



ASBESTOS - INDUSTRY REVIEW

REMARKS BY

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ASBESTOS

BACKGROUND

The Asbestos Industry is very important to Canada as an industrial mineral. It is relatively small and unknown when compared with the non-ferrous metals of primary interest. The industry in total produces and markets worldwide approximately 5.5 million tons of fibre at a total value of U.S. \$2.5 billion. In order to comprehend this unique industry, background information is being provided as a foundation for further discussion.

(i) Characteristics

Since Asbestos is a natural fibre, each mine's production shows significantly different lengths, chemical content and structural properties, all of which the customer considers. The grading system developed by the Quebec Asbestos Mining Association (Q.A.M.A.) is the most common in use, and is based upon fibre length. (Figure 1).

The long, valuable fibres, Crudes No. 1 and 2 and group 3 are used in the textile industry as electrical insulation, for heat protection, and as a filtration medium.

Medium length fibres, groups 4, 5 and 6 are used as reinforcing in asbestos-cement products, in friction materials such as brake linings, clutch facings, and gasket materials and in asbestos paper.

Short fibres, groups 7, 8 and 9 are used as fillers in plastics, floor tile, oil-well muds and paints. (Table 1).

Although there are hundreds of uses, on a worldwide basis over 70% of the fibre is used in construction materials such as asbestos-cement sheets and pipe.

(ii) Pricing

Prices vary from \$2,000 Cdn. per short ton for grade 3 fibre to \$128 Cdn. per short ton for grade 7. (Table 2). The complex variation between fibres results in pricing that is very specific to a given mine. Asbestos Corporation and Johns-Manville are regarded as the price leaders, issuing prices in the fall of each year quoted F.O.B. mine.

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Asbestos prices had a history of considerable stability. Between 1956 and 1967, the average price rose only 13.5% or approximately 1.2% per year, from \$90 U.S. per short ton to \$102 per short ton. From 1967 until 1974 a 20% (2.8% per year) price increase took place. At this time high price increases were experienced as a readjustment, since the average annual price of asbestos in constant money terms had actually been declining since 1954. (Table 3). During 1974, market conditions allowed prices to be increased three times in one year. Prices continued to rise to keep pace with costs, however poor textile fibre demand in 1977 necessitated a 10% decrease in grade 3 fibre price. The strong market for cement grades continued, with subsequent price increases slightly above the prevailing inflationary rates. (Figure 2).

The principal competitors of asbestos-cement are ductile iron, plastic (PVC) and metal products. Since these competitive products are expected to experience cost pressures related to material and energy costs, the price of asbestos can rise approximately 2.5% per year in constant dollars to maintain its price competitiveness.

The Western Bloc fibre suppliers will be facing increasing price pressures. Russian fibre, entering the market in order to develop a source of foreign exchange, is being offered at reduced prices. However, prices do not necessarily need to decline, since the Comecon Bloc cannot sell all it wants in the short term. Neither the quality nor the delivery of the Russian fibre has been consistent, and international buyers will still wish to maintain a dual supply.

PRODUCTION

(i) World Production

World production has increased fivefold over the past 30 years to over 5,500,000 short tons. (Figure 3). Canada has consistently been the principal Western producer, although its share of world production has decreased from 63% to approximately 25%. The U.S.S.R. is the principal producer with 50% of world production, South Africa 10%, and the remainder divided between Zimbabwe, Italy, China, U.S.A., Australia and others. (Figure 4).

Chrysotile fibre accounts for 90% of world production, with the remaining production consisting of 6% crocidolite (blue asbestos) and 3% amosite. Less than 1% of other types of asbestos (tremolite, anthophyllite) is produced, mainly in the United States.

.../3

The world's leading asbestos-producing organizations are led by the Uralasbest Combine in the U.S.S.R. with a capacity of 1,500,000 metric tons per year. Johns-Manville Canada Inc. is the western world's largest asbestos producer, with a 645,000 metric ton capacity. (Table 4).

Most of the annual output from the U.S.S.R. is consumed domestically, although 600,000 tonnes are exported mainly to eastern European countries, Japan, France, West Germany and India.

The world growth in fibre production has been fairly linear from 1965 to 1972 (Figure 3), growing at about 4.3% per year. The fibre growth during this period approximated the growth in constant dollar capital formation as estimated by the United Nations. In 1973 shipments rose sharply, approximately 10%, and mine inventories declined.

The year 1974, however, was crucial. Because of the worldwide recession brought on by the oil embargo and the rising costs of energy, world production of fibre declined as world fixed capital formation decreased.

In December 1974, a fire at the Asbestos Corporation King Beaver Mine significantly impacted the Canadian industry in 1975. That year the continued world recession, a major cave-in at the Johns-Manville Jeffrey Mine and prolonged strikes in Eastern Canada combined to constrict supply, and price increases took place.

The Canadian and world asbestos industry rebounded in 1976 to almost 1973 production levels, as manufacturers built inventories to avoid the shortages of 1975. Further adjustments took place in 1977 and 1978. The closure of the Clinton mine (100,000 metric tons/year) in 1978 reduced overall Canadian shipments for this year, however 1979 and 1980 showed production increases.

The Canadian asbestos producers and prospective properties are listed in Table 5. The production for Canada in the past few years is listed in Table 6.

(ii) New Production and Expansions

The Comecon countries are assisting in the completion of a project at the new Kienbay deposit in the southern Urals. It is designed to produce 550,000 tonnes per year of asbestos, which will be absorbed by the Comecon countries.

In Greece, the new Zidani Asbestos Mine is reaching its final stages before production. With an estimated life of 25 years, and a production capacity of 100,000 tonnes per year, 20% of this output will be utilized in Greece. The remainder is to be exported primarily to the Mediterranean, Far-Eastern and European markets.

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A new mill in Zimbabwe, is expected to provide greater efficiency and capacity for expansion when fully operational.

Other projects in various stages of development are underway in Brazil, Mexico, Bolivia, Colombia and Yugoslavia, as well as Canada.

(iv) Present Trends

In the early 1980's, an oversupply in group 4 fibre is expected because of depressed conditions. Canadian inventories are already at high levels. The QAMA estimates that their association inventories were 113,800 metric tons of fibre in January 1980, however by year-end, inventories had increased 6.6% to 121,300 metric tons.

Because of the high inventories the Asbestos Corporation Limited (ACL) Normandie mine was closed between mid December, 1980 and February 1, 1981. Two other ACL mines remained closed until the end of February. Extended summer shut downs and reduced work weeks are being contemplated by other producers to correct the supply-demand imbalance and reduce inventories.

(v) Canadian Shipments

Canadian asbestos shipments for 1980 amounted to 1,202,511 metric tons. Shipments by group categories (textile, asbestos-cement, fillers) can be found in Figure 5.

Europe is still the primary textile grade user, although Asia has greatly expanded its influence because of lower labour costs. The United States is still the second largest consumer of Canadian group 3 fibre.

In the group 4 and 5 fibres, Europe consumes 46% of Canadian shipments. Asbestos cement is still a major, reliable product in the construction industry, especially in the price sensitive agricultural sector.

In the groups 6 to 9, the short length filler grades, the United States is the primary consumer of 46% of Canadian shipments, followed by Europe (22%), Asia (21%) and Central and South America (8%).

Canadian shipments to Japan for 1979 and 1980 are compared in Figure 6. Shipments for all groups except group 6 fibre increased between 1979 and 1980, however total shipments to Japan decreased from 126,052 metric tons to 125,442 metric tons. Canada supplied 40.9% of Japan's fibre requirements in 1980 versus 43.1% in 1979. Table 7 shows Canadian tonnage shipped to Japan over the past 6 years.

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CONSUMPTION

Since asbestos is not recycled and stockpiling is kept to a minimum by the industry, annual world consumption of asbestos tends to be approximately the same as annual world production.

Apparent consumption of asbestos by region can be found in Table 8.

The principal uses for asbestos are asbestos-cement (AC) construction materials, floor tiles, paper and friction products. The QAMA estimates that worldwide 70% of asbestos is used in AC applications, and it is the primary use of asbestos in the developing world countries. (Table 9).

(i) Demand Forecasts - by Region

North America

Consumption of all grades of fibre has traditionally averaged around 750,000 metric tons per annum. In 1980 consumption declined to below 550,000 metric tons, with no improvement expected in the current year. The decline is a result of both the recession in the automotive and building sectors, and the permanent reduction in the use of asbestos in certain applications (flooring, AC pipe, felts) because of anti-asbestos sentiment.

Europe

Severe downturns in Scandinavia and the United Kingdom because of anti-asbestos legislation will continue, with an expected reduction in consumption in Germany, France and Italy. Consumption of asbestos will fall to 350,000 metric tons from the normal level of 1,000,000 metric tons.

Central America

A further rise in demand is expected particularly for Mexico as government projects expand in the irrigation and housing areas. Consumption of fibre is expected around the 85,000 metric ton level for this region.

South America

Increasing consumption in South America, principally in Brazil will raise consumption to approximately 250,000 metric tons in 1981. Brazilian consumption, however, is directly linked to their own production of 150,000 metric tons per year at recently expanded facilities.

.../6

Africa

This region at present is not of major significance in world consumption, however consumption has grown to the 120,000 metric ton level.

Reduced activity for 1981 in Algeria and Egypt should be offset by the stronger performance of South Africa and Nigeria, and forecast consumption is still 120,000 metric tons.

Asia

Although performance in this region has been excellent, the prolonged world recession is expected to reduce consumption in Japan and South Korea. Growth in India is continuing, with increased asbestos-cement capacity in Malaysia, Indonesia, and the Philippines. Overall consumption should be approximately 530,000 tonnes.

Middle East

During 1980, demand has been poor from this region principally because of problems in Iran, once a major producer of asbestos cement products. High stock levels in other countries are being reduced, and demand should not exceed 85,000 tonnes.

Oceania

Demand level is steady at 80,000 metric tons per annum, in Australia and New Zealand.

Eastern Europe

Shortage of foreign exchange, and increased availability of Russian fibre will decrease imports from the free world to 350,000 metric tons for 1981.

OVERALL CONSUMPTION AND GROWTH

Demand level for 1981 for Groups 1 - 5 should reach 1,460,000 tonnes. This compares unfavourably with the average level of 1,700,000 tonnes per annum achieved in the period 1976 - 1979.

In most parts of the world, asbestos cement products are well known, accepted and provide desired properties at modest cost. The capital intensity and energy requirements of their manufacture is relatively low and thus the market outlook is good, particularly in developing countries. Growth in real terms over the next 20 years is predicted in Table 10.

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JAPANESE CONSUMPTION

In 1980 Japan imported approximately 300,000 metric tons of asbestos fibre, still below their maximum in 1974. Japanese imports by year and by country of origin are shown in Figure 7.

The usage pattern in Japan is as follows:

Asbestos Cement Sheets	65%
Friction Materials	7%
Textile Materials	3%
Asbestos Cement Pipes	2%
Others (Papers, Felts, Fillers)	<u>23%</u>
	100%

Asbestos sheet production in 1979 was over 87 million sheets, while tonnages of other major products are listed in Table 11.

JAPANESE MARKET OVERVIEW

Normal inventory levels are 2 to 3 months, however for several reasons inventories have increased to a 4 to 5 month stock.

The asbestos cement industry is depressed with housing starts declining from a normal level of 1,500,000 units to 1,200,000 units.

The automotive market is also affected by the general market recession, thereby reducing the need for asbestos in the friction materials area.

In the textile sector, primarily in the SENNAN district, asbestos consumption is steady. An eventual rationalization of the industry may take place as the Japanese government enforces the accepted fibre minimum standards on smaller manufacturers.

While the Western countries place great importance on the tension or strength of asbestos fibres, the Japanese emphasize a finished product that has good colour, luster, and overall appearance. However, they are also very price conscious and all these influences are incorporated into their buying procedures.

Disruptions in the Japanese market have resulted from Russian producers supplying fibre at very attractive prices, however the quality and supply has been inconsistent.

.../8

ISSUES OF CONCERN

(i) Health and Asbestos

The health problems regarding asbestos is a well publicized issue for many reasons, both factual and political. Dr. Selikoff of the Mount Sinai School of Medicine, one of the first to find a link between asbestos and lung cancer, mesothelioma, or asbestosis in high exposure situations, has stated that there is no evidence that the general public is exposed to health risks from asbestos. Bans, however, have been effective for certain uses of asbestos, and have greatly influenced the Scandinavian market. Asbestos appears to promote, rather than cause lung cancer and acts as a co-carcinogen.

Law suits against American, British and Canadian producers of asbestos and asbestos-based products continue to be filed in the United States. Many of these suits, however, originate as a result of conditions over 20 years ago, and the industry has certainly changed since that time.

In Canada, federal emission regulations require that the concentration of asbestos fibres contained in emissions to the ambient air must be lower than two fibres per cubic centimetre. Investments in environmental control by Canadian producers has reached millions of dollars.

Labelling of asbestos products is also being introduced in many countries.

(ii) Replacement Products

Because of the related health problems, many users of asbestos are developing products with substitute materials. Glass fibers can be used in certain applications, as can carbon fibers.

The use of PVC and iron pipe, and also other industrial minerals such as gypsum, magnesium and calcium instead of asbestos cement will continue in certain areas of the world which are environmentally oversensitive.

(iii) Quebec Government Involvement

The Quebec government passed on May 25, 1978, Bill 70 to establish the Societe nationale de L'amiante (SNA). This law is expected to allow SNA to purchase from General Dynamics corporation of St. Louis, Missouri, its 54.6% holding in Asbestos Corporation Limited (ACL), the second largest asbestos producer in Canada.

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Bill 121, to enable the Quebec government to expropriate some of the assets of ACL was passed, providing for an arbitration committee if a sale price could not be agreed upon within two months of a notice of expropriation. Representatives for the Quebec government arrived at an evaluation of approximately \$42.00 a share for ACL, whereas consultants for General Dynamics placed the share valuation at \$100.00 per share.

The final outcome also depends to a large extent on whether the Parti Quebecois remains in power.

Apart from negotiations with Asbestos Corporation Ltd., the Quebec government in mid 1980 purchased the Canadian interests of Turner and Newall Ltd. (Manchester, England). For the sum of \$35.5 million, the SNA obtained Bell Asbestos Mines Ltd., of Thetford Mines, Atlas Turner Inc., Montreal, and its sister company Turners Building Products Ltd., Mission, British Columbia. The latter two are manufacturing companies producing asbestos-cement pipes and building materials. The purchase was primarily a financial decision rather than political, since Turner and Newall was looking for an interested buyer.

The Quebec government, however, has stated that the purchase will not affect its attempts to expropriate the assets of Asbestos Corporation Ltd.

SUMMARY

The asbestos industry, although threatened by substitute products, health concerns, economic pressures and political undercurrents will continue. Used properly, Asbestos in the years to come will remain an essential ingredient in safety products and specialty applications that provide for our improved way of life.

Figure 1 Asbestos fibre lengths (mm)

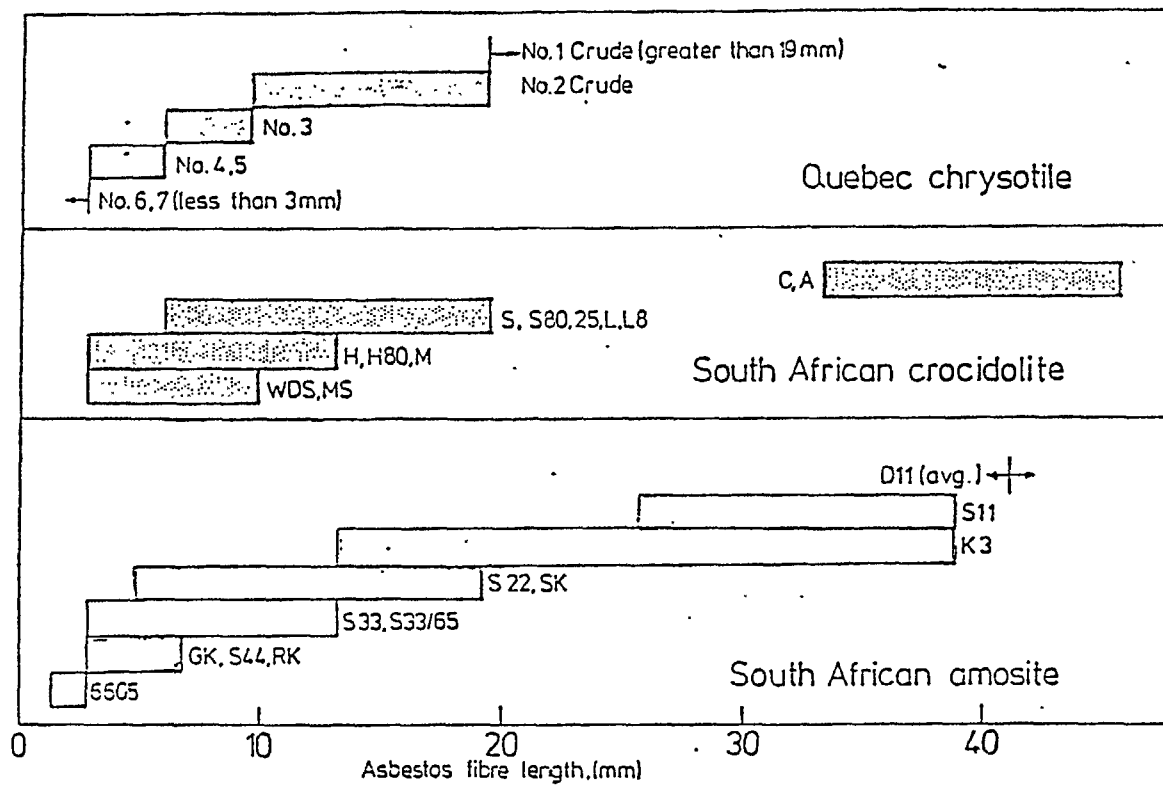
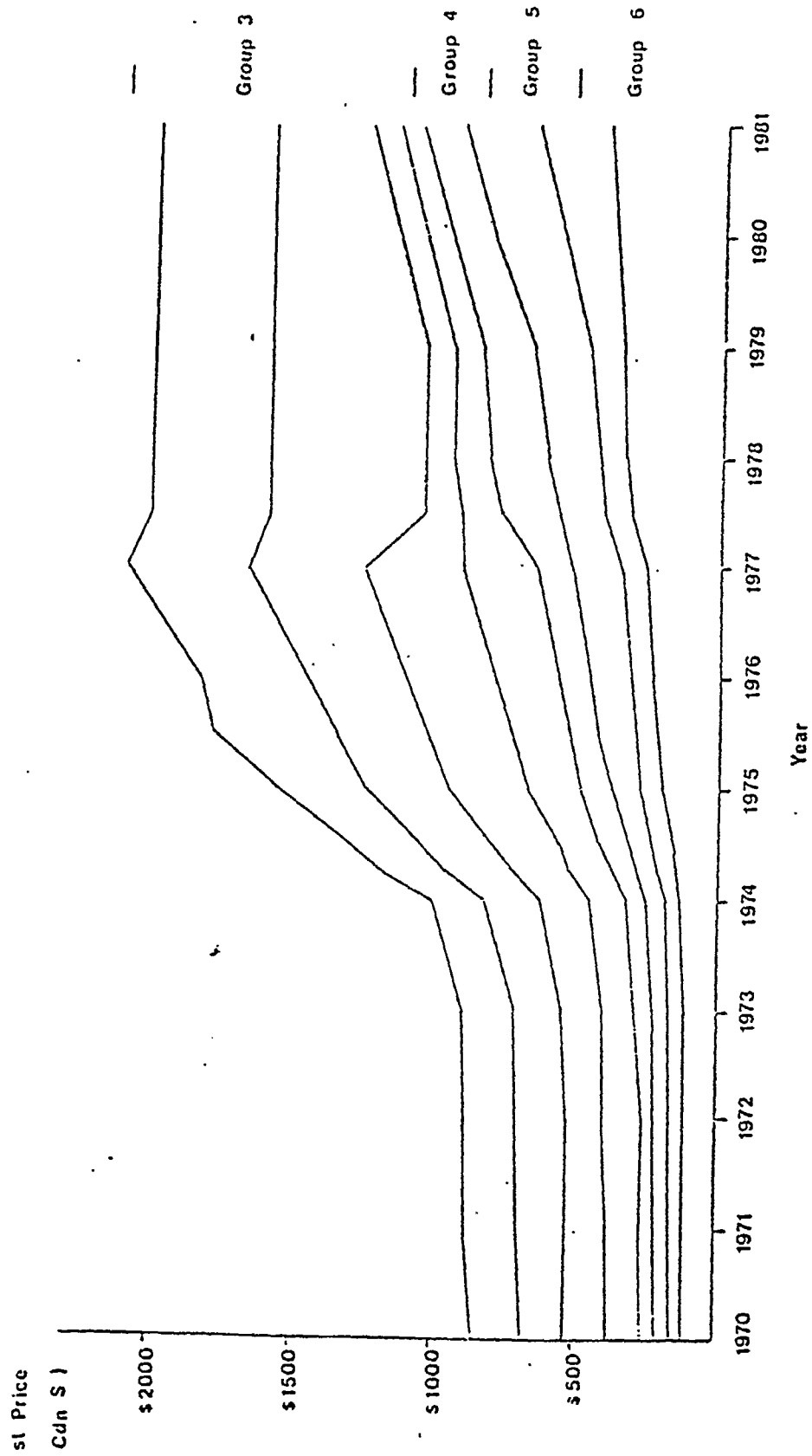


Figure 2 Asbestos Fibre Prices 1970-1981 (Cassiar Resources Ltd.)



The graph displays four data series over a 14-year period. The left Y-axis measures 'Thousand Short Tons' (0 to 6000), and the right Y-axis measures the 'Index of Fixed Capital Formation (1965 = 1000)' (1100 to 1160). The X-axis shows years from 1965 to 1978.

- Index of World Fixed Capital Formation (dashed line):** Starts at 1100 in 1965, rises to a peak of approximately 1158 in 1973, dips to 1152 in 1975, and then rises to about 1162 by 1978.
- World Production (solid line):** Starts at approximately 3100 in 1965, rises to about 4600 in 1973, dips slightly in 1975, and then rises sharply to about 5900 by 1978.
- Canadian Shipments Total (solid line):** Starts at approximately 1400 in 1965, rises to a peak of about 1800 in 1973, dips to 1100 in 1975, and then rises to about 1600 by 1978.
- Canadian Shipments Group 4 (solid line):** Starts at approximately 400 in 1965, rises to about 500 in 1966, dips to 400 in 1969, and then rises to about 600 by 1978.

Year	Index of World Fixed Capital Formation (1965 = 1000)	World Production (Thousand Short Tons)	Canadian Shipments Total (Thousand Short Tons)	Canadian Shipments Group 4 (Thousand Short Tons)
1965	1100	3100	1400	400
1966	1105	3300	1500	500
1967	1108	3200	1400	500
1968	1115	3300	1550	500
1969	1125	3600	1550	400
1970	1135	3800	1600	400
1971	1140	3900	1600	400
1972	1150	4100	1700	450
1973	1158	4600	1800	500
1974	1155	4600	1750	500
1975	1152	4600	1100	300
1976	1158	5600	1650	500
1977	1162	5800	1650	550
1978	1162	5900	1500	600

ASBESTOS APPARENT WORLD CONSUMPTION 1977

Country	Percentage
U.S.S.R.	40.2%
U.S.A.	15.9%
China	12.3%
India	5.0%
Canada	3.3%
Others	23.0%

APPARENT CONSUMPTION 3,070,617 m.t.

ASBESTOS WORLD PRODUCTION 1977

Country	Percentage
U.S.S.R.	46.1%
Canada	20.3%
China	10.0%
India	5.0%
U.S.A.	4.0%
Mongolia	3.4%
Others	10.9%

PRODUCTION 3,203,200 m.t.

Figure 5 - Canadian Asbestos Shipments (1980)

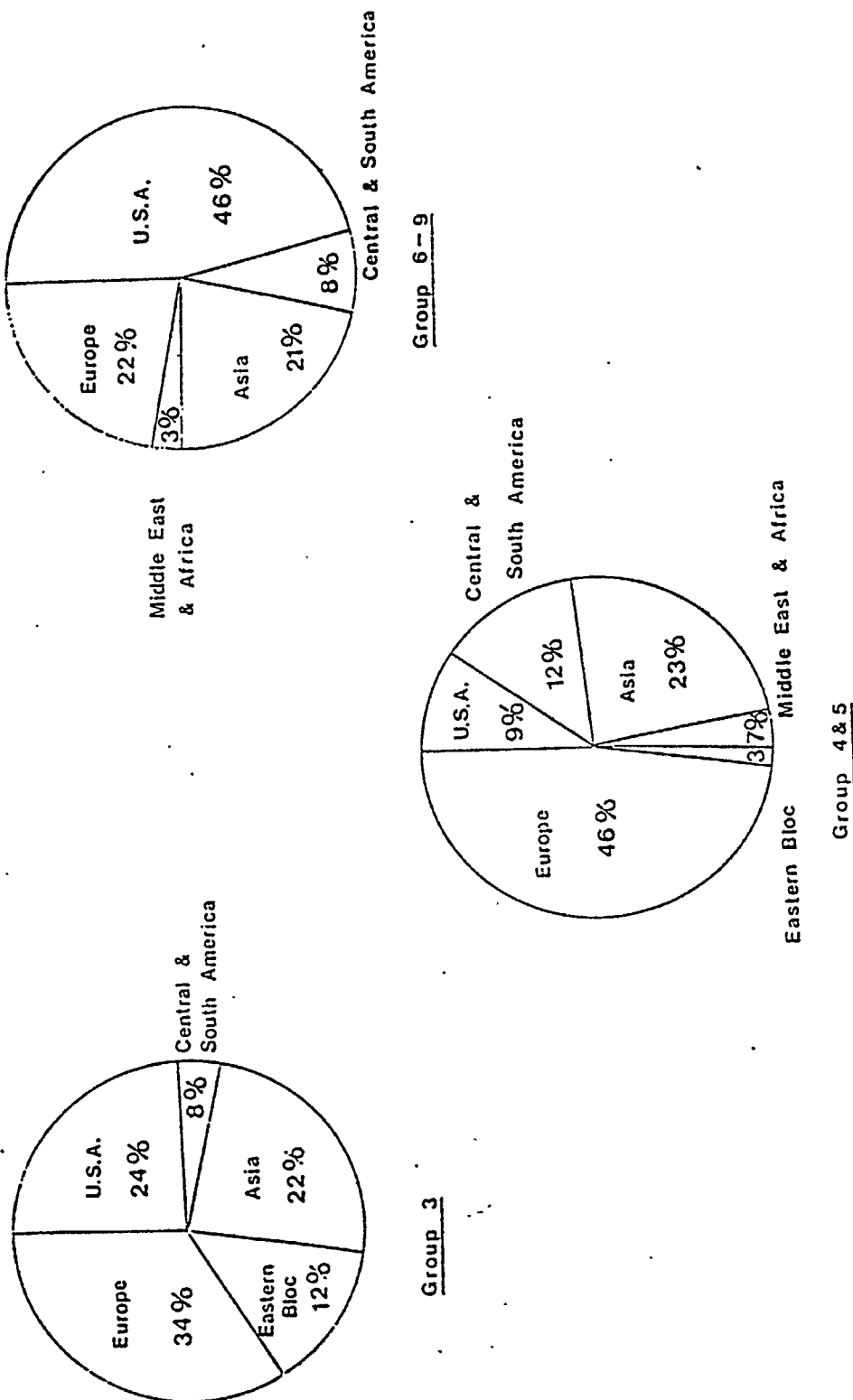


Figure 6 - Total Canadian Shipments to Japan (1979, 1980)

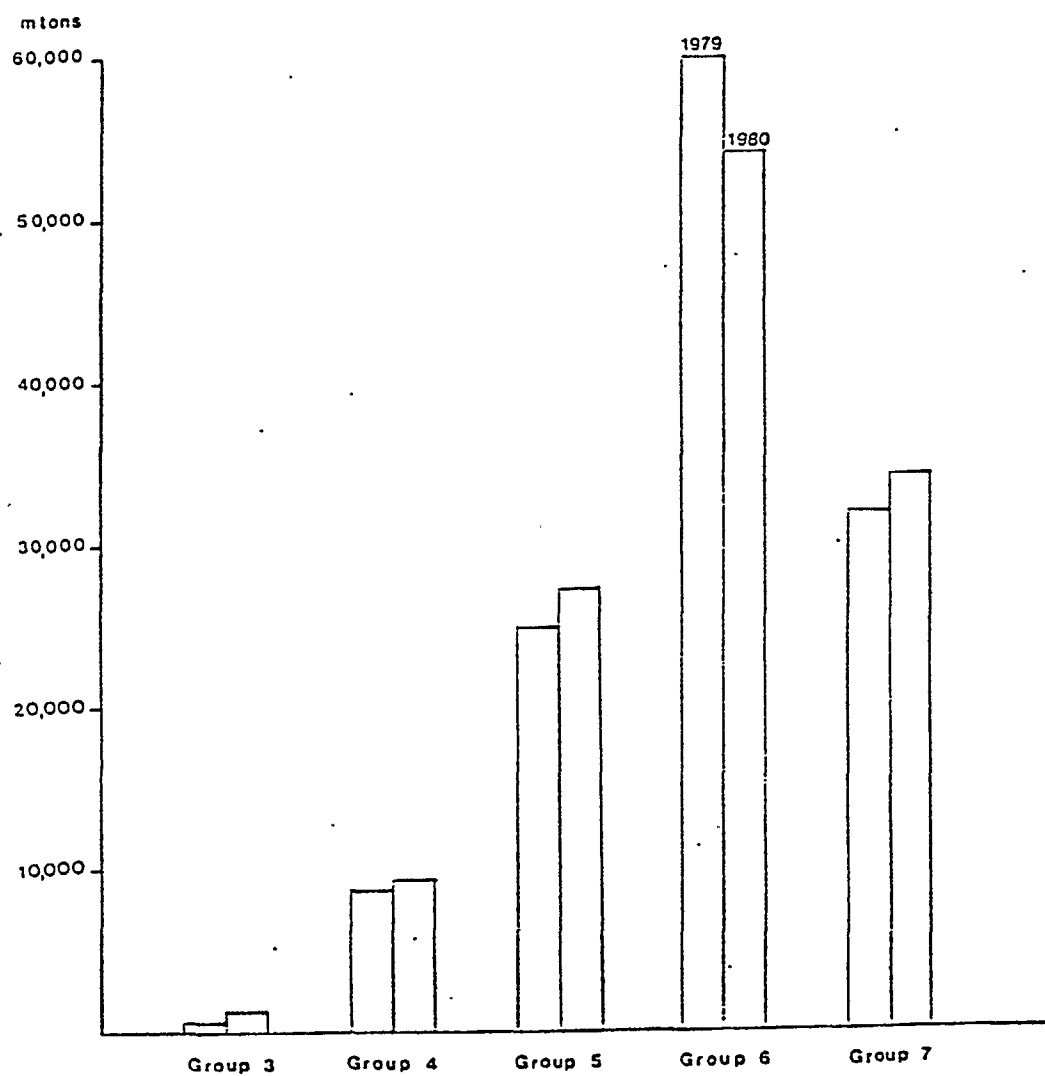


Figure 7 Asbestos fibre Imports by Japan

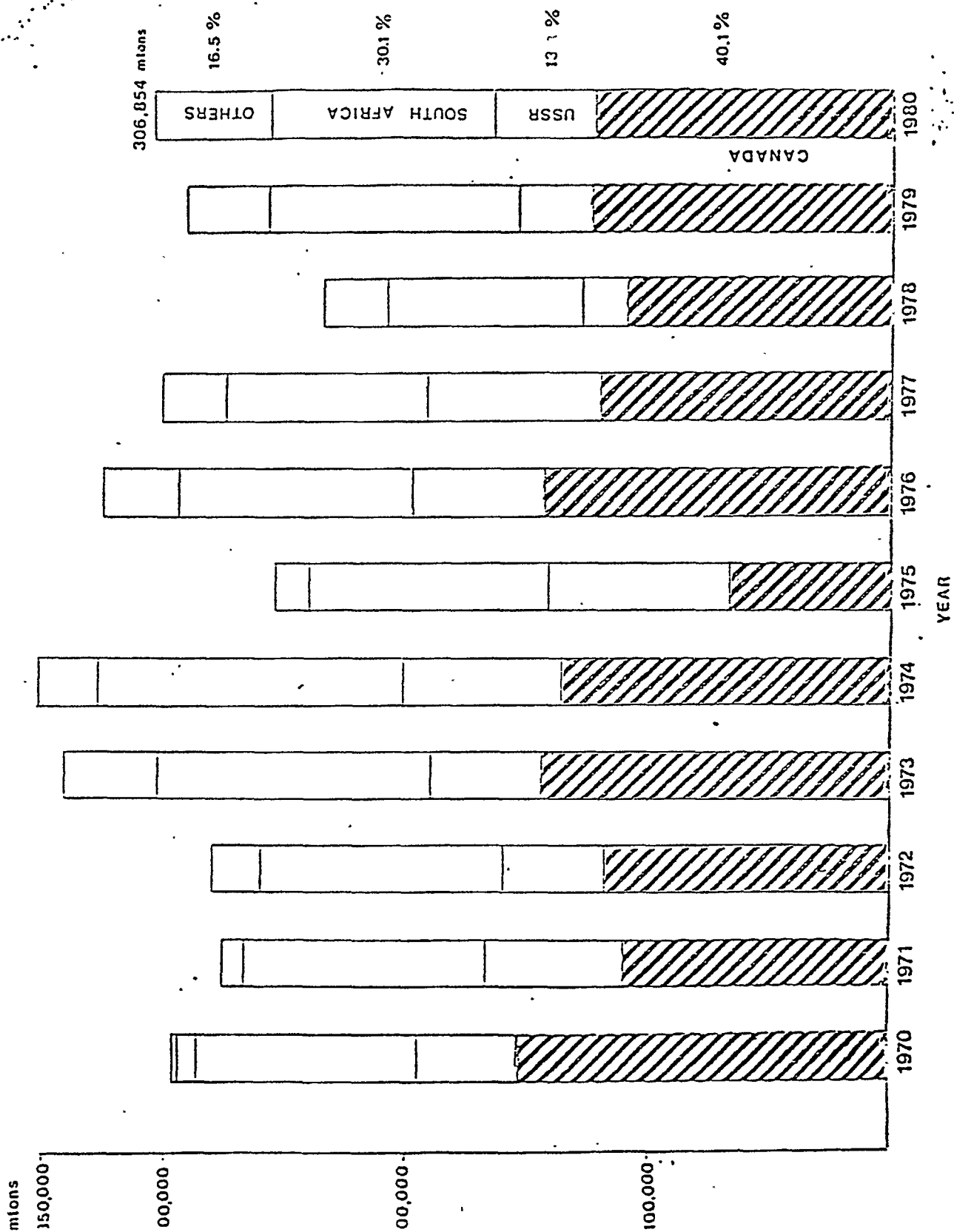


Table 1 : applications for chrysotile fibres, by grade

<u>Grade/description</u>	<u>Length specifications</u>	<u>Uses</u>
<u>Long fibre</u>		
No. 1 crude	19 mm +	Fireproof textiles
No. 2 crude	9.5-19 mm	Fireproof textiles and insulation materials.
No. 3 spinning fibre	6-9.5 mm	Fireproof textiles, packing, woven brake linings, clutch-facings, electric, high-pressure, and marine insulation.
<u>Medium fibre</u>		
No. 4 asbestos cement fibre 3-5 mm		Asbestos-cement products.
No. 5 paper fibre		Asbestos-cement products, low-pressure asbestos cement pipe, moulded products, paper products, brake linings and gaskets.
No. 6 paper-shingle fibre -3 mm		Asbestos-cement products, brake linings and gaskets, plaster, backing for vinyl flooring sheets.
<u>Short fibre</u>		
No. 7 shorts	-3 mm	Moulded brake linings and clutch facings, plastics. Mostly "shorts"
No. 8	By weight	used as a filler in vinyl and asphalt floor tiles, other asphalt compounds and caulking compounds, paints and drilling mud additives.
<u>Very short fibre</u>		
No. 9	By weight	Contains much rock and generally used for rock ballast, asphalt paving aggregate, and land fill.

Source: Australian Minerals no. 30, 1977, quoting Energy Mines and Resources Canada.

TABLE 2

Canadian asbestos prices quoted in "Asbestos"¹Jan. 1, 1981

(\$ per short ton)

Quebec, fob mines

Group

No. 3 (spinning fibre)	1230 - 1995
No. 4 (asbestos-cement fibre)	876 - 1256
No. 5 (paper fibre)	572 - 676
No. 6 (waste, stucco, plaster)	420 - 332
No. 7 (refuse, shorts)	128 - 244

Cassiar, fob North Vancouver, B.C.

Canadian group

No. 3 (nonferrous spinning fibre)	
AAA grade	2000
AA grade	1600
A grade	1265
AC grade	1155
No. 4 AK grade	1075
No. 4 AS grade	1000
No. 5 AX grade	930
No. 5 AY grade	660
No. 6 AZ grade	430

¹ Asbestos is published monthly by Stover Publishing Company.

Table 3 USA: Average annual price for asbestos (\$ per sh. ton)
1956-1976

<u>Year</u>	<u>Actual price (US\$)</u>	<u>Constant 1975 US\$</u>
1956	89.78	181.63
1957	88.09	172.38
1958	90.50	174.34
1959	91.17	171.83
1960	94.62	175.35
1961	95.60	175.61
1962	94.85	171.09
1963	92.44	164.31
1964	98.70	172.73
1965	97.92	167.67
1966	100.63	166.82
1967	101.91	164.11
1968	98.93	152.46
1969	110.03	161.46
1970	115.64	161.06
1971	117.54	155.76
1972	116.63	148.42
1973	122.22	147.01
1974	122.27	133.65
1975	144.14	144.14
1976	206.31	197.56

Source: US Bureau of Mines Mineral Commodity Profiles, Asbestos,
September 1977.

Table 4: World: leading asbestos-producing organizations

<u>Organization/company</u>	<u>Mine location(s)</u>	<u>Capacity (tgy)</u>
Uralasbest	Urals, USSR	1,540,000
Dzhetygara	Kazakhstan, USSR	710,000
Johns-Manville Canada Inc.	Quebec, Canada	645,000
Asbestos Corporation Limited	Quebec, Canada	260,000
Lac d'Amiante du Quebec Ltee	Quebec, Canada	235,000

Table 5 Canadian asbestos producers and prospective producers, 1978.

	Mine Location	Mill Capacity		Remarks
		(tonnes)		
		ore/day	fibre/year	
Producers				
Advocate Mines Limited	Baie Verte, Nfld.	6 800	80 000	Open pit. Produces groups 4 and 6.
Curex-Canadian Mines Ltd.	East Broughton, Que.	5 000	210 000	Open pit. Mainly produces groups 6 and 7.
Asbestos Corporation Limited	Putuniqu, Que.	5 400	90 000	World's major independent asbestos producer.
Asbestos Hill mine				Annual rated capacity 272 000 tonnes concentrate. Final processing of fibre in West Germany.
British Canadian mine	Black Lake, Que.	11 200	210 000	Open pit, two milling plants.
King-Beaver mine	Thetford Mines, Que.			Underground and open pit.
Normandie mine	Black Lake, Que.	6 800		Reserves exhausted. Mill processes K-B open-pit ore.
Bell Asbestos Mines, Ltd.	Thetford Mines, Que.	2 700	55 000	Underground.
Lake Asbestos of Quebec, Ltd.	Black Lake, Que.	8 200	235 000	Open pit.
National Mines Division	Thetford Mines, Que.	3 200		Open pit.
Johns-Manville Canada Inc.				
Jeffery mine	Asbestos, Que.	30 000	645 000	Open pit (western world's largest known asbestos deposit)
United Asbestos Inc.	Marathon, Ont.	3 600	100 000	Inactive.
Cassiar Asbestos Corporation Limited				
Cassiar mine	Cassiar, B.C.	3 000	100 000+	Open pit.
Clinton mine	Clinton Creek, Yukon	3 600	100 000+	Open pit. Closed in August after depletion of reserves.
Prospective Producers				
Abitibi Asbestos Mining Company Limited	Amos, Que.	11 800		Feasibility study underway.
McAdam Mining Corporation Limited	Chibougamau, Que.	4 500		Feasibility study underway.
Cassiar Asbestos Corporation Ltd.	Dease Lake, B.C.			Possible future development.

Sources: Mineral Policy Sector, Department of Energy, Mines and Resources, Ottawa; Quebec Asbestos Mining Association, Quebec.

TABLE 6

CANADIAN PRODUCTION AND VALUE

	S TONS	VALUE (\$CDN.)
1980	1,210,575 ✓	\$626,502,305
1979	1,659,000	\$654,584,000
1978	1,522,000	\$601,631,000
1977	1,517,000	\$563,000,000

TABLE 7

CANADIAN SHIPMENTS TO JAPAN 1975 - 1980 (Metric Tons)

	<u>GROUP 3</u>	<u>GROUP 4</u>	<u>GROUP 5</u>	<u>GROUP 6</u>	<u>GROUP 7</u>	<u>TOTAL</u>
1975	224	5,928	14,191	27,534	16,513	64,390
1976	1,337	12,532	28,732	65,557	35,254	143,412
1977	1,669	10,232	23,558	56,943	28,879	121,281
1978	1,009	8,122	21,145	44,605	37,180	112,061
1979	1,226	8,418	24,470	60,063	31,877	126,054
1980	1,501	8,588	27,141	54,414	33,798	125,442

Table 8 World: Apparent consumption of asbestos by region
1977

	<u>t</u>	<u>% total</u>
Canada	65,645	1.2
EEC	722,095	13.2
Japan	306,343	5.6
USA	612,687	11.2
USSR	2,199,108	40.2
Others	1,564,539	28.6
Total	<u>5,470,417</u>	<u>100.0</u>

Source: Canadian Minerals Yearbook 1973, Department of Energy,
Mines and Resources.

Table 9 consumption of asbestos divided by application (%)

	<u>USA⁽¹⁾</u>	<u>World⁽²⁾</u>
AC sheets	1.9)	
AC roofing materials	11.7)	69.0
AC pipe	38.0)	
Friction materials	10.9	2.2
Papers and felts	0.2	7.4
Floor tiles	21.5	3.9
Paints and coatings	3.5	1.6
Textiles	1.0	0.7
Plastics	0.5	0.5
Insulation	2.7	0.3
Packings and gaskets	3.4	1.0
Others incl non-AC roofing materials	4.5	13.4
Total	<u>100.0</u>	<u>100.0</u>

Sources: (1) US Bureau of Mines, Mineral Industry Surveys,
Asbestos in 1979.

(2) Northern Miner, 24 November 1977, quoting QAMA.

TABLE 10

GROWTH IN REAL TERMS IN NEXT 20 YEARS

	<u>Developed Countries</u>	<u>Developing Countries</u>	<u>Carrecon Countries</u>
Asbestos-Cement Producers	1% to 2%	6% to 8%	5% to 7%
Friction Products	0%	0% to -1%	0% to 1%
Tiles & Plastics	-4% to -5%	-1% to -2%	-2% to -3%
Paper Products	1%	4% to 5%	2% to 3%
Textiles	-5% to -7%	-1%	-1%

TABLE 11

JAPANESE ASBESTOS PRODUCTS PRODUCTION (1979)

Asbestos Pipe	36,361 Tons
Cloth, Yarn	6,930 Tons
Joint Sheet	12,816 Tons
Brake Lining	24,754 Tons
Insulation	13,426 Tons