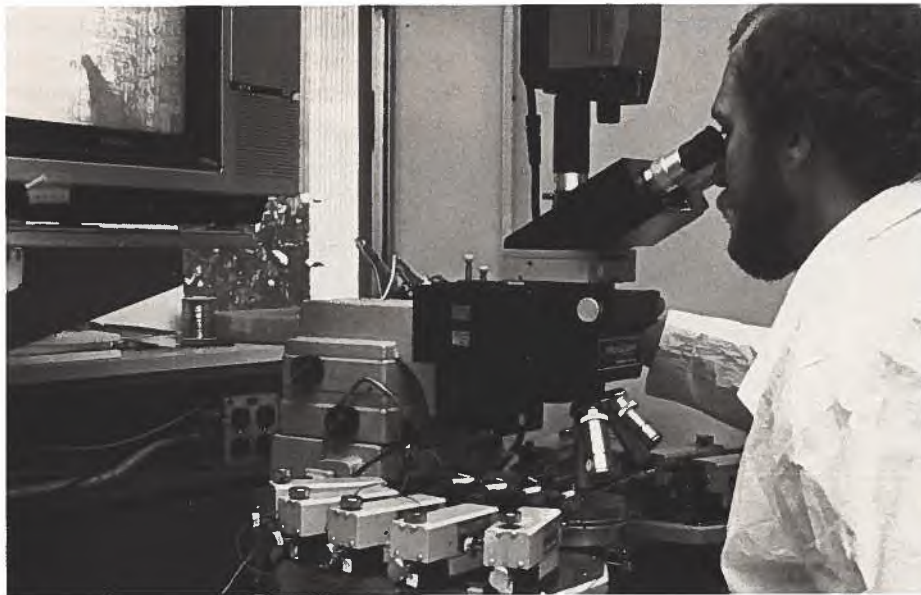
For further information, contact:
S. Ronald Hacker
Design Canada (62)
Department of Industry, Trade and
Commerce and Regional Economic
Expansion

110 O'Connor Street, 5th Floor
 Ottawa, Ontario
 K1A 0H5
 Tel: (613) 992-4494

With the growing importance of microelectronics and advanced technology, the need for Canadian-developed integrated circuits becomes increasingly apparent. The following article describes a facility for research and development as well as production of such circuits, primarily for telecommunications, being established in British Columbia for use not only by its owner but by other Canadian manufacturers.

Microtel is in the Chips (micro chips, that is)

by R.M. (Bob) Shaw
IT&C/REE Regional Office, Vancouver



Testing circuitry at the Chip Centre of Microtel is a vital function.

In one of the world's most modern laboratories now nearing completion in a \$10 million building on the campus of Simon Fraser University in suburban Vancouver, B.C., Microtel Pacific Research (MPR) is already producing custom large-scale integrated and very-large-scale integrated microelectronic circuits for use in telecommunication equipment.

This equipment will be manufactured by Microtel's parent company, AEL Microtel Ltd. It will also be used by other firms in British Columbia and throughout Canada to design custom microcircuits for specific requirements.

This superb new facility, put together with the help of a \$3.3 million contract under the Defence Industry Productivity Program (DIPP) of the Department of Industry, Trade and Commerce and Regional Economic Expansion (IT&C/REE), makes possible the designing, packaging and testing of large-scale integrated circuits. The company's investment in the project is on the order of \$7 million and it is expected that up to 800 new jobs will be created.

This is the latest step in an electronics revolution which began when the vacuum tube was replaced by the transistor developed by Bell

Telephone Labs in 1947. The transistor meant people could carry a radio in the palm of their hands and computer manufacturers could pack a lot more circuitry in substantially less space.

A decade later, the transistor itself became outdated with the development of a radical new invention, integrated circuitry on a tiny piece of silicon which soon became known as "the chip". The chip, performing the function of hundreds of transistors, became the catalyst in a wave of technological developments and today very-large-scale integrated chips contain hundreds of thousands of components.

Paul Thiel, manager, Component Technology and Development at the new Centre, is optimistic about the future of chips. "The new Chip Centre will allow us to work faster and better because we can design our own chips to specification without having to wait in line," he said.

The average chip would normally take about one year to design at a cost of \$40,000 to \$200,000 or more, whereas MPR will now be able to process more than 100 designs a year at an average cost of \$25,000 per chip. This volume is adequate for Microtel's present needs and the MPR facility will also be available to outside organizations to design their chips.

"There are only a few such operations even started in North America today," Thiel points out. "We will be using computer-aided design technology developed by Carver Mead at the California Institute of Technology to design in state-of-the-art integrated circuit (IC) process technology."

Computer-aided design means designers no longer need to draft each individual circuit pattern but can program the required functions of the chip-in-progress into a computer which then does most of the "thinking".

The software to make this possible for MPR was designed by employee Warren Snyder, computer architecture and IC design engineer. The system is tried and true, according to Thiel.

The methods being employed mean MPR will be able to train its own people and some outside company representatives in the design process. The immediate objective once the centre is operative, in 1983, is to train 40 to 50 people to design chips over the next year.

The centre is designed with an eye on adaptability. "If required we can easily switch over to design using other technologies such as gallium arsenide or Josephson circuits," Thiel says. "Our goal is to be as flexible as possible.

"Flexibility translates into responsiveness to our designers' needs and our responsiveness is what high technology is all about."

All this exciting potential dates to early 1980 when five men met at MPR's office in Burnaby, B.C., to discuss a unique assignment.

The men — Thiel, Gordon Foy, John Yuan, Barry Legreseley and Larry Rhodes — had just been appointed Building Project Committee. Their assignment: to develop a complete floor plan for the MPR research facility.

None of them had any background in architecture or structural design, but they were among the best equipped to understand the probable needs of MPR, not just in the '80s but into the '90s and beyond.

The chosen site was an unmarked two-acres of land on the slopes of Burnaby Mountain, among the trees just below the Simon Fraser University buildings in the 30-hectare (74-acre) SFU Discovery Park.



Lower costs for TELIDON will be effected by the application of very large scale integrated circuitry technology by Microtel subsidiary Viscount Industries.

The ideal telecommunications lab would be a windowless steel box built on low land, preferably underground. This would shield the labs from the high degree of electromagnetic interference (EMI) so prevalent in urban centres like Vancouver.

As the floor plan took shape, one of the main features to emerge was the large central open area now known as the Atrium. This is the central traffic flow point containing the cafeteria, medical centre, conference rooms and a staff lounge.

It would also be the only way to open the interior of the building to natural light on all floors while still keeping within design restrictions of a low, square structure.

"Natural light was important to us, because it's much healthier to work in," explains Larry Rhodes, who was building project manager. "However, this created tremendous problems because every window is like a large "leak" allowing in outside electrical interference.

Rhodes and John White began research to design a system which would actually enclose the entire building in a steel "sheath" while still allowing a high degree of natural light.

The ceiling and floors are of structural steel connected at the edges to galvanized sheet metal in the solid wall surfaces. The system, which had never been tried in a similar structure before, will even-

tually be sealed by installing fine wire mesh over all the windows. The mesh will allow in 90 per cent of the outside light but will block out the interference.

The chip centre posed its own set of design challenges. When designing microscopic circuits for computer chips, tiny dust particles in the area can become very large problems. Work in the chip centre demands an atmosphere that is virtually free of particulate matter, hence the name "clean room".

The system, now nearing completion, is a Class 100 Clean Room limiting particulate matter in the air to not more than 100,000 particles greater than a half-micron per cubic foot of air.

This is how Microtel is in the chips. It is another indication of the federal government's ongoing effort to promote the use of microelectronics and other advanced technologies by Canadian industry.

Already the new Microtel facility is being put to use to aid the rest of the industry. For the first time a Canadian university can offer a Mead and Conway style very-large-scale integration circuit system design course with project prototype parts.

The course is available to digital and analog design instructors, engineers, or managers interested in the potential of IC design using structured procedural design techniques.

With many economists now saying that the worst of the current economic recession has passed and that an upturn has already started, it is time for the business managers to be looking to the recovery problems their companies will face. This is the message the Federal Business Development Bank (FBDB) is giving in the following article.

Getting Ready for Recovery



During the present economic recession most small businesses learned the lessons of management for survival in time to apply them. They cut their costs, reduced their debt, became more productive, and took the other measures necessary to see them through the recession.

But the recession won't last forever. Many forecasters are already saying the worst is over and business conditions will soon improve. Staying lean and cost-effective is still vitally necessary but now it need no longer be the only objective of management.

With recovery in sight, managers of small businesses should be planning how to make the most of it. There is far more to this than simply being prepared to accommodate a larger volume of business as markets regain pre-recession levels.

Management for recovery also means aggressively pursuing new sources of business.

An economy doesn't automatically begin to expand once it has ceased to contract. Expansion has to be actively stimulated by enlarging and renovating production facilities, by cultivating new markets, by introducing new products and by intensifying price competition — all of which require careful advance planning.

The small business community can help lead the way to recovery if owners and managers prepare for it now. Their starting point should be a careful analysis of their businesses in the light of their recession experience.

Such an analysis should cover every aspect of the business and should be directed initially towards

identifying its strengths and weaknesses. Measures can then be devised which will enhance the former and correct the latter.

The ultimate objective of the analysis is to put the business in the best possible position to contribute to and benefit from the improvement in the economic climate.

The economy we'll have coming out of recession will not be the same as the economy we had going into recession. Inflation, for example, will have been substantially reduced and this will have far-reaching implications for consumer preferences. The population will have further aged. New products are waiting for the right time to be launched. The introduction of new production processes will change competitive relationships.

Planning to make the most of recovery can't be done in isolation. It must anticipate extensive changes in the character of the economy as a whole and how these might bear on future markets for products and services. It's not enough for a business to be able to adapt to change. Ways must be found to profit by it. That's how a business grows.

Managers should look long and hard at the objectives of their businesses. Are those objectives valid now? Will they still be valid two or three years from now? A retailer may want to stay with a particular line of merchandise and, if his surveys indicate an expanding demand for it, he should be planning now for ways to increase his market share. But supposing his surveys show demand is contracting. Now is the time to look for new lines, whatever his personal preferences may be.

So it is with manufacturers. The products which they produce may not be the products their customers want as the economy comes out of recession. If so, they should be looking for new ways to employ their facilities. But if their surveys indicate a strengthening demand, they should be planning how they can finance increased production.

Professional market surveys can be costly for a small business. But if



owners and managers stay closely in touch with their customers, if they are responsive to their customers' changing preferences, they'll be aware of how their markets might be changing in time to make the appropriate adjustments.

The thrust of management for survival was essentially towards retrenchment. The thrust of management for recovery is essentially towards expansion. Is there a specialized segment of the market that a small business might serve if it had the facilities? Now is the time to plan how to obtain those facilities. That probably means new financing. The small business may not yet be able to make the move but at least it can open talks with its bankers.

Marketing in time of recession is not usually the same as marketing in a time of recovery. One difference is that in time of recovery, a business can often afford to offer better credit terms to its customers. Marketing strategies, like all other strategies, need to be adjusted to changing economic conditions.

What about pricing and distribution? These are part of marketing strategy too. What changes might be indicated in these areas by the prospect of improved conditions? When is the best time to implement them?

Part of management for survival is keeping inventories to a minimum. But management for recovery should include weighing the benefits of rebuilding inventory against the possibility of increases in demand. Other considerations aside, can inventory be increased without also increasing the labor force?

A disadvantage of management for survival is that the manager's

pre-occupation with current problems tends to obscure potential opportunities. If a small business has survived recession, it's because those current problems — excessive costs, absence of liquidity, insufficient productivity and the like — have largely been resolved. But management continues to be pre-occupied with them.

Management for recovery implies a mental shifting of gears, from worrying about survival to being able to pursue new opportunities for growth. The cost-effectiveness achieved during recession must be retained but now it can be complemented by planning for a more profitable future.

That is why the starting point in positioning a business for recovery should be a searching analysis of the business in all its aspects. If the analysis is done objectively, it serves to break down that pre-occupation with present problems and open the way to new insights about the direction the business should go. At the same time, it helps establish a solid base from which to plan the best way to proceed.



Western Australia is being considered with growing interest as a potential area for investment. In this article, the second in a series specially prepared for Canada Commerce, the state's resource energy exploration and expansion programs and policies are studied with a view to the possibility of Canadians becoming involved.

Petroleum Potential of Western Australia

Straddling one-third of the Australian continent — bigger than British Columbia, Alberta, Saskatchewan, New Brunswick, Nova Scotia and Prince Edward Island combined — Western Australia is a resource energy-rich giant.

In addition to massive mineral reserves which rank Western Australia as a major world supplier of iron ore, nickel, bauxite and mineral sands, the state is moving towards being a net exporter of energy.

With a small population of just over 1 million people, of which more than 70 per cent live in the metropolitan area of Perth, the capital, Western Australia is of necessity export oriented.

Reflecting the world's depressed demand for raw materials, resource

development in the area is going through a relatively quiet period. Nevertheless, petroleum exploration activity this year will be the highest on record both onshore and offshore.

As the world emerges from the current recession, Western Australian energy is seen as the catalyst for attracting new resource developments, industries and specialised manufacturing and services to the state.

Canadian involvement in current petroleum exploration and development in Western Australia has been growing, particularly over the past two years. Canadian firms already established in Perth are C.N.W.; OCELOT; HOME; DIGISEIS; ATCO; SIMMONS; to name only a few.

In the oil patch, Perth is often

called the "Houston" of the south reflecting not only the growth of petroleum related activity in the state but the use of Perth by a number of companies as their regional headquarters for Southeast Asia.

History

Petroleum exploration in Western Australia began over 70 years ago with some shallow wells on the south coast. Sporadic activity followed until 1952 when West Australian Petroleum Pty Ltd started the first large scale sophisticated exploration program.

Wapet's first hole in the Carnarvon Basin struck oil, but then followed 11 lean years until the state's first commercial oil find was made at Barrow Island.

Since that time, 1,166 wells associated with petroleum exploration and production have been drilled both onshore and offshore. More than half of these are in what is known as the Barrow Island Field. This is a tiny number by comparison with Canadian experience but, with a success rate of one in five, exploration is highly attractive and considered well worthwhile by most of the world's major companies.

Canadian companies holding acreage in the state include Alberta Eastern Gas, Asamera, Chieftan, C.N.W., Home Oil, Marnville, Medcon, Northgate, PanCanadian, Reyto, Star Oil, Sulpetro and Voyager.

Exploration Permits

All of the prospective sedimentary basins of Western Australia are open to petroleum exploration.

The onshore permits are controlled wholly by the state, whereas the offshore petroleum legislation is administered by the state under a joint agreement with the Australian federal government.

Under the terms of the Petroleum (Submerged Lands) Act 1967, offshore permits may cover no more than 400 blocks. (A block comprises an area of five minutes of latitude and five minutes of longitude giving an average permit area for 400 blocks of about 31,500 km².) The initial period of tenure for each per-



Shore end of underwater gas pipeline joining offshore production platform with onshore treatment plant for Australia's North West Shelf gas fields.



Pipe-laying vessels laying underwater pipeline to bring gas from Australia's North West Shelf gas fields to shore.

mit is six years, at the end of which 50 per cent of the area must be relinquished, with 50 per cent relinquishment of the remainder after each succeeding five-year period.

The onshore areas are controlled by the Petroleum Act 1967. Permits may cover no more than 200 blocks (about 15,500 km²). After the initial tenure of five years, 25 per cent of the permit must be relinquished with further 25 per cent relinquishments of the original area after each succeeding five years.

A permit application must be accompanied by details of the minimum amount of work (drilling, seismic, studies, etc.) and expenditure on a yearly basis that the applicant is prepared to commit. In this respect the application is competitive. Since no front-end or production bonuses are permitted, it must compete, among other things, with work programs submitted by other applicants.

Applications must also be accompanied by the technical qualifications of the applicant and its employees, together with technical advice and financial resources available to the applicant.

It is recognised that modifications to work programs may be necessary over the permit period and rescheduling of work and expenditure commitments are allowed by the relevant government authority.

After making a commercial discovery the successful explorer must nominate a "discovery block". This plus (in the simplest case) the eight surrounding blocks then form what is known as a "location" which is the first step towards a production licence.

The permittee then has two years in which to select from the "location" those blocks it wants to include in its application for a production licence. If up to five of the nine blocks are chosen a primary production licence is issued and a royalty of 10 per cent of the value of production will apply. If more than the primary entitlement of five blocks are applied for then primary and secondary production licences are issued. A royalty between 11 per cent and 12½ per cent will apply to both licences. The initial grant of licences is for 21 years with conditional rights of renewal for a further 21 years.

The state government is planning the release of new acreage in 1983 probably to coincide with OTC Houston, Texas, U.S., in May. Areas to be made available have been previously explored, then relinquished or surrendered.

Foreign Investment Policy

Under foreign investment guidelines established by the federal government, development and production

of oil and natural gas, from either onshore or offshore, is designated as a "key area". In such areas new enterprises involving foreign investment in excess of \$5 million are generally required to have a minimum 50 per cent Australian equity and voting strength on the board. It is not mandatory for foreign interests to have Australian participation in their petroleum exploration activities. However, the federal government does expect overseas companies to seek Australian participation in those projects that can reasonably be expected to proceed to the development stage.

The foreign investment policy in relation to Australian equity at the development stage has presented some problems to discoveries forced to divest themselves of equity when risks have been successfully taken. Home Energy is currently grappling with these problems over its holdings in the Blina field.

However, there appears to be a growing acceptance by the federal government that the 50 per cent Australian equity rule will have to be flexible particularly when large outlays of capital are required and Australian participants not readily forthcoming.

Oil Pricing

The price of crude oil produced anywhere in Australia is set by the federal government through its customs and excise powers. Since August 1978 all Australian crude has been priced on import parity — that is the cost of comparable imported crude landed in Australia. The price is set by the government on January 1 and July 1 each year.

As from 1-7-1982 the Import Parity price for indigenous crude is:

Barrow Island Crude \$225.85/kl
(\$35.89/bbl);
Dongara Crude \$210.66/kl
(\$33.48/bbl).

The return to the producer depends on the level of excise applied by the federal government. For new oil fields (i.e. discovered after August 1976) no excise levy is payable.

Current Exploration and Development Activity

In 1982 some \$848 million will be spent in Australia on petroleum exploration, compared with \$455 million the previous year. In Western Australia a minimum of \$750 million is expected to be spent on energy exploration over the next two years.

So far this year 52 exploration wells have been completed, 21 wells are being drilled, involving 16 onshore rigs and nine offshore. Seismic work completed so far this year is in excess of 46,000 km — 15,500 km onshore and more than 30,500 km offshore.

To date the major finds in Western Australia have been offshore gas on the North West Shelf. Here Woodside Petroleum leads a team of five oil/mineral companies (Shell, B.P., California Asiatic and B.H.P.) in the biggest single offshore development in Australia.

There have been three major discoveries — North Rankin, Goodwyn and Angel located about 1,500 km from Perth off the North West Coast. The North Rankin field is now being developed on a phased scheme costing A\$11 billion over the next decade.

The first platform — North Rankin A — is scheduled to start producing gas in 1984 through a 135 km pipeline to a receiver terminal at Dampier. Initially the gas is to be piped to the southwest via a 1,500 km pipeline being constructed by the State Energy Commission of Western Australia.

Negotiations are also in hand to export liquid natural gas (LNG) to Japan from a plant to be built at Dampier. In the face of worldwide economic downturn, LNG sales, originally scheduled to commence in April 1986, have now been put back one year. The final agreement is expected to be reached early in 1983.

A recent announcement that the North West Shelf joint venture agreement may be re-negotiated with some equity taken up by Japanese interests gives credibility to this expectation.

In addition to the gas available from the North West Shelf, the market is currently supplied by 75 mmcf/d from the Dongara Fields. The Woodada field has completed production tests indicating its capacity at 20 mmcf/d for two years.

For Woodada partners and any other subsequent discoverers of major gas resources, the state government has made clear that North West Shelf gas will have priority in the domestic market. Short to mid-term problems with oversupply are expected but major processing of minerals is seen in the long term as a prime market for Western Australia gas.

Another relatively small but significant development underway is the Blina oilfield in the Canning Basin.



Home Oil and Ocelot are involved in development of two wells with a production of 900 to 1,000 bbl/day. The Canning Basin is one of the most prospective areas in Western Australia for liquids and with intense exploration activity in the region.

Government Policy

With both the state and federal governments being influential in regulation control of petroleum, exploration and development, their policies are of key importance. At present the Liberal-Country Party (Lib-C.P.) coalition holds power both federally and in Western Australia with elections at both levels to be held in 1983.

Both Lib-C.P. and Labour, the alternative government, have com-

mitted themselves to policies encouraging exploration and development of petroleum resources. Some changes to taxation and foreign investment regulations could be expected irrespective of which party is successful at federal or state levels.

Services and Supplies

Throughout its 150-year history, the Western Australian economy has been based on the pillars of agriculture and mining. With a small population base, the manufacturing services sector has been geared to meeting these twin needs.

A well equipped and trained secondary and tertiary industry exists but with as yet limited expertise in the petroleum sector. This provides real opportunities for Canadian companies seeking outlets for products and services either through direct supply, manufacture under licence or joint venture arrangements.

In considering the "Perth market", many overseas suppliers are seeing it as a base not of Western Australia plus the rest of Australia but for the wider Southeast Asian market. Cost of living, political stability, quality of labour and lifestyle make Western Australia an attractive location for foreign companies and expatriate staff.

Canadian interest in the state "oil patch" is already high in fact servicing it was one of the prime reasons for the July opening of the Consulate General in Perth.

An example of this interest was response to the recent visit to Perth by a representative of the Canadian Oilfield Manufacturers Association, COMA.

Companies considering a trip to the market should bear in mind Petroleum Technology Australia (PTA 83) will be held in Perth for the second time in November, coinciding with the fifth Australian Oil and Gas Conference. Canadian participation is expected from the federal, Albertan and Nova Scotian governments and COMA.

Employment in Canada's Manufacturing Industries



Over the past decade the major industrialized economies have suffered either decelerating growth or even declines in their manufacturing employment. Canada's experience has been no different although its performance has consistently been superior to most other economies. In Canada there has been significant variation in the performance of the manufacturing industry sectors and between provinces.

Employment in Canadian manufacturing industries reached 1.62 million¹ in 1981 after increasing at an average annual growth rate of 1.02 per cent since 1961. Over the past decade average annual growth decelerated to 0.39 per cent and in four of those years declines in manufacturing employment were recorded.

¹Data utilized are drawn from Statistics Canada catalogue 72-002 which presents results from a survey of firms with 20 or more employees in any month of the year. As such, the data do not include very small firms but do include the vast majority of those employed.

TABLE 1 MANUFACTURING EMPLOYMENT BY PROVINCE

	Value 1981	Average Annual Growth Rate		Percent Change	
		1961-1981	1971-1981	1981	1980
	000's			Percent	
CANADA	1,623.9	1.02	0.39	0.6	-1.8
Newfoundland	17.1	2.41	2.91	5.9	-2.6
Prince Edward Island	2.2	2.25	1.76	-12.5	1.8
Nova Scotia	36.3	1.53	1.56	-0.5	-0.3
New Brunswick	29.7	1.65	0.79	-1.9	4.2
Quebec	453.5	0.31	-0.54	0.5	-2.6
Ontario	818.3	1.11	0.46	1.2	-2.3
Manitoba	47.6	1.21	0.52	-3.1	-1.1
Saskatchewan	16.5	1.73	1.50	2.1	4.2
Alberta	67.4	3.16	3.51	3.4	3.2
British Columbia	133.4	1.75	1.08	-3.2	-0.5

The performance of the individual provinces varied greatly over the period relative to the national performance (Table 1). As expected, Alberta demonstrated the fastest growth rate over each period recording average annual increases of 3.16 per cent and 3.51 per cent over the 1961-1981 and the 1971-1981 periods respectively. The province's 3.4 per cent employment growth in 1981 and its 3.2 per cent growth in 1980 were the second largest in each year.

Perhaps more surprising was that Newfoundland had the second strongest performance over each period with average annual increases of 2.41 and 2.91 per cent respectively. The province's 1981 increase of 5.9 per cent was the largest provincial increase while its 2.6 per cent decline in 1980 was considerably more than the 1.8 per cent national average decline.

Quebec endured the poorest manufacturing employment creation performance over the period. Its 0.32 per cent average annual increase over the 1961-1981 period

was less than one-third that of the national average and its 0.54 per cent average annual decline over the 1971-1981 period represented the only negative provincial growth rate. The level of Quebec's manufacturing employment during the past two years was the lowest since 1964.

Given that Ontario represents 50.4 per cent of Canada's manufacturing employment, it is not surprising that its employment growth was about equal to the national average. The province's manufacturing employment grew at an average annual rate of 1.11 per cent over the 1961-1981 period and at 0.46 per cent over the 1971-1981 period. Over the period as a whole the province increased its dominant role in manufacturing employment from 48.5 per cent in 1961 to 50.4 per cent in 1981. The province's performance over the past two years was mixed with its 1.2 per cent increase in 1981 being twice the national average and its 2.3 per cent decline in 1980 being greater than the national decline.

TABLE 2 MANUFACTURING EMPLOYMENT BY INDUSTRY

	Value 1981	Average Annual Growth Rate		Percent Change	
		1961-1981	1971-1981	1981	1980
	000's			Percent	
Food and Beverages	213.6	0.51	0.56	-0.1	0.2
Tobacco Products	7.6	-1.31	-1.75	0.3	0.1
Rubber Products	27.7	0.88	0.95	2.8	-3.8
Leather Products	23.1	-1.53	-1.95	3.1	-6.4
Textile Products	66.1	-0.03	-1.46	1.2	-1.6
Knitting Mills	18.7	-0.29	-2.19	-7.2	-2.1
Clothing	86.2	0.07	-0.65	1.9	-4.2
Wood Products	87.3	1.27	0.52	-7.0	-6.6
Furniture and Fixtures	37.3	0.98	-1.08	5.1	-3.2
Paper and Allied Industries	126.7	1.22	0.91	1.2	-1.2
Printing and Publishing Ind.	83.4	1.40	1.82	3.0	2.9
Primary Metals Industries	123.7	1.31	0.60	-1.4	4.1
Metal Fabricating Industries	123.3	1.11	-0.05	-3.7	-3.0
Machinery (ex. Electrical)	82.6	2.26	1.69	2.9	-1.1
Transportation Equipment	166.1	1.88	1.15	2.2	-7.8
Electrical Products	120.2	0.64	-0.76	4.2	-0.5
Non-Metallic Mineral Products	47.4	0.61	-0.04	-2.2	-3.1
Petroleum and Coal Products	24.7	2.00	3.50	8.9	2.4
Chemical Products	84.6	1.43	1.91	3.6	1.6
Miscellaneous Manufacturing	72.9	2.08	-0.7	1.2	-0.9
Manufacturing	1,623.9	1.02	0.39	0.6	-1.8

Just as there was considerable variation in performance between provinces there was wide variation in the employment creation performances of the various manufacturing sectors². The fastest employment creating industry over the 1961-1981 period as a whole was the machinery industry (Table 2). Its average annual increase of 2.26 per cent was more than twice that of manufacturing as a whole. As a result of this relatively rapid growth the industry's share of total manufacturing employment rose to 5.1 per cent from 4.0 per cent in 1961. The pace of the industry's employment growth declined considerably over the past decade, with its 1.69 per cent average annual growth rate reported as being the fourth fastest.

²The manufacturing sectors or industries discussed here are the 20 major industrial groups as presented in the Standard Industrial Classification.

Ontario and Quebec together represent 79.9 per cent of this industry's employment with Ontario's 60.5 per cent share dominating. In Ontario it represented the

fourth fastest growing industry and in Quebec it was the fastest growing industry; however, in the case of both provinces the industry's growth rate was below that of the industry at the national level. Unfortunately, due to data confidentiality, data on the sector are not available for any other province. Given the fact that the industry in these two provinces while performing well did not perform at the national average and given that their dominating role was reduced from 92.5 per cent in 1961, it is apparent that the industry has diversified as to provincial origins and is growing very quickly in those other provinces.

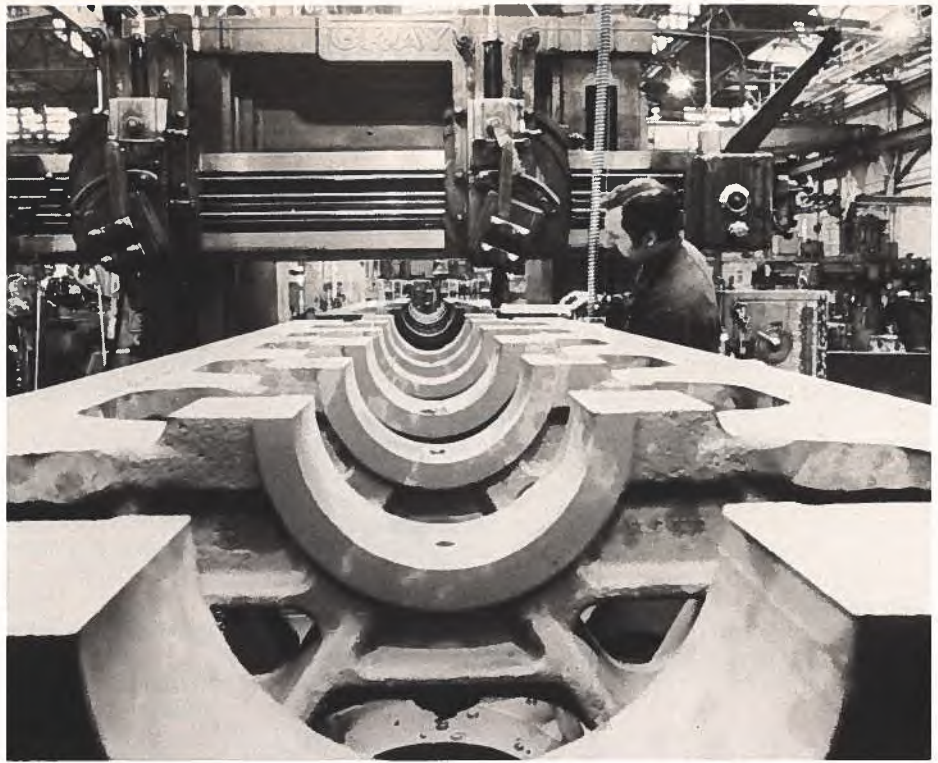
The poorest employment creation record was held by the leather products industry which had an average annual employment decline of 1.53 per cent. As a result of this decline the industry's share of total manufacturing employment declined to 1.4 per cent in 1981 from 2.4 per cent in 1961. The industry's performance over the past two years was mixed with its 1981 increase of 3.1 per cent being one of the largest and its 6.4 per cent decline in 1980 being the second most severe. Together Ontario and Quebec accounted for 95.2 per cent of the leather industry's employment in 1981 with Ontario accounting for 54.1 per cent. With an average



annual growth in employment of -0.76 per cent in Ontario the industry was the province's second worst performer, after knitting mills, but it declined at only one-half the rate of the national industry. The situation was worse in Quebec where the industry declined at an average annual rate of 2.4 per cent representing the province's worst performing industry and a rate considerably poorer than the national average.

The food and beverages industry was the largest in 1981 and the most diversified as to provincial employment. The industry as a whole employed 213.6 thousand in 1981 after having grown at an average annual rate of 0.51 per cent over the 1961-1981 period. Most of this growth took place in the 1971-1981 period when the average annual increase was 0.56 per cent, which was higher than that of manufacturing as a whole.

Data are available for every province with the exception of Prince Edward Island. Ontario had the largest share in 1981 at 37.8 per cent, followed by Quebec 24.0 per cent, British Columbia 8.6 per cent, Alberta 7.2 per cent, Nova Scotia 5.4 per cent, Newfoundland 5.1 per cent, New Brunswick 4.9 per cent, Manitoba 4.2 per cent and Saskatchewan 2.2 per



cent. The fastest growth was in Newfoundland with its 4.73 per cent average annual increase over the 1961-1981 period. Much of this growth took place over the 1971-1981 period as is indicated by its 6.83 per cent growth rate for that period.

The industry grew quickly with only four years in which employment declined. In 1981 Newfoundland's food and beverages industry employment was 259.0 per cent of

the 1961 level. The second fastest growth was recorded in New Brunswick with a 2.24 per cent average annual increase over the period as a whole. The poorest performance was in Saskatchewan where employment declined at a 0.65 per cent annual rate. Employment declined in 1962 and then remained relatively stable until 1974 after which it declined again and again remained stable until the end of the period. In 1981 Saskatchewan's food and beverages industry employed 84.3 per cent of its 1961 employment.

There are naturally many reasons why employment declined or grew more slowly in specific industries or provinces and some such as industry rationalization or increasing productivity may be positive factors, however, it is a fact that manufacturing employment increased very slowly over the past 20 years and that at the national level the rate of growth has recently decelerated.

For further information, contact:
D.J. McCulla
Industry Trade Policy and Analysis
Regional and Industrial Policy and
Small Business
Industry, Trade and Commerce/
Regional Economic Expansion
Ottawa, Ontario K1A 0H5
Tel: (613) 996-5871



Multilateral Project Opportunities

The following list of multilateral project opportunities has been prepared to inform Canadian companies of the projects being considered or already approved for financing by the international financing institutions such as the World Bank, the Asian Development Bank and the Inter-American Development Bank.

In order to capitalize on these export opportunities, experience has shown that getting in on the ground floor by advance marketing activities or use of local agents increases the probability of success. Smaller companies may wish to consider participating as sub-suppliers or as part of a consortium bidding on equipment packages.

PLEASE NOTE that further information is available on approved projects only and may be obtained from the contacts listed for each country. These officers are prepared to assist companies in formulating their bids, and to suggest the appropriate contacts for companies interested in obtaining insurance, bonds and performance guarantees which are often required as part of tender specifications.

In addition, Canadian trade representatives abroad are ready to assist you in pursuing business, such as arranging meetings with personnel at the executing agencies.

Also, liaison officers in Washington and Manila are prepared to undertake enquiries on your behalf. However, we recommend that you initially contact the officer listed for each country.

Due to a reorganization in the department, certain names and telephone numbers are subject to change. Sorry for any inconvenience this may cause.

The Canadian Commercial Corporation, through the Export Supply Centre, can assist suppliers with bids on Canadian equipment packages for multilateral projects when required by the private sector. For further information, please call Bob Burwash (819) 997-5715.

KEY:

- ASDB** — Asian Development Bank
- IADB** — Inter-American Development Bank
- WB (IBRD)** — World Bank
(International Bank for Reconstruction and Development)
- WB (IDA)** — World Bank
(International Development Agency)
- UNDP** — United Nations Development Program
- CDB** — Caribbean Development Bank

AFRICA

(613) 995-8188
& 995-3351

	UNDER CONSIDERATION	APPROVED
Botswana Contact: D. Wynne	Family Health WB (IBRD) — About \$11.0 M DFC II WB (IBRD) — About \$12.0 M Selebi Phikwe WB (IBRD) — Approximately \$3.0 M	Power Project WB (IBRD) — \$32.5 M
Ivory Coast Contact: R. Bélanger	Rural Development III (CIDT) WB (IBRD) — \$50.0 M	
Guinea-Bissau Contact: J. Desjardins	Petroleum Exploration Promotion II WB (IDA) — \$12.0 M	
Kenya Contact: D. Wynne	Geothermal Exploration WB (IDA) — Approximately \$10.0 M	
Madagascar Contact: R. Bélanger		Heavy Oil Exploration WB (IDA) — \$11.5 M
Mali Contact: C. Boies	Mopti Area Development WB (IDA) — \$10.0 M	
Egypt, Arab Republic of Contact: E. Gorn	HADISOLB II WB (IBRD) — to be determined	
Togo Contact: J. Desjardins		Rural Development WB (IDA) — \$23.5 M
Tunisia Contact: J. Arsenault	Nationwide Rural Water Supply Project WB (IBRD) — to be determined	
Uganda Contact: D. Wynne	Telecommunications WB (IDA) — \$20.0 M	
Zimbabwe Contact: D. Wynne		Study Petroleum Fuel Supply WB (IDA) — \$1.2 M

ASIA

(613) 996-9195

	UNDER CONSIDERATION	APPROVED
Bangladesh Contact: E. Wang	Textile Rehabilitation WB (IDA) — \$40.0 M Third Crop Intensification Consultants will be required ASDB — to be determined	Imports Program Credit WB (IDA) — \$110.0 M

ASIA
(613) 996-9195

UNDER CONSIDERATION

APPROVED

Burma
Contact: E. Wang

Second Crop Intensification Program
No decision made whether consultants will be required
ASDB — (Tentative) \$7.0 M

China
Contact: R. Beare

Railways I
WB (IBRD) — to be determined
Rubber Development
WB (IBRD) — to be determined
Rural Credit
WB (IBRD) — to be determined
Medical Education and Rural Health
WB (IBRD) — to be determined

Port Development & Agricultural Research
WB (IBRD & IDA) — \$199.4 M

India
Contact: M. Vandenhoff

Trombay IV (Thermal Power)
WB (IBRD) — \$150.0 M
Maharashtra Irrigation Modernization
WB (IDA) — \$15.0 M
Farakka Thermal Power
WB (IDA) — \$200.0 M
Coal
WB (IDA) — \$100.0 - \$150.0 M
Sutlej-Yamuna Link Canal
WB (IDA) — \$100.0 - \$150.0 M
Sutlej (Punjab) Irrigation
WB (IDA) — \$150.0 M

Petroleum Exploration
WB (IBRD) — \$165.5 M
India Railways
WB (IBRD & IDA) — \$400.0 M

Korea
Contact: A. Pacher

Financial Sector
WB (IBRD) — \$250.0 M
Second Sewage Treatment
No decision made whether consultants will be required
ASDB — (Tentative) \$70.0 M

Nepal
Contact: M. Vandenhoff

Hill Forest
No decision made whether consultants will be required
ASDB — \$15.0 M
Fifth Power
Consultants will be recruited by the Bank
ASDB — to be determined

Pakistan
Contact: E. Wang

Foodgrain Storage
Consultants will be required
ASDB — \$25.0 M

Sri Lanka
Contact: E. Wang

Irrigation Rehabilitation Project
WB (IDA) — Up to \$35.0 M
Second Road Maintenance Project
WB (IDA) — Up to \$30.0 M

SOUTH EAST ASIA
(613) 996-8661

UNDER CONSIDERATION

APPROVED

Indonesia
Contact: J. Brenchley

Kedungombo I
WB (IBRD) — \$100.0 M
Irrigation Subsector
WB (IBRD) — \$100.0 M
National Crop Protection
No decision made whether consultants will be required
ASDB — \$30.0 M
Second Transmission and Distribution/
TES Hydropower/Kotapanjang
No decision made whether consultants will be required
ASDB — \$57.75 M
Vegetable Production and Marketing
Consultants will be required
ASDB — to be determined

SOUTH EAST ASIA
(613) 996-8661

UNDER CONSIDERATION

APPROVED

Indonesia Contact: J. Brenchley	NES Plantations Consultants will be required ASDB — to be determined	
Malaysia Contact: P.A. Rolland	Bengkoka Reforestation WB (IBRD) — \$40.0 M Lower Trengganu Integrated Agricultural Development No decision made whether consultants will be required ASDB — (Tentative) \$25.0 M	
Philippines Contact: J. MacLeod	Agricultural Waste Recycling No decision made whether consultants will be required ASDB — (Tentative) \$25.0 M Industrial Estates and Export Processing Zones Consultants will be required ASDB — to be determined Tagaloan River Basin Consultants will be required ASDB — to be determined	Rural Water Supply and Sanitation Project to Benefit 6.2 M People WB (IBRD) — \$35.5 M
Thailand Contact: C. Latour	Provincial Roads II WB (IBRD) — \$100.0 M Rural Development I WB (IBRD) — \$65.0 M Second Medium-Scale Irrigation Package No decision made whether consultants will be required ASDB — (Tentative) \$50.0 M Cotton Development No decision made whether consultants will be required ASDB — \$40.0 M Smallholder Sericulture Development Consultants will be required ASDB — to be determined	

JAPAN SOUTH PACIFIC
(613) 995-7752

UNDER CONSIDERATION

APPROVED

Vanuatu Contact: R.J. Rutherford	Smallholder Agricultural Development No decision made whether consultants will be required ASDB — to be determined	
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MIDDLE EAST
(613) 593-7043

UNDER CONSIDERATION

APPROVED

Cyprus Contact: B. Budny	Khrysokhou Watershed Irrigation Development WB (IBRD) — about \$6.0 M	
Jordan Contact: B. Budny	Waste Water Evacuation and Treatment in Amman Region WB (IBRD) — to be determined Urban Transport WB (IBRD) — about \$20.0 M	
Democratic Republic of Yemen Contact: P. Furesz		Reconstruction of Flood-damaged Roads WB (IDA) — \$7.0 M
Yemen Arab Republic Contact: P. Furesz		Technical Assistance to Ministry of Health WB (IDA) — \$10.5 M

**CARIBBEAN
AND CENTRAL AMERICA
(613) 992-0384**

UNDER CONSIDERATION

APPROVED

Barbados
Contact: J. Snyder

Ministry of Transportation and Works.
Feasibility Study and final designs for urban traffic project
IADB — \$410,000
Total cost — \$480,000

Belize
Contact: J. Snyder

Government of Belize, Belize Electricity Board (BEB), Electricity project.
Transmission system between Ladyville and Belize City and for improvement of distribution systems in and around Belize City
CDB: \$5.0 M

Costa Rica
Contact: F.R. Harris

Republic of Costa Rica
Ministerio de Agricultura y Ganaderia (MAG)
Integrated agricultural production
IADB — \$26.6 M
Ministerio de Obras Publicas y Transportes
Integrated information system for public works
IADB — \$410,000

Costa Rica's National Electricity Agency (ICE)
Corobica power project. Electric interconnection between Costa Rica and Panama
IADB — \$12.4 M (surplus of loans)
Instituto Costarricense de Electricidad (ICE)
Ventanas-Garita hydroelectric project. Supply of electro-mechanical equipment, supply and installation of a penstock, supply of two vertical shaft Francis turbines, supply of two pneumatic loader shovels
IADB — amount unknown

Dominican Republic
Contact: J. Snyder

Ministry of Education III
Support and expansion of rural primary education facilities
WB (IBRD) — \$12.0 M
Total cost — \$20.0 M
Corporacion Dominicana de Electricidad (CDE)
Distribution system for Santo Domingo
WB (IBRD) — \$60.0 M
Corporacion Dominicana de Electricidad (CDE)
Coal pier. Construction of berth for unloading coal vessels
WB (IBRD) — \$15.0 M
Corporacion Autonoma del Acueducto de Santo Domingo (CAASD)
Second stage Santo Domingo potable water system (Madrigal dam)
IADB — \$150.0 M
Total cost — \$260.0 M

Guatemala
Contact: F.R. Harris

Republic of Guatemala
Ministerio de Education
Expansion and improvement of Guatemala's rural primary school system through the construction of schools
IADB — \$30.0 M
Consejo Nacional de Planificacion Economica (CNPE)
Support for national water and sewerage plan
IADB — \$670,000
Empresa Guatemalteca de Comunicaciones (GUATEL)
Communications III. Further expansion of telephone network including cable network, distribution and long distance facilities
WB (IBRD) — \$30.0 M
Total cost — \$208.0 M
Empresa Electrica de Guatemala (EEG)
Power V. Distribution expansion program
WB (IBRD) — Up to \$35.0 M

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APPROVED

<p>Guatemala Contact: F.R. Harris</p>	<p>Ministry of Education Education III. Expansion and improvement of primary and secondary education WB (IBRD) — \$20.0 M</p>	
<p>Guyana Contact: J. Snyder</p>	<p>Guyana Electricity Corporation (GEC) Power II. Rehabilitation of generation and distribution plant WB (IBRD) — \$15.0 M</p>	
<p>Haiti Contact: M. Belanger</p>	<p>Organisme de Développement du Nord (ODN) Integrated rural development of Northern Plain. Second stage. WB (IDA) — up to \$24.0 M</p> <p>Office National du Logement Urban Development I. Upgrading of central market in Port-au-Prince and related technical assistance WB (IDA) — \$21.0 M</p> <p>Ministry of Education Education III. Construction, furnishing, equipping of primary schools WB (IDA) — \$9.0 M Total cost — \$10.8 M</p> <p>Republic of Haiti Artibonite Valley Development Authority Construction and rehabilitation of irrigation and drainage systems and agricultural development IADB — \$17.6 M Total cost — \$22.1 M</p> <p>Institut de Développement Agricole et Industriel Agricultural and industrial credit program IADB — \$15.0 M Total cost — \$25.0 M</p>	<p>Electricite de Haiti (EDH) Power III. Generation, transmission and distribution, mainly in Port-au-Prince area WB (IDA) — \$26.0 M Total cost — \$33.9 M</p>
<p>Honduras Contact: F.R. Harris</p>	<p>San Pedro Sula Municipal Corp. (DIMA) Water supply, sewerage and drainage WB (IBRD) — up to \$15.0 M</p>	<p>Republic of Honduras Secretaria de Educacion Publica (SEP) Expansion of technical education Construction of works, acquisition of machinery, equipment and tools for carpentry workshops, etc. IADB — \$20.0 M Total cost — \$25.0 M</p>
<p>Jamaica Contact: J. Snyder</p>	<p>Ministry of Education Primary education program: Construction of new primary school facilities and improvement and expansion of existing facilities IADB — \$32.4 M</p> <p>Ministry of Finance and Planning System for agroclimatological zoning for Jamaica to be used as an agricultural planning tool IADB — \$61,000</p> <p>Ministry of Industry and Tourism Tourism training program IADB — \$250,000</p>	
<p>Mexico Contact: B. Picard</p>	<p>Banco Pesquero y Portuario (BANPESCA) Fisheries WB (IBRD) — up to \$50.0 M</p> <p>Agricultural Marketing Improvement of Infrastructure and services for storage, transport and sale of perishable agricultural products WB (IBRD) — \$80.0 M</p> <p>Banco Nacional de Obras y Servicios Publicos (BANOBRAS) Water supply and sewerage WB (IBRD) — \$200.0 M Total cost — \$476.0 M</p>	<p>Banco Nacional de Obras y Servicios Publicos (BANOBRAS) Municipal Development Program. Water supply, sewerage and public lighting projects and to build markets, slaughterhouses and sidewalks IADB — \$80.0 M Total cost — \$110.0 M</p>

**CARIBBEAN
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UNDER CONSIDERATION

APPROVED

Mexico
Contact: B. Picard

Banco Pesquero y Portuario (BANPESCA)
Industrial Ports. Civil works, equipment and
technical assistance
WB (IBRD) — up to \$100.0 M

Nacional Financiera, S.A.
Secretaria de Agricultura y Recursos Hidraulicos — SARH
Stage Four of program to build irrigation works
throughout the nation
IADB — \$42.0 M
Total cost — \$105.0 M

Nacional Financiera, S.A.
Fondo Nacional de Estudios de Preinversion —
FONDEP
Fifth stage of pre-investment studies program
IADB — \$30.0 M
Total cost — \$100.0 M

Nacional Financiera, S.A.
Fondo de Garantia y Fomento a la Industria
Mediana y Pequena — FOGAIN
Global loan for small- and medium-sized
industries
IADB — \$150.0 M
Total cost — \$500.0 M

Nicaragua
Contact: F.R. Harris

Republic of Nicaragua
Instituto Nicaraguense de Acueductos y Alcantarillados — INAA
Program to build and improve water supply and
sewerage systems
IADB — \$20.1 M

Panama
Contact: F.R. Harris

Republic of Panama
Instituto de Recursos Hidraulicos y de Electrificacion (IRHE)
National geothermic study and pre-feasibility
study of the Baru-Colorado geothermic complex
IADB — \$1.5 M

Instituto de Acueductos y Alcantarillados Nacionales (IDAAN)
Water supply and sewerage II
Improvement of systems in Panama City, Colon,
Chorrera and Santiago
WB (IBRD) — \$21.5 M
Total cost — \$39.0 M

Banco Nacional de Panama (BNP)
Livestock III. Livestock development
WB (IBRD) — \$10.0 M

Instituto de Recursos Hidraulicos y Electrificacion (IRHE)
Power VI. Distribution project
WB (IBRD) — Up to \$25.0 M

Republic of Panama
Ministerio de Desarrollo Agropecuario — MIDA
Facilities for marketing agricultural products
IADB — Amount undetermined

Republic of Panama
Instituto de Recursos Hidraulicos y Electrificacion — IHRE
Additional financing for the La Fortuna hydroelectric project
IADB — \$150.0 M

Autoridad Portuaria Nacional (APN)
Second Port Project Design, manufacture assemble, test, and deliver one rail-mounted, container-handling gantry crane for Port of Cristobal
WB — amount unknown

**SOUTH AMERICA
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UNDER CONSIDERATION

APPROVED

Argentina
Contact: J.G. Carson

Ministry of Commerce and Maritime Affairs
Expansion and Modernization of Bahia Bianca
Port facilities for grain exports
WB (IBRD) — \$105.0 M
Total cost — \$180.0 M

SOUTH AMERICA
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UNDER CONSIDERATION

APPROVED

Argentina

Contact: J.G. Carson

Ministry of Public Works
Sub-Ministry of Hydraulic Resources, Direccion
Provincial de Obras Sanitarias (DIPOS) and
Obras Sanitarias de Mendoza (OSM) Water
supply and sewerage
WB (IBRD) — up to \$50.0 M

Hidroelectrica Norpatagonica, SA (HIDRONOR)
Piedra del Aguila hydroelectric project
IADB — \$400.0 M
Total cost — \$1.8 M

Yacimientos Petroliferos Fiscales (YPF)
Oil and gas development
WB (IBRD) — \$100.0 M

Bolivia

Contact: C. Hartman

Empresa Nacional de Electricidad (ENDE)
Power V. Central Oriental interconnection
system, fourth unit for Santa Isabel
WB (IBRD) — \$2.8 M
Total cost — \$57.3 M

Republic of Bolivia
Empresa Nacional de Electricidad (ENDE)
Rural electrification
IADB — \$15.0 M
Total cost — \$21.0 M

Republic of Bolivia
Corporacion Regional de Desarrollo de Tarija
(CODETAR)
Water and sewerage system
IADB — \$8.0 M
Total cost — \$11.0 M

Republic of Bolivia
Yacimientos Petroliferos Fiscales Bolivianos
(YPFB)
Exploitation and exploration of oil fields
IADB — \$134.0 M
Total cost — \$173.7 M

Yacimientos Petroliferos Fiscales Bolivianos
(YPFB)
Oil and gas development
WB (IBRD) — \$64.0 M
Total cost — \$74.0 M

Brazil

Contact: G. Wright

Carajas Iron Ore Project
Companhia Vale do Rio Doce
(CVRD)
Purchase of 4.04 million track
screws
WB — amount unknown

Carajas Iron Ore Project
Companhia Val do Rio Doce (CVRD)
Purchase of 2.02 million elastic
fastening clips
WB — amount unknown

International Maritime
Organization (IMO) Prevention of,
control of and combat against
Marine Pollution Procurement of
booms, skimmers, audio visual
training aids
UNDP — \$370,000

Chile

Contact: J.G. Carson

Republic of Chile
Global infrastructure Investments in water
supply urban transportation and sanitation
IADB — \$120.5 M
Total cost — \$290.0 M

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Colombia
Contact: J. Prévost

UNDER CONSIDERATION

Ferrocarriles Nacionales de Colombia (CNR)
Railways VII. Track and equipment rehabilitation, engineering studies and consultants' services for institutional strengthening
WB (IBRD) — \$77.0 M
Total cost — \$176.8 M

CARBOCOL-INGEOMINAS
Coal Engineering
WB (IBRD) — \$20.0 M

Banco de la Republica (BOR)
Agro-industries — Credit for large- and medium-scale agro-industries
WB (IBRD) — \$60.0 M

Interconexion Electrica, SA Canafista Power — Hydropower
WB (IBRD) — up to \$150.0 M

Empresa Publicas de Medellin (EPM)
Electricity Generation and water supply
WB (IBRD) — up to \$100.0 M

Corporacion Autonoma del Valle del Rio Cauca (CVC)
Calima III. Distribution/Transmission/Generation, sub-stations
WB (IBRD) — \$88.3 M

Instituto de Fomento Industrial (IFI)
Ammonia Urea Fertilizer
Construction of fertilizer plant
WB (IBRD) — up to \$140.0 M

Republic of Colombia
Empresa Nacional de Telecomunicaciones (TELECOM)
Second stage of rural telephone system
IADB — \$63.0 M
Total cost — \$206.7 M

Instituto Colombiano de Electricidad (ICEL)
Construction of six plants in the first stage of a small-scale hydroelectric program
IADB — \$12.0 M

Ecuador
Contact: C. Hartman

Republic of Ecuador
Instituto Ecuatoriano de Electrificacion (INECEL)
Prefeasibility and feasibility studies of hydroelectric projects and non-conventional sources of energy
IADB — \$36.0 M
Total Cost — \$45.0 M

Republic of Ecuador
Escuela Politecnica del Litoral (ESPOL)
Expansion of school for training technicians and expanding courses
IADB — \$31.0 M
Total cost — \$40.0 M

Instituto Ecuatoriano de Recursos Hidraulicos (INERHI)
Study for future institutional support
IADB — \$63,000 M
Total cost — \$70,000

Servicio Ecuatoriano de Capacitacion Profesional (SECAP)
Education III. Vocational training.
WB (IBRD) — \$16.0 M
Total cost — \$33.4 M

Instituto Ecuatoriano de Electrificacion (INECEL)
Power Transmission II
WB (IBRD) — \$80.0 M

APPROVED

Departamento Administrativo de Aeronautica Civil (DAAC)
Training of technical and administrative personnel and provision of assistance and expertise
WB — amount unknown

SOUTH AMERICA
(613) 996-5546

UNDER CONSIDERATION

APPROVED

Ecuador
Contact: C. Hartman

Republic of Ecuador
Education IV. Improvement of rural primary education
WB (IBRD) — \$20.0 M

Republic of Ecuador
Empresa Municipal de Agua Potable (EMAP)
Quito Potable water system
IADB — \$34.0 M
Total cost — \$60.0 M

Republic of Ecuador
Ministerio de Obras Publicas y Comunicaciones
Construction of about 450 km of rural roads throughout the country
IADB — \$25.0 M
Total cost — \$35.0 M

Paraguay
Contact: J.G. Carson

Administracion Nacional de Navegacion y Puertos (ANNP)
Ports II and Inland Waterways. Development of facilities in Ports of Asuncion and Villeta
WB (IBRD) — \$13.0 M

Administracion Nacional de Electricidad (ANDE)
Expansion and improvement of the electricity network in Asuncion and electrification of north-west region
IADB — \$21.0 M

Republic of Paraguay
Ministerio de Salud Publica y Bienestar Social (MSPBS)
Second stage of rural health services program
IADB — \$14.4 M

Peru
Contact: C. Hartman

Ministry of Health First Health Project Construction and improvement of primary health care facilities
WB (IBRD) — up to \$34.0 M

Empresa de Servicio Nacional de Abastecimiento de Agua Potable y Alcantarillado (SENAPA)
Water supply and sewerage
WB (IBRD) — \$50.0 M

Ministry of Education
Education II. Primary education in urban areas
WB (IBRD) — \$40.0 M

Power VII. 126 MW Yuncan hydroelectric plan
WB (IBRD) — \$100.0 M

Republic of Peru
Ministerio de Salud
Stage IV of rural potable water program benefiting 220 rural communities
IADB — \$22.0 M

Republic of Peru
Servicio Nacional de Agua Potable y Alcantarillado
Stage IV of urban water supply program
IADB — \$38.5 M
Total cost: \$150.0 M

Ministerio de Economica Finanzas y Comercio
Public Sector Management design and implementation of program budgeting system for central government, technical assistance, training programs
WB — \$10.2 M
Total cost — \$21.2 M

Huallaga Central and Bajo Mayo Project Office (HCBM)
Alto Mayo rural development project
Agricultural credit, access roads, civil, works, land clearing, road maintenance equipment, vehicles, farm and laboratory equipment, mapping, health and education, training, etc.
WB — \$30.0 M

Ministerio de Pesqueria
Artisanal Fisheries Program
Improve productivity and working conditions of artisanal fishermen as well as quality and consumption of fish
IADB — \$14.5 M
Total cost — \$28.0 M

Direccion Generale de Inversiones Regionales
Strengthening of Public Investment Systems
IADB — amount unknown
Total cost — \$1.29 M

SOUTH AMERICA
(613) 996-5546

UNDER CONSIDERATION

APPROVED

Uruguay
Contact: J.G. Carson

Administracion Nacional de Usinas y Transmisiones Electricas (UTE)
Power IV — Thermal, construction of combined cycle thermal plant, step-up substation and transmission line
WB (IBRD) — \$45.0 M

Republic of Uruguay
Cooperative Nacional de Productores de Leche (CONAPROLE)
Modernization and consolidation of dairy products facilities
IADB — \$41.0 M

Ministerio de Transportes y Obras Publicas
Highways III. Improvement of national highway network and feeder roads
WB (IBRD) — \$45.0 M
Total cost — \$145.0 M

Republic of Uruguay
Instituto Nacional de Pesca (INAPE)
Fishery development
IADB — \$10.0 M
Total cost — \$13.0 M

Venezuela
Contact: J. Prévost

International Telecommunications Union (ITU)
National Telecommunication Equipment and Systems Laboratory; creation of a laboratory for the testing, evaluation, standardization and research of telecommunications equipment and systems, and training
UNDP — amount unknown

Opportunities for Canadian Business Studied During Seminars on Africa

Expanding African markets for Canadian exports attracted more than 1,000 business executives to four federally sponsored seminars on the subject staged recently in Montreal, Toronto, Halifax and Edmonton.

Co-sponsored by the Trade Commissioners Service of External Affairs and the Regional Offices of the Department of Industry, Trade and Commerce and Regional Economic Expansion (ITC/REE), the seminars brought 11 senior Canadian trade officers from Africa for briefing sessions and individual interviews with the business community.

The high interest in African markets is understandable, in view of the fact that exports of goods from Canada to Africa have tripled in the past five years to more than \$1.5 billion in 1981. It is expected that this will increase to \$2 billion when all the figures are in for 1982. In addition Canada supplied \$600 million in services in 1981 and the figure is expected to rise again in 1982.

Perhaps of even greater interest to Canadians is the fact that African countries anticipate spending \$500 billion on development programs over the next five years. And most of this expenditure will be in areas in which Canadian technical expertise is high — communications, transportation, agriculture, forestry and mining.

But throughout the 10 days of sessions, meetings and travel, Canada's African trade officials stressed the highly competitive nature of the markets with Europeans, Japanese and Americans vying for a lion's share.

Canadians, if they are to compete, must be prepared to make a long-term commitment to developing contacts, adapting their product line to changed market conditions and providing for good follow-up service.

In addition to its technical expertise in needed African development, Canada also enjoys a high degree of acceptability among the newly emerging nations of the continent. On the political side, there is the fact that Canada has no history as a colonial nation, is well respected for support of international development and has the advantage of dealing in both of Africa's major trading languages, English and French.

But as speaker after speaker emphasized, it is up to the business community to capitalize on these advantages. Because of the relatively high initial costs of doing business in Africa, the manufacturing and service industries must be prepared to make long-term commitments in order to justify the high initial costs.

While the business community must make the initial commitment, there are many services and assistance provided by the government of Canada for those wishing to explore the possibilities of this market place and spread their risks of doing so.

In addition to the network of embassies and consulates spread throughout the continent, as represented by the 11 senior trade officers working the seminars, programs such as PEMD (the Program for Export Market Development) and agencies such as the Export Development Corporation, the Canadian Commercial Corporation and the Canadian Industrial Development Agency were among those providing help. Representatives of these agencies were on hand at the seminars to explain the assistance available.

In view of the depressed state of the economies of many African nations, much of the funding for their development plans must, of necessity, come from the international development funds and banks. . . . the World Bank, the African Development Bank, and the Arab Development Banks.

While Canada is a major supporter of the first two, its share of the contracts awarded is quite small, more through lack of placing bids than winning the contract when bid.

For advanced information on projects and on projects approved, Canada Commerce runs its Multilateral Projects Opportunities section every second month and on alternate months lists Trade Fairs and Missions supported by Canadian government participation. These fairs and missions are excellent opportunities for Canadian manufacturers to display their goods and explain their services.

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**The Department of Industry,
Trade and Commerce and
Regional Economic Expansion
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each province for your
convenience:**

Newfoundland
H.J. McGonigal (Hal)
Executive-Director
Parsons Building
90 O'Leary Ave.
P.O. Box 8950
St. John's, Nfld.
A1B 3R9
Telex: 016-4626
Tel.: (709) 772-4866

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Queen Square
45 Alderney Dr., 11th Floor
Dartmouth, N.S.
B2Y 4B9
Telex: 019-22525
Tel.: (902) 426-3458

Prince Edward Island
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Charlottetown, P.E.I.
C1A 7M8
Tel.: (902) 892-8551

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E1C 8P9
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Quebec
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Executive-Director
Stock Exchange Tower
800 Victoria Square
Room 3709
P.O. Box 247
Montreal, Quebec
H4Z 1E8
Telex: 05-25737
Tel.: (514) 283-5938

Ontario
John D. Blackwood
Executive-Director
1 First Canadian Place
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P.O. Box 98
Toronto, Ontario
M5X 1B1
Telex: 065-24378
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Manitoba
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P.O. Box 981
400-3 Lakeview Square
185 Carlton St.
Winnipeg, Manitoba
R3C 2V2
Telex: 075-7624
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Saskatchewan
J. R. Lane (Dick)
Executive-Director
Bessborough Tower
601 Spadina Crescent East
Room 814
Saskatoon, Saskatchewan
S7K 3G8
Telex: 074-2742
Tel.: (306) 665-4318

Alberta
Douglas H. M. Branion
Executive-Director
The Cornerpoint Building
Suite 505
10179 - 105th St.
Edmonton, Alberta
T5J 3S3
Telex: 037-2762
Tel.: (403) 420-2944

British Columbia
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Executive-Director
Bentall Centre, Tower 'III'
595 Burrard St., Suite 2743
P.O. Box 49178
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V7X 1K8
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