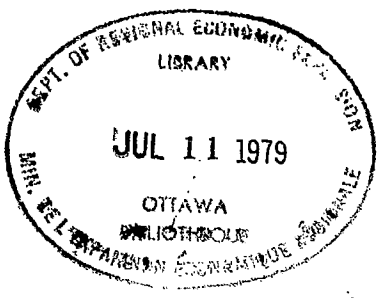
SUMMARIES OF PRODUCT STUDIES

Department of Regional Economic Expansion

Incentives Division

Industrial Development Branch

Summaries of Product Studies



Department of Regional Economic Expansion

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Summaries of Product Studies

This binder contains summaries of product studies that have recently been completed by the Industrial Development Branch. These summaries are designed to provide a quick reference and an indication of the type of information available in the various reports. Subjects are listed alphabetically in the index but are numerically in the binder.

The reports have been edited to remove confidential company and government information, and copies will be made available under the following procedures:

1. Requests for copies of reports should be written on letterheads of the firm or agency, and should be signed by a principal of the firm or agency.

2. The officer receiving the request should contact the person making the request to determine what the information is to be used for, and whether or not a summary would suffice.

3. Normally, the following restrictions will apply:

   a. Requests from provincial governments or agencies must be approved by the DREE regional ADM or his appointee.

   b. Requests from consultants will not be granted. However, if the consultant arranges for the firm he is representing to make a request, it shall be treated as in paragraph one.

4. Requests for copies of reports from other branches or Departments of the Federal Government will be granted but the restrictions listed in paragraph (3) must be accepted by the requesting party.

September 10, 1973

Restrictions on Circulation of Studies

For internal use, each of the product studies done by consultants or in-house have been classified so that restrictions on circulation may be easily noted. The following categories have been selected:

A. For Industrial Development Branch use only.

B. For DREE use only.

C. For Federal Government use only.

D. Restricted to Provincial agency as per agreement.

E. Distribution to any provincial agency requires prior approval.

F. For general distribution - no restriction.

Department of Regional Economic Expansion

Incentives Division

Industrial Development Branch

Summaries of Product Studies

Subject Title	Circulation Restriction	Ref. File No.
Addressing and Mail Handling Equipment	E	CAN. I-285
Air Conditioners - Room & Roof Top	E	CAN. I-329
Air Cooled Gas Engines	E	CAN. I-286
Air and Gas Compressors	E	A.P. F-007
Audio Visual Teaching Equipment	E	A.P. F-008
Automotive Equipment Parts	E	CAN. I-287
Bearings and Powder Metallurgy	E	CAN. I-218
Bottle and Can Washing and Filling Machines	E	CAN. I-199
Car Jack Manufacture	E	CAN. I-187
Ceramic Tableware	E	A.P. F-009
Chain for Power Transmission	E	CAN. I-200
Charcuterie Products in Canada	E	CAN. I-333
Circuit Television Equipment	E	CAN. I-201
Compression Mouldings for Seats and Chairs	E	CAN. I-294
Concrete Truck Mixers	E	CAN. I-288
Construction Equipment	E	CAN. I-202
Conveyor and Conveyor Systems	E	A.P. F-011
Diesel Engine Manufacturing	E	CAN. I-192
Disposable Medical and Surgical Supplies (2 Parts)	E	CAN. I-289 (2)
Disposable Syringes, Needles and Parts	E	CAN. I-290
Drycleaning Equipment and Parts	E	CAN. I-185
Dry Fertilizer Spreading Equipment	E	CAN. I-193
Electric Lift Trucks	E	CAN. I-203

Subject Title	Circulation Restriction	Ref. File No.
Electric Typewriter and Parts	E	CAN. I-204
Electrical and Electronic Switches	E	CAN. I-224
Electrical and Electronic Test Equipment	E	CAN. I-302
Electronic Sound Equipment	E	CAN. I-299
Farm Tractors	E	CAN. I-194
Foam Plastic Sheet Products	E	CAN. I-306
Foamed Plastic Products	E	CAN. I-229
Golf Clubs and Balls	E	CAN. I-291
Heat Exchangers	E	A.P. F-014
High Pressure Gas Cylinders	E	CAN. I-206
Hydraulic Components	E	CAN. I-216
Hydraulic Pumps and Motors	E	CAN. I-223
Hydraulic Systems for Industrial Applications	E	CAN. I-219
Ignition Systems for Internal Combustion Engines	E	A.P. F-013
Industrial Gas Turbines	E	CAN. I-196
Knitting Machinery and Parts	E	CAN. I-207
Lighting Fixtures and Electrical Protective Equipment	E	A.P. F-019
Low Pressure Gas Cylinders and Tanks	E	CAN. I-220
Mechanical Power Transmission Equipment and Parts	E	CAN. I-208
Metal Shipping Containers	E	CAN. I-297
Metal Office Furniture	E	CAN. I-209
Microfilm Equipment	E	CAN. I-292
Microwave Ovens	E	CAN. I-197

Subject Title	Circulation Restriction	Ref. File No.
Mobile Cranes and Parts	E	CAN. I-186
Mobile Garbage Compactors	E	CAN. I-210
Motorcycles	E	CAN. I-293
Non-Automotive Axles	E	CAN. I-217
Other Cranes, Derricks and Parts	E	CAN. I-211
Other Sporting Balls	E	CAN. I-300
Photocopy Equipment and Similar Machines and Parts	E	CAN. I-184
Power Lawn Mowers	E	CAN. I-222
Pultrusion Bars, Angles and Profile Parts	E	CAN. I-296
Reinforced Plastics: Filament Winding	E	CAN. I-295
Refuse Bag Production - Atlantic Provinces	E	A.P. F-005
Rotary Snow Blowers	E	CAN. I-212
Sander Dust from Particleboard	E	CAN. I-331
Saws, Sawmill Machinery Equipment and Parts	E	CAN. I-221
Semi-Conductors (Transistor Type) and Parts	E	CAN. I-213
Ski Binding Industry	E	CAN. I-205
Ski Industry	E	CAN. I-298
Structural Foam Plastic Products	E	CAN. I-305
Tennis Equipment and Other Rackets	E	CAN. I-301
Tree Harvestors	E	CAN. I-308
Twin-Tub Washing Machines	E	CAN. I-195
Vitreous Enamel Cooking Utensils	E	CAN. I-214
Wooden Pallets in N.B., P.E.I., and Northern N.S.	E	A.P. F-018

Subject Title	Circulation Restriction	Ref. File No.
Woodworking Machinery and Equipment Industry	E	CAN. I-215
Wrapping and Packaging Machinery for Beverage and Food Industry	E	CAN. I-303

January 29, 1974.

Provincially Oriented Studies

(These subjects have not been summarized or edited)

Subject	Date of Report	Province	Restricted to Provincial use for:	Ref. File No.
Bathroom Fixtures Volume I - The Market Study Volume II - Technical and Economic Feasibility	Dec./72	Manitoba	18 months	MAN. I-008
White Cedar Fencing Industry	Feb./72	New Brunswick	18 months	N.B. F-004
Fogo Island Fishing Industry	Jan./73	Newfoundland	18 months	NFLD F-005
Drummondville Facteurs de Localisation Industrielle	Mar./73	Quebec	No Restriction	Que. A-033
Industrial Opportunity Study of Cornwall, Ontario	June 71	Ontario	No Restriction	Ont. A-061
Western Roto-Thresh Limited	May 72	Saskatchewan	18 months	CAN I-312
New Brunswick Forest Resources Study Volume I - Markets & Marketing Volume II - Alternative Marketing Structures Volume III - Alternative Mfg. Structures Volume IV - Industry Analysis	March 73	New Brunswick	No Restriction	N.B. I-025
Overhead Doors and Related Hardware	Feb./72	Manitoba	18 months	MAN. F-016
Rapeseed Cleaning Plant	July 71	Manitoba	No Restriction	MAN. F-015
Tractor Assembly Plant	April 72	Saskatchewan	No Restriction	SASK. F-004
North American Snowmobile Industry in the 70's	May 73	Saskatchewan	No Restriction	CAN I-311
Stainless Steel and Galvanized Wire Plant Study	In Process	Saskatchewan	12 months	
Etude de Marché sur l'Industrie du Camion	In Process	Quebec	9 months	

Summary of Study on:

REFUSE BAG PRODUCTION IN
ATLANTIC PROVINCES

Ref. File No. A.P.F.-005

Undertaken by: Kauser, Lowenstein & Meade Ltd.

Completion Date: January, 1973.

OBJECTIVE OF STUDY

To assess the commercial feasibility of establishing further manufacturing facilities in the Atlantic Provinces for polyethylene refuse-type bags.

SUMMARY

A. Products covered by this study

Refuse bags made from polyethylene. Typical size is 26" x 36" ranging in thickness from 1.10 mil to 1.50 mil.

B. Market

The current market in the Atlantic Provinces is estimated to be 5.5 million pounds. The total Canadian market is estimated to be 60 million pounds.

Market growth is expected to be 20% per annum, at least until 1976-77, following which a 10% per annum growth is forecast.

A market exists in the New England States which would be attractive to a producer located in the Atlantic Provinces.

C. Production

There now exists one integrated polyethylene refuse bag producer in the Atlantic Provinces and a number of bag converters.

New facilities to produce bags at a minimum rate of 3-5 million pounds per annum could be profitable.

Optimum production levels would be 12-15 million pounds a year.

D. Costs

Capital costs for a facility to operate in the 3-5 million pound a year range are estimated at $445,000. The size of building required would be 50' x 160' with a 24' ceiling. Minimum manpower requirements would be:

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extrusion	2 per shift
packaging	2 " "
maintenance	1
clerk/shipper	1
supervisor	1

CONCLUSIONS

The refuse bag market in the Atlantic Provinces is by itself not large enough to support a new producer, but a small share of the New England market would permit profitable operation.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

AUDIO-VISUAL TEACHING EQUIPMENT Ref. File No. A.P.F.-008

Undertaken by: DREE, Industrial Development Branch

Completion Date: January, 1973

OBJECTIVE OF STUDY

To determine the feasibility for locating an audio-visual teaching equipment company in the Atlantic Region.

SUMMARY

A. Products Covered By This Study

Video tape recording (VTR) equipment.

B. Market

- major market for VTR equipment is the educational market.
- educational market is declining in Canada because of:
  a) decreased school expenditures by government.
  b) many schools have already purchased the VTR equipment that they require.
- estimates of the educational share of the VTR market in Canada range from 50% to 75% with the educational share declining.
- the industrial-medical market appears to be replacing the educational market as the main market for the VTR equipment.
- estimates of the industrial-medical share of the VTR market in Canada range from 25% to 50%.
- the consumer market is seen as the greatest potential market.
- no Canadian production exists.
- market supplied via imports from Japan with some from U.S.
- estimated value of present VTR market in Canada ranges from $16 million to $50 million.
- in 1971 Canada imported $4.6 million worth of video tape.
- import figures unavailable for video-tape recorders, players and cameras.

- Atlantic provinces represent an untapped market for VTR equipment in the educational field followed by the areas around Toronto and Montreal.

C. Production

None in Canada.

D. Costs

High-priced labour is cited as a drawback to VTR production in Canada.

CONCLUSIONS

Since there are no Canadian manufacturers there is a potential opportunity for import replacement. There appears to be adequate distribution facilities to allow a producer of VTR equipment in the Atlantic provinces to supply the national market in Canada. The local market in the Atlantic provinces offers considerable opportunity provided that schools and libraries can be persuaded to use more audio-visual equipment.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

CERAMIC TABLEWARE — Ref. File No. A.P.F.-009

Undertaken by: DREE, Industrial Development Branch

Completion Date: December, 1972.

OBJECTIVE OF STUDY

To determine the feasibility for locating a ceramic tableware facility in the Atlantic Region.

SUMMARY

A. Products Covered By This Study

1. Hotelware
2. Semi-vitreous ware
3. Vitreous porcelain.

B. Market

- imports in 1971 of Ceramic Tableware amounted to $27.6 million.
- imports have averaged approximately 85% of the Canadian market for the last 6 years.
- source of imports is 64% from U.K. and 20% from Japan.

Ceramic Tableware

	Total Factory Shipments ($000)	Imports ($000)	Exports ($000)	Domestic Market ($000)	Imports, percentage of Domestic Market
1967	5,101	25,251	1,062	29,290	86%
1968	5,863	21,233	1,589	25,507	83%
1969	5,974	25,003	1,950	29,027	86%

C. Production

	Pottery & Decorative Ware, Other Pottery ($000)	Clay Products Manufacturers (from imported clay) ($000)
1967	3,653	35,452
1968	3,859	39,591
1969	3,900	34,541

	Pottery Glazed or Unglazed ($000)	Clay Products Manufacturers (from domestic clay) ($000)
1967	1,448	44,138
1968	2,004	48,896
1969	2,074	51,047

Ceramic Tableware

	($000)
1967	5,101
1968	5,863
1969	5,974

D. Cost

- a plant with $3 million annual sales could require anything from $3 to $10 million in capital sales.

- in order to get an accurate picture one must identify a particular market, select an appropriate process, assume a location with its given labour costs, etc. and then do an engineering layout and costing.

CONCLUSION

A large quantity of ceramic tableware is imported into Canada each year. The dollar value has risen from $9.7 million in 1964 to $27.6 million in 1971 for an increase of 185%. This would seem to indicate a potential for import replacement.

As Canadian imports are extensive, the market is certainly here. However, a problem inhibiting domestic production is scarcity of raw materials.

Department of Regional Economic Expansion
Industrial Development Branch

August, 1973.

Summary of Study on:

CONVEYOR SYSTEMS Ref. File No. A.P.F.-011

Undertaken by: DREE, Industrial Development Branch

Completion Date: July, 1972.

OBJECTIVE OF STUDY

To determine opportunities for locating a Conveyor systems company in the Atlantic Region.

SUMMARY

A. Products Covered By This Study

conveyors,

belt,

trolley/tow,

screw,

heavy unit, etc.

B. Market

- in 1971 Canada imported $12 million of conveyors, conveyor systems and parts.
- imports averaged over 24% of the Canadian market for the last 7 years.

Conveyors and Conveyor Systems & Parts

	Shipments of own Manufacture ($'000)	Imports ($000)	Exports ($000)	Domestic Market ($000)	Imports as percentage of Domestic Market
1967	43,089	11,415	2,181	52,323	22%
1968	38,918	12,400	3,399	47,919	26%
1969	37,501	13,993	5,631	45,863	31%

The principal users of the products in this industry are mines, airports and warehouses, the largest being mines.

C. Production

The domestic output is as follows:

	Conveyor and Conveyor Systems & Parts ($000)
1967	43,089
1968	38,918
1969	37,501

D. Cost

No figures available.

CONCLUSIONS

There is a strong possibility of substituting some domestic production in place of imports.

The possibility of establishing a branch plant of an existing company to manufacture conveyors and conveyor systems presently importing into Canada should be examined.

Department of Regional Economic Expansion
Industrial Development Branch

August, 1973.

Summary of Study on:

HEAT EXCHANGER Ref. File No. F.-014

Undertaken By; DREE, Industrial Development Branch

Completion Date: March, 1973

OBJECTIVE OF STUDY

To determine the feasibility for locating a heat exchanger company in Eastern Canada.

SUMMARY

A. Products Covered By This Study

Heat exchangers (shell and tube)

B. Market

Domestic market in 1971 amounted to $26.7 million with imports supplying 30% of the Canadian market. (Exports in this field are assumed to be quite small). The U.S. and the U.K. are the major exporters.

C. Production

The largest concentration of the heat exchanger industry is in Ontario.

Regional Location of Manufacturers of Heat Exchangers, 1968.

Region	Shipments ($000)	Shipments as percentage of total industry
Eastern	5,198.6	27%
Ontario	12,320.3	66%
Western	1,119.3	7%
TOTAL	18,638.2	100%

The heat exchanger industry in Ontario appears to be located around Toronto and the Southern area of the province. Quebec locations include Montreal and the Eastern townships. In the west, Calgary and Edmonton seem to be areas of location for the heat exchanger industry.

D. Costs

Steel plate and copper tubing are used extensively in the manufacture of heat exchangers. Most of the materials used in the production process are processed in Canada, with some material being imported from the U.S. and Japan. Material in a copper tube type heat exchanger can contribute 75% - 80% of the selling price.

D. Cost

No breakdown included in study.

CONCLUSIONS

A large number of air and gas compressors are imported into Canada each year. There is some indication that it is possible to substitute domestic production for imports. The possibility of establishing a branch plant of an existing foreign company to manufacture air and gas compressors presently importing into Canada should be examined. For example, 15% of our imports come from the U.K. Perhaps some U.K. producer might be interested in establishing a plant in the Atlantic Region. Particular attention should be given to the establishment of a plant manufacturing refrigerator compressors as there are presently none in Canada.

Department of Regional Economic Expansion
Industrial Development Branch

August, 1973.

Summary of Study on:

WOODEN PALLETS

Ref. File No. A.P.F.-018

Undertaken by: The Research and Productivity Council

Completion Date: May 1973

OBJECTIVE OF STUDY

To determine the size, nature and potential for the development of the market for wooden pallets in New Brunswick, Northern Nova Scotia and Prince Edward Island.

SUMMARY

A. Products Covered by this Report

Wooden pallets which can be defined as low, portable platforms, usually cellular in structure, used to facilitate the handling, storage and transportation of materials as a unit.

B. Market

- The 1972 regional market for pallets was approximately 97,600 units and the Canadian market was of the order of 7.5 to 8 million units in same year.
- The regional demand for pallets between 1972 and 1978 is expected to grow at an annual rate of 8% and the national demand is predicted to grow at a rate of 11% per annum over the same period.
- Local productive capacity with minor improvements, appears capable of servicing the forecasted regional demand.
- Pallet price is highly dependent on the price of lumber used and competition from plastics and metal pallets could become significant as pallet prices increase.

C. Production

There exists about 14 pallet producers in the market area of which 9 are located in New Brunswick. Only 7 of the total are reported to be major suppliers.

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D. Costs

Estimated Breakdown of Pallet Manufacturing Costs

	% of selling price
Lumber at 50% of selling price	50.0
Labour at 1/3 of lumber cost	16.7
Nails at 10% of lumber cost	5.0
Overhead at 100% of direct labour	16.7
Total Manufacturing Costs	88.4
Profit before taxes	11.6
Total	100.0

CONCLUSIONS

Although a shortage of pallets is being reported by the local pallet users in that area, this situation appears to be caused by a shortage of material (mainly hardwood) and not a lack of pallet producing capacity. Consequently the possibility of utilizing alternate materials in the production of pallets could be investigated either on the basis of supporting an existing producer or a new facility.

Department of Regional Economic Expansion
Industrial Development Branch

September 1973.

Summary of Study on:

LIGHTING FIXTURE AND ELECTRICAL PROTECTIVE EQUIPMENT

Undertaken by: DREE, Industrial Development Branch

Completion Date: April, 1973 Ref. File No. A.P.F.-019

OBJECTIVE OF STUDY

To analyse the feasibility of locating a lighting fixture and electrical protective manufacturer in the Atlantic provinces.

SUMMARY

A. Products Covered By This Study

1. Incandescent lighting fixtures.
2. Fluorescent lighting fixtures.
3. Mercury vapour lighting fixtures.
4. Distribution, lighting, panelboards.
5. Cabinets, channels, wireways.
6. Lockers and metal shelving.

B. Market, and C. Production

	Canadian Shipments ($000)		Imports ($000)		Canadian Market ($000)	
	1969	1970	1969	1970	1969	1970
Incandescent	24,916	22,324	5,950	5,140	30,866	27,464
Fluorescent	46,170	47,380	468	242	46,638	47,622
Floodlights & Spotlights	---	3,638	n/a	n/a	---	3,638
Street Lighting	7,828	7,333	n/a	n/a	7,828	7,333
All lighting fixtures	95,853	100,427	20,246	17,861	106,370	111,525

Production of Fabricated Sheet Metal Products

Canadian Shipments:	Value ($000)	
	1969	1970
Distribution, lighting and residential panes, boards	19,475	21,539
Miscellaneous cabinets, wireways, gutters surface raceways and bus ducts including feeder, plug and trolley types	7,392	8,107
Lockers and shelving metal and others	24,626	26,808

D. Costs

Estimated Capital Costs		Staffing Costs	
Building	- $500,000	Management	- $ 85,000
Machinery	- 290,000	Labour	- 283,000
Receivables	- 250,000	Sales Staff	- 55,000
TOTAL	$1,040,000	TOTAL	$ 423,000

CONCLUSIONS

Since the products to be manufactured by the plant in question are simply products which are manufactured by many other companies in other parts of North America, a company in the Atlantic provinces could succeed simply by copying the products manufactured by similar companies in Canada and the United States. It is indicated that the lighting products, in particular, incandescent, fluorescent and lighting panels make the largest contribution to profits and should be manufactured first during the start up phase of any new venture.

Individually the six products studied would not justify a new venture. Collectively, however, they provide a marginal opportunity for a company in the Atlantic provinces. Once established, the new venture would be in a position to add product lines, in particular, job shop sheet metal fabricating and contract metal printing for other companies located in the same area. With these added products, the company could become very profitable.

Department of Regional Economic Expansion
Industrial Development Branch

August, 1973.

Summary of Study on:

PHOTOCOPY EQUIPMENT AND SIMILAR MACHINES AND PARTS

Ref. File No. CAN I-184

Undertaken by: Urwick, Currie & Partners Ltd.

Completion Date: January 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for photocopy equipment and similar machines and parts.

SUMMARY

A. Products Covered by this Report

- Photocopy equipment and similar machines and parts. Photocopying is a reprographic process whereby duplicates of an original document can be conveniently produced without the preparation of a special 'master' copy. The different photocopying processes utilized are: Xerography, Electrofax, Thermography and the Dye and Diffusion transfer systems.
- Two new product areas are anticipated to make important impact: Colour Photocopiers and Facsimile Reproducers.

B. Market

- All photocopy equipment sold in Canada is imported; 98% of it from the U.S.
- Canadian market shared by over 30 competitors in 1972.
- Imports valued at $50 million in 1972 had exhibited an average annual growth rate of 22% since 1966 and are expected to continue to grow at 20% to a value of $124 million by 1977. Total revenues from sales and leases reached $94 million in 1972, and are expected to grow to around $200 million by 1977.
- Ninety percent of all photocopy equipment revenues are derived from leasing.
- Approximately 50% of machines imported in any one year are leased, 50% sold. Those sold tend to be desk top models of low retail value.
- In 1972, the market share of copiers utilizing xerography (plain paper) rather than coated paper was in the order of 82%. In next five years this share is expected to increase while revenues from thermographic and dye and diffusion transfer equipment are expected to virtually disappear.

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C. Production

None in Canada.

D. Costs

- Major costs are research design and development and marketing and service. The major direct costs for developed products, expressed as a percentage of revenues, are:

Labour	14%
Components for assembly	21%
Marketing and service	45%
Unspecified	20%
	100%

- Tariffs are as follows:

  - Imports to Canada are duty-free.
  - Exports to the U.S. incur a 5% duty.
  - Exports to the E.E.C. incur a 7% duty.

CONCLUSIONS

The Canadian market could support a domestic manufacturer.

A new manufacturer would be limited to a maximum market share of 5%.

The major requirement for access to the market is a fully developed plain paper copier.

Transportation costs are not a major factor in either obtaining parts for assembly or shipping finished products to the market.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

DRYCLEANING EQUIPMENT AND PARTS Ref. File No. CAN I-185

Undertaken by: P.S. Ross & Partners

Completion Date: January 1973

OBJECTIVE OF STUDY

To provide a preliminary analysis of the opportunities for the manufacture of drycleaning equipment and parts in designated regions and special areas in Canada.

SUMMARY

A. Products Covered by this Study

Dry cleaning machines ranging from 8 pound capacity coin-operated machines to 350 pound capacity industrial machines, steam cabinets and steam tunnels. Most popular sizes have capacities of 10, 25 and 60 pounds.

B. Market

It is estimated that the current market for drycleaning machines in Canada is approximately 200 machines per year at an average load capacity of 25 pounds. This represents a market value of $4-5 million. Demand is growing at an extremely low rate, due in large part to growing use of wash and wear clothing and the subsequent reduction in professional cleaning done.

All drycleaning equipment used in Canada is imported, mainly from the U.S., with some from Italy, Germany and the U.K. Exports are negligible.

Distribution of equipment in Canada is through 25-30 well established distributors many of whom also supply chemicals, soaps and other related equipment.

C. Production

There are no producers of this equipment in Canada.

The manufacture of drycleaning equipment is a highly sophisticated technological process. A Canadian manufacturer would have to become affiliated with one of the foreign manufacturers to acquire a licence for existing technology in this field.

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D. Costs

There are no cost data provided in the report.

CONCLUSIONS

The consultants concluded that it would not be feasible to establish a Canadian manufacturing facility to produce dry-cleaning equipment and parts. The main reasons are:

(1) A small market of $4-5 million which is already divided amongst 4 major countries and numerous brands;

(2) A demand that is growing at an extremely low rate;

(3) A highly sophisticated manufacturing process;

(4) A well-established distribution network that is now adequately servicing all major metropolitan centres with imported foreign brands;

(5) The virtual certainty of price-cutting measures to counteract an attempt to manufacture locally;

(6) The necessity of manufacturing an extremely wide variety of machines in order to adequately service the Canadian market.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

MOBILE CRANES AND PARTS Ref. File No. CAN I-186

Undertaken by: Urwick, Currie & Partners Ltd.

Completion Date: January 1973

OBJECTIVES OF STUDY

To determine opportunities for the manufacturing of Mobile Cranes and Parts in Canada.

SUMMARY

A. Products covered by this Report

Mobile cranes that are used in construction. They are employed for excavating or lifting, are either crawler mounted or rubber tire mounted and operated by cable or hydraulics. As many as 100 optional parts, attachments and accessories are available on a typical mobile construction crane.

B. Market

Statistics - 1971
Mobile Cranes and Parts

	Cranes (Complete Units)	Parts & Attachments $ Millions	Total
Canadian Production	20.0	2.0	22.0
* Imports	36.0	10.0	46.0
Exports	2.0	1.0	3.0
Apparent Consumption	54.0	11.0	65.0

* Major supplier is the U.S.

Market forecast - It is estimated that domestic sales of mobile cranes and parts will increase at a rate of 8% per annum through 1977. On this basis, the total market will reach an estimated value of approximately $95 million in 1977.

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C. Production

- Four major companies are involved in the manufacturing of mobile cranes and parts in Canada. Of the total four companies only two currently manufacture "complete" mobile cranes.
- Three manufacturers are located in Ontario and one in Quebec.

D. Costs

- The relative importance of the major manufacturing costs is as as follows:

Mobile Cranes

Cost Category	Estimated % of Total Costs
Cost of materials	53%
Wages & Salaries	24%
Marketing, Management, Inventory	18%
Transportation	5%
	100%

- The tariff rates on mobile cranes are as follows:

From/To	Imports	Exports
U.S.	15%	5%
U.K.	15%	Free
E.E.C.	15%	7.5%

CONCLUSIONS

The Canadian market for mobile cranes and parts is reported to be competitive but since continued growth seems assured, it could conceivably support expanded domestic production, preferably in the hands of an existing crane manufacture. A location with direct access to the Eastern Canadian markets is considered to be advantageous.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

PASSENGER CAR JACK MANUFACTURE Ref. File No. CAN I-187

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: January 1973.

OBJECTIVES OF STUDY

To determine the scope for and nature of additional manufacturing capacity of passenger car jacks in designated areas within Canada.

SUMMARY

A. Products covered by this Report

Automobile jacks
- mechanical
- hydraulic

B. Market

Total passenger car jack market is segmented into the automobile original equipment market and the after markets. The original equipment market accounts for 90% of the market.

Total annual domestic market for passenger car jacks is 1.2 million units or $2.6 million in sales. The original equipment market has grown at a rate of 6.6% per year between 1965 and 1970. In 1971 the potential original equipment market was estimated at $2.2 million, with Canadian production accounting for between $1.0 million and $1.2 million. Market forecast The original equipment market is expected to grow at a rate of 8.7% between 1970 and 1975.

The total after market in 1971 was estimated at between $0.304 million and $0.456 million. Market forecast The after market is expected to grow at a rate of 4.5% between 1971 and 1976.

Imports - In 1970, jacks valued at $1.2 million were imported for the original equipment market. Imports for the after market were valued at $0.29 million. The U.S. accounted for 87% of the imports, with Sweden and South Africa accounting for 4.8% and 4.1% respectively.

C. Production

Nine establishments are involved in the manufacture of automobile jacks, seven of which are located in Ontario, one in Quebec and one in British Columbia.

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D. Costs

Manufacturing costs, calculated as a percentage of sales, are as follows:

Material	40%
Labour	15-20%
Administrative cost	32-35%
Income tax	4-5%

Tariffs

British Preferential	Most Favoured Nation	General	Original Equipment Automotive Parts - Imported from U.S.
2½%	15%	35%	Free

CONCLUSIONS

Market conditions do not warrant the entry of a new single product line manufacturer of passenger car jacks for the Canadian market over the foreseeable future. There are approximately 90 metal stamping operations in Canada which could easily increase their product lines to include jacks. The potential production capacity of passenger car jack manufacturers in Canada appears to be sufficient to supply the domestic markets now and over the immediate future.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

DIESEL ENGINE MANUFACTURING Ref. File CAN I-192

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: January 1973

OBJECTIVES OF STUDY

To determine the feasibility of encouraging the establishment of a manufacturing facility for diesel engines in Canada.

SUMMARY

A. Products Covered by this Report

Diesel engines generating between 10 and 500 hp. This study covers 2 and 4 stroke engines used in industrial, automotive and marine applications.

B. Market

The Canadian market may be separated into a "primary" market, which is the market currently supplied by importation of separate engines, and the "secondary" market, represented by equipment already containing or utilizing a diesel engine. Both primary and secondary markets are supplied entirely by imports.

Imports for Primary Market

	Diesel Engines	
	Units	($'000)
1961	6,356	16,276
1966	16,709	41,396
1971	19,550	60,296

The growth in value over this period averaged 10.7% per annum. The major source of imports in the U.S., with the U.K. also being an important supplier.

Imports of equipment already incorporating a diesel engine are included in the report, but it is replacement of imported engines that represent the potential market for a Canadian manufacturer.

Market growth - It is forecast that the primary market will grow at an average annual rate of 12% over the next five years in terms of sales value. This implies a sales value of $100 million by 1977.

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C. Production

There is no Canadian production of diesel engines of the size covered in this study.

D. Costs

Costs of manufacturing diesel engines will vary widely depending on power and speed range, end use, configuration, etc. Non-automotive diesel manufacturing costs are estimated to average:

	%
Direct Labour	14.7
Indirect Labour	8.3
Materials	55.0
Gross Margin	22.0
Ex-Works FOB Price	100.0%

Tariffs on imports of diesel engines are zero from the U.S. and the U.K. U.S. tariffs on diesel engines imported from Canada range from 0-5%.

CONCLUSIONS

The existing tariff structure is influenced by the Canada-U.S. Auto Pact, and under existing conditions, there is little incentive for an American producer to install facilities in Canada. Should the tariff structure change to provide a Canadian manufacturer with some protection, production of diesel engines in Canada might be attractive. Possible sites of interest are Winnipeg, Saint John and Halifax.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

DRY FERTILIZER SPREADING EQUIPMENT Ref. File No. CAN I-193

Undertaken by: HEDLIN MENZIES & ASSOCIATES LTD.

Completion Date: January 1973

OBJECTIVE OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of the opportunity for industrial development.

SUMMARY

A. Products Covered by Study

There are basically 2 types of dry fertilizer spreader: the direct applicator types and the combination types such as planters and grain drills.

B. Market

- Demand for farm machinery is highly seasonal and greatly influenced by fluctuations in farm income.
- The market for this type of equipment is currently static with about 90 per cent of the equipment purchased to replace older equipment.
- About 65% of the farm machinery manufactured in Canada is exported, and about 70%-89% of the farm machinery purchased by Canadian farmers is imported, mainly from the United States.

- MARKET ESTIMATES (Canadian Sales - 1970)

Type	No. of Units	Value ($,000)
* GRAIN and Fertilizer drills	2,090	499
Fertilizer and Lime Spreaders	1,802	649

- No separate data exist for fertilizer attachments for planters.

* Data reclassified to include only fertilizer attachments for grain drills and diskers.

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C. PRODUCTION

- Only about 25% of type of equipment sold in Canada is produced in Canada.
- Four major U.S. firms account for 75% of the Canadian market. At present, none of these four firms manufacture this type of equipment in Canada.
- There are about 123 manufacturing establishments in the farm implement industry in Canada.

D. COSTS

- Fixed costs in this industry are a large component of production costs.
- Further cost analysis is not available.

CONCLUSIONS:

- Encouragement of a new large scale manufacturing facility to produce the present lines of product is not recommended and cannot be justified by present industry and market trends.
- Some potential may exist for the production of dry fertilizer spreading equipment by machine shop type of enterprises. This type of firm concentrating on a local market would be able to produce equipment substantially below the price of the full-line companies, and thus an elimination of the post-production costs would be possible.
- Potential may also exist for a component manufacturer to operate a "do-it-yourself" distribution network. This concept merits further analysis.

Department Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

FARM TRACTORS

Ref. File No. CAN I-194

Undertaken by: KATES, PEAT, MARWICK & CO.

Completion Date: January 1973

OBJECTIVES OF STUDY

To determine opportunities for the manufacture of farm tractors in Canada.

SUMMARY

A. Products Covered by this Study

1. Wheel type farm tractors powered by diesel, gasoline, and LPG engines, including both 2 wheel and four wheel drive versions.

2. Size ranges as follows:

Main field tractors	- normally over 90 h.p.
utility tractors	- 50-90 h.p.
chore tractors	- normally 15-20 h.p.

B. Market

- 1971 Canadian sales totalled 18,200 units valued at approx $102 million.
- number of Canadian farms is decreasing with corresponding increase in average size of 44% during 1956-1966.
- average new tractor size is 72 h.p. (1968-69) and increasing.
- 60% of Canadian tractors sales are in Eastern Canada, but sales of large tractors are increasing fastest in Western Canada.
- long term trends indicate a gradual contraction of the Canadian farm tractor market at rate of 3-5% each decade.
- Medium term trend to 1977 is projected to show 40% increase because recent farm recession has depressed sales to abnormal level.

C. Production

- Estimated imports to Canada represent 90% of unit sales, 54% from U.S. There is a common market between the U.S. and Canada in farm tractors

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D. COSTS

Manufacturing costs are particularly sensitive to economies of scale. Existing producers manufacture for the world market. Distribution costs are significant and related to dealer size. Transportation costs would provide a slight advantage to a domestic producer.

CONCLUSIONS

Economies of scale are a very significant barrier to profitable market penetration by any new Canadian producer. To be viable, the new venture must be successful in providing some unique feature, quality or dealer service.

Department Regional Economic Expansion
Industrial Development Branch

August 2, 1973

Summary of Study on:

TWIN-TUB WASHING MACHINES Ref. File No. CAN I-195

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: February 1973.

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential manufacturing opportunities for twin-tub washing machines in Canada.

SUMMARY

A. Products covered by this report

Twin-tub washing machines - These machines comprise a wash tub and an adjacent spin dryer compartment. They are mobile and compact, measuring 29-35 inches high, 24-32 inches wide and 15-19 inches deep.

B. Market

- the domestic market for twin-tub washers has matured, reaching 140,000 units in 1972 with a value of $19.6 million. A low growth rate of 2 per cent a year is predicted for the next five years.
- imports, mainly from Japan and the U.K., account for approximately 64 per cent of the market.
- exports are minimal at present and trade sources do not see the situation improving in the foreseeable future. In the U.S. the twin-tub has not established itself as a major laundry product. Outside North America, Canadian products have to compete with the same imported products that have captured the major share of the Canadian market.

C. Production

Canadian production, which captures 36% of the actual market, is by two companies. Both manufacturers are located in Ontario

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D. Costs

Estimates of major costs in twin-tub washer production are as follows:

	-%-
Material	55
Labour	15
Fuel and Electricity	2
Other	7
Gross Profit	21
	100%

Import tariffs are as follows:

British Preferential	15%
Most favoured Nations	20%
Others	35%

CONCLUSIONS

A new entrant into the twin-tub market would face fierce competition from existing suppliers. The domestic demand pattern will not support additional manufacturing capacity unless imports are substantially reduced. Production of this commodity also requires high capital costs, time and considerable promotional expenditures.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

GAS TURBINES AND PARTS Ref. File No. CAN I-196

Undertaken by: Price, Waterhouse Associates

Completion Date: January 1973.

OBJECTIVES OF STUDY

To provide supportive data and subjective analysis sufficient to indicate the magnitude of industrial opportunity inherent in the product and to indicate designated regions or areas suitable for siting the activity.

SUMMARY

A. Products covered by this Report

Gas turbines and parts which specifically relates to gas turbines used for industrial applications rather than for aviation. Gas turbine power sizes range from a few hundred horsepower to 75,000 horsepower central power generators. Gas turbines are used to drive gas compressors, oil pumps or electrical generators. Applications to date have been limited to special cases -- portability standby or peak load service.

B. Market

- Current figures on domestic market are not available, but it is reported that the domestic markets for gas turbines and parts have gradually increased during the past 25 years.
- In 1971, imports, mainly from the U.S., accounted for $14.2 million.
- There is a considerable interest in small gas turbines for truck and automotive use.

- Market forecast
  - Markets should continue to grow for the large central power station units.
  - Machines in the range of 15,000 to 30,000 horsepower which will be used to drive gas compressors for gas pipelines could be expected to sell at a rate of 8 to 10 per annum for the next few years.
  - Manufacture for the Canadian economy will have peaks and valleys.

C. Production

Canadian production is by three major producers, all located in Quebec and Ontario. Canadian producers are reported to be over capacitated.

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D. Costs

No data are available on costs. However design and tooling costs are reported to be substantial.

CONCLUSIONS

Since the industry is dominated by international firms well known for technological excellence and since the Canadian market is too small for a viable production it appears that no opportunity exist for a potential entrepreneur. However, there are opportunities for Canadian firms to participate in consortia supplying a world market with specific parts or assemblies.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

MICROWAVE OVENS — Ref. File NO. CAN I-197

Undertaken by: Price, Waterhouse & Associates

Completion Date: January 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for microwave ovens.

SUMMARY

A. Products Covered by this report

Microwave ovens - Basically the microwave oven is a metal box containing a magnetron tube that generates electro-magnetic radiation in the microwave band. Microwave ovens can be divided as follow: industrial ovens costing up to $100,000 , commercial ovens up to $3000 and domestic ovens usually less than $1000.

B. Market

- All domestic and commercial microwave ovens sold in Canada were imported. Major suppliers are the U.S. and Japan.
- No data are available on consumption of domestic and industrial ovens but it is assumed that the largest market is for domestic ovens.
- Sales estimates for commercial ovens in Canada for 1972 ranged from 2500 to 4000 units.
- In next five years, total sales of microwave ovens in Canada, are expected to increase at a compound growth rate of 55% per year; that is from 10,000 to 15,000 units in 1973 to an estimated 125,000 units in 1978. Sales could then be expected to increase for a few more years and level-off as the replacement market begins.

C. Production

At the present time the only manufacturers of microwave ovens in Canada produce industrial ovens. There are no statistics available for total industry production .

D. Costs

- Main costs in the manufacturing of ovens are the electrical components of which the magnetron tube and transformer are the most important.
- Estimated costs of production are as follow:

raw materials	88%
labour	12%
Total	100%

- Imports duties are as follow:

Customs duty class 44300-1 (cooking & heating) - 20%
Customs duty class 44305-1 (commercial bakery) - 7.5%

CONCLUSIONS

Market is competitive but an opportunity exists for a manufacturer with ready access to a distribution network to establish a production facility in Canada.

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on

BOTTLE AND CAN WASHING AND FILLING MACHINES

Ref. File No. CAN I-199

Undertaken by: Stevenson & Kellogg, Ltd.

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide an evaluation of potential manufacturing opportunities for bottle and can washing and filling equipment in Canada.

SUMMARY

A. Products covered by this Report

- Bottle and can washing equipment with various degrees of specialization. Prices are ranging from $3,000 for a simple washer suitable for a relatively unsophisticated operation to over $250,000.
- Bottle and can filling equipment with different degrees of specialization and automation. Prices range from $3,000 for a low speed equipment capable of producing up to 100 containers per minute to over $100,000 for complex ultra high speed equipment.

B. Market

The total Canadian market for this type of equipment was estimated to be between $13.5 and $14.5 millions in 1971. A tentative breakdown of this market would be as follows:

	$ Million
Estimated Canadian Production	3-3.5
* Imports	10.9
Exports	Negligible
Estimated Apparent consumption	13.9-14.4

* The major supplier was the U.S. with over 90% of the overall imports.

- Market growth: The total market for both types of equipment has increased by approximately 50% between 1964 and 1972. This represents a growth rate of 4.6% per annum. During that same period, imports have remained almost constant.

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C. Production

There are no major producers in Canada. The Canadian producers (over 100 companies) are small, job shop, low volume manufacturers. They are mainly located in Southern Ontario, the Montreal area and the Vancouver area.

D. Costs

Estimates of manufacturing costs are as follows:

	Filling Machines		Washing Machines	
	Simple	Complex	Simple	Complex
Labour	37	39	40	40
Materials	12	10	20	17
Utilities	1	1	1	1
Overhead	30	30	24	24
Margin	20	20	15	18
	100%	100%	100%	100%

CONCLUSIONS

Considering the significance of market domination by the large U.S. manufacturers and the fact that this highly specialized market is reported to be fairly static, the prospects for the expansion of current Canadian production are poor. The opportunities for an expansion of the current domestic production seem to be limited to the manufacture of low speed, unsophisticated equipment.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

CHAIN FOR POWER TRANSMISSION Ref. File No. CAN I-200

Undertaken by: Stevenson & Kellogg, Ltd.

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential manufacturing opportunities for Chain for Power Transmission in Canada.

SUMMARY

A. Products covered by this report

Steel chains used for power transmission. There are six basic types of power chain: the Roller chain, Offset Sidebar Chain, Detachable chain, Pintle Chain, Inverted-tooth Silent chain and the Bead chain.

B. Market

Statistics 1972

	Roller Chain	Offset Sidebar Chain	Detachable Chain	Pintle Chain	Silent Chain	Bead Chain	Total
			(in $million)				
Canadian Production	2.6	0.1	1.4	0.5	0.1	0.1	4.8
*Imports	10.6	0.2	0.4	0.4	1.1	0.1	12.8
Exports	——Exports are considered to be negligible——						
Apparent Consumption	13.2	0.3	1.8	0.9	1.2	0.2	17.6

* The major suppliers are the U.S., England and Japan.

Consumption growth - The overall growth has averaged almost 10% a year over the last 8 years.

Imports growth - The trend is generally upward. The average rate of growth for the last 8 years was in the order of 10% per annum.

C. Production

- There are two companies involved in the manufacturing of roller chain in Canada. Both manufacturers are located in Ontario.
- Regarding production of other types of Chain, in Canada, the evidence is not clear as to which companies are currently involved in these areas of production.

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D. Costs

Manufacturing costs are broken down as follows:

Raw material	22%
Conversion (Labour, Overhead)	56%
Selling & Distribution Expenses	11%
Profit	11%
Total	100%

Tariffs governing imports are as follows:

	Preferred Rate U.K.	Most favoured Countries
Roller chain	15%	17.5%
Bicycle & Motorcycle chain	Free	15%

CONCLUSIONS

Indications are that no segment of the current market would provide an attractive base for an expansion of Canadian production. The major, well established, companies have a strong grip on the market. The only opportunities for a potential entrepreneur would be to concentrate on a high quality production or on an "off the shelf" type of chain.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

PRELIMINARY MARKET ANALYSIS
FEASIBILITY OF PRODUCING ADDITIONAL
CHARCUTERIE PRODUCTS IN CANADA

Ref. File No. CAN I-333

Undertaken by: P. S. Ross & Partners

Completion Date: March 1974

OBJECTIVES OF STUDY

To provide market and cost data on charcuterie products so that prospective entrepreneurs could recognize the opportunity for manufacturing such products in Canada.

SUMMARY

A. Products Covered by this Report

- Gourmet quality hams.
- Sausages such as saucisson sec, saucisson de Paris, fresh sausages.
- Meat pastes: pâté de foie pâté de campagne, pâté de lapin, pâté de canard.
- Variety meats: rillettes, galantines, etc.

B. Market

The present Canadian market is estimated to be approximately 150 million pounds and is forecast to grow at an average rate of 8% per annum. By 1980, the market is forecast to be 210 million pounds with an estimated value of $250 million.

Imports of charcuterie type products in 1972 were almost seven million pounds.

C. Production

There are a number of producers in Canada with the major firms being Canada Packers, Burns and Swift Canadian.

D. Costs

It is estimated that the following investment would be needed for a new facility:

	$'000
Land	50
Building	1100
Mfg. Equipment	600
Office Equipment	100
Initial Developmental Costs	500
Working Capital	700
	3050

It is also estimated that sales of such a new facility could reasonably reach $12 million at the end of five years of operation with the following profit picture:

	% of Sales
Cost of Raw Materials	51.0
Cost of Direct Labour	9.7
Fixed Mfg. Costs	4.3
Variable Mfg. Costs	1.4
Gross Profit	33.6
Cost of Sales	14.8
Cost of Administration	3.0
Net Profit	15.8
Amortization	0.4
Profit Before Taxes	15.4

CONCLUSIONS

There appears to be an opportunity for additional production of charcuterie products in Canada. To be successful, a new facility would need to supply approximately 5% of the charcuterie market (or 0.4% of the total meat market). Because of the association of the products with French terminology, it would be logical to consider Quebec for a manufacturing location.

Department of Regional Economic Expansion
Industrial Development Branch

April 1974.

Summary of Study on:

CLOSED CIRCUIT TELEVISION Ref. File No. CAN I-201

Undertaken by: Hedlin, Menzies & Associates Ltd.

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide a preliminary evaluation of the opportunities for the manufacture of Closed Circuit Television in Canada.

SUMMARY

A. Products covered by this Report

Closed circuit television (CCTV) which is a system of transmitting TV signals to receiving equipment linked directly by coaxial cable, microwave relay or telephone lines. CCTV installations are available that consist of no more than one camera with a connected monitor, to extremely complex multi-locational studio arrangements with switching capabilities permitting two-way audio and video communication.

B. Market

- The Canadian market for closed circuit television systems was estimated at $9 million in 1970 and is expected to grow to at least $24 million in 1980. This would represent an average growth rate of 10.3% per annum.
- Virtually all CCTV equipment sold in Canada is supplied by American, Japanese and European manufacturers.
- The actual largest CCTV market is in industrial and commercial applications but the greatest potential market for CCTV equipment lies in home entertainment units. At this stage of product development however it is impossible to predict the magnitude of this market.

C. Production

The Canadian production of CCTV equipment is reported to be minimal.

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D. Costs

- No figures available.

- The tariff structure governing imports for this type of equipment is as follows:

- General	25%
- Most favoured nation	15%

CONCLUSIONS

Based on current information, one cannot justify the participation of a Canadian entrepreneur in the closed circuit television equipment industry for the following reasons: Canada neither possesses the necessary technology nor low labour costs that are vital to success. On the other hand, opportunities may exist for television manufacturers to assemble home entertainment units if that market develops successfully.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

CONSTRUCTION EQUIPMENT Ref. File No. CAN I-202

Undertaken by: Urwick, Currie & Partners Ltd.

Completion Date: October 1973

Objectives of Study

To examine possibilities for additional manufacture of construction equipment in Canada.

Summary

A. Products covered by this Report

The construction equipment considered included:

- tractors, loaders and hydraulic excavators;
- scrapers, graders and rollers;
- off-highway trucks, trailers and wagons;
- concrete and asphalt equipment;
- aggregate processing equipment; and
- compressors, drills and pumps.

The market for parts was also examined.

B. Market

Estimated Value of Shipments of
New Construction Equipment and Attachments

	1963	1967	1972	1977
	Millions of Dollars			
Tractors, Loaders & Excavators	102	146	195	295
Scrapers, Graders, Rollers	32	42	49	65
Off-highway Trucks, Trailers, Wagons	17	31	29	40
Mixers, Pavers, Related Equipment	7	10	11	15
Aggregate Processing Equipment	2.5	9	11	15
Compressors, Pumps and Drills	1.5	16	21	27
Other Construction Equipment	42	55	64	92
Total Equipment	204.0	309	380	550
Parts	70	120	165	240
Total Equipment and Parts	274	429	545	790

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C. Production

- Production facilities currently exist in Canada for wheeled loaders, graders, rollers, off-highway vehicles, concrete mixers, asphalt pavers, compressors, pumps and drills. No new facilities are required.
- Construction-type models of crawler tractors and crawler loaders are not produced in Canada and are imported on a duty-free basis.

D. Costs

Production of tractors and loaders would require a substantial investment in fabricating equipment, jigs and fixtures. Welders and machinists constitute the key production skills. Development of new products would require substantial investment in design skills. Major cost components are:

Cost Category	Cost as % of Manufacturer's Revenue
Materials & Components	60
Marketing, Admin. & Profits	18
Labour	12
Design	4
Service & Warranty	3
Jigs & Fixtures	2
Transportation	1
	100%

Conclusions

Most opportunities for manufacturing construction equipment in Canada have already been exploited. Only one major market, crawler tractors and crawler loaders, is large enough to justify production capacity in Canada. Also, opportunities for the production of non-proprietary spare parts may exist.

Domestic volumes would not support major production capacity for excavators, scrapers, crushers and batch plants.

Department of Regional Economic Expansion
Industrial Development Branch

October 1973.

Summary of Study on:

ELECTRIC LIFT TRUCKS Ref. File No. CAN I-203

Undertaken by: Urwick, Currie & Partners Ltd.

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for electric lift trucks.

SUMMARY

A. Products Covered by this Report

Industrial lift trucks powered either by internal combustion engines or by electric motors using rechargeable batteries. Both power types are used primarily indoors and have models in the popular 2,000 to 10,000 lb. capacity range.

B. Market

Because both power types are used interchangeably in this key market, examination of the total lift truck market as well as that for electric models is essential.

Statistics 1971

	Total Lift Truck Market		Electric Lift Truck Market	
	Units	Value in $'000	Units	Value in $'000
Canadian production	3,500	N/A	725	4,200
Imports	1,996	N/A	925	4,600
Exports	1,431	N/A	Negligible	Negligible
Apparent consumption	4,065	33,800	1,650	8,800

Segmentation by size - 1971

Load Capacity	Percentage share of Total Units	Electric Share of Segment (%)
Under 2,000 lb.	22	95
2,000 to 10,000 lb.	56	32
Over 10,000 lb.	22	5
	100%	

Canadian Market Projections

	Total Lift Trucks		Electric Lift Trucks	
	Units	$ Millions	Units	$ Millions
1972	4,550	36.5	1,820	9.7
1977	6,050	53.1	2,720	16.3

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C. Production

Five major companies, all located in Ontario, are involved in the manufacturing of electric lift trucks. It is reported that manufacturers in Canada primarily assemble using components largely imported.

D. Costs

The relative importance of major costs is indicated as follows:

	Percentage of total costs
Raw materials	60
Labour	20
Marketing and administration	18
Transportation	2
	100%

Tariffs are as follows:

	Imports from	Exports to
U.S.	15%	4.5%
E.E.C.	15%	7%

CONCLUSIONS

Because of forecast growth in the fork lift market and a trend towards greater use of electric units, it is believed that an opportunity exists for the increased production of electric lift trucks in Canada. Manufacturing processes are relatively unsophisticated and would not present a major barrier for industry entry.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on

ELECTRIC TYPEWRITERS AND PARTS — Ref. File No. CAN. I-204

Undertaken by: Stevenson & Kellog Ltd

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for electric typewriters and parts.

SUMMARY

A. Products covered by this report

1. Typewriters - Electric typewriters of different makes with variable length character spacing, carriage width and speed of writing.

2. Parts - Electric typewriter parts that range from simple plastic moulded parts to high tolerance metal ones. Some electric typewriters have as many as 5000 separate components.

B. Market

STATISTICS - 1971

	Electric Typewriters	Parts	Total
	$'000	$'000	$'000
Canadian production	39,700	5,000	44,700
Imports	6,500	9,225	15,725
Exports	6,700	1,607	8,307
Apparent Consumption	39,500	12,618	52,118
Canadian consumption growth since 1966	28% per year increase	28% per year increase	

C. Production

1. Electric Typewriters - Between 1966 and 1971 Canadian production, consisting mainly in the assembling of machines, has more than doubled.

There were 3 producers in Canada in 1971.

2. Parts - Only one firm uses Canadian parts in a significant volume.

Current tariff structure favours assembly in Canada of imported parts.

D. Costs

1. Electric typewriters - Estimate of manufacturing costs is as follows:

   - raw materials 19%
   - labour 6%
   - overhead 25%
   - marketing, storage, transportation and profit 50%

2. Parts - Estimate of manufacturing costs is as follows:

   - raw materials 30-40%
   - labour 15-25%
   - overhead 10%
   - transportation, distribution and profit 35%

Tariffs are as follows:

1. Imports: Electric typewriters - 20%
   Parts - 7.5%

2. There are no export duties to the U.S.A. and the U.K. for either machines and parts.

CONCLUSIONS

1. Electric typewriters - Market is very competitive and will not easily support another manufacturer. The minimum volume for a viable manufacturing and assembly plant is considered to be about $20 million annually. Such a volume will require relatively high exports.

2. Parts - There is every indication that there is room for a manufacturer of typewriter parts. The following parts seem most attractive: motors, ribbons, plattens, covers, plastic keys and key tops.

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

THE CANADIAN SKI BINDING INDUSTRY Ref. File No. CAN I-205

Undertaken by: Hickling-Johnston Limited

Completion Date: February 1973.

OBJECTIVES OF STUDY

An evaluation of the ski binding industry in Canada and the potential for a domestic ski binding industry.

SUMMARY

A. Products covered by this Report

Alpine and Cross-Country Ski Bindings.

B. Market

Virtually 100% of the domestic demand for ski bindings is satisfied by foreign imports.
The market can be segmented into two major categories - Alpine and Cross-Country bindings.

Alpine ski bindings

- The industry identifies two distinct competitive categories of Alpine bindings - those which retail under $30, and those which retail between $30 and $80.
- Four brands control 75% of the overall market and almost 90% of the over $30 market.
- In 1972, 350,000 pairs of Alpine skis were imported into Canada. Assuming that binding sales equal ski sales on a unit basis, the number of bindings imported would also equal 350,000.
- Bindings are imported from France, Germany, Austria, Switzerland, Japan and to a lesser extent the U.S. Japanese imports account for 41% of the bindings in the low-priced category.
- Since 90% of the skiing population is found in Ontario, Quebec and British Columbia, it is likely that this pattern is valid for distribution of sales as well.
- Market growth - Sales of all Alpine skis decreased 9% in 1970 vs. 1969, increased 4% in 1971 over 1970, and increased a further 8% in 1972 over 1971.
- Market Forecast - Sales of Alpine skis and bindings are forecast to continue to increase at a rate of 5-10% per year over the next five years.

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Cross-Country Ski Bindings

- Approximately 90% of all cross-country bindings come from Norway, Sweden and Finland. The balance comes from European "iron curtain" countries.
- About 90% of the market for cross-country bindings is located in Quebec and Ontario.
- Market growth

Period	Binding Sets	% Increase
1969	5,400	
1970	12,868	140%
1971	35,316	180%
1972	108,000	200%

- Market forecast - In 1973, the value of cross-country bindings in Canada is expected to reach $1,800,000.

C. Production

There is no Canadian production of ski bindings. There are four major channels of distribution for Alpine bindings - three are located in Montreal, one is located in Toronto. The major channels of distribution for cross-country bindings are located in Montreal, Ottawa and Toronto, through less than 10 agencies.

D. Costs

No cost figures are available. The major cost item is labour. Tariffs - Most favoured nation - 15%.

CONCLUSIONS

The world market is currently in a condition of over-production and competition is very severe. To be successful, a Canadian manufacturer would have to develop a unique binding that provided for maximum safety at optimum performance and would then be faced with an extensive product promotion and advertising expense. It is therefore concluded that there is not an obvious opportunity for a Canadian manufacturer in this field.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

HIGH PRESSURE GAS CYLINDERS Ref. File No. CAN I-206

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: February 1973.

OBJECTIVES OF STUDY

To determine whether adequate Canadian production facilities exist for the manufacture of high pressure gas cylinders, and if not, whether the market size would justify the establishment of such a facility.

SUMMARY

A. Products covered by this Report

High pressure gas cylinders. For the purpose of this survey they are considered to be a metal tank or cylinder or container which contains a gas or gaseous mixture at a positive pressure differential (over 500 p.s.i.g.) relative to standard temperature and pressure at sea level (STP).

B. Market

- The Canadian market for high pressure gas cylinders is reported to be small compared to the typical production rate of cylinder manufacturing facility.
- It is estimated that the total Canadian market would currently lie between 55,000 and 65,000 cylinders per annum.
- Canadian production is inexistent. The whole market is presently served by imports. However, this situation is expected to change very rapidly in the near future with the establishment of a major producer in Ontario, who is expected to meet the current Canadian demand.
- The major supplier is currently the U.S.

Market forecast: A growth rate of approximately 7% per annum is expected through 1977.

C. Production

None in Canada.

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D. Costs

Estimates of manufacturing costs are as follows:

Raw material	40%
Labour	20%
Value added	40%
	100%

Import tariffs are as follows:

Most favoured Nations (including the U.S.A.)	17½%
British preferential	15%

CONCLUSIONS

Considering the size of the market and since a new facility is expected to supply the total Canadian requirement it would appear that no justification exists to encourage new ventures in this area of production.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

KNITTING MACHINERY AND PARTS Ref. File No. CAN I-207

Undertaken by: Riddle, Stead & Associates Ltd.
(Samson, Belair, Riddle, Stead, Inc.)

Completion Date: February 1973

OBJECTIVES OF STUDY

To determine if there is a market in Canada for knitting machinery and parts which would support the development of a new manufacturing facility in this country.

SUMMARY

During the course of the study, it became apparent that no opportunity exists for manufacturing knitting machinery and parts in Canada, and consequently it was decided that the study should be terminated. The following is a summary of the recommendations of the report, explaining why no opportunity exists for this industry:

1) There exists already an overcapacity in the hosiery and fabric knitting industries - in 1971 the demand for women's hosiery decreased 20% and is expected to continue to decrease; no growth in demand for double knit fabrics is expected either.

2) All producing nations except Italy, which is government supported, are experiencing difficulties due to low requirements for knitting machinery.

3) There is ready availability of new machinery at low prices as well as the availability of used knitting equipment.

4) A Canadian manufacturer would need to depend on exports to countries already producing such equipment and protected by tariff barriers.

5) It is felt that Canada does not possess the required technical skills and design experience needed for this industry.

There was concensus that any attempt to introduce such an industry into Canada would be doomed to failure and would only tend to aggrevate an already confused world marketing situation.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on

MECHANICAL POWER TRANSMISSION EQUIPMENT AND PARTS

Ref. File No. CAN I-208

Undertaken by: Resources Management Consultants Ltd.

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for mechanical power transmission equipment and parts.

SUMMARY

A. Products Covered by this Report

The major categories of products within the general product classification of Mechanical Power Transmission Equipment include:

Bearing Balls	Clutches	Pulleys
Bearing - Block	Couplings	Shafting
Bearings - Rolling	Drives, variable speed	Shaft Collars
Bearings - Sleeve	Facings	Shaft Seals and Packings
Bearings - Spherical	Gaskets	Speed Reducers and Increasers
Belts	Gears	Sprockets
Brakes	Gearboxes	Washers
Chains	Gearmotors	

B. Market

Statistics 1971

	Power Transmission Equipment $'000
Canadian production	65,888
* Imports	112,918
** Exports	13,242
Apparent Consumption	165,564
Total Market for Canadian Producers	178,806
Average annual growth (from 1963)	10.3%

* Approximately 77% of imported equipment comes from the U.S.
** Over 75% of Canadian exports go to the United States.

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Forecast of Market for Canadian Producers

	Power Transmission Equipment in $'000,000
1974	257.1
1975	281.5
1976	308.2
1977	337.5

C. Production

- In 1972, there were 14 major manufacturers in Canada, most of them being subsidiaries of non-Canadian companies. Eleven were located in the provinces of Quebec and Ontario. In addition, a considerable number of smaller companies offered limited product lines in the general field of mechanical power transmission.
- Due to high imports, over the past years, Canadian production has declined in terms of the percentage supply of the market: from 41% in 1963 to an estimated 34% in 1972.

D. Costs

Make-up of average production costs is as follows:

Material Costs	35%
Labour & Factory Overhead	45%
Administration & Sales	20%
Total	100%

The tariff structure governing imports is as follows:

British Preferential Tariff	2.5%
Most Favoured Nations	15%
General Tariff	35%

CONCLUSIONS

The high proportion of imports in the Canadian market combined with the considerable total market for the industry appears to be indicative that an opportunity exists for a program to replace imports by Canadian manufactured products. Such a program could consist of two broad approaches:

- strengthen present producers in Canada
- encourage major importers to locate in Canada.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

METAL OFFICE FURNITURE — Ref. File No. CAN I-209

Undertaken by: Redma Associates Ltd.

Completion Date: February 1973.

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for Metal Office Furniture.

SUMMARY

A. Products Covered by this Report

Metal office furniture which includes all furniture used in offices and work stations which are fabricated primarily from metal. This would include - desks and credenzas, chairs, bookcases and shelves, filing cabinets, office tables and work stations.

B. Market

Statistics 1971

Metal Office Furniture

	Value in $'000
Canadian production	62,410
* Imports	4,543
** Exports	6,546
Apparent consumption	60,407

* The United States is the major supplier

** Approximately 94% of the total exports goes to the U.S.

- Market forecast

  - The total apparent domestic consumption of metal office furniture in Canada is expected to increase to a level of $87,800,000 in 1977, an average annual growth of approximately 8%.
  - For the next five years, imports are not expected to exceed 9% of the annual total domestic consumption.
  - Should access still be maintained by Canadian producers to the U.S.A. market, production levels in the manufacture of metal office furniture could reach more than $107,000,000 by 1977, an average annual growth of more than 8%.

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C. Production

The Canadian production of metal office furniture in 1972 was shared by a number of 21 firms across the country. However, the Industry was currently dominated by 7 major manufacturers, all located in Ontario and Quebec. Production in Western Canada and in the Maritimes is considered as minimal.

D. Costs

Estimates of major manufacturing costs are as follows:

Raw materials	41%
Fuel & Electricity	12
Production wages	23
Administration & Sales Wages	13
Other expenses & profits	11
	100%

- Tariffs governing imports are as follows:

British Preferential	15%
Most Favoured Nation	17.5%
General Tariff	45%

- Exports - U.S.A. Tariffs are set at 6 to 10% for Canadian manufacturers.

CONCLUSIONS

Considering this market can expect excellent growth in the next five years, there appear to be good opportunities for new investments in this industry especially in Western Canada where production is minimal.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

GARBAGE COMPACTORS (TRUCK MOUNTED) Ref. File No. CAN I-210

Undertaken by: WOODS, GORDON & CO.

Completion Date: January 1973

OBJECTIVES OF STUDY

To provide supportive data and analysis that would give the Industrial Development Branch an indication of the magnitude of the opportunity and the implication of industrial development for Garbage Compactors (Truck mounted).

SUMMARY

A. Products Covered by this Report

1) Rear loader
2) Side and front loader

B. Market

- Canadian consumption is estimated at 400 units per year.
- Approximately 75% of all units sold in Canada in 1971 were imported mainly from the U.S.A. (duty free). The value of imported units is $2,632,500.
- Historically, 20 cu.yd. rear garbage compactors have comprised the bulk of sales.
- Some 2,500 to 3,000 mobile packer units are in use in Canada.
- The average life of a packer unit is from 7 to 8 years and normal replacement would be in the order of 310 to 430 units per year.
- 70% of market is located in the provinces of Quebec and Ontario.
- The amount of garbage generated by Canadians is increasing at a rate of 3 to 4% per annum.

1) Rear Loader

a) Represents 75% of all units sold in Canada or 300 units. Total value of sales is $2,550,000.

b) Approximately 30 rear loaders are manufactured in Canada each year.

2) Side and Front Loader

a) Represents 25% of all units sold in Canada.
Side loader: 12½% of total sales - 50 units - value of $275,000.
Front loader: 12½% of total sales - 50 units - value of $850,000.

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b) Approximately 70 side loaders and front loaders are manufactured in Canada each year.

C. PRODUCTION

- The Canadian units are manufactured by four major manufacturers. Three of them are located in Ontario and the other one in Alberta.
- The dollar value of Canadian manufactured units sold is $1,042,500.
- The minimum economic production quantity is in the order of 20-25 units per year.

D. COSTS

- Major breakdown of costs are as follows:

	% of Total Costs
Materials	34%
Labour and Overhead	66%
Total:	100%

- Estimated capital cost to set up operation for a plant with a capacity of approximately 100 units per year, for a new manufacturer, is in the order of $250,000. This excludes building costs.

CONCLUSIONS

- Profit margins for packer-units are very low due to the very competitive nature of the bidding.
- The trend is to larger rear packers (25 cu.yd.) as well as increased utilization of side loaders of all sizes (10 to 22 cu.yd.).
- Market for front loaders is declining as these units are being replaced by increased use of stationary compactors.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

CRANES, DERRICKS & PARTS Ref. File No. CAN. I-211

Undertaken by: Urwick, Currie & Partners Ltd.

Completion date: January 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for Cranes, Derricks & Parts. (other than mobile cranes).

SUMMARY

A. Products Covered by this Report

1. CRANES

- Cranes used in construction (other than mobile cranes) are primarily hoisting units for temporary or permanent material handling application at the construction site or at material receiving and storage yards.
- CRANES USED IN CONSTRUCTION:

  -- tower cranes - hammer Head-type
  -- locomotive crane
  -- tower cranes - luffing Jib type
  -- the Gantry or Bridge crane
  -- "WHIRLEY" or "REVOLVER" cranes

2. DERRICKS

- Derricks used in construction are stationary hoisting units used primarily in the erection of structural steel.
- Derricks used in construction:

Stiffleg Derrick	'A' Frame Derrick
Guyed Derrick	Gin Pole Derrick
Basket Pole Derricks	Stack Rigs
Climbing Derricks & Chicago Booms	Portable Hand Operated Derricks

B. Market

- The general market for derricks and other construction cranes in Canada is small but has grown slowly during the past eight years.

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1. CRANES

The value of stationary construction cranes and parts sold in Canada is estimated to be $2.5 million in 1971. Of this total, parts accounted for approximately $0.5 million

- Sales of tower cranes have grown steadily and should continue to increase at about 10% per annum. Tower cranes are currently imported, (primarily from the U.S.), into the major Market in Eastern Canada. The value of these imports currently amounts to some $1 million annually.

2. DERRICKS

- Sales of derricks and parts are estimated at $1.2 million in 1971.
- U.S. and Canadian data indicate that growth in the market for derricks and parts will be limited during the next five years.

C. PRODUCTION

The value of shipments of derricks and stationary construction cranes and parts manufactured in Canada is estimated to be almost $4 million in 1971, with the five major Canadian manufacturers accounting for around 75% of this market.

D. COSTS

- Steel fabrication is the dominant aspect of the manufacturing process for stationary cranes & derricks, therefore material costs are significant in proportion to total manufacturing costs.
- Due to their size, weight & handling difficulties, transportation costs can be significant.
- Labour and fabricating machinery and equipment costs are significant for cranes.

CONCLUSIONS

- Tower cranes offer an opportunity for expanded Canadian production to service the major market in Central Canada.

- Other cranes & derricks assessed in this report do not appear to offer opportunities for expanded production.

Department of Regional Economic Expansio
Industrial Development Branch

July 1973

Summary of Study on:

ROTARY SNOWBLOWERS

Ref. File No. CAN I-212

Undertaken by: Urwick, Currie & Partners Ltd.

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for Rotary Snowblowers.

SUMMARY

A. Products Covered by this Report

1. Domestic Snowblowers - low horsepower units used typically to clear snow from sidewalks and driveways.
2. Industrial Snowblowers - large truck mounted units for winter maintenance of streets, highways, airport runways and parking lots.

B. Market

1. Domestic Snowblowers

Statistics 1971

	Units	Value $'000
Canadian production	24,500	6,910
*Imports	26,800	8,005
Exports (considered as negligible)	-	-
Total consumption	51,300	14,915

* 90% of all imports come from the U.S.

FORECAST OF CANADIAN MARKET - 1971

- A 14% annual growth rate over next five years.
- In short term, a wider gap between Canadian consumption and production.

2. Industrial Snowblowers

- No precise market data available but Canadian production in 1972 was estimated at 120 units with a value of $4.35 million. Approximately 35 units were exported. Imports amounted to 15 units, valued at $600,000.
- Market is relatively small. Expected to grow to $8 million by 1977.

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C. Production

1. Domestic snowblowers

In 1972, six major companies manufactured in Canada. All of them were located in Eastern Canada. In addition to snowblowers, these companies produced related product lines which utilize similar distribution channels and manufacturing facilities.

2. Industrial snowblowers

Only one major manufacturer in Canada supplying virtually the total domestic market.

D. Costs

1. Domestic snowblowers

	Estimated % of Total Costs
Materials & Components	65%
Labour	10
Marketing, Administration	25
Inventories & Transportation	-
	100%

- Tariff rates are as follows:

Country	Imports from	Exports to
U.S.	15%	7%
E.E.C.	15%	10%

2. Industrial snowblowers

A rough breakdown is provided in the report, but because of the lack of an opportunity for a new producer in Canada, the data are not recorded here.

CONCLUSIONS

1. Domestic snowblowers

Continued growth seems assured. Considering this fact and present domestic production, an opportunity for expanded Canadian production would exist. On the other hand, the manufacturing process is relatively simple and the market fragmented, thus facilitating market entry.

2. Industrial snowblowers

No opportunity exists for increased capacity for manufacturing industrial snowblowers in Canada. Market entry is difficult. The manufacturing process is complex and production requires significant investments.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

SEMI CONDUCTORS (TRANSISTOR TYPE) PARTS

Ref. File No. CAN I-213

Undertaken by: A. Marshall & Associates

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for semi-conductors (transistor type) parts.

SUMMARY

A. Products Covered by this Report

Semi-conductor devices - the following devices are included under this classification:

a) Discrete devices: transistors, diodes, varistors, varactor-diodes, thermistors.
b) Photosensitive devices: phototransistors, photodiodes and photocells.
c) Four-layer devices (PNPN): thyristors, diacs, triacs, and PNPN switches.
d) Light Emitting Devices: discrete L.E.D.'s, L.E.D. display.
e) Integrated circuits: MOS, Bipolar, Digital and Linear, Thick and Thin film hybrids.

B. Market in Canada for Semi-conductor devices

Statistics - 1972

	$'000
Shipments	24,000
Imports	35,818
Exports	18,730
Consumption	41,088

Market growth - Over the last 8 years the consumption of semi-conductors in Canada has grown at an average rate of 15.4% per year.

Shipments in the past 8 years have increased at an average of 21.5% per year. Imports have increased at an average of 19.9% per year for the same period.

Exports have increased 49.5 times over the past 8 years - in 1972 exports increased 7.6 times over 1971.

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Market Forecast

The world market is expected to grow at an annual rate of 6.8% between 1970 and 1975, that is from 3.6 billion dollars to 5 billion dollars by 1975.

Use of semi-conductors in Canada is expected to grow at an average of 13.2% per year between 1972 and 1976.

C. Production

There are 18 Canadian companies engaged in the manufacture of semi-conductor devices and parts, two of which manufacture purely for in-house use. The 18 companies are concentrated principally in the Toronto, Montreal and Ottawa areas, in line with the location of primary users.

D. Costs

Expensive automated assembly and testing equipment is required for this industry. Costs are broken down as follows:

Raw materials	10-15%
Labour	60%
Marketing expenses	10-12%
Other	13-20%

Factory costs are approximately $22 per square foot. Transportation costs are generally not an important factor.

- Tariffs governing imports are as follows:

British Preferential	Most Favoured Nation
3%	15%

- U.S. Tariff on semi-conductors imported from Canada is 6% of sales value.

CONCLUSIONS

Semiconductors, being an industrial rather than consumer commodity, depend on the needs of the user for their existence.

Any prospective Canadian manufacturer of semiconductor devices is in a uniquely advantageous position geographically, the United States being the biggest and most sophisticated market for the product.

This new and rapidly expanding high technology industry will continue to encourage new ventures.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

VITREOUS ENAMEL COOKING UTENSILS Ref. File No. CAN I-214

Undertaken by: Intertech Consultants Ltd.

Completion Date: February 1973

OBJECTIVES OF STUDY

To determine opportunities for the manufacturing of vitreous enamel cooking utensils in Canada.

SUMMARY

A. Products covered by this study

Carbon steel core cookware, with usually 2 coats of enamel applied at 1600° Fahrenheit Temp. Decorations are generally applied by means of decals.

Small amounts of stainless steel may be used as the core metal.

B. Market

- Statistics Canada figures indicate 1971 Canadian market of $4 million is served entirely by imports.
- From 1965-1971 average market growth has been 32% per year, with market projection to $5.5 million in 1976.
- Market is distributed regionally as follows:
  Ontario 60%; Quebec 20%;
  Western 15%; Atlantic 5%;

C. PRODUCTION

There is only one known enamel cookware manufacturer in Canada. This is low temperature enamel and this same company (West Bend, Barrie) imports vitreous enamel cookware mainly from Spain and Czechoslovakia.

D. COSTS

Import tariffs of 17.5% (15% for U.K.) apply.

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Raw material costs and labour manufacturing cost are estimated at 30% and 20% respectively.

Marketing cost, including freight, is also significant, (approximately 17%).

CONCLUSIONS:

A new plant to produce product for 10% - 15% market penetration would be viable. Break even volume would be $500,000/yr. After 5 years, volume could reach $1,500,000/yr.

Required capital investment -	$700,000
Total labour	20-24
Preferred location	Quebec and Eastern Ontario

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

WOODWORKING, MACHINERY AND EQUIPMENT INDUSTRY

Undertaken by: Resources Management Consultants Ltd.

Ref. File No. CAN. I-215

Completion Date: February 1973

OBJECTIVES OF STUDY

To determine opportunities for the manufacturing of woodworking machinery and equipment in Canada.

SUMMARY

A. Products Covered by this Study

- excluding lumber mill or sawmill equipment.
- including machines such as saws, planers, joiners, lathes, routers, grinders, presses, jointers, boring machines, sanders, conveyors, moulders, shapers, glueing machines, clamps. Mortisers, splicers, hoists, dowelling and dove tailing machines, etc.

B. Market

- The total Canadian market for woodworking machinery has fluctuated during the last decade between $9 million and $19 million per year.
- The market share of made in Canada equipment has fallen from 27% to 13% since 1967.
- Market break down is as follows:

furniture	40-60%
kitchen cabinets	10-20%
custom board mills	5-15%
pre-fab homes & supplies	5-15%
miscellaneous	10-20%

- Forecast market size is increasing
- Current market demand for woodworking machinery is strong prompting lengthy delivery schedules by importers.
- Woodworking industry has just gone through period of high profitability.

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C. PRODUCTION

- Foreign manufacturers are now subject to capacity limitations

- Canadian producers manufacture smaller standardized equipment rather than large specialized equipment.

D. COSTS

Cost in market industry (woodworking) are rising, particularly due to raw material scarcity.

CONCLUSIONS

Most favourable area for new plant is in Province of Quebec, near Montreal.

Best potential for new venture is via joint venture with foreign off-shore producers with established North American market acceptance.

Annual sales volume of $500,000 represents estimated breakeven point for such joint venture.

Department Regional Economic Expansion
Industrial Development Branch

August 2, 1973

Summary of Study on:

HYDRAULIC SYSTEMS COMPONENTS — Ref. File No. CAN I-216

Undertaken by: Woods, Gordon & Co.

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide supportive data and analyses that would give an indication of the magnitude of the opportunity and the implication of industrial development of hydraulic components within designated regions and special areas.

SUMMARY

A. Products covered by report

Hydraulic cylinders
Valves

B. Market

Estimated Canadian Consumption of Hydraulic Components
1967 - 1970
($'000)

					Average Annual Growth
Domestic Production	12,380	13,905	15,423	15,333	
Imports	16,888	15,500	21,197	18,580	
Exports	-	-	-	-	
Total Consumption	29,268	29,405	36,620	33,913	5%

Market for 1972

- Canadian consumption by 1972 was estimated to reach $40-$45 million.
- Canadian Production was in the range of $19 million to $24 million.
- Imports accounted for $21,908,000 according to Statistics Canada.
- Exports - Official statistics indicate no export of hydraulic components. However a large proportion of components are eventually exported as an integral part of a more complex piece of equipment.

Current Market Segments	% of Total
Mobile Equipment	50%
Industrial	25%
Marine	15%
Miscellaneous	10%

Market forecast - No data available.

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C. Production

- There are eight principle manufacturers of hydraulic cylinders in Canada - six are located in Ontario and the remaining two are located in Manitoba.
- There is practically no manufacturing of valves. Valves are imported either complete or in component form and assembled subsequently.

D. Costs

Distribution of cost between elements in production varies depending on the type of application considered. As the quality of the cylinder increases, the labour content increases.
Production of industrial valves is characterized by high labour content.

CONCLUSIONS

The opportunity for a Canadian supplier of hydraulic components appears to be limited. Manufacturers of equipment using hydraulic components tend to prefer components made by internationally known companies.

Companies tend to specialize in order to achieve economies of scale.

Since component manufacturers work with equipment manufacturers from the design stage on, close relationships tend to develop between them, making it more difficult for a new entrant to break in without a sustained marketing effort.

Opportunities may exist however for a new Canadian supplier to manufacture specialty components.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

NON-AUTOMOTIVE AXLES Ref. File No. CAN I-217

Undertaken by: Woods, Gordon & Co.

Completion Date: February 1973

OBJECTIVES OF STUDY

To determine opportunities for the manufacturing of non-automotive axles in Canada.

SUMMARY

A. Products covered by this Report

Axle assemblies which generally consist of:

a) Tubular constructed axles of high tensile strength.
b) Springs which usually are multileaf but may be monoleaf.
c) Electric or hydraulic brakes
d) Hubs
e) Associated hardware (hangers, shackles, U-bolts, etc...)

B. Market

- The consumption of non-automotive axles in Canada was estimated at about 111,000 units in 1972.
- Approximately 60% of the domestic consumption was supplied by imports, principally from 3 U.S. manufacturers who are able to be price competitive in Canada in spite of the tariff structure.
- Mobile homes accounted for an estimated 32% of axles consumption, tent trailers 27%, travel trailers 23%, boat and snowmobile trailers 9% each.
- It is expected that the total axle demand (domestic production plus imports) for trailers and mobile homes, in 1980, will be in the order of 244,800 units, to give an average growth rate of 10.4% per annum.

C. Production

Six Canadian companies supplied the estimated 40% of axles made in Canada. Five companies were located in Ontario and one in Manitoba.

D. Costs

No figures available but transportation costs are reported to be substantial.

- Tariff: There is a 17.5% import duty on all axles coming from the United States.

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CONCLUSIONS

Due to the high competitiveness of the market, it does not appear that the Canadian market is large enough to justify the entry of a new company making axles. The opportunity appears to be for existing machine shops with the necessary equipment for axle manufacture to add axles to their present product line. This possibility should be explored with existing machine shops in the development regions.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

BEARINGS AND POWDER METALLURGY Ref. File No. CAN I-218

Undertaken by: Price, Waterhouse Associates

Completion Date: February 1973.

OBJECTIVES OF STUDY

To provide supportive data and analysis sufficient to indicate the magnitude of the industrial opportunity in bearings and powder metallurgy and to indicate the designated regions or special areas suitable for locating manufacture.

SUMMARY

A. Products covered by this Report

Ball and roller bearings
Power metal bearings

B. Market

There are 2 basic markets for bearings - the original equipment market and the replacement market. The automobile industry consumes approximately 40-45% of all bearings.

Domestic Consumption of Roller and Ball Bearings
($000's)

	Domestic Production Shipped	Imported	Exported	Total Consumed	Percentage Change in Total Consumption
1966	$29,912	$54,700	$ 5,008	$79,674	-
1969	36,254	65,525	10,165	91,614	15.0
1971	35,998	64,751	15,420	85,329	(6.9)

- No figures available for Consumption of Powder Metal Bearings, but $6.2 million was shipped in 1972.

U.S.A., U.K., Germany, Japan and Sweden comprise 98% of all Canada's imports in ball and roller bearings. The major area of increase has been in imports from Japan which grew from 2% of total imports in 1966 to 9% of total imports in 1971.
Exports of all bearings have grown at an average rate of 25% per annum between 1966-1971.
Canadian exports to the U.S. were 66% of total exports in 1971. Rapid growth areas for Canadian exports are Germany, Sweden and South Africa.
- Market growth - Ball and roller bearing shipments increased at an average rate of 2.1% per annum between 1961 and 1971.
Powder metal bearing shipments increased at an average rate of 19.6% per annum between 1967 and 1972.

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C. Production

There are six major firms involved in the production of ball and roller bearings and five major firms involved in the production of metal powder bearings. Most of these firms are located in Western Ontario and the Toronto and Montreal areas. One major firm is located in the Eastern Township of Quebec.

D. Costs

Costs for Ball and Roller Bearing Manufacturers		Costs for Powder Metallurgy Manufacturers	
Raw Materials	40%	Raw Materials	22%
Labour	20%	Labour	14%
Administrative and Overhead	23%	Factory Overhead	45%
Marketing	10%	Administrative	8%
Profit	4%	Marketing	6%
Unspecified	3%	Profit before taxes	5%

Powder metal bearings or powder metal parts do not require machining. They can be produced at half the cost and at a much more rapid rate than conventional bearings.

Tariffs

Under the Canadian-American Auto Pact, bearings for the automotive industry are duty free in and out of Canada. Imports of bearings already produced in Canada have a 15% tariff; there are exceptions for automotive, agricultural and heavy industry equipment. Farm implements are free into Canada but have a 9.5% duty out of Canada to the U.S.

CONCLUSIONS

The ball and roller bearing industry is not growing and competition is very tight.

Price cutting and selective pricing is a common practice in many countries including Canada.

The opportunity for additional capacity is limited. Potential opportunities lie in powder metallurgy with its lower manufacturing costs, new ideas and applications.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

HYDRAULIC SYSTEMS FOR INDUSTRIAL APPLICATIONS

Ref. File No. CAN I-219

Undertaken by: Bélanger, Chabot et Associés Inc.

Completion Date: May 1973

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential manufacturing opportunities for hydraulic system components in Canada.

SUMMARY

A. Products covered by this Report

- Hydraulic systems - The technology of a hydraulic system is based on the transmission of power by potential energy changes in a fluid circulated at a controlled rate.
- Hydraulic systems have three major components: pumps, valves and hydraulic motors.
- Industrial applications can be found in agriculture equipment, construction equipment, industrial machinery, civil aviation, logging equipment and marine equipment.

B. Market

Statistics 1972
Canadian market for Hydraulic System Components
(Major Industrial Applications)
(in $'000)

Canadian Production	13,964
*Imports	18,030
Exports	Negligible
Apparent Consumption	31,994

* The current major supplier is the U.S. - Between 1966 and 1972 imports grew at a rate of 8.5% per annum - Canadian imports were predominantly pumps, valves and cylinders.

Market Forecast - The domestic consumption for hydraulic systems is expected to grow at a compound rate of 7% per annum through 1977.

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C. Production

- There are only two Canadian manufacturers of major components for hydraulic systems. Both are located in Western Canada.
- More than 200 manufacturers, usually small machine shops, are currently fabricating cylinders and over 300 distributors of mostly foreign manufactured major components are involved in the fabrication of assemblies or systems in Canada.

D. Costs

No figures are available, but engineering costs are reported to be significant.

CONCLUSIONS

Opportunities appear to exist in two major fields.

The most deficient sector of the Canadian market appears to be the manufacturing of pumps, valves and motors. This market is estimated at $13.0 million in value of components, most of which are imported from the U.S.A.

The first opportunity therefore would be for the manufacturer of these components in Canada to replace Canadian imports. Because of the diversity of products in this field and the originality of designs, an investor considering such an opportunity should not only consider the relatively limited Canadian major component market, but consider as well:

- the American original equipment market;
- the American after market;
- the specific American original equipment market of industrial products re-exported to Canada.

The second opportunity is for European manufacturers of patented hydraulic systems and/or industrial pieces of machinery or equipment which include hydraulic systems to set up in Canada to penetrate the Canadian and the American markets.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

LOW PRESSURE GAS CYLINDERS
AND TANKS IN CANADA

Ref. File No. CAN I-220

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: February 1973.

OBJECTIVES OF STUDY

To determine whether adequate Canadian production facilities exist for the manufacture of low pressure gas cylinders and tanks, and if not, whether the market size would justify the establishment of such a facility.

SUMMARY

A. Products covered by this Report

Low pressure gas cylinders or tanks. For the purpose of this survey, they are considered to be a metal tank or cylinder or container which contains a gas or gaseous mixture at a positive pressure differential (less than 500 psig) relative to standard temperature and pressure at sea level (S.T.P.).

B. Market

- The Canadian market for low pressure gas cylinders and tanks is not homogeneous. It comprises four highly distinct and differentiated segments which are as follows: acetylene cylinders, low pressure cylinders and tanks for noxious gases, cylinders for low pressure fire extinguishers and cylinders and tanks for liquified petroleum gases.
- Current figures on each of the market segments are not available but in 1970 it was estimated that the overall market for low pressure gas cylinders and tanks was as follows:

Canadian production	$18 million
Imports	$3 million
Exports	Negligible
Apparent consumption	$21 million

- Market forecast

Consumption of the four types of containers are forecast to grow on an annual basis as follows:

Acetylene cylinders	No growth expected
Low pressure cylinders and tanks for noxious gases	11%-12% for 1 ton chlorine containers only
Cylinders for low pressure fire extinguishers	10%
Cylinders and tanks for liquified petroleum gases	5% - 7%

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C. Production

Five major manufacturers are currently involved in the manufacture of these commodities in Canada. Four producers are in Eastern Canada and one is located in the Prairies.

D. Costs

Estimates of major manufacturing costs are as follows:
(in %)

	Acetylene Cylinders	Low Pressure Cylinders and Tanks for Noxious gases	Cylinders for Low Pressure Fire Extinguishers
Raw materials	66	40	65
Labour	13	20	10
Overhead and Profit	21	40	25
Ex-Work costs	100%	100%	100%

Note - No data available on costs for cylinders and tanks for liquified petroleum gases.
- All market segments are reported to be sensitive to transportation costs.

Import tariffs are as follows:

Most favoured nations	17.5%	
Britain (U.S.A.)	15%	(Aluminum cylinders)
	Free	(Steel cylinders)

CONCLUSIONS

The existing Canadian productive capacity appears adequate to fully service demand for the foreseeable future. Therefore, little justification can be found for establishing a new cylinder manufacturing facility. The only apparent opportunity to establish new productive capacity appears to lie in tanks for liquified petroleum gases, especially in the Maritimes and B.C. markets.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

SAWS, SAWMILL MACHINERY EQUIPMENT AND PARTS — Ref. File No. CAN I-221

Undertaken by: Gauthier, Poulin, Thériault et Associés

Completion Date: March 1973

OBJECTIVES OF STUDY

To provide an evaluation of the possibilities of industrial development in the field of fabrication of supplies, of machinery and of equipment destined for the sawmill industry in Canada.

SUMMARY

A. Products covered by this Report

Tools and machinery used for the production of lumber: circular saw, band saw, blade, debarker, slash saw, log selector, manual selector, automatic-electronic selector, basic, circular saw (head machines), band saw (Head machines), log chipper (head machine, resaw, edger, trimmer, chipper, planer, piler, strapping machines, dry kiln, refuse burner, conveyor, sorting tables, recording sets and switches.

B. Market

Evaluation of the sales of machinery, equipment and supplier in the sector of the sawmill industry in Canada

	Statistics (in $'000)	
Detail	1970	1975
Supplies	6,000	8,700
Replacement machinery and equipment	29,600	41,500
Machinery and equipment new mills	10,500	14,700
Exportation	5,360	7,400
Total Canadian Production	51,460	72,300
Importation	5,960	8,500
Apparent consumption	52,060	73,400

Market growth - On the basis of these assumptions, the domestic consumption is expected to grow at a rate of 7% per annum through 1975. For that same period, imports and exports are expected to grow at an identical annual rate of 7%.

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C. Production

Over 150 companies are involved in the manufacture of sawmill machinery equipment and parts in Canada. Quebec and British Columbia are the main producers with over 80% of the total number of manufacturers.

D. Costs

Estimates of manufacturing costs are as follows:

Raw materials	25
Starting of operation	20
Labor	25
Specialty, generating components, etc.	5
Commission, profits	25
	100%

Note - These percentages are general averages. Several factors may cause these proportions to vary depending on the characteristics peculiar to each industry.

CONCLUSIONS

The annual rate of growth for the decade 1971-1980 is qualified as normal and the increase in the demand for supplies machinery and equipment will be in a large part absorbed by the factories now in place. The possibility of the installation of new fabrication factories are therefore limited in the course of this decade.

Certain fields of activity offer, however, perspectives for a quite interesting future. Eastern Canada imports its dry kilns from the Canadian West and almost all the recording sets and electronic switches from the U.S. and the Scandinavian countries. This last domain is very promising and offers the most interesting possibilities for development as much for the domestic market as for exportations. The fabrication of recording sets and electronic switches necessitate, however, advanced technical knowledge and constant investment in research and development.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

CANADA POWER LAWN MOWER INDUSTRY Ref. File No. CAN I-222

Undertaken by: Hickling-Johnston Limited

Completion Date: February 1973

OBJECTIVES OF STUDY

To assess the existing and future markets for power lawn mowers and the opportunity for new Canadian activity within a region or special area.

SUMMARY

A. Products covered by this Report

Power mowers - gas and electric.
Riding mowers and garden tractors.

B. Market

In 1972 the Canadian Outdoor Power Equipment Associate members reported shipments equaling 312,000 units - this figure accounts for 90% of the estimated 1972 total market of 350,000 units (excluding riding mowers and garden tractors). At least 60% of the market for lawn mowers is in Ontario and Quebec, mainly along the Windsor-Toronto-Montreal axis.

Gas and Electric mowers

Between 1965-1970 there was a substantial growth in the dollar value of shipments of Canadian production from $11,935,000 in 1965 to $18,281,000 in 1970. This represents an annual growth rate of 9% over 5 years.
The 1972 shipments of 350,000 represents an increase of 9.2% over 1971. In recent years the market for electric mowers has grown to greater than one in every three mowers sold, but this is a uniquely Canadian phenomenon.

Market Forecast - It is estimated that the market will increase at an average of 2-3% per annum from 1972 to 1976.

Imports - In 1971, 29,000 units were imported - this represents 8% of total sales.

Exports - In 1970, 1,324 units were exported at a value of $522,000. The 1971 exports of 1,384 units were valued at $333,000.

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Riding Mowers and Garden Tractors

- Most riding mowers and all tractors are imported from the U.S.
- The total volume of riding mowers and garden tractors in 1971 was $10,200,000.
- In the last five years there has been a dramatic growth in this sector of the market. This trend is predicted to continue.
- The 1972 market is estimated to be between 17,000 and 18,000 units - 12,000 rider mowers; 5,000-6,000 tractors.

C. Production

Eight companies currently manufacture in Canada while at least eight other companies import foreign equipment for resale. All manufacturers except one are U.S. subsidiaries. Three manufacturers assemble models of riding mowers in Canada.

D. Costs

	Gas Mowers	Electric Mowers
Power Source	67%	45%
Other Parts	22%	35%
Labour	4%	7%
Factory Overhead	7%	13%

Tariffs

	British Preferential	Most Favoured Nation	General
Completed Mower, with or without power unit	15%	17½%	32½%
Gasoline engines	5%	10%	32½%
Parts	5%	10%	32½%

Lawn and garden tractors are duty free under the agricultural implements regulations.

CONCLUSIONS

Since all power lawn mower parts are readily available, entry into this market requires capacity for assembly only. Competition is intense and the market is fragmented. Entry into this competitive field would be extremely costly as existing manufacturers will fight hard to preserve volume and profit levels against further dilution. The power lawn mower industry should be considered as a low priority opportunity for developing meaningful support programs.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

HYDRAULIC PUMPS AND MOTORS Ref. File No. CAN I-223

Undertaken by: Stevenson & Kellogg, Ltd.

Completion Date: March 1973

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential manufacturing opportunities for hydraulic pumps and motors in Canada.

SUMMARY

A. Products covered by this Report

Hydraulic pumps and motors that include vane, gear and piston pumps and motors used for the transmission of power (or motion) in equipment, other than automotive or aircraft.

B. Market

Statistics 1972

Canadian Market for Pumps and Motors
($'000)

Canadian Production	525
*Imports	8,809
Exports	1,160
Apparent Consumption	8,174

* The major supplier is the U.S. with over 90% of the overall imports.

Market forecast - The Canadian Market is expected to grow at an annual rate of 13% through 1975.
- Imports are expected to increase at an approximate rate of 10% per annum through 1975.

C. Production

In 1972, 3 producers were currently involved in the manufacture of pumps in Canada. Of the three manufacturers two companies produced pumps for their own use and the other one produced pumps as a sideline to its cylinder business.

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D. Costs

Cost Category	% Distribution of Cost Low Price $100-150	Medium Price $300-700	High Price $1000 up
Raw Materials (castings, parts, materials)	27	23	15
Factory Labour	12	15	21
Engineering	8	10	13
Manufacturing Overhead	22	22	22
Sales and Distribution	19	18	17
Profit (before taxes)	12	12	12

Current Import Tariffs are as follows:

Most favoured nations	15%
Commonwealth Countries	2.5%

Note - While this equipment is presumably subject to the above tariffs structure, a considerable amount is coming in duty free as they are not produced in Canada.

CONCLUSIONS

It is generally agreed that the Canadian market is too small to absorb a new entry in repetitive lines of production. A more logical course would be to evaluate the potential for manufacturing not only pumps, but also other hydraulic components, such as valving, which are sold to the same customers.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of study on:

ELECTRICAL AND ELECTRONIC SWITCHES Ref. File No. CAN I-224

Undertaken by: Stevenson & Kellogg Ltd.

Completion Date: February 1973.

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential manufacturing opportunities for electrical and electronic switches in Canada.

SUMMARY

Products covered by this Report

High Voltage Switches and Switchboards, Power Distribution and Disconnect Switches, Residential and Industrial Power Switches, Electric appliance and motor vehicle switches, Electronic switches and Telephone switchboards.

Market

Statistics - 1971

Electrical and Electronic Switches Market
(in $ Millions)

	Canadian Production	Imports	Exports	Apparent Consumption	Estimated Annual Growth of Canadian Market Through 1978	Current Number of Canadian Producers
High Voltage Switches and Switchboards	15.0	5.0	4.5	15.5	5%	4
Power Distribution and Disconnect Swtiches	20.0	1.5	1.5	20.0	5%	20
Residential and Industrial Power Switches	8.5	0.05	Negligible	8.55	5%	40
Electric Appliance and Motor Vehicle Switches	10.0	2.0	0.5	11.5	5%	N/A
Electronic Switches	0.6	11.9 *	Very Low	12.5	9%	3
Telephone Switchboards	165.0	0.6	1.5	164.1	6%	2
TOTAL	219.1	21.05	8.0	232.15		

* The Major Suppliers are the U.S. and Japan

Costs

Description of Costs	High Voltage Switches and Switchboards	Power Distribution and Disconnect Switches	Residential and Industrial Power Switches	Electric Appliance and Motor Vehicle Switches	Electronic Switches	Telephone Switchboards
Raw material	20	20	35	30	15	10
Labour	20	15	15	10	15	25
Overhead	25	33	25	40	40	30
Engineering	15	10	-	-	-	15
Transportation	Negligible	2	5	Negligible	-	Low
Marketing & Sales	-	-	-	-	10	-
Profit before taxes	20	20	20	20	20	20
Total	100%	100%	100%	100%	100%	100%

Tariffs

The tariffs governing imports of electrical and electronic switches are set at 17.5% of the invoiced value, except for the Electrical appliance and motor vehicle switches where tariffs are set at 12.5%.

CONCLUSIONS

The Canadian switches market is considered to be competitive. The over fragmentation of the current market combined with the lack of engineering knowhow in Canada, indicate that market entry, in most areas of production, would be difficult for a potential entrepreneur. However, opportunities would exist in the manufacturing of electronic, residential and industrial switches.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

ADDRESSING & MAIL HANDLING EQUIPMENT Ref. File No. CAN I-285

Undertaken by: KATES, PEAT, MARWICK & CO.

Completion Date: 22 November 1972

OBJECTIVES OF STUDY

To provide supportive data and analysis that would give the I.D.B. an indication of the magnitude of the opportunity and the implication of industrial development for Addressing & Mail Handling Equipment.

SUMMARY

A. Products covered by Study

Included for the purpose of this study are mechanical addressing equipment, collating machines and mail opening, folding, inserting and postage machines.

B. Market

Computerization has had a significant impact on this business and mechanical addressing equipment appears to be rapidly diminishing in importance. Growth is expected in the computerized system. Some suppliers have been able to retain medium size billing and mailing operations as customers, however all large users (oil companies, credit unions, etc.) utilize the computerized system.

Most suppliers operate nationally and market other forms of office equipment. Most areas of the market are competitive with the provision of maintenance and services critical to success.

C. Production

1. Imports have dropped from $9.5m in 1970 to $6.5m in 1971.
2. Canadian production is restricted to minor assembly operations and preparation of some addressing system supplies.
3. There are no exports in this field.

D. Costs

Location and transportation is not considered a major cost factor. Skilled labour is considered critical to the production of this type of machinery.

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CONCLUSION

There were difficulties experienced in obtaining valid data on the potential for manufacturing addressing and mail handling equipment in Canada. And a long and detailed approach to foreign manufactures would be required to obtain data.

Opportunities may exist for encouraging greater assembly or some manufacturing by present suppliers in Canada. However, the costs required for marketing, servicing, skilled labour, etc. would deter a new Canadian manufacturer.

Computer technology has significantly diminished the market for mechanical addressing equipment.

This report contained no statistical data.

Department of Regional Economic Expansion
Industrial Development Branch

July, 1973.

Summary of Study on:

AIR COOLED GAS ENGINES — Ref. File No. CAN. I-286

Undertaken by: WOODS, GORDON & CO.

Completion Date: November 1972

OBJECTIVES OF STUDY

To determine opportunities for the manufacturing of air cooled gas engines in Canada.

SUMMARY

A. Products covered by this Study

1. 2-cycle engines in the 2HP to 35HP range as used by the snowmobile industry.

2. 4-cycle engines in the 2HP to 15HP range as used by the lawn and garden industry.

B. Market

- The total Canadian market for 2-cycle engines is estimated at approximately $40 million for 1972.

- The total Canadian market for 4-cycle engines is estimated at approximately $20 million for 1972.

- Market by Consumer & Industry Type (Estimated)

Type	Quantity	Value ($ Million)
2-Cycle Engines		
Snowmobiles	300,000	33.0
Power Chain Saws	155,000	4.6- 5.4
Lawn mowers	40,000	1.2- 1.5
All Terrain Vehicles & Industrial Applications	-	0.75
4-Cycle Engines		
Lawn Mowers	210,000	5.5
Snow Throwers	25,000	1.0
Lawn Tractors	10,000	0.75

- Quebec is the prime market for 2-cycle engines.

- Most of the equipment using 4-cycle engines is manufactured in Ontario.

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C. Production

The vast majority of 2 and 4-cycle engines sold in Canada are imported from the U.S., Europe and Japan. Only a few Canadian manufacturers do assembly work under licence from foreign manufacturers. Import tariffs vary from duty free to a tariff of 15% depending on the end use of the engine. There are no statistics available for total industry production.

D. Costs

The manufacturing equipment is highly automated which suggests high added value per employee and consequently a relatively low labour content per unit of production.

Detailed breakdown of material and labour costs are not available.

CONCLUSIONS

The opportunity for manufacturing in this field appears extremely limited. Licensed assembly of imported components appears to be the only viable possibility at all.

A commercially viable assembly plant for engines (2 or 4-cycles) would have to produce approximately 50,000 units annually to be competitive. A plant of that size would require an investment in the order of $800,000 to $1 million.

A commercially viable production plant for engines (2 or 4-cycles) would have to produce a minimum of approximately 150,000 to 250,000 engines per year. This production would allow them to make their own components and remain competitive.

Department of Regional Economic Expansion
Industrial Development Branch

July, 1973.

Summary of Study on:

AUTOMOTIVE EQUIPMENT & PARTS Ref. File No. CAN I-287

Undertaken by: P.S. Ross & Partners

Completion Date: March 1973

OBJECTIVES OF STUDY

To provide supportive data and analysis that would give the Industrial Development Branch an indication of the magnitude of the opportunity and the implication of industrial development for Automotive Equipment & Parts.

SUMMARY

A. Products covered by study

There are over 200 products covered by this report. They include parts, accessories, service equipment and remanufactured parts.

B. MARKET

1. TOTAL CANADIAN MARKET

The size of the market for automotive equipment and parts was estimated to be $4.5 billion for 1970. The market has an annual growth rate of 5% which corresponds to the annual growth of automobile registration in Canada. Total market volume should therefore be approximately $6.0 billion in 1976.

2. EXPORTS & IMPORTS

Imports were at a level of $3.1 billion and exports were at the $1.8 billion mark in 1972.

C. PRODUCTION

Canadian production was approximately $2.4 billion in 1970.

D. COSTS

Costs vary with different segments of this industry, with raw materials, labour and technology being the major costs.

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CONCLUSIONS:

Although there are no statistics available, the consultant has identified the following products as possible areas of development, worthy of further investigation.

OEM	AFTER MARKET
CASTINGS	BRAKE SHOES
SPRINGS	UNIVERSAL JOINTS
MUFFLERS	SEAL BEAMS
SHOCK ABSORBERS	SHOCK ABSORBERS
PLASTIC LAMINATES	BATTERIES
ELECTRONIC SWITCHES	MUFFLERS
	SPRINGS
	SWITCHES
	CABLES (FLEXIBLE)

Department of Regional Economic Expansion
Industrial Development Branch

July 1973

Summary of Study on:

CONCRETE TRUCK MIXERS Ref. File No. CAN.I-288

Undertaken by: Woods Gordon & Company

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of the opportunity for industrial development for Concrete Truck Mixers.

SUMMARY

A. Products covered by this study

TYPE	CAPACITY
Separate Engine Drive Units	6 to 8 Cu Yd.
Hydraulic Drive Units	6 to 12 Cu Yd.
Tractor Trailor Units	10 to 14 Cu Yd.

B. Market

- Sales of concrete truck mixers (capacity 6 to 14 Cu Yd.) have fluctuated between 400 to 700 units annually in Canada in recent years. This is an estimated value of $3.2 to $5.6 mil. Sales in 1972 are estimated to be approximately 700 units worth roughly $5.6 mil. This value excludes the value of the truck chasis which is usually supplied by the customer to the mixer manufacture.
- Imports account for about 10% (70 units) for a value of $0.5 mil.
- There appears to be very limited exports
- Sales volumes fluctuate because of construction cycles and also because of technological considerations.
- There are about 4000 units in use in Canada at the present and roughly 550 have to be replaced each year; this forms the bulk of annual sales.

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- Regional Market Breakdown

Province	% of total Market
Ontario	50%
Quebec	20%
B.C. & Alberta	20%
Remainder of Canada	10%

C. PRODUCTION

- Canadian production in 1972 was 630 units valued at $5.1 mil.
- The existing 3 major manufactures of concrete truck mixers are situated in Ontario and B.C.

D. COSTS

1. MIXER COST BREAKDOWN

The major breakdown of costs are as follows:

	% of total Cost
Raw Materials	50
Labour and overhead	50

2. EQUIPMENT

Estimated capital costs to set up operations for a plant with a capacity of at least 100 units from a new manufacturer are estimated at $1.0 million. This estimate excludes building costs.

CONCLUSIONS:

At present there are no manufacturers of truck mixers in Quebec.

As regional service is a prime factor in purchasers selecting a manufacturer's product there may be an opportunity in Quebec for a manufacturing facility as approximately 150 units are sold annually there. Thirty or so units are sold annually in the Maritimes.

Department of Regional Economic Expansion
Industrial Development Branch

July 1973

Summary of Study on:

DISPOSABLE MEDICAL & SURGICAL SUPPLIES
(METAL PRODUCTS) Ref. File No. CAN. I-289

Undertaken by: URWICK, CURRIE & PARTNERS LTD.

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide supportive data and analysis that would give the Industrial Development Branch an indication of the magnitude of the opportunity and the implication of industrial development for disposable medical and surgical supplies.

SUMMARY

A. Products Covered by this Study

1. Surgical blades
   - Disposable blades for scalpels and lancets.
2. Surgical Tools
   - The most common disposable surgical tool is the scalpel, disposable lancets and broad range of clips and small operating tools.
3. Kits and Trays
   - These items are pre-package products containing all items necessary to perform a particular procedure. The major trays in use include:

Foley Catheterization	Suture Removal Tray
Shave Prep. Trays	Spinal & Caudal Anesthesia Trays
Enema Sets	Drainage Trays
Irrigation Trays	Dressing Trays
Lumbar-Puncture Trays	

   - Many trays available are hybrid, in that they contain items such as forceps, which are intended for re-use.

B. Market

1. Surgical Blades
   - An estimate of the total market for 1972 would amount to around $150,000 to $300,000.
   - Virtually all surgical blades are reported to be imported.

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2. Surgical tools

	1965	1972	1975
- U.S. Sales - $ Million	3.0	9.0	12.0
- Canadian Sales - $ Million	0.1	0.4	0.6

- Scalpels are reported to represent 70-80% of the total sales, however, new disposable surgical tools are becoming available such as skin and facial clips, towel holders, retractors and forceps for minor procedures.
- Virtually all the disposable surgical tools are reported to be imported.

3. Kits & Trays

- Disposable catheter trays have achieved quite broad acceptance, and are used to some extent in an estimated 50% of hospitals in Canada.
- Estimates of Canadian Consumption of totally disposable kits and trays:

	1965	1972	1975 (Projected
$ Million	0.5	2.0	3.0

PRODUCTION

1. Surgical Blades

- There appears to be no Canadian production of surgical blades.

2. Surgical tools

- There appears to be little or no Canadian production of disposable surgical tools.

3. Kits & Trays

- No reliable data are available on Canadian production. A rough estimate identifies Canadian production at about 25% of total Canadian consumption.

D. COSTS

Cost data in Canada are unavailable.

CONCLUSIONS

Kits and trays can only be successfully produced by manufacturers with a broad range of successful disposable medical and surgical supplies.

Surgical tools and blades do not appear to offer viable opportunities.

Department of Regional Economic Expansion
Industrial Development Branch

July 1973

Summary of Study on:

DISPOSABLE MEDICAL & SURGICAL SUPPLIES
(RUBBER PRODUCTS) Ref. File No. CAN. I-289

Undertaken by: URWICK, CURRIE & PARTNERS LTD.

Completion Date: November 1972.

OBJECTIVES OF STUDY

To provide supportive data and analysis that would give the Industrial Development Branch an indication of the magnitude of the opportunity and the implication of industrial development for disposable medical and surgical supplies.

SUMMARY

A. Products Covered by this Study

1. Bags & Tubes, including Catheters

- Disposable plastic and rubber tubes include: stomach intestinal, intravenous, blood administration, enema and urinary discharge tube.
- Disposable bags include: blood collecting, breathing, colostomy, iliastomy, douche, drainage and enema bags.

2. Examination and Surgeon's Gloves

B. Market

1. Bags, tubes, including catheters

Estimated Canadian Consumption Bags, Tubes & Catheters	1968	1972	1975 (Projected)
- reusable & disposable (est.)	$8.5mil.	$1.3mil.	$18.5mil.
- disposables only (est.)	2.5mil.	4.2mil.	6.5mil.
- disposables as % of total	30%	32%	35%
- disposable tubes & catheters	$1.0mil.	$1.8mil.	$ 2.8mil.
- disposable bags	1.5mil.	2.4mil.	3.8mil.

Growth of all rubber and rubber-substitute products is reported to have achieved a rate of approximately 11% per annum. Disposables have achieved an annual growth rate in the order of around 15%.

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2. Examination and Surgeon's Gloves

- It is reported that the use of disposable gloves in Canada has approached saturation level.
- Estimated Canadian Consumption

Disposable Gloves		1965	1972	1975
Sterile	- $ Million	1.0	2.5	3.5
Semi-sterile	- $ Million	0.1	0.2	0.4
Total	- $ Million	1.1	2.7	3.9

- Approximately 75% of all examination and surgeons gloves are imported.

C. Production

1. Disposable tubes, bags & catheters

1972	Disposable Tubes and Catheters	Disposable Bags
Canadian Production	$0.2 mil	$0.8 mil
(Est.) Imports	1.6 mil	1.6 mil

2. Examination & Surgeon's Gloves

- Canadian production accounts for about only 25% of total Canadian consumption.
- There are approximately five firms engaged in the manufacture of examination and surgeon's gloves in Canada.

D. Costs

Cost data in Canada are unavailable.

CONCLUSIONS

Each of the markets offers potential for expanded production in Canada. The most attractive opportunity for companies new to the disposable medical and surgical supplies market appears to be in the area of rubber and rubber substitute products, notably:

Bags	Tubes
Catheters	Gloves

Department of Regional Economic Expansion
Industrial Development Branch

July 1973

Summary of Study on:

DISPOSABLE SYRINGES, NEEDLES & PARTS Ref. File No. CAN. I-290

Undertaken by: Urwick, Currie & Partners

Completion Date: November 1972.

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of the opportunity for industrial development for disposable syringes, needles and parts.

SUMMARY

A. Products Covered by this Study

- The hypodermic syringe and needle are one of the most widely used disposable medical and surgical products, and are used to some extent by virtually every Canadian Hospital & Clinic and by a high proportion of physicians.
- The disposable hypodermic syringe comprises:
  - -- barrel, marked with volume graduation, and plunger produced by injection molding of polypropylene.
  - -- steel needle with plastic attachments for connecting to syringe. Disposable needles can be used with reusable hypodermic syringes, and have largely displaced reusable needles.
  - -- flexible plastics sheath over the needle, acting as tamper-proof seal.
- Syringes are required in a range from 1cc to 50cc.
- Needles will vary in length.

B. Market

- There are no statistics available for the Canadian market for disposable syringes and needles. However, the following are estimated proportions that disposable syringes and needles represent of total syringes and needles.

	1968	1972	1975
Sales $million (all syringes & needles)	7	13	26
Disposable Syringes & needles as a Proportion of total	50%	60%	70%

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	1971 $ Million
Total Canadian Production	6.7
Imports	6.3
Exports (est.)	Negligible
Total apparent Canadian Consumption	13.0

C. Production

- Virtually all production of disposable syringes and needles in Canada is by subsidiaries of U.S. Companies.
- It is estimated that there are three major companies which account for over 90% of Canadian production.

D. Costs

- The syringe is manufactured mainly from plastics. Therefore:
  -- raw material costs are not significant
  -- labour is the major manufacturing cost
  -- design would be a major start-up cost.
- The needle is manufactured from steel and highly polished. Therefore:
  -- the manufacturing process uses machinery primarily
  -- labour is insignificant as a cost
  -- raw materials must meet exact standards.
- Marketing and packaging would be significant costs.
- Transportation is an insignificant cost item on a unit basis.

CONCLUSIONS

- Disposable syringes and needles are key items within the disposable medical and surgical products market.
- Syringes and needles are not high technology products.
- A 10% share of the Canadian market would produce approximately $1.3 million sales in 1972, and $2.6 million in 1975.
- Since Canadian production accounts for only 50% of Canadian consumption, it is possible that expanded or new facilities could be supported by the Canadian Market.

Department of Regional Economic Expansion
Industrial Development Branch

July 1973

Summary of Study on:

GOLF BALLS AND CLUBS Ref. File No. CAN I-291

Undertaken by: Kates, Peat, Marwick & Co.

Completion date: November 1972

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for golf balls and clubs.

SUMMARY

A. Products covered by this report

1. Golf Balls - As defined by the U.S. Golf Association, with a diameter no greater than 1.680 inches and weighing no more than 1.620 ounces. Most golf balls consist of three basic parts: centre core, rubber winding and cover.

2. Clubs - Basic restrictions are as follows:

   1. Head cannot have moveable weight
   2. Putter face must be longer than its width
   3. Shafts must be straight

B. Market

STATISTICS - 1971

	Clubs	Balls	Total
	$'000	$'000	$'000
Canadian production	7,500	2,000	9,500
Imports	1,650*	1,530	3,180
Exports	Would appear to be less than 1% of all sporting goods shipments. Major export market is Japan		
Apparent Canadian Consumption	9,150*	3,530	12,680

* - These figures include imports of component parts of clubs as well as finished clubs

Market growth rate - Between 1967 and 1969, the number of active golfers in Canada rose from 600,000 to 800,000 while number of private and fee paying courses rose from 200 in 1961 to 774 in 1968. Strong growth is expected expecially if new facilities are created more rapidly.

C. Production

1. Golf Balls - Approximately 500,000 dozen balls are produced in Canada each year. Domestic production is by two major manufacturers plus a number of small companies across the country which are mostly one-man operations.

2. Clubs - There are five major manufacturers in Canada. Their production consists essentially in an assembling and finishing process.

D. Costs

1. Golf Balls - Total costs are split approximately equally between raw materials, labour, processing, selling and administrative costs.

2. Clubs - Little expensive equipment needed. Costs are broken down as follow: raw material 40-45%; labour 30-35%; other 20-25%.

- In both cases marketing and promotion costs are important items.

- Tariffs are as follow:

	British preferential	Most favoured nations	General
Forged club heads (not finished)	10%	10%	30%
Golf shafts, not chromium plated	Free	15%	35%
Golf balls and clubs	15%	20%	35%

CONCLUSIONS

- Continued growth seems assured provided golfers are given adequate facilities
- Presently, there is a manufacturing opportunity in Canada especially for component parts of clubs where Canadian manufacturers are actually depending on a single U.S. producer for supplies of shafts and grips.

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

MICROFILM EQUIPMENT Ref. File No. CAN I-292

Undertaken by: Urwick, Currie & Partners Ltd.

Completion Date: November 1972.

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for Microfilm Equipment.

SUMMARY

A. Products Covered by this Report

Microfilm equipment is that equipment used to photograph documents and other visual data, process the film and allow access to the documents or data for reference. Microfilm is now utilized as a data storage medium in preference to conventional paper in a wide variety of areas such as hospitals, police departments, libraries, educational institutions as well as business in general.

B. Market

- The total Canadian market was estimated at $5.35 million in 1972.
- 98% of all microfilm equipment sold in Canada in that year was imported. Approximately 90% of all imports were from the U.S.
- Approximately 60% of the total Canadian market was accounted for by microfilm equipment as opposed to film and services.
- The Canadian market growth is expected to exceed the U.S. Rate (currently stable at about 20%) until the ratio of market sizes approaches the more common 10:100 relationship. The current ratio was 3:100 in 1972.
- The predominant market trends are characterized by rapid and continuing new product introductions which incorporate product improvements coupled with price reductions.

C. Production

There was only one Canadian manufacturer in 1972, currently producing a microfilm reader/printer specifically for library use.

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D. Costs

Research, development and design are a major cost factor. Labour and raw materials costs are not abnormally high in the manufacture of this equipment when compared to the total equipment cost. Transportation is not an inhibiting factor in locating in any area where other costs can be reduced.
A detailed breakdown of material and labour costs is not available.
Import tariffs for non-Commonwealth countries are as follows:

Readers	15%
Reader/Printers	Free
Cameras	15%
Processors	Free
Duplicators	Free
C.O.M.	15%

CONCLUSIONS

Since market development is not complete, many gaps exist in the market which could be satisfied by a Canadian manufacturer. It would seem that potential Canadian manufacturers should concentrate on less complex microfilm equipment such as readers and reader/printers rather than on cameras or C.O.M. equipment which require higher development and marketing expenditures.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

MOTORCYCLES Ref. File No. CAN I-293

Undertaken by: KATES, PEAT, MARWICK & CO.

Completion date: November 1972

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for motorcycles.

SUMMARY

A. Products Covered by this Report

- Minibike - up to 175 cc
- Minicycle - up to 125 cc
- Mini Trail - up to 125 cc
- Dual Purpose - up to 750 cc
- Street Machine - road only - up to 1200 cc
- Competition - road and off-road - up to 750 cc

B. Market

- A favourable demographic situation, increased leisure time available to workers and the rapid increases in average disposable income will enable motorcycle demand to grow at an annual rate of 10% per annum for the next five years.
- Canada imported 92,428 machines worth $25,831,000 in 1971 and this is approximately an 80% increase in value of imports over 1969. Japan is first supplier with 65.6% of the total import value.
- Greatest increase in demand is in the 91-190 cc and over 290 cc categories, whereas the minibike market is declining.
- In 1971, Canada exported $408,000 worth of machines to the U.S. The majority of these machines appear to be over 90 cc.

C. PRODUCTION

- Canadian production is minimal - mostly confined to minibikes. At the moment, there are only two Canadian producers having a combined production rate in 1972 of 6,000 units. Both manufacturers are located in Eastern Canada.

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- Canadian manufacturing of motorcycles of normal sizes is expected to commence on significant scale in the near future.

D. COSTS

The ex-works price of a motorcycle is normally less than half the suggested retail price of the machine.

CONCLUSIONS:

- The size and profitability of the North American market as a whole (over 1½ million machines were imported in 1971) and Canada's proximity to the U.S., would indicate that there are good reasons why a manufacturing facility for motorcycles should be established. Penetration of U.S. market is necessary for economic viability.
- Canadian engine manufacturing is desirable but costs inherent in design, development and promotion of a complete motorcycle appear to be prohibitive.

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

REINFORCED PLASTIC COMPRESSION MOULDING FOR SEATS AND CHAIRS

Ref. File No. CAN I-294

Undertaken by: Woods, Gordon & Company

Completion Date: January 1973

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential markets for compression moulded reinforced seats and chairs in designated regions of Canada.

SUMMARY

A. Products covered by this Report

Compression moulded reinforced seats and chairs. Raw materials utilized in the fabrication process of these commodities are Thermosetting resins and fibre reinforcement. Compression moulded equipment is generally known to have strength and weather resistant properties.

B. Market

No statistical data are included in the report. This production is in its infancy, in Canada, with only small quantities being manufactured. Compression moulded reinforced seats and chairs are new on the market and face three major problems:

1. Being a plastic equipment, it must compete with traditional accepted products (woods or metals) on the basis of price, quality and design.
2. It must compete with the current imports of high quality stylish products from Europe and the U.S.A.
3. Compression moulding technology has not yet reached a stage to produce stylish equipment as can be produced by thermoplastics resins and injection moulding.

C. Production

Two producers, using compression moulding processes, are currently involved in the manufacture of seats and seat components in Canada.

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D. Costs

No data are available. Labour requirements are as follows:

Two men to operate press
Two men to form the seat
One man to trim after pressing
One man for finishing work.

CONCLUSIONS

Advances in compression moulding technology and growing consumer acceptance of plastics furniture may provide an attractive opportunity 3 to 5 years in the future for the compression moulding of seats and chairs. However, the precise timing of such an opportunity is dependent upon the following key factors:

- Weather-deterioration of injection-moulded outdoor furniture produced in the early 1970's is expected to occur after minimal exposure, and once this is clearly established it should open up this market to compression-moulded thermosets which have superior weathering qualities and durability.

- changes in consumer attitude are expected toward the acceptance of plastics for indoor furniture as superior finishes and high style designs are being developed through compressor moulding of furniture products.

Participation of a Canadian manufacturer in this industry, however, is dependent upon the ability of a potential entrant to acquire either a working relationship with European firms on new designs and resin composite formulations, or to staff a prospective operation with capable people. The manufacturer must be capable of high quality design and operating economies permitting participation in the market at competitive prices.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

REINFORCED PLASTICS FILAMENT WINDING Ref. File No. CAN I-295

Undertaken by: Bureau of Management Consulting
Department of Supply and Services

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential manufacturing opportunities for reinforced plastics filament winding in Canada.

SUMMARY

A. Products covered by this Report

Filament winding is only one of a great number of techniques for manufacturing reinforced plastics. Basically, the technique for filament winding consists in winding a continuous filament, coated with a liquid plastic resin, around a rotating body having the shape of the part to be formed. Filament-wound reinforced plastics find applications in aerospace, electrical devices, municipal water and sewage, transportation, etc...

B. Market

Statistics 1972
Canadian Filament-wound Reinforced Plastics Market
(in $'000)

Canadian Production	7,500
Imports	Negligible
Exports	3,000
Apparent Consumption	4,500

Short-term growth - Annual growth in consumption for filament wound products is expected to remain below 10% unless there is a breakthrough in the municipal area. New standards in the area of municipal water works have to be developed. Long-term potential - Developments in the Arctic should increase the demand for reinforced plastics pipes and fittings. Filament winding capacity should not cause major concern, as it is the case with other R.P. products, since a machine can be produced very quickly and installed on site.

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C. Production

Approximately 20 companies are currently involved in the manufacture of filament-wound products in Canada. Ontario is the major producer with 9 manufacturers.

D. Costs

No data are available.

CONCLUSIONS

There is, at the present time, overcapacity in the filament winding industry in Canada. In the short run, the potential manufacturing opportunities for this commodity appear to be limited.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

PULTRUSION OF BARS, ANGLES AND PROFILE PARTS

Ref. File No. CAN I-296

Undertaken by: Woods, Gordon & Co.

Completion Date: November 1972.

OBJECTIVES OF STUDY

To prepare a preliminary analysis of potential markets for pultruded products in designated regions of Canada.

SUMMARY

A. Products Covered by this Report

Shapes produced by pulling continuous strands of resin-impregnated reinforcing material through a die. The shapes may have a solid cross-section or may be hollow. Examples of products are:

ladder rails	window frames
electric motor parts	tool handles
golf club shafts	underground conduit
structural beams	ski poles

In general, pultrusion products are replacements for metal angles, bars and extruded shapes.

B. Markets

No statistical data are included in the report. Pultrusion in Canada is in its infancy with only small quantities being produced. Import and export data are not available and it is believed that most pultruded parts come into Canada as part of a finished product rather than as a basic shape.

C. Production

There are three producers of pultrusion shapes in Canada, all located in Ontario. It is believed that only small quantities of a limited variety of shapes are being made.

The pultrusion process yields constant-section rods, bars and profiles continuously. Basically, fibrous reinforcing material is pulled through a resin bath to soak the fibres, excess resin is removed, and then the material is pulled through a heated die. The heat of the die cures the profile and it emerges as a finished part requiring only to be sized and cut to desired lengths.

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D. Costs

Capital requirements to enter this business range from $100,000 to $300,000. Considerable product and market development work is needed at the current stage of market penetration.

CONCLUSIONS

Pultrusion is developing as a means of producing shapes that will compete primarily with metal shapes, and possibly some wooden shapes. The advantages of pultruded shapes are its dielectric strength, chemical inertness, longitudinal strength and lightness. At present, it results in more expensive products than metal or wood.

A new entrant into pultrusion will need clear identification of markets as well as access to polymeric and fibre technology.

A specific opportunity for new production facilities was not identified.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

METAL SHIPPING CONTAINERS Ref. File No. CAN. I-297

Undertaken by: WOODS, GORDON & CO.

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide the Industrial Development Branch data and analysis that would identify opportunities for industrial development in metal shipping containers.

SUMMARY

A. Products covered by this Report

- INTERMODAL CONTAINERS: Built to International Standards Organization (IS.O) specifications, and are used for intermodal transportation and can be carried on anyone of a number of international ships as well as by rail and road carriers.

  Most Often Used Types:

Width	Height	Length
8'	8'	20'
8'	8'	40'
8'	8'-6"	20'
8'	8'-6"	40'
8'	4'	20'
8'	4'	40'

- DOMESTIC CONTAINERS: Used by air cargo, railway and other regional systems. These containers are not normally interchangeable with the international type containers and usually circulate within a "closed" or "captive" system.

A number of different types of containers exist within the size specifications. The classifications total as many as forty; the more common are:

Closed Containers	Open Top Containers
Ventilated Containers	Tank Containers
Insulated Containers	Other Bulk Containers

B. Market (World)

The international shipping container business is a growth industry (25% to 30% annually). In 1972, some 13,000 new containers worth from $35m to $40m are expected to enter service. The market is characterized by a relatively small number of large scale users operating around the world.

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C. Production

- Every container is made to order at a contract price.
- A 4 to 6 months delivery period appears to be normal, however, some manufacturers are obtaining business by promising 6 to 8 weeks delivery.
- Because statistics are not available, it is difficult to identify major world manufacturers of containers. One list of world wide manufacturers includes 62 names, although the activity each represents is questionable.
- Canadian manufacturers have not produced any significant container volume in the past several years, with the exception of one company who have produced roughly 1,200 over this period.
- It is estimated that there will be over one million containers of all types in service at the end of 1973. (World consumption)

D. Costs

Since this is a relatively new industry, no cost figures are available. However, an estimate would be:

Raw materials	40%
Labour	25%
Fixed Overhead	35%

CONCLUSIONS

Domestic container requirements for internal usage do not have to conform to international specifications and sales in the order of $300,000 to $800,000 annually do not warrant the entry of a new manufacturer into this field.

The intermodal market is highly competitive and price conscious and to compete effectively a new manufacturer will likely have to manufacture about 2,500 unit annually, for world distribution.

In view of the 25-30%/year growth of the industry all possibilities should be fully reviewed.

An opportunity appears to exist for a Canadian firm to volume manufacture intermodal shipping containers to meet international specification and standards.

This has been identified as a promotable opportunity with a good potential.

Department of Regional Economic Expansion
Industrial Development Branch

July 1973.

Summary of Study on:

SKI INDUSTRY (SNOW) Ref. File No. CAN I-298

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for skis.

SUMMARY

A. Products covered by this report

This report deals with snow skis which can be divided into downhill, jumping and cross-country skis. Originally snow skis were fashioned from one piece of wood but modern technology has made possible the utilization of new materials (plastic, metal and fiberglass) in their construction.

B. Market

- Studies have shown that the income level of skier tends to be higher than the average income of the population as a whole.

- It is estimated that the skier population will grow from 928,000 in 1972 to 1,634,000 in 1977.

- Canadian consumption of skis reached $6.01 million in 1970, up 218% over the figure of $2.76 million in 1964.

- During the last five years consumption has increased at an average rate of 30.5%. Demand for cross-country skis was and is still particularly high.

- Imports represents 90% of Canadian snow skis consumption. Major suppliers are Austria and Japan.

- Projection of future market as a whole is as follows:

1972 - 434,000 pairs	$9,097,000 shipment value
1976 - 682,000 pairs	$20,821,000 shipment value

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C. Production

Ski manufacturing industry in Canada consists of seven establishments employing 50 people. Five of the total seven are located in Quebec.

Domestic ski production amounted to only a few thousand pairs and no more than $200,000 in value of factory shipments in 1970.

D. Costs

- Composition of direct costs varies mainly in relation to ski quality; low price skis have a large component of raw materials and labour content increases in high performance skis. Trade and technology costs are also important items.

- Tariffs are as follow:

British preferential	20.0%
Most favoured nations	20.0%
General	35.0%

CONCLUSIONS

- Canadian market can support an expansion of present industry manufacturing capacity for small to medium sized operations especially in the production of cross-country skis.

- New investments in this field will face fierce competition from imports in all segments of the ski market.

- Purchase of technology would be more economic and would reduce risk factors.

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

ELECTRONIC SOUND EQUIPMENT — Ref. File No. CAN I-299

Undertaken by: Stevenson & Kellogg, Ltd.

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide a preliminary evaluation of potential manufacturing opportunities in Canada for electronic sound equipment.

SUMMARY

A. Products Covered by this Report

Sound amplifiers, loud speakers and public address (PA) systems. The following are not covered: amplifier-tuners, Hi-FiStereo consoles and hearing aids.

B. Market

The estimates for these products for 1972 are as follows:

	Amplifiers & PA Systems $'000	Speakers $'000	Total $'000
Canadian Production	8,000	2,400	10,400
Imports	10,000	18,000	28,000
Exports	1,500	-	1,500
Apparent Consumption	16,500	20,400	36,900

The major source of imports is the U.S.A.

Canadian manufacturers are protected by a 17½% tariff, but can ship to the U.S.A. against a 7½% U.S. tariff.

C. Production

Five Canadian manufacturers account for 75-80% of total Canadian production and there are many small manufacturers. Four of the five major firms are in the Toronto region and one is in Winnipeg.

D. Costs

Costs, as a percentage of sales value, are estimated to be:

Raw material	25%
Direct labour	15%
Overhead	22%
Marketing	18%
Research & Development	8%
Profit	12%
	100%

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CONCLUSIONS

It is believed that there is potential for additional Canadian manufacture of electronic sound equipment.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

"OTHER" SPORTING BALLS Ref. File No. CAN I-300

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: November 1972.

OBJECTIVES OF STUDY

To provide supportive data and analysis that would indicate the opportunity for additional investment in production facilities for "other" sporting balls.

SUMMARY

A. Products covered by this report

- baseballs
- softballs
- footballs
- basketballs
- volleyballs
- soccer balls

(golf and tennis balls are covered in studies CAN I-291 and CAN I-301)

B. Market

Statistics - 1970

Value of Production ($,000)					Imports	Exports	Apparent Canadian Consumption
Year	Baseballs Softballs	Footballs	Others	Total			
1970	1,912	784	2,225	4,921	2,028	-	6,949

- Domestic production of other sporting balls has grown at an average annual rate of 6.8% during the period from 1960-1970.
- Canadian consumption for this same period has increased at an average annual rate of 9%.
- The market is concentrated mainly in Ontario and Quebec - these two provinces comprising 70-75% of the total Canadian market.
- Imports have increased at a rate of 13.5% per annum between 1960 and 1970.
- The two major sources of imports are the U.S., which accounted for 51.8% of imports in 1970, and Japan which accounted for 30.2% of imports.
- There are no exports of this commodity from Canada

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C. Production

Canadian production is by six producers, two of which are located in Quebec while the other four are located in Southern Ontario.

D. Costs

- There is great difficulty in identifying cost data, however it is agreed that the major item is labour, which is difficult to obtain and has a high cost.
- Cost of athletic leathers has risen from $0.76 per foot to $1.50 per foot in the past two years.

Tariffs are as follows:

British Preferential	Most Favoured Nation	General
15%	20%	30%

CONCLUSIONS

Due to increasing leisure time available to workers, along with rapid increases in average personal disposable income, all six sports are growing rapidly in Canada. However, Canadian production is suffering due to the increase in quality imports from the Orient.

Any new or additional investment in production capacity would need to be related to a major technical change in methods for stitching balls.

Since this is essentially a cottage industry operation, industrial opportunities for other sporting balls might be possible in the Atlantic Provinces, where renewed interest has been shown in local or cottage industry.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

TENNIS EQUIPMENT AND OTHER RACKETS Ref. File No. CAN I-301

Undertaken by: Kates, Peat, Marwick & Co.

Completion Date: November 1972

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for tennis equipment and other rackets.

SUMMARY

A. Products Covered by this Report

Tennis rackets
- metal
- wood

Tennis balls
Badminton rackets
Squash rackets

B. Market

- The Canadian domestic market for rackets and balls is supplied mostly by imports which totalled $2.56 million in 1971 - $2.21 million for rackets; $0.35 million for balls. Tennis rackets account for 80% of all rackets imported.
- Five countries - U.S., U.K., Japan, Taiwan and Pakistan, account for 87% of all imports of rackets.
- Most balls are imported from the United Kingdom. There are no exports of either rackets or balls. Presently there is a movement back to the manufacture of wooden framed rackets and away from steel and aluminum framed rackets.
- Market growth - total consumption has increased fivefold in the past ten years.
  Expenditures on racket sports has increased 3-4 times more rapidly than on all sporting goods during the past 6 years.
  Shipments of rackets have increased from $0.4 million in 1962 to $2.2 million in 1971.
- Annual expenditures are expected to increase at a rate of 12.15% in the next several years and could reach $7.0 million by 1980.

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C. Production

Canadian production of racket sports equipment and balls is minimal. Two companies only, located in Southern Ontario, are involved in the manufacture of rackets. No balls are manufactured in Canada.

D. Costs

Rackets - Production of rackets is very labour intensive and this is the most significant production cost. Transportation is a minor cost item.

Balls - No Data available.

Tariffs

	British Preferential	Most Favoured Nation	Others
All equipment for racket sports	15%	20%	35%

CONCLUSION

Due to increased leisure time, increased availability of facilities, relatively small investment needed in equipment and greater public awareness of racket sports, there appears to be significant room for continued growth. Possibly the easiest and lowest risk method for increased Canadian participation in this industry would be the establishment of additional facilities for finishing, decorating and stringing frames.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

ELECTRICAL & ELECTRONIC TEST EQUIPMENT

Ref. File No. CAN I-302

Undertaken by: Stevenson & Kellogg, Ltd.

Completion Date: February 1973

OBJECTIVES OF STUDY

To provide the Industrial Development Branch with supportive data and analysis that would give an indication of opportunity for industrial development for Electrical and Electronic Test Equipment.

SUMMARY

A. Products Covered by this Report

In the context of this study Test Equipment is: "any electrical or electronic device which is primarily used to test phenomena and which requires a relatively high degree of technological expertise to produce". Some of the more common devices are: oscilloscopes, radio, primary source cells, etc....

B. Market

The total Canadian market in 1972 for this equipment was estimated at $42 million.
The Canadian producers in that year supplied only 4 to 8% of the Canadian Market. The balance of market was held by imports of which 85% came from the U.S. Over half of all imports entered duty-free under tariff item No. 696. On the other hand, almost all Canadian goods exported to the U.S. were subject to duty (10-12%).

- Canadian Market Projection for Electric & Electronic Test Equipment - ($000,000)

Year	Canadian Production	Imports	Exports	Consumption
1975	3.1	49.0	1.6	50.5
1980	4.1	65.0	2.1	67.0
1985	5.3	84.0	2.7	86.6

C. Production

There were only four manufacturers in Canada in 1972. Three were located in Ontario and one in British Columbia. All companies did the design and assembly work for their products.

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D. Costs

Estimate of manufacturing costs is as follows:

	%
Parts	28
Labour (Direct)	10
Overheads	24
Marketing	15
Research & Development	10
Profit (After Taxes)	13
Total	100%

- Tariffs

For testing equipment made in Canada duties are as follows:

	Imports from
U.S. and E.E.C.	17.5%
Commonwealth	15%

For testing devices not made in Canada, these items are subject to a tariff of either 7½% if the goods are sold to industry or none if sold to approved government institutions.

CONCLUSIONS

Because of forecast growth in the Electric and Electronic Test Equipment market, the fact that imports are expected to maintain their actual share of the Canadian market and considering that Canada possesses the technology and the assembly expertise needed to manufacture good qualify test equipment, it is believed that there is an opportunity for expansion of Canadian manufacturing in this area.

Department of Regional Economic Expansion
Industrial Development Branch

August 1973.

Summary of Study on:

WRAPPING & PACKAGING MACHINERY FOR BEVERAGE AND FOOD INDUSTRY

Ref. File No. CAN I-303

Undertaken by: WOODS, GORDON & CO.

Completion Date: November 1972.

OBJECTIVES OF STUDY

To provide supportive data and analysis that would give the Industrial Development Branch an indication of the magnitude of the opportunities for industrial development in the wrapping and packaging machinery for Beverage and Food Industry.

SUMMARY

A. Products covered in Study

The major product lines in wrapping and packaging machinery which are the most relevant to the Canadian food and beverage industry are the following:

Wrapping - Automatic Carton Overwrapping Machines
Shrink Wrapping Machinery

Packaging - Double Package Makers
Tea baggers and Carton-fillers
Thermoform - fill-and-seal machinery
Continuous and intermittent motion pouch and sacket fillers and sealers.

B. Market

The packaging and wrapping equipment market in Canada appears to be about $20 million at present and it appears that the food and beverage industry represents a very large part of this. Growth in demand for equipment has been moderate at about 4% to 5% annually.

Wrapping and packaging machinery consumed in Canada during 1970 amounted to $18.8 million. Imports, at a level of $18.2 million evidently accounted for the major portion of this consumption, while the volume of machinery produced in Canada was roughly equal to the level of exports at $6.8 million and $6.3 million respectively.

Various types of wrapping and packaging machinery are not manufactured in Canada and imports which fit into this category generally enter this country free of tariffs.

C. Production

Roughly 45% of the machinery consumed locally is not available from Canadian manufacturers. The majority of Canadian manufacturers of this machinery is made up of small job shops who tend to specialize in customizing machinery to individual client specifications.

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D. Costs

Over the past decade labour costs in this industry have risen dramatically. This reflects a change in the type of employee in addition to wage increases.
Transportation is generally considered not to be a significant component of total cost.
Sales commissions are substantial (5 to 10 per cent).

CONCLUSIONS

It is expremely difficult to isolate the requirements of the food and beverage industry for packaging and wrapping equipment from such equipment for all Canadian industry. This is partially because the difference lies only in equipment adaptation, but is also because no separate statistics are available.

One of the key characteristics of the present market is that long deliveries are quoted - six to fourteen months. A manufacturer who could offer improved delivery and service would have a distinct advantage.

The equipment has a very high technological content and Canadian companies will probably require technical agreements with the U.S. or European Manufacturers to be successful in exploiting this field.

The main opportunity areas appear to be in:

(i) Shrink-wrap machinery.
(ii) Thermoform, fill-and-seal equipment.

Shrink-wrap reduces packaging cost by approximately 50% and the technology is currently starting to receive favourable acceptance in the food and beverage industry.

Thermoform fill-and-seal has been used in Canada in only a few markets, however, broader interest is currently being demonstrated.

These have been identified as a promotable opportunity with medium potential.

Department of Regional Economic Expansion
Industrial Development Branch

July 1973.

Summary of Study on

STRUCTURAL FOAM PLASTIC PRODUCTS Ref. File No. CAN I-305

Undertaken by: Woods, Gordon & Co.

Completion Date: May 1973

OBJECTIVES OF STUDY

To assess the viability of producing fabricated structural foam plastic products in DREE designated regions or specific areas.

SUMMARY

A. Products Covered by this Study

Structural foam which is defined as a thermoplastic material with integral skins and a foam core, created by the injection into a mould of a combination of resins and gaseous or chemical blowing agents under pressure so that a significant reduction in per part density results

B. Markets

The Major Canadian markets are estimated to be:

CANADIAN STRUCTURAL FOAM MARKET
AVAILABLE TO INDEPENDENT MOLDERS
(millions of pounds)

	1972	1977	1982
Furniture	0.3	2.7	8
Materials Handling	0.5	3	6
Automobiles	0.1	2	7
Appliances	0.2	1.5	3
Building Products	0.2	1.5	7
Other (Business Machine Housings etc.)	0.1	3	9
Total Usage	1.4	13.7	40
Total Market (millions)	$0.8	$7.5	$22

C. Production

There are two companies who have recently entered this field in Canada. Capacities are confidential.

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D. Costs and Profits

Estimates of costs and profits are provided for two facility sizes: one machine and three machines.

	Facility Size	
	1 Machine ($'000)	3 Machines (at full capacity) ($'000)
Sales	870	2600
Costs: Direct	391	1112
Overhead	210	367
	601	1479
Pretax earnings	269	1121
Taxes (@ 50%)	134	560
Profits after tax	135	561
Total investment required	1065	2290
Return on investment per annum	12.7%	24.5%

CONCLUSIONS

There appears to be an excellent opportunity for additional manufacture of structural foam products in Canada. Depending on plant size, between 9 and 26 facilities may be required by 1982, providing employment for 230 to 340 people.

This study is a full feasibility study which covers marketing, process and facility, financial and site selection factors.

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

FOAM PLASTIC SHEET PRODUCTS Ref. File No. CAN I-306

Undertaken by: WOODS GORDON & CO.

Completion Date: May 1973

OBJECTIVES OF STUDY

To assess the viability of producing fabricated foamed sheet products in DREE designated regions or special areas.

SUMMARY

A. Products covered by this study

Egg cartons, meat trays, disposable serviceware. The latter category includes plates, bowls and sectional servers, but excludes cups, mugs and cutlery.

B. Market

The Canadian market for these products is estimated to be:

	1972		1977		1982	
	mill units	$ mill	mill units	$ mill	mill units	$ mill
Egg Cartons	85	2.5	150	4.4	205	6.0
Meat Trays	425	4.0	660	6.3	900	8.6
Serviceware	10	0.2	180	4.0	480	10.5

Of the three product lines, the potential for serviceware appears to offer the most attractive opportunity for a new manufacturing facility. Growth in demand for serviceware is 75% per annum to 1977 and 22% per annum from 1977 to 1982.

C. Production

Foam egg cartons are currently made by five Canadian manufacturers and meat trays are made by four producers. Opportunities for new facilities to produce these products are considered limited. At present there is no manufacturing facility in Canada for disposable foam plastic serviceware.

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D. Costs and Profits

Estimates of costs and profits are provided for two sets of conditions:

	At full capacity	
	150 lb/hr extruder ($000)	300 lb/hr extruder ($000)
Sales	1,140	2,000
Costs-direct	596	848
-overhead	266	343
Pretax earnings	278	809
Taxes (@ 50%)	139	404
Profits after tax	139	405
Total investment required	1,245	1,670
Return on Investment per annum	11.2%	24.2%

CONCLUSIONS

There appears to be an excellent opportunity for the manufacture of foam sheet disposable serviceware in Canada. Depending upon the size of extuders used, the number of single plants needed to satisfy demand in 1982 could range from five to eight and provide employment for from 215 to 310 people.

This study is a full feasibility study which covers marketing, facility, financial analysis and site location factors.

Department Regional Economic Expansion
Industrial Development Branch

August 1973

Summary of Study on:

TREE HARVESTERS Ref. File No. I-308

Undertaken by: DREE, Industrial Development Branch

Completion Date: May, 1973

OBJECTIVE OF STUDY

To determine the feasibility of manufacturing tree harvesters in Canada.

SUMMARY

A. Products Covered By This Study:

1. feller-bunchers
2. short wood
3. tree-length

B. Market

- used in approximately 15% of logging operations in Canada.
- approximately 276 tree-harvesters in use in eastern Canada.
- potential nation-wide market is approximately 3,200 units.
- industry estimates range between 50% and 80% for the harvesters ultimate share of felling operations.

C. Production

At present Canada is both producing and importing harvesters.

CONCLUSIONS

Amongst the three harvesters the tree-length harvester would appear to be the best alternative for promotion. The tree length harvester is capable of harvesting veneer logs, saw logs and pulp logs, while the short wood harvester can only harvest pulp logs. Since part of the operation of the short-wood harvester involves the slashing of logs into 8 foot lengths , this precludes their use as saw or veneer logs. The feller buncher cuts in tree lengths, but lacks the delimbing capacities of the tree length harvester.

Since the harvesters are still in the development stage and presuming that most logging operations are being carried out in the traditional manner in the U.S., there would appear to be export opportunities for a competitive Canadian harvester in this market.

Department of Regional Economic Expansion
Industrial Development Branch

August, 1973

Summary of Study on:

SANDER DUST FROM PARTICLEBOARD Ref. File No. CAN I-331

Undertaken by: Ontario Research Foundation

Completion Date: January 1974

OBJECTIVE OF STUDY

To undertake a preliminary investigation of job-creating uses for sander dust from particleboard mills. The use of sander dust as a fuel is being investigated separately and it was therefore not part of this study.

SUMMARY

A. Products covered by this Report

Dust generated during the manufacture of particleboard. Such dust is usually 200 mesh or finer and typically includes approximately:

1% Grit
2% Wax
5% Resin
92% Wood Flour

B. Markets

There are a number of industries in which sander dust might compete including:

a) The Plastics Industry

This industry uses wood flour as a filler in many moulded products. However, the presence of grit in sander dust would mean that additional processing would be needed to remove the grit.

b) The Foundry Industry

Wood flour is an additive to foundry sand mixtures for volume change compensation, but 50 mesh is the smallest particle size used. To use sander dust (at 200 mesh or finer) it would have to be agglomerated.

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c) The Linoleum and Tile Industry

This industry currently uses calcium carbonate as a filler, and there would have to be obvious advantages in using sander dust to promote its use.

d) Synthetic Resin Adhesives Indsutry

Both phenolic and urea type adhesives use cellulosic flours as extenders and thickeners. The largest volume used is by phenolic type adhesives, and these are used primarily in Western Canada, where large volumes of dust are available from the plywood industry. Urea-type adhesives are utilized to a much smaller degree, and hence represent only a small potential market for sander dust.

e) Other uses

Among other uses considered by the consultant were re-cycling the dust and incorporating it into pressed board, possible utilization in animal feeds, and as a major ingredient of pressed fireplace logs.

C. Production

The report indicates that approximately 28,000 tons per annum of sander dust are produced in Canada.

D. Costs

Costs of using sander dust in the various markets were not part of this preliminary study.

CONCLUSIONS

It is concluded that the use of sander dust in pressed (or manufactured) fireplace logs should be investigated further.

Department of Regional Economic Expansion
Industrial Development Branch

January 1974.