

**REPORT ON
MINING EXPLORATION
EXPENDITURES AND
FLOW-THROUGH SHARE FUNDING**

BY THE

SUBCOMMITTEE ON TAXATION

OF THE

**INTERGOVERNMENTAL WORKING GROUP
ON THE MINERAL INDUSTRY**

1989

Canada

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***PREPARED FOR
THE MINES MINISTERS' CONFERENCE
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FOREWORD

At the Mines Ministers' Conference in St. John's, Newfoundland in August 1987, Ministers expressed concern about the level of mineral exploration in Canada. At that time, the focus of attention was on Tax Reform proposals, particularly the reduction in the levels of incentive that would be provided through the tax system. Because of this concern, Ministers agreed to have exploration levels closely monitored by members of the Intergovernmental Working Group on the Mineral Industry (IGWG). Subsequently, the October 1987 stock market crash and, more recently, the continuing decline in the price of gold further emphasize the need to assess continued investor interest in flow-through shares which have become an important financing vehicle for mining exploration.

In accordance with the agreement, this paper reports on the current outlook and recent historical trends in both flow-through share financing and overall mineral exploration activity. Mineral exploration throughout this report refers to mining exploration, excluding exploration for oil sands and tar sands.

It is important to note that the information in Section A, on the outlook for flow-through shares and exploration, is constantly changing. This report reflects the latest data available at the time of release.

The data and text in successive drafts of this report have been subject to the review of the members of IGWG. The process has been coordinated through the Mineral Policy Sector of the Department of Energy, Mines and Resources (EMR).

EXECUTIVE SUMMARY

Total exploration activity in 1988 was in excess of \$1.2 billion, according to "preliminary actual" data from Statistics Canada. This was down slightly from the \$1.3 billion achieved in 1987. The years 1987 and 1988 might be considered exceptional in that the amounts are quite high when viewed over a longer historical perspective. While these two years were boom years for a large part of the country, exploration in certain regions, for example western Quebec and northern Ontario, began falling after mid-1988.

On an overall basis, the provinces and territories indicate that exploration in 1989 will be down significantly from 1988, mainly as a result of a reduced level of flow-through share financing and a decline in the price of gold. The majority of provinces commented that while the search for precious metal deposits has been dominating exploration in recent years, lately there has been a revival of interest in base metals. Several provinces also noted that this year's exploration is being concentrated on more advanced projects.

In recent years, almost all of the exploration carried out by junior firms (firms that do not have income from producing mines) has been financed by flow-through shares. In the past, especially in 1986 and 1987, many senior companies (firms that have income from producing mines) also used flow-through share financing to fund exploration. However, starting in 1988, due to their substantially improved profitability, senior companies have been using this method of financing less and less. Many of these firms now have taxable income from producing mines and are better off retaining the tax deductions associated with exploration.

The amount of money raised by flow-through shares in 1988 is now estimated by EMR to have been about \$850 million, down approximately \$350 million from the \$1.2 billion level experienced in 1987. As a result of a number of factors, one of which is the significant decline in the price of gold over the last eighteen months, EMR presently estimates that flow-through share funding for 1989 will fall further, to somewhere between \$320 million and \$370 million. As of August 1, 1989 there was about \$176 million of flow-through share funding agreements in place. Of this amount, the share for juniors is calculated at \$116 million while the balance of \$60 million is dedicated to seniors.

EMR's preliminary view of total exploration activity for the year 1989 is that amounts spent will likely be somewhat greater than \$650 million, but probably no higher than \$880 million. The range of \$650-880 million for 1989 has been established because of uncertainty in the forecast for junior flow-through share financing throughout the remainder of the year and because senior companies may also undertake more exploration than last year because of continuing higher base metal prices. With \$116 million of flow-through share funding currently in place for junior mining exploration and a likely level of \$450 million in senior exploration spending, exploration could be at least \$566 million for 1989 without any further flow-through financing.

Since almost all junior exploration has been financed by flow-through shares in recent years, EMR expects that this sector will account for a much smaller portion of total exploration in 1989 as compared to 1988. In 1988, the junior component amounted to about two thirds of the total. This means that the brunt of the difficult adjustment from very high to lower but more normal levels of exploration is expected to be borne mainly by the junior sector.

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SECTION A. CURRENT OUTLOOK FOR CANADIAN MINING EXPLORATION AND FLOW-THROUGH SHARE FINANCING

1. Outlook for Flow-Through Share Funding

1.1 Introduction

While this section focuses only on the amount of funds raised for exploration by means of flow-through share financing, it is an integral part of the overall formulation of EMR's estimate for total Canadian mining exploration in 1989. The intent is to present results of recent surveys of brokers and other financial intermediaries who are involved in flow-through share financing.

1.2 Outlook

The junior exploration sector experienced increased difficulty in raising flow-through share capital following the October 1987 stock market crash. In addition, junior mining stocks have been declining steadily in value and this has become more pronounced as the price of gold has declined. Given the dominance of gold in recent mineral exploration activity, the falling price of gold is an important factor in this year's sluggishness of the flow-through share market. By the beginning of August 1989, the price of gold had declined from its December 1987 average by over \$197 Canadian per troy oz., or close to 30 per cent. Furthermore, there are a number of other significant factors affecting the flow-through share market, such as: the decreased participation of seniors, the consequential lower quality of limited partnership portfolios; a lack of discoveries in line with investor expectations; and so forth.

EMR frequently canvasses flow-through share limited partnerships to keep up-to-date on flow-through financing trends. Table 1 shows the results of EMR's latest survey of limited partnerships, comparing 1989 with amounts raised in 1987 and 1988.

Of the limited partnerships contacted, only CMP and NIM have raised funds for 1989. Both have received copies of this section of the report and have had an opportunity to comment on the current state of the flow-through share market. CMP has raised \$83 million, while NIM has raised \$50 million. These partnerships expect to dedicate 80 to 90 per cent of their funds, or about \$110 million, to mining exploration. The balance will be for oil and gas exploration (total flow-through

Table 1. Flow-through share funds raised for spending in 1989 by limited partnerships, compared to revised estimates of amounts raised in 1987 and 1988

	Value of Issues Sold 1987	Value of Issues Sold 1988*	Value of Issues Sold 1989, as of July, 1989
	(\$ Million)		
TAP	28	23	0
CMP	239	234	83
NEF	-	8	0
MVP	57	26	-
NIM	260	270	50
First Ex	47	21	0
Middlefield	29	5.5	0
Mintax	15	3.5	0
Total	675	591	133

*Preliminary estimate

for oil and gas exploration amounted to \$90 million as of August 1, 1989). They also plan to raise additional funds in the fall of 1989. A number of the smaller limited partnerships, such as TAP, Middlefield and Mintax, are assessing the situation and may try to market smaller offerings later in the year. Others, such as First Ex, MVP and NEF do not expect to be in the market at all.

The question arises as to how this total is divided between seniors and juniors. As it turns out, there is a larger proportion of financing for senior companies than might be expected. In the NIM and CMP portfolios the approximate allocation for mining is \$60 million

for seniors and \$50 million for juniors. As in the past, in order to deal with the possibility of future rapid redemptions of mutual fund shares, the 1989 CMP and NIM portfolios are strongly weighted with companies having market capitalizations in excess of \$20 million. Like other open-end mutual funds, CMP and NIM try to ensure that as many company shares as possible in the portfolio can be liquidated on an orderly basis to meet potential redemptions. It is mainly for this reason that the amount of funds allocated to junior firms by these two partnerships currently does not exceed \$50 million.

A low estimate of flow-through financing for juniors in 1989 would be \$200 million. This is predicated on the assumptions that CMP and NIM can go to the markets once again in 1989 for a total of \$100 million and that non-partnership flow-through share funding of \$100 million will occur (\$66 million has been placed as of August 1, 1989 all of which is believed to be available for juniors via direct private placements). On the other hand it is possible, that an additional \$50 million in direct private placements could be raised leading to as much as \$250 million available for junior firms for the entire year. This latter value, EMR's current high estimate of flow-through shares for juniors in 1989, depends as well on the late 1989 tax shelter "take-up" activity to prior years.

Senior company flow-through share financing is no less difficult to assess. There is a question as to what volume of additional funding can be placed later in 1989 with those senior companies that wanted, and have already received, some flow-through share funds for 1989. There is also a question as to whether CMP and NIM can market additional portfolios for 1989 if senior companies are not willing to participate. If CMP and NIM can duplicate their early 1989 portfolios later this year, as assumed under the low estimate for juniors, then another \$60 million of flow-through share money for seniors will have been raised, for a total of \$120 million.

Although EMR forecasts a high and low estimate for junior flow-through share financing, there is only one estimate for senior flow-through share funding. The reasoning is that, in the past, smaller limited partnerships and small direct private placements were almost exclusively the domain of junior mining. Therefore, at this point, no flow-through share financing for senior companies has been assumed to

accompany the \$50 million additional funding that could occur for juniors later in 1989.

In summary, EMR's range of possible amounts of flow-through share financing for 1989, with allocation between junior and senior firms, is as follows:

	Low (\$ millions)	High
Amount raised by junior firms	200	250
Amount raised by senior firms	<u>120</u>	<u>120</u>
Total	320	370

2. Outlook for Exploration in 1989 Based on Various Sources

2.1 Introduction

The focus of this section is on expectations of total mineral exploration, as distinct from the financing of exploration. Since we are attempting to look ahead, the normal statistical reporting sources are supplemented by other sources described in this section. The section starts off by reporting the results of the annual Statistics Canada "Intentions Survey" for 1989. While it is the latest "complete" survey available, it suffers from a serious shortcoming. Since these intentions were assembled in December 1988, the predictive value of the results of this once-a-year survey is questionable, particularly because many months have now elapsed and circumstances have changed considerably. Therefore, EMR has attempted to obtain, on a sample basis, a more up-do-date view. However, due to the time and effort required to conduct a larger survey, the independent EMR survey was restricted to large firms in the senior sector.

Another source of information comes from a modelling technique that is used to forecast the amount of total exploration and the amount of senior exploration, based on a "statistically significant" relationship between exploration activity and metal prices.

Finally, this section discusses recent diamond drilling activity, to provide a sense of the trend in actual physical exploration activity.

2.2 Statistics Canada's Survey of Intentions - 1989

Methodology

On October 31, 1988, Statistics Canada sent more than 3,350 questionnaires to all producing and non-producing firms believed to have been engaged in mineral exploration in Canada. It should be noted that one company can receive several questionnaires depending on how many provinces the company is working in. The number of companies actually engaged in exploration is more like 1,000. Companies were asked to report exploration expenditures for their fiscal year that ended between April 1, 1989 and March 31, 1990.

These exploration expenditure statistics were collected and published under the classifications "general" and "minesite" exploration. The forecast exploration figures include: field expenditures on physical work and surveys; related land costs; overhead expenditures in the field; and, exploration-related head office expenses.

Results

The Statistics Canada annual publication "Exploration, Development and Capital Expenditures for Mining, Petroleum and Natural Gas Wells - Intentions 1989" (catalogue no. 61-216) puts the total exploration intentions for mining at \$944 million (total of "general" and "minesite" exploration expenditures).

Interpretation

The Statistics Canada survey of intentions provides a good indication of the late-1988 industry view on the total requirement for exploration funding in 1989. However, the results of this survey should not now be interpreted as a good forecast of exploration to be performed in 1989, for the simple reason that funding may not be available to meet all of the previous intentions. As well, intentions expressed in late 1988 may now have been modified by events such as the falling price of gold and other general or company-specific factors.

Table 2 shows "intentions", as well as "preliminary" and "actual" expenditures, for minesite and general exploration for the years 1984 to 1989. The table shows that total expenditures reported on a preliminary basis, and then later an actual basis, generally

Table 2. Comparison of intentions, preliminary and actual exploration expenditures, 1984-89

	<u>Intentions</u>	<u>Preliminary</u>	<u>Actual</u>
	(\$ Millions)		
<u>1984</u>			
Minesite Exploration	na	158.6	136.4
General Exploration	<u>na</u>	<u>389.7</u>	<u>480.9</u>
Total Exploration	na	548.3	617.3
<u>1985</u>			
Minesite Exploration	150.9	89.4	100.1
General Exploration	<u>361.2</u>	<u>471.6</u>	<u>488.8</u>
Total Exploration	512.1	561.0	588.9
<u>1986</u>			
Minesite Exploration	87.5	110.2	108.6
General Exploration	<u>431.2</u>	<u>483.6</u>	<u>589.3</u>
Total Exploration	518.7	593.8	697.9
<u>1987</u>			
Minesite Exploration	122.6	121.5	160.5
General Exploration	<u>583.2</u>	<u>849.6</u>	<u>1048.1</u>
Total Exploration	705.8	971.1	1208.6
<u>1988</u>			
Minesite Exploration	154.7	138.7	na
General Exploration	<u>891.0</u>	<u>1107.9</u>	<u>na</u>
Total Exploration	1045.7	1246.6	na
<u>1989</u>			
Minesite Exploration	111.7	na	na
General Exploration	<u>832.2</u>	<u>na</u>	<u>na</u>
Total Exploration	943.9	na	na

Source: Statistics Canada
na: not available

exceeded intentions for the same period. In recent years the variance has been significant. For instance, intentions for 1987 were 42 per cent less than the eventual reported actual expenditures.

While it is of course speculative to make conclusions about 1989 from the experience of the past, one could deduce in general that "minesite" exploration would be in the \$100-\$150 million range because it was maintained between those values throughout the 1984-89 period.

In the years 1984-1988, when "intentions" for "general" exploration were exceeded by "actual" values, it appears evident that, for each year, exploration funding, particularly flow-through share funding, was becoming more abundant than companies had originally anticipated. However, one should not expect that this pattern will hold for 1989 because it is now becoming clear that there will be a significant decline in the availability of flow-through share funding.

2.3 EMR's Sample Survey of Senior Firms' Exploration for 1989

Methodology

To increase the accuracy of EMR's outlook for exploration, EMR surveyed 16 of the largest mining firms in Canada in 1988 and again in 1989. These firms account for almost 50 percent of the mining exploration carried out by the senior sector.

Results

Responses to the EMR survey indicate that the value of exploration work to be carried out by these firms in 1989 will be about equal to the 1988 value. These firms conducted some \$194 million in 1988, compared to intentions of \$190 million for 1989.

The survey also showed that the exploration carried out by these large senior companies since 1987 has been increasingly financed by sources other than flow-through shares. The total financing arranged through flow-through shares by these firms has steadily declined from \$120 million in 1987 to \$34 million in 1988, and to a meager \$8 million projected for 1989.

Interpretation

The consistency of data between the two years of the EMR survey of selected large senior companies provides evidence for the view that exploration carried out by all mining firms in the senior sector could amount to as much in 1989 as in 1988, that is, some \$450 million on an inflation-adjusted basis. The sixteen firms in the EMR survey represent the largest mining firms in Canada, and these are the companies that are the least likely to use flow-through share financing when the industry is generating profits.

Some 28 of the remaining 110-130 senior metals and minerals producers not included in the EMR survey used flow-through share financing extensively in 1987 and 1988. This latter group of essentially smaller producers will likely account for the major portion of the flow-through share funds expected to be raised in 1989 for the senior sector, and in fact these smaller producers are the type of senior companies in the CMP and NIM portfolios. (Note that this was discussed in Section 1 above.)

2.4 Outlook for Exploration Based on Metal Prices

Methodology

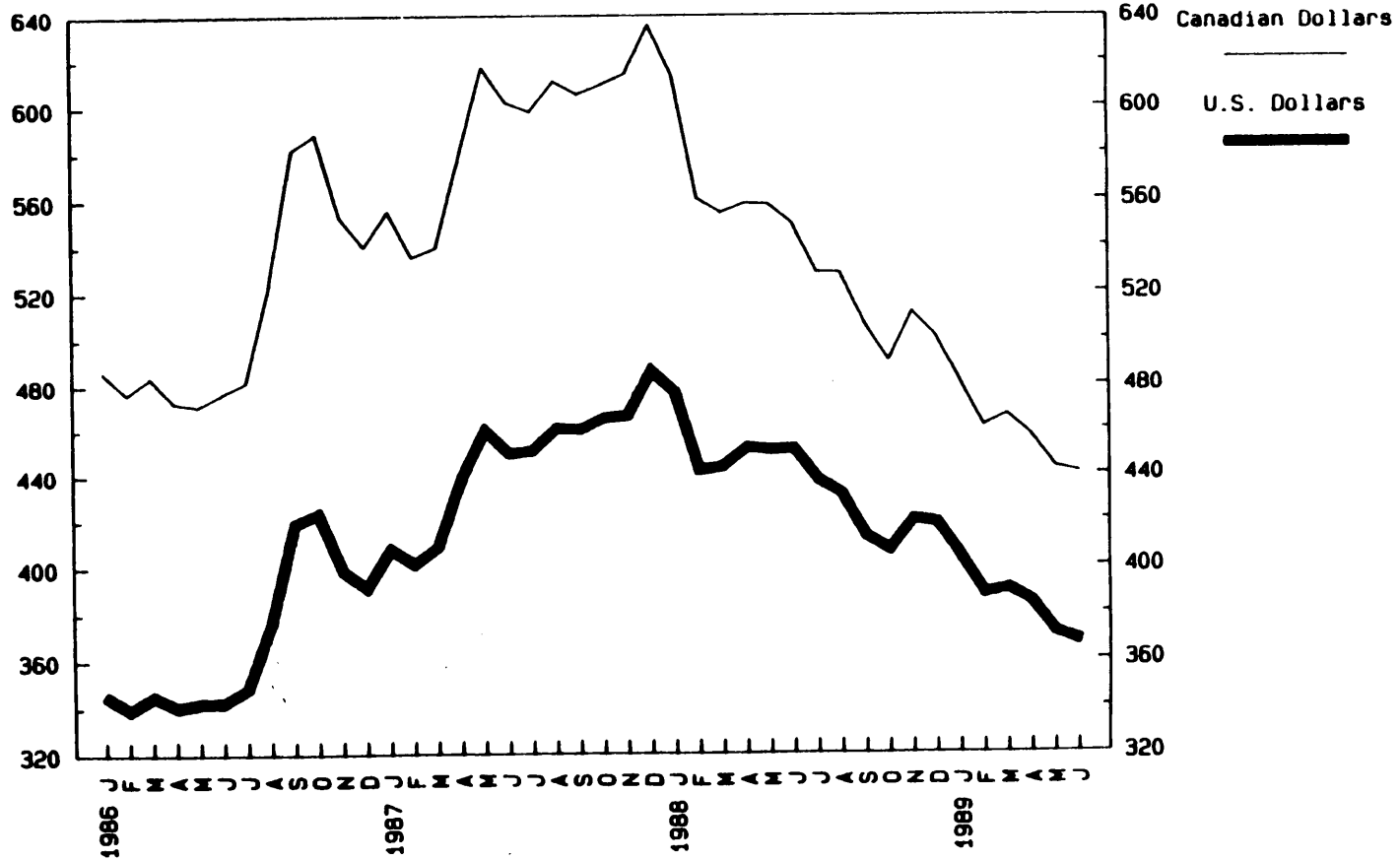
An analysis of the data from 1969 to 1988 indicates that total exploration in a given year can be linked to the previous year's metal prices. One likely reason for this may be that companies that spend money on exploration view it like any other investment, with expected returns being dependent on expected revenues from subsequent mining of discovered deposits. Future expected revenues are influenced by expectations of future prices, which in turn are influenced by current prices. As well, higher prices usually result in higher cash flows and more funds available for subsequent spending on exploration.

Figure 1 shows monthly average gold prices for the period January 1986 to August 1989. Gold prices are relevant because of the heavy dominance of gold in recent mineral exploration. Figure 1 shows that the price of gold increased by about 40 per cent from early 1986 (US\$345 per oz.) to December 1987 (US\$486 per oz.). Since late 1987 the price of gold has trended downward, and by August 1 1989 it was at a level of US\$370 per oz. This appears to be having an impact on gold exploration, and to be contributing to a lack of investor interest in the flow-through share market. On the other hand, the mining industry's interest in

Figure 1

MONTHLY AVERAGE GOLD PRICES JANUARY 1986 TO JUNE 1989

Dollars per troy ounce



Source: Metals Week, Handy & Harman

exploration for base metals has increased as base metal prices have strengthened. The trend of the overall metal price index, shown in Figure 2, indicates the strength of the recent price recovery in Canada's major metals even with the lower prices of gold and silver.

Figure 3 displays the relationship between total exploration expenditures, lagged one year, and the metal price index. Changes in exploration spending are likely to lag price changes because exploration activity depends on budgets that are generally developed during the immediately preceding year.

The correlation between total exploration spending and metal prices has tended to become less pronounced in the 1985-88 period, due no doubt to the large increase in the use of flow-through shares by junior companies.

Results

Based only on the relationship between exploration and metal prices observed over the period 1969 to 1988, EMR estimates that total exploration expenditures in 1989 could be in the neighbourhood of \$845 million. In addition, EMR used a statistical model to estimate senior exploration expenditures alone, and found that senior exploration could amount to as much as \$630 million in 1989. Thus, using this approach, the predicted 1989 expenditures by junior companies would be \$215 million (\$845 million less the \$630 million predicted for seniors).

Interpretation

Because of a very high correlation coefficient, the statistical model would suggest very strongly that total exploration for 1989 should be in the neighbourhood of the \$845 million prediction. The one year lag effect of changes in metal prices appears to strongly influence senior company exploration spending. However, there is a question as to whether this holds as well for junior exploration spending, the level of which is essentially determined by the availability of financing from equity markets.

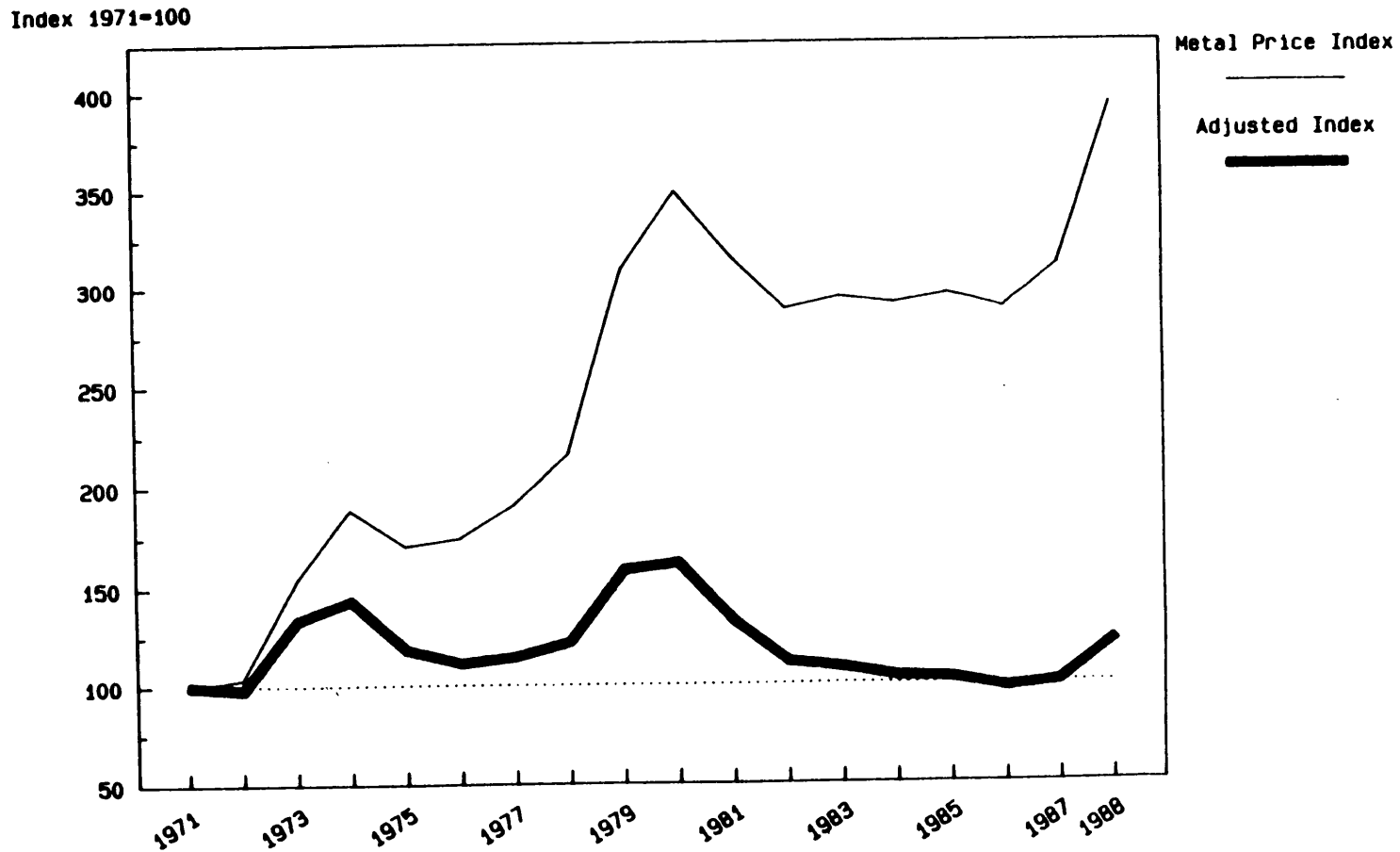
2.5 Recent Diamond Drilling Activity

Another indicator of the trends in the level of exploration activity comes from an analysis of recent diamond drilling data. Figure 4 shows surface and underground drilling by quarters for the period 1985 to 1988, and the first half of 1989. These data were provided by the Canadian Diamond

Figure 2

CANADIAN METAL PRICE INDEX

1971 - 1988

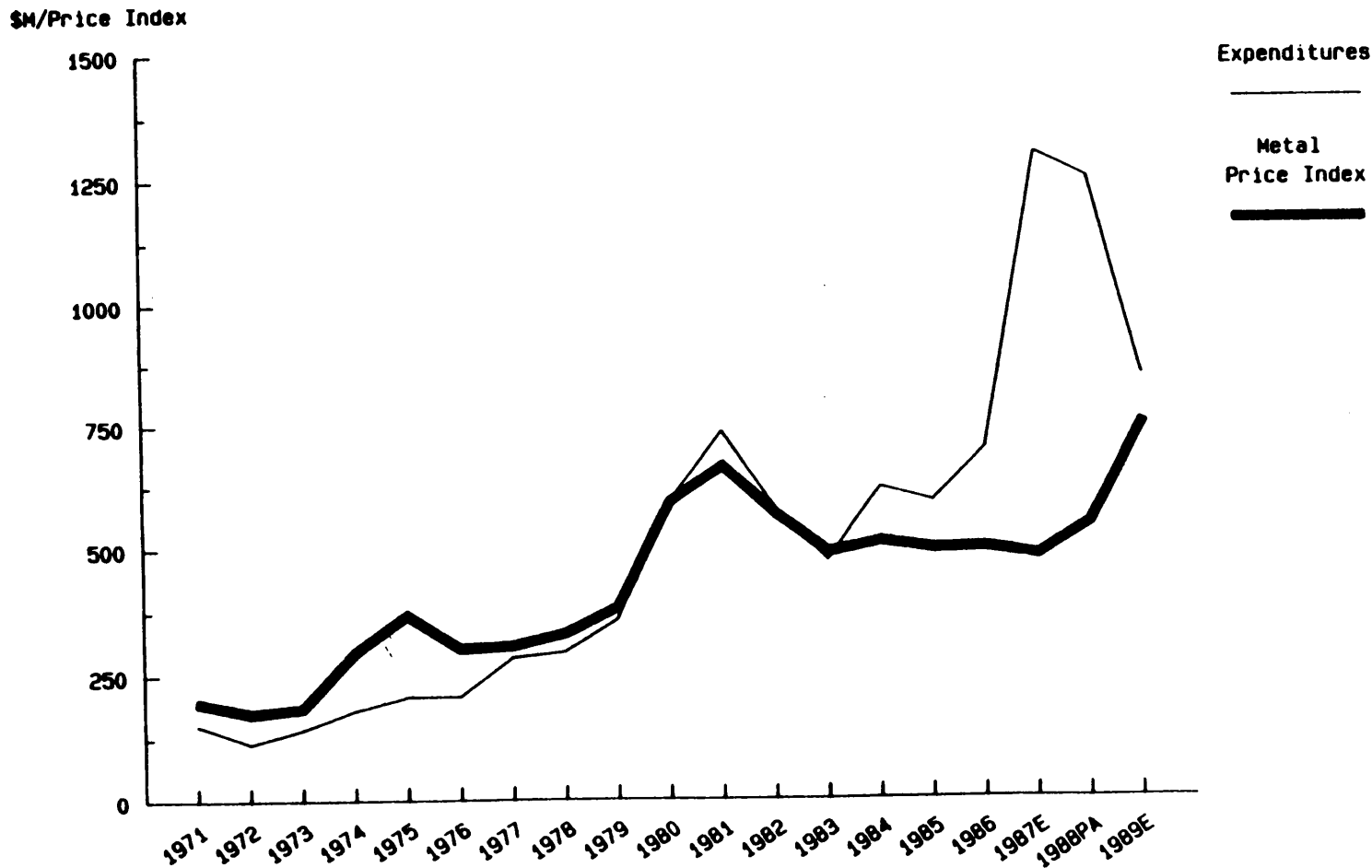


Source: Energy, Mines and Resources Canada
 Note: Metal Price Index was adjusted using
 the GDP Implicit Price Index.

Index is weighted by production including
 copper, lead, zinc, nickel, silver, gold,
 uranium and molybdenum, but excluding iron ore.

Figure 3

TOTAL EXPLORATION EXPENDITURES AND CANADIAN METAL PRICES LAGGED ONE YEAR 1971 - 1989

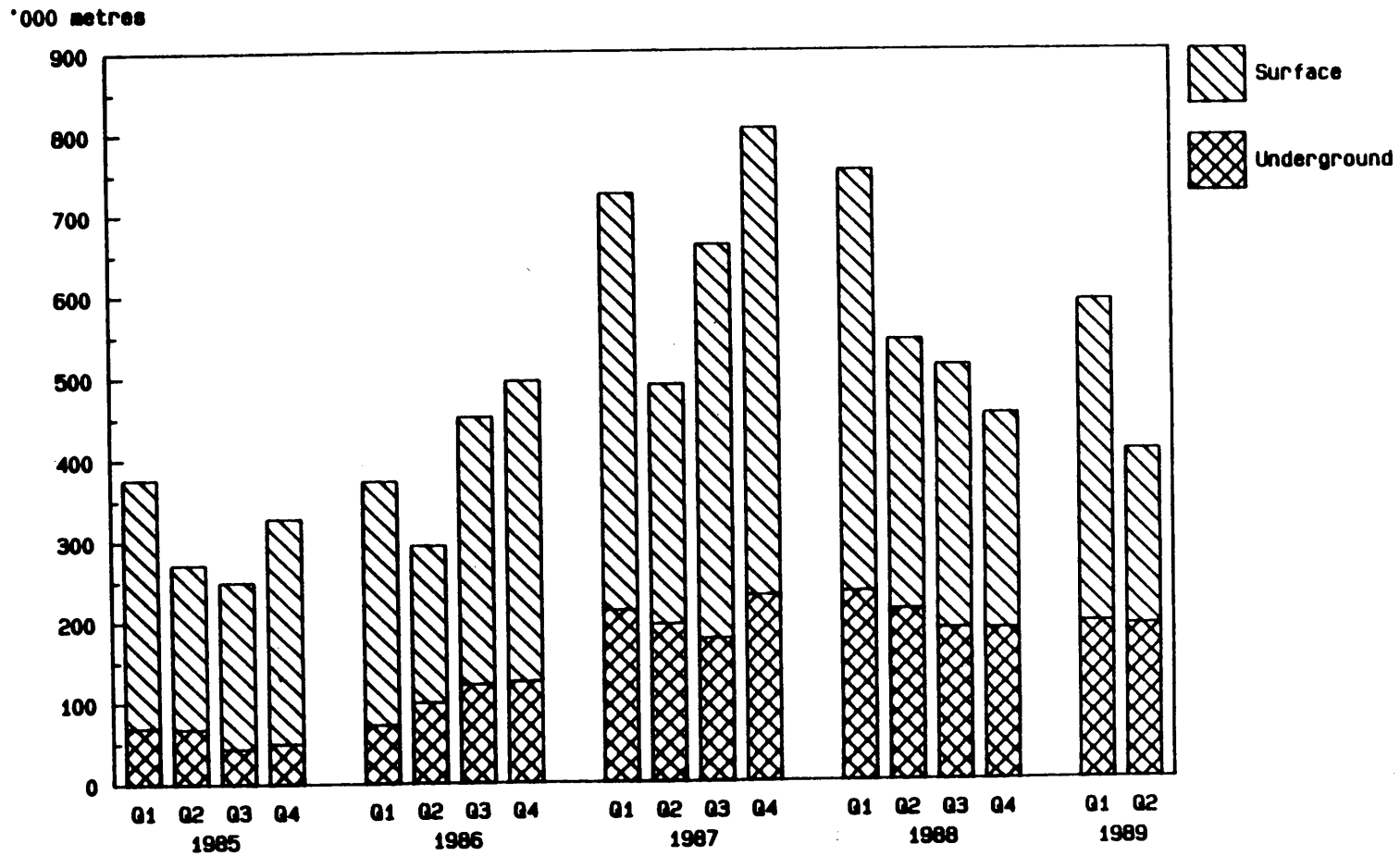


Source: Statistics Canada for exploration data.
E-EMR Estimate. PA-Statistics Canada
Preliminary Actual for 1988.

Note: EMR Metal Price Index excludes iron ore.
Exploration expenditures are in nominal
terms and include overhead.

Figure 4

SURFACE AND UNDERGROUND DRILLING BY QUARTER - 1985 TO 1989



Source: Canadian Diamond Drilling Association (CDDA)
Note: These data, as reported by CDDA contractors,
include approximately 50-60% of total drilling activity.

Drilling Association (CDDA), which covers about 50-60 per cent of the diamond drilling industry.

The 1985 to 1987 data clearly support the view expressed above of increasing exploration activity over that period. However, drilling activity in the second half of 1988 was down from the first half of 1988. This contrasts with the pattern of the previous three years when diamond drilling in the latter half was higher than in the first half. The decline in the last half of 1988 supports the general view that exploration activity in 1988 began to slow down from the peak level reached at the end of 1987. Despite this drilling slowdown, however, total exploration spending in 1988 was, overall, at a fairly high level by historical standards.

In the first half of 1989, drilling is lower than in the same periods of 1987 and 1988, but is still higher than in 1985 and 1986.

It is interesting to note that surface diamond drilling activity fluctuated considerably more than underground drilling. One could speculate that projects involving surface drilling are at a less advanced exploration stage and that surface projects depend much more on the relative availability of financing.

The slowdown in drilling activity over the last two quarters of 1988 reflects the impact of the reduced availability of financing for the junior firms whose exploration spending depends more on flow-through share financing than on metal prices. During the latter half of 1988 the flow-through share market tapered off as the gold price declined and junior equity markets continued to deteriorate.

3. Overall View on Exploration and Flow-Through Share Financing for 1989

3.1 Introduction

This section brings together the information from different sources discussed above, to arrive at indications of total exploration and flow-through share financing for 1989.

3.2 Conclusion

With a range of junior exploration between \$200 million and \$250 million and senior exploration likely to range between

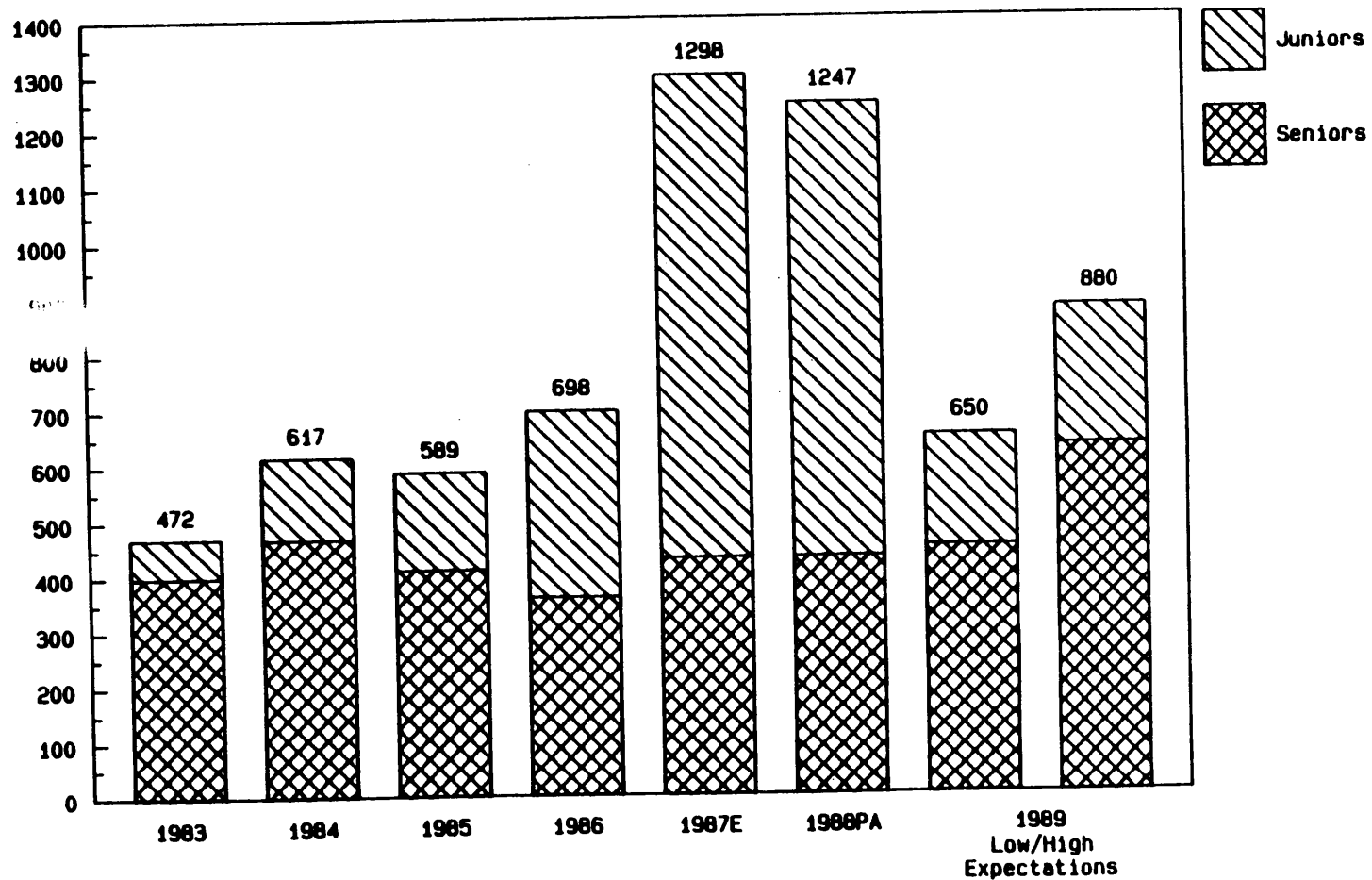
\$450 million and \$630 million, it is expected that total exploration spending in 1989 will amount to between \$650 million and \$880 million. Any value in this range would be considerably lower than the \$1.3 billion recorded for 1987 and the \$1.2 billion recorded for 1988. However, if exploration for 1989 were to fall within the upper half of this range, it would be above, in nominal terms, any value reached since at least 1969 - with the exception of the 1980 and 1981 peak years and the 1987-1988 boom years.

Figure 5 shows total exploration expenditures by seniors and juniors for the years 1983 to 1988, and current expectations for 1989. These data give an indication of the relative amounts of exploration expenditures accounted for by the senior and junior sectors since 1983 and show the range estimated for 1989. It is worth noting that the junior share of exploration expenditures increased steadily from about 13 per cent in 1983 to about two thirds in 1987 and 1988. Projections for 1989 indicate a significant decline to about 30 per cent of exploration spending for the junior sector. This drop is essentially due to the decline in flow-through share financing.

Figure 5

TOTAL EXPLORATION EXPENDITURES 1983 TO 1988 WITH CURRENT EXPECTATIONS FOR 1989

Millions of dollars



Source: Statistics Canada 61-216 for 1983-1986 and 1988 (for overall exploration expenditures); E-EMR Estimate based on Federal-Provincial Field Expenditures Survey; PA-Preliminary Actual. Junior/senior split estimated by EMR; expenditures include overhead.

SECTION B. CURRENT REGIONAL OUTLOOK

4.1 Introduction

This section presents comments from provincial and territorial officials on recent exploration activity and gives an indication of what they expect for 1989. Except for some minor editing, these views are presented essentially as received from IGWG members.

In summary, British Columbia, Ontario, Quebec and the Yukon Territory report that exploration spending in 1989 will be down significantly from the level reported in 1988, as a result of the reduced flow-through share financing and the declining gold price. This is particularly important because British Columbia, Ontario and Quebec accounted for over 80 per cent of total mineral exploration in Canada in the last three years. Saskatchewan and Nova Scotia are forecasting modest declines, whereas New Brunswick and Newfoundland are indicating slight increases.

Most of the commentaries indicate that mineral exploration, in recent years, has been concentrated on the search for precious metals, although just lately there has been some revival of interest in base metal targets. In addition, it was reported that a greater percentage of the work in 1989 is being directed towards more advanced exploration projects.

4.2 Alberta

With no active metal mines and limited mining exploration in Alberta, the barometer measuring the impact of flow-through shares on activity has been the oil and gas industry. In this industry it is evident that the latest tax changes make the flow-through share mechanism a vehicle of limited value, especially to junior companies.

The federal policy of greatest consequence to investment levels in the mineral sector, including the petroleum industry, is the high interest rate policy. This policy spills over onto exchange rates, by artificially driving up the value of the Canadian dollar. The impact of higher interest rates on the junior and intermediate oil companies comparing January 1989 to January 1988 is equivalent to a \$2/bbl decrease in the price of oil. The exchange rate impact, which affects all oil companies is equivalent to a further oil price drop of about \$2/bbl. Thus, the combination of higher interest rates and an appreciation of

the Canadian dollar has more than offset the increase in the price of oil from \$16/bbl to \$18-\$19/bbl.

The continued insensitivity of federal interest rate policy to the impacts on the mineral sector will lead to a further erosion in exploration and development.

4.3 British Columbia

Based upon preliminary federal/provincial surveys, field exploration expenditures in British Columbia exceeded \$165 million in 1988. This represents an increase of 16 per cent over the final 1987 total of \$142.6 million reported by EMR. More than 80 per cent of this total was spent exploring for precious metals. Total exploration expenditures, including field expenditures, administration and land costs, overhead and head office expenses, amounted to \$195.2 million in 1988. Over 60 per cent of all exploration expenditures involved flow-through share financing, according to B.C. & Yukon Chamber of Mines reports.

High levels of exploration activity over the past three years have resulted in an unprecedented number of submissions for new mine development approval.

Approximately 40 projects are currently being reviewed under the provincial Mines Development Review Process, 32 of which are for precious metal developments.

The northwestern part of the province was the most active, with the highest level of exploration activity focused around the Iskut River and Stewart gold camps, with over \$40 million of expenditures on 55 properties, including 29 major exploration programs.

The outlook for the 1989 exploration season is for severely reduced expenditures due to the decline in flow-through funds and the falling gold price.

4.4 Manitoba

Mineral exploration expenditures for 1988 were forecast to be \$40 million. This compares to an estimated \$50 million spent in 1987 and \$36 million in 1986. Surface diamond drilling for these three years is estimated at 270,969 metres in 1988, 278,537 metres in 1987 and 175,583 metres in 1986.

The total area of claims recorded in Manitoba during 1988

was 341,722 hectares, a 61 per cent increase over the 212,139 hectares recorded in 1987. The area recorded in 1986 was 301,974 hectares. Mineral dispositions (which include claims, permits and leases) in good standing totalled 1,614,462 hectares, 1,708,971 hectares, and 1,443,729 hectares at the end of 1988, 1987 and 1986, respectively. These data were not estimated for 1989.

The search for gold continued to dominate the Manitoba exploration scene in 1988. However, of fourteen advanced exploration projects, seven are base metal developments which reflect the marked improvement in base metal prices over the past two years.

The prime focus for base metals and gold exploration has been in and around the major greenstone belts of the Flin Flon - Snow Lake region and Lynn Lake which was one of the "hottest" gold exploration areas in 1988, and southeastern Manitoba. Other areas of the province which are receiving interest are the Island Lake - Gods Lake greenstone belts and the Seal River area, west of Churchill. Exploration for nickel continues to be concentrated along the Thompson belt and south of Flin Flon in the Namew Lake area.

4.5 New Brunswick

A preliminary review of mineral exploration in New Brunswick indicates that activity in 1989 may surpass that of last year in which an estimated \$20 million was spent on general exploration.

Exploration in New Brunswick continues to be largely aimed at finding gold. However, there is an increasing interest in known base metal deposits and in exploring for new deposits.

It is well known among the exploration fraternity that the Bathurst-Newcastle area of northern New Brunswick has a large number of base metal deposits, mostly found during the period 1952-1975. Wedge, Nigadoo, Brunswick No.6, and Heath Steele were mined in the past; Brunswick No.12 and Caribou are presently being mined. Those that show promise include Restigouche, Halfmile Lake, Murray Brook, and the Captain North deposit.

Preliminary mineral lands statistics for the first half of 1989 indicate that there has been an 87 per cent increase in mining claims recorded. If this exploration trend continues for the remainder of the field season, there could be over \$20 million spent on general exploration, and a record

number of claims recorded.

4.6 Newfoundland and Labrador

Mineral exploration activity in Newfoundland during 1988 maintained the momentum of the past several years. Record levels for claim staking, claims in good standing, exploration expenditures and diamond drilling were reached in 1988.

The main driving force behind this steady increase in exploration activity over the last several years is gold. However, interest and expenditures on base metals has greatly increased activity. Interest in the industrial minerals sector is also on the rise and is in part responsible for the increased activity:

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989*</u>
Claim Staking (x 1000)	4.5	11.0	15.3	14.6	22.1	26.2	11.8
Claims in good Standing (x 1000)	15.3	19.7	29.6	33.3	47.7	65.8	70.0
Expenditure (x \$1,000,000)	7.7	8.4	12.6	11.8	31.1	39.2p	na
Diamond Drilling (x 1000m)	27.0	44.1	38.7	51.1	89.7	234.8	na

* Data for First Half of year only
na not available

Claim Staking Statistics

Newfoundland and Labrador claim staking statistics illustrate the steady increase in the number of claims staked and held in good standing from 1972 to June 30, 1989. Claim staking statistics for the first half of 1989 show 11,829 claims staked and 70,093 claims in good standing. These data suggest that the number of claims staked in 1989 will be slightly lower or on a par with 1988, and the number of claims in good standing will continue to increase in 1989.

Diamond Drilling

Newfoundland and Labrador drilling statistics display a marked increase in total footage drilled from 1986-1988. With the forthcoming closure of Newfoundland Zinc Mines Ltd. and a general decrease in drilling activity across the province, final drilling statistics for 1989 will in all likelihood decrease from the all-time high of 234,800m drilled in 1988 to approximate 1987 levels.

Exploration Expenditures

Newfoundland and Labrador Annual Exploration Expenditures and Exploration Field Expenditures by Commodity serve to illustrate the sharp increase in exploration spending from 1986 to 1988. Expenditures for base metals greatly increased during 1988 (i.e. approximately a 70 per cent increase). The forecasts for 1989 indicate that total expenditures, and the trend toward base metal exploration, will at least remain on par or slightly increase from 1988 levels.

Summary

The standard exploration indicators - claim staking, claims in good standing, exploration expenditures and diamond drilling - indicate that 1989 overall exploration levels should increase slightly or at least remain the same as 1988. The trend of more activity directed toward base metals seen in 1988 will likely continue through 1989.

4.7 Northwest Territories

The total value of minerals produced in the Northwest Territories (NWT) during 1988 was estimated to be \$754 million. This production represents approximately 76 per cent of the 1988 NWT Gross Territorial Product. As well mining remains the most important private sector employer, with approximately 2000 people employed directly by operating mines.

Six mines are currently in operation:

<u>Mine</u>	<u>Commodity</u>	<u>Company</u>
Giant Mine	Gold	Giant Yellowknife Mines Limited
Con Mine	Gold	Nerco Con Mine Limited
Lupin Mine	Gold	Echo Bay Mines Limited
Treminco Mine	Gold	Treminco Resources Limited
Polaris Mine	Zinc, Lead	Cominco Mines Limited
Nanisivik Mine	Zinc, Lead	Mineral Resources International Limited

Treminco Resources Limited has officially opened its gold mill on the Ptarmigan Property near Yellowknife. Giant Yellowknife Mines Limited started production from its tailings reprocessing plant at the Giant Mine in 1988. Development work continues on the Neptune Resources Corporation, Colomac property, 200 km northwest of Yellowknife with the construction of a 10,000 ton per day gold mill. Neptune and the Dogrib communities have signed an agreement in principle which assures northerners will benefit from the Colomac project. The Pine Point mine completed closure during 1988.

NWT exploration in 1988 was estimated by NWT Chamber of Mines to be \$112 million. Exploration is predicted to remain relatively high during 1989 at \$83.8 million. Advanced exploration at the Noranda - Total Energold, Tundra gold property, 300 kilometres north of Yellowknife, includes underground development. Feasibility studies and environmental reviews continue at the Urangesellschaft Canada Limited, Kiggavik uranium property near Baker Lake. Two significant zinc-silver-lead discoveries have been made in the Sunrise Lake area, 100 kilometres west of Yellowknife by Aber Resources Limited-Hemisphere Development Corporation and Ark La Tex Industries Limited-Silver Hart Mines Limited.

4.8 Nova Scotia

Nova Scotia was a significant participant in the 1986-1988 exploration boom, benefiting greatly from the income tax rules then in place with respect to flow-through shares. In these three years, total exploration expenditures were estimated at \$22 million, \$45 million and \$40 million

respectively, while total diamond drilling for the province was estimated at 75,000m, 215,000m and 105,000m. These figures represent unprecedented levels of activity for the province in 1987 and 1988 and are proportionately well above the average for the whole country based on land area.

In Nova Scotia, a major factor in attracting activity was the presence of 50 or more former producing gold mines and numerous prospects, from which it was possible to very quickly produce impressive assays. Another factor was the ability of a Halifax-based junior company to successfully raise large amounts of money in the early stages of the boom, by issuing flow-through shares, and this served as a catalyst to encourage other companies.

Inevitably, as exploration progressed, results were received which could not sustain the same level of interest on some properties, and it was quite predictable that the level of activity would decline as a natural conclusion of the exploration cycle. The peaking of the stock market in October 1987, and of the gold price at the end of 1987, coincided with this stage of the exploration cycle, causing the decline to be compounded to an unexpected degree. Although the first half of 1988 was still very active (estimates indicate that approximately 95,000m of the 105,000m total drilling for 1988 was done in the first half), the decline became very evident as the year progressed, as more and more projects were put on hold due to difficulties in raising money. Although there has been a revival of interest in base metal exploration in Nova Scotia the levels of activity have, to date, not been sufficient to moderate the overall decline. As of June 1989, activity has declined further since the end of 1988, and present indications are that exploration will continue at moderate levels for the rest of the year, and will include as targets base metals, industrial minerals and coal, as well as precious metals.

4.9 Ontario

The Ministry of Northern Development and Mines sponsored an independent survey on exploration expenditures in part of northeastern Ontario. The survey was initiated by the Northeastern Regional Office and carried out by an independent party in May and June 1989. It covers most of the Abitibi and Swayze greenstone belts, a well established mining region accounting for 35 per cent to 40 per cent of exploration expenditures in the province. Companies responding to the survey include major and junior mining and exploration companies, and private companies involved in

exploration. The level of exploration activity in the survey area is considered to be reasonably representative of Ontario.

Of a total of 214 questionnaires sent to companies thought to be active in the area over the past three years, 90 (42 per cent) responded and 13 (6 per cent) were returned unopened. Results of the survey compare favourably (to within 9 per cent) with official annual census figures for 1986 and 1987 in the associate Mining Divisions. (Census figures for 1988 expenditures are not currently available.) The consistency of these figures indicates that the survey captured a large percentage of the expenditures and gives credibility to the estimates for 1988 and 1989.

SURVEY RESULTS - ABITIBI-SWAYZE AREA

<u>Year</u>	<u>Exploration Expenditures</u>
1986	\$49,321,742
1987	\$89,087,055
1988	\$98,844,824
1989	\$49,031,378 (p)

(p) projected

The high level of exploration activity in 1987 and 1988 is reflected in the expenditure estimates of \$89 million and \$99 million respectively. Projected expenditures for 1989 total \$49 million, 48 per cent lower than in 1988 and comparable to the level recorded in 1986. The 48 per cent drop from 1988 to 1989 is a minimum estimate because at least 6 per cent of the companies surveyed that were active in 1988, have since moved their offices and are presumably not currently maintaining the same level of exploration.

The number of claims in good standing in Ontario as of the end of May this year is about 168,500, down 4 per cent from the record of about 175,600 claims in mid-1988. The numbers of claims have generally been decreasing since August of 1988. Although this drop is relatively small, the trend is significant since the current level of claims in good standing more closely reflects exploration activities dating back at least one year. The total number of claims in good standing at year-end from 1983 to 1988 ranged from 128,000 to 171,000.

Provincial Resident Geologists report that much of the exploration activity in 1989 by both senior and junior mining and exploration companies is concentrated on advance-stage exploration or development projects. Senior mining companies also continue to carry out preliminary exploration programs at about the same level as in 1988.

Exploration for base metal deposits is highlighted by Falconbridge's \$36 million Lindsley project near Sudbury. Only about 5 per cent of the advance and significant preliminary exploration projects in the province are base metal deposits.

4.10 Prince Edward Island

There has not been any mineral exploration activity on P.E.I. since 1982. The main reason, of course, for this inactivity is the absence of known mineral occurrences.

4.11 Quebec

Flow-through Share Financing

The level of financing in 1988 did not exceed the level attained in 1985, which was in the area of \$155 million. To date, in 1989, only \$22 million in flow-through share financing has been identified for Quebec. CMP is expected to spend \$14 million in Quebec (out of a total of \$59 million for Canada for mining exploration) and about \$5 million is earmarked for Quebec by NIM. The balance of the \$22 million includes a public financing by Mazarin Inc. (\$1 million) and a number of small private placements.

Last year, more than 60 per cent of the total \$154 million had been completed during the first half of the year. Further, several offerings were initiated in 1987. This year, the downward trend that began in the 1988 second half not only continues, but appears to be getting worse.

Based on lower amounts forecast for the second half of 1989 for NIM and CMP but a larger number of small private placements towards the end of the year, a total of \$50 million is estimated for the year for Quebec.

Exploration spending

The Quebec forecast for 1988 flow-through share financing, made at this time last year turned out to be relatively accurate (some \$155 million). However, off-property

exploration expenses amounted to \$334 million. This high level is attributed to the strong 1987 financing, a good amount of which was spent in January and February of 1988. Moreover, the survey of exploration spending is based on a fiscal year and not on a basic calendar year. In fact, almost half the exploration expenses of junior companies in 1988 (\$110.8 million out of \$229.6 million) were related to companies whose fiscal years started in 1987. Therefore it can be assumed that these companies obtained their financing in 1987 when funds were easier to raise. It can also be concluded that the spending by juniors for 1989 will more accurately reflect the financing difficulties encountered last year, at least for the expenditures incurred in January and February 1989.

This latter consideration was confirmed by the results of the preliminary survey conducted in the autumn of 1988; see Table 3. These data demonstrate a significant fall in the projected level of expenditures by juniors in 1989 in comparison to 1988, from \$230 million to \$118 million. These projections of spending were conditional on the attainment of financing that, in several cases, has not materialized. Further, spending projected by seniors in 1989 is also less than in 1988 (\$66 versus \$90 million). Based on previous years, however, the preliminary statistics have proven to be less than the actual spending. The difference widened as flow-through share financing was high and increasing. It is quite probable that the statistics for 1989 will differ little from the preliminary data due to weaker and decreasing financing by flow-through shares.

In June 1989, MER-Mines surveyed close to forty companies in order to update the preliminary forecast obtained in the fall of 1988. The survey respondents were responsible in 1988 for close to 50 per cent of the off-property exploration spending; this percentage climbs to 65 per cent for the preliminary forecast for 1989.

The results of the June 1989 survey are shown in Table 4. In comparison to the preliminary forecast of the fall of 1988, the senior companies revised their forecasts downwards by 32 per cent and the juniors revised theirs downward by 44 per cent.

On the basis of different assumptions, one can extrapolate the survey results in order to obtain an estimate of exploration spending for 1989.

The first estimate (1989-1) assumes that companies that were not included in the June survey are adjusting their exploration budgets in the same fashion as those companies

TABLE 3

DISTRIBUTION OF OFF-PROPERTY EXPLORATION
EXPENDITURES BY TYPE OF COMPANIES

(\$millions)

	<u>1987</u>	<u>1988</u>	<u>1989*</u>
1. MER-Mines and SOQUEM	12.1	14.7	11.2
2. "seniors"	110.8	89.6	66.3
3. "juniors"	285.4	229.6	117.6
	<hr/>	<hr/>	<hr/>
Total	408.3	334.0	195.1

* Preliminary forecast according to survey carried out in the fall of 1988.

TABLE 4

JUNE 1989 SURVEY RESULTS
AND COMPARATIVE DATA

(\$millions)

	<u>1988</u>	<u>1989</u>	
		<u>FALL 1988 SURVEY</u>	<u>JUNE 1989 SURVEY</u>
1. MER-Mines and SOQUEM	14.7	11.2	13.2
2. "seniors"	62.5	46.7	31.9
3. "juniors"	85.3	69.1	38.8
	<hr/>	<hr/>	<hr/>
Total of sample survey	162.5	127.0	83.9
GRAND TOTAL	334.0	195.1	125-150

that were canvassed. This scenario is the most plausible and corresponds better to the lower financing observed. In this case a total of \$125 million of off-property exploration spending is forecast for 1989, of which \$45 million would be by seniors. It is doubtful that one or two important discoveries would have a major impact in the short term, except for some seniors. Rather, the impact will be felt on the early 1990 exploration activity.

The second estimate (1989-2) assumes that the companies not surveyed realize the forecast spending made at the time of the fall 1988 survey. This scenario is not plausible for juniors, because those that have been surveyed in June 1989 are among the most likely to obtain financing.

Off-property exploration expenditures
(\$ millions)

	1987	1988	1989-1	1989-2
1. MER-Mines and Soquem	12.1	14.7	13.2	13.2
2. Senior companies	110.8	89.6	45.3	51.5
3. Junior companies	285.4	229.6	66.1	87.3
Total	408.3	334.0	124.6	152.0

4.12 Saskatchewan

Saskatchewan carries out an annual survey of mineral exploration expenditures through telephone interviews of the mining exploration companies and prospecting groups by the Resident Geologists' offices. Companies are asked in January/February of each year to provide an estimate of their current budget on a commodity and area-of-search basis. This forms the preliminary estimate. At the same time they are asked to provide actual expenditures from the previous year.

Although there are about 350 registered mineral property holders in the province, only between 80 and 100 companies provide exploration financing and they form the basis of the survey. It is believed that estimates are accurate to within 10 per cent at the time of the survey. However, due to the short term of the flow-through financing cycle, budgets may change significantly during the year, particularly those for precious metals' exploration. As a result, in the past several years, actual expenditures have generally exceeded the preliminary estimates.

Actual expenditures for the period 1984-88 and an estimate for 1989 are tabulated below. Total expenditures for 1984-87 from the Federal/Provincial Field Expenditure Survey are shown for comparison.

Exploration Expenditures - Resident Geologists' Survey
(Millions of Can \$)

	1984	1985	1986	1987	1988	1989(est)
Precious metals	6	7	18	48	55	31
Base metals	4	3	2	3	6	5
Uranium	22	19	22	18	44(1)	50(1)
Total (Res.Geol)	32	29	42	69	105	86
Total (Fed/Prov)	32.7	39.4	36.8	63.5	na	na

(1) includes underground development at Cigar Lake and Midwest uranium test mines

Apart from the major discrepancy in 1985 (provincial \$29 million; federal/provincial survey \$39.4 million) the results of the two surveys compare reasonably well. Slight differences can be expected due to variances in reporting and the generally higher response rate to the provincial survey.

The preliminary estimate of precious metals exploration for 1989 indicates a significant decline from the previous record levels achieved in 1987 and 1988, although base metals and uranium expenditures are at a similar level. When the test mining costs are subtracted from the uranium totals for 1988 and 1989, the residuals are in the range \$17-20 million per year, which is comparable to the previous years. The level of grassroots uranium exploration has remained fairly constant and is neither influenced by the availability of flow-through funds nor commodity prices. This reflects the long term nature of uranium exploration which is dominated by companies funded by electrical utilities and governments.

It is likely that the 1989 survey of actual expenditures will have a new commodity category: "diamonds". A discovery of kimberlite near Prince Albert by Monopros, Limited, in late 1988 has prompted a staking rush and a number of exploration projects are underway. This activity is not reflected in the 1989 preliminary estimate.

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It is likely that the 1989 survey of actual expenditures will have a new commodity category: "diamonds". A discovery of kimberlite near Prince Albert by Monopros, Limited, in late 1988 has prompted a staking rush and a number of exploration projects are underway. This activity is not reflected in the 1989 preliminary estimate. Approximately 400,000 hectares have been staked to mid-summer 1989 and involve a commitment to spend \$4.8 million over the next two years. It is likely that this figure will be exceeded if other bodies of kimberlite are located.

4.13 Yukon

Industry sources are suggesting that, owing to financing difficulties, exploration spending by juniors in Yukon in 1989 will be down dramatically from 1988 by as much as 50 per cent.

SECTION C. HISTORICAL PERSPECTIVE ON MINERAL EXPLORATION ACTIVITY

5.1 Introduction

This section presents a discussion on the historical level of mining exploration, as well as the historical distribution of exploration spending by region, commodity sought and type of company.

5.2 Level of Exploration Activity

Figure 6 shows annual Canadian mining exploration by seniors and juniors for the years 1969 to 1988, expressed in constant 1988 dollars. The increases since 1983 reflect the strong emergence of the junior sector and the availability of flow-through share financing. In 1987, junior firms accounted for over two thirds of the total exploration in Canada.

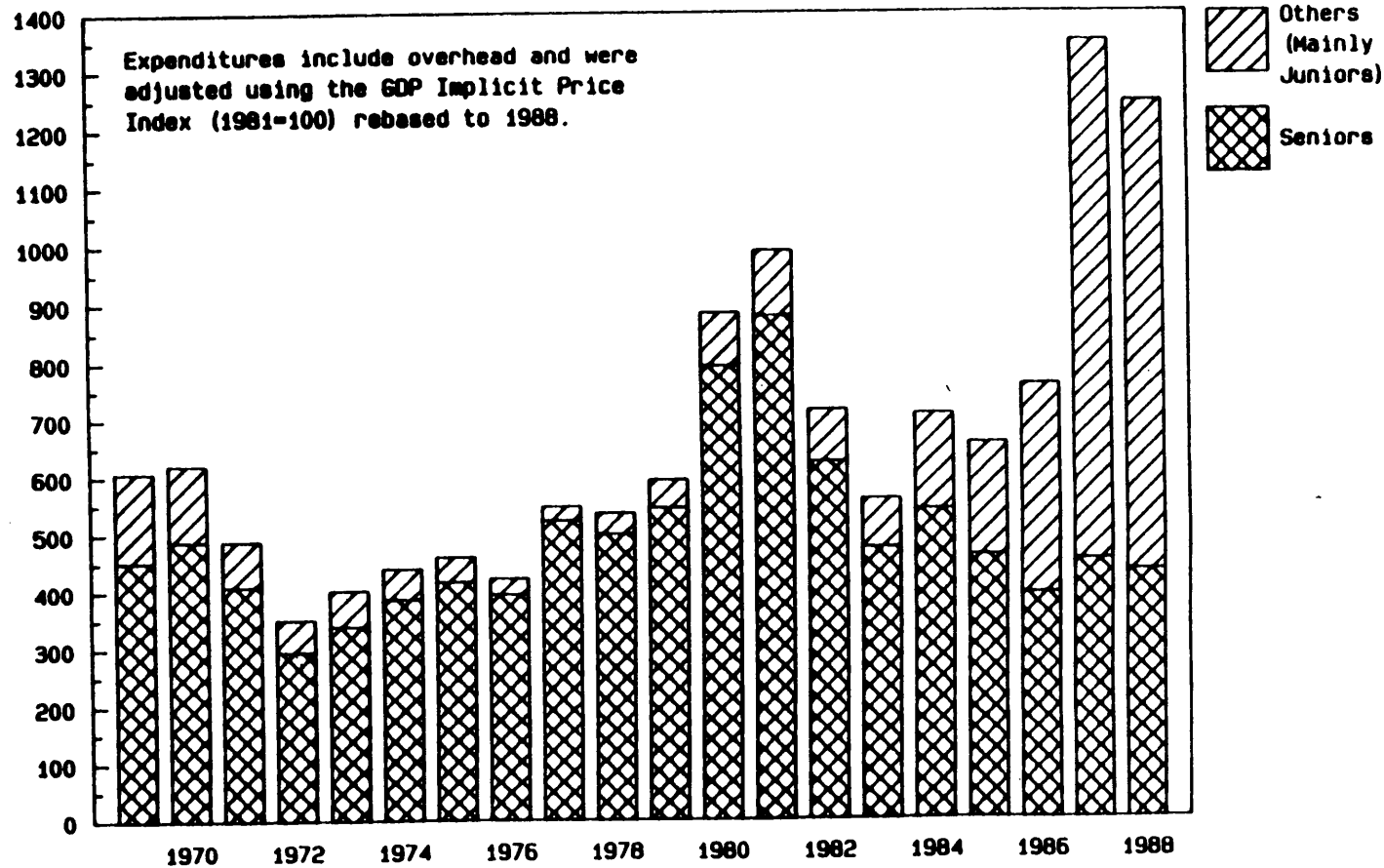
Until 1983, as suggested in Section 2.4, the pattern of exploration spending has closely followed metal price trends. For example, during the metal price escalation from 1978 to 1980, expenditures increased by 65 per cent, and then fell by 19 per cent during 1980 to 1982 when metal prices declined. However, the most recent escalation in exploration spending, beginning in 1984, did not follow an escalation in metal prices but, instead, was heavily influenced by the growth in flow-through share financing.

Another measure of exploration activity is the amount of surface and underground diamond drilling carried out. Drilling activity, like exploration spending, has closely followed trends in metal prices. Figure 7 shows surface and underground contract drilling for the years 1973 to 1987, and highlights the dramatic increase in exploration that began in 1985. The Statistics Canada data used in Figure 7 cover a wider spectrum of the drilling industry than that of the Canadian Diamond Drilling Association (CDDA) presented in Section 2.5. Therefore the two sources give different total results, but the same trends are observable (see Figure 4). The CDDA data are available on a more up-to-date basis (most recent are for June 1989) whereas the latest data available from Statistics Canada are for the year 1987. Drilling in 1987, at about 5.9 million meters, was about four times the level for 1973. It also represents a sharp increase from the 2.5 million metres recorded in 1985. It

Figure 6

TOTAL EXPLORATION EXPENDITURES JUNIOR/SENIOR SPLIT 1969 TO 1988

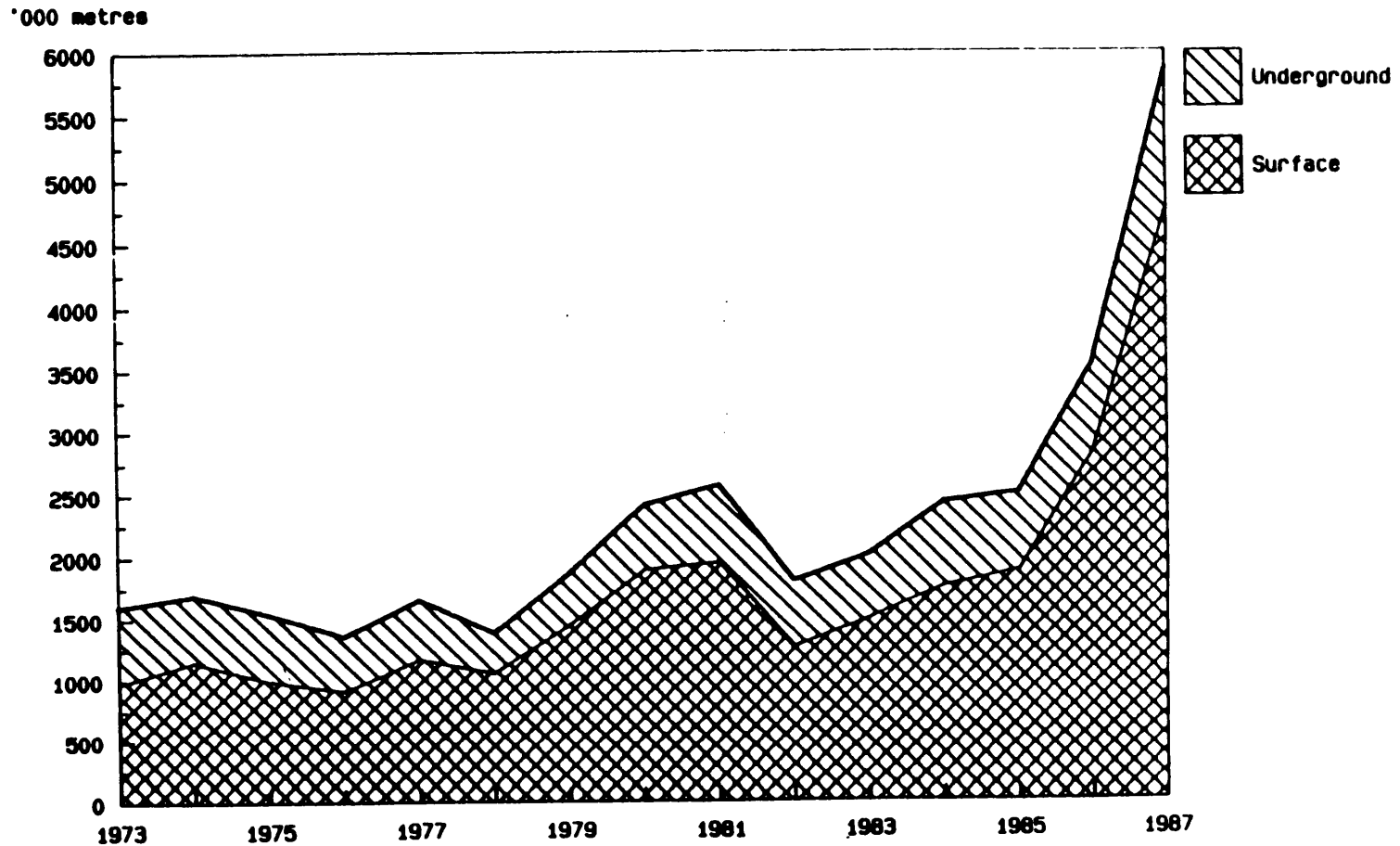
1988 \$ millions



Source: Expenditures and junior/senior split estimated by EMR using survey questionnaires completed for Statistics Canada Catalogue 61-007 and 61-216. The 1988 total value is Statistics Canada Preliminary Actual data.

Figure 7

SURFACE AND UNDERGROUND DRILLING CONTRACT DIAMOND DRILLING OPERATIONS BY YEAR - 1973 TO 1987



Source: Statistics Canada Catalogue 26-201
Note: Data refer to SIC 0921; 1987 is the
latest year for which data is available.

It is worth noting that trends in the drilling data are consistent with the course of total exploration spending over the 1973 to 1987 period. As well, the diamond drilling data indicate that surface drilling has grown and has become an increasingly greater proportion of total drilling.

5.3 Exploration by Region

Mineral exploration takes place in every province/territory of Canada, but not normally in Prince Edward Island. Quebec, British Columbia and Ontario have traditionally been the most active provinces. Table 5 shows nominal dollar expenditures on mineral exploration in Canada by region and by province for the 1984 to 1987 period. Table 6 shows the relative distribution in percentages of the same data for the same period. These data are based on the federal-provincial exploration survey conducted by EMR, Quebec, Ontario, Newfoundland, Nova Scotia, Manitoba and British Columbia.

While all regions of Canada have experienced increased exploration spending over the period 1984 to 1987, the distribution of spending has shifted somewhat. In 1987, Quebec accounted for almost 37 per cent of total Canadian exploration spending, up from 29 per cent in 1984. As well, Ontario increased its share of total exploration spending, from about 18 per cent in 1984 to about 27 per cent in 1987. While the Atlantic region has marginally increased its share of total exploration spending, all other regions experienced decreases in their relative proportion of total Canadian exploration spending over the period. For example, the prairie provinces' share fell from approximately 18 per cent in 1985 to about 7 per cent in 1987. British Columbia's share fell between 1984 and 1986, but increased from 10 per cent in 1986 to about 13 per cent in 1987. The territories' share has fallen, from about 11 per cent in 1984 and 14 per cent in 1985 to under 8 per cent in 1987.

5.4 Exploration Expenditures by Type of Company

Figure 8 illustrates exploration by various types of companies in more detail than a simple senior-junior distribution for the years 1985 to 1987. The data indicate that, over the period 1985 to 1987, exploration expenditures increased by all types of companies with the exception of oil companies and foreign companies. Non-petroleum mineral exploration by oil companies declined by more than 60 per cent over the period.

Table 5. Mineral exploration expenditures in Canada by region and by province

(Millions of Nominal Dollars)								
	<u>1984</u>		<u>1985</u>		<u>1986</u>		<u>1987</u>	
	Within Canada	Within Regions	Within Canada	Within Regions	Within Canada	Within Regions	Within Canada	Within Regions
BRITISH COLUMBIA	89.3		73.0		63.1		142.6	
ONTARIO	80.5		93.2		136.8		308.1	
QUEBEC	127.6		135.2		241.4		415.5	
Alberta		5.9		14.7		3.0		2.5
Saskatchewan		32.7		39.4		36.8		63.5
Manitoba		<u>26.2</u>		<u>33.7</u>		<u>26.3</u>		<u>40.0</u>
TOTAL PRAIRIES	64.8		87.8		66.1		106.0	
New Brunswick		10.9		12.1		10.8		9.1
Nova Scotia		6.8		7.8		17.2		41.6
Newfoundland		<u>8.2</u>		<u>11.9</u>		<u>12.3</u>		<u>27.7</u>
TOTAL ATLANTIC	25.9		31.8		40.3		78.4	
Yukon Territory		18.5		22.7		27.9		29.0
Northwest Territories		<u>31.2</u>		<u>46.8</u>		<u>35.8</u>		<u>59.0</u>
TOTAL TERRITORIES	49.7		69.5		63.7		88.0	
TOTAL CANADA	<u>437.8</u>		<u>490.5</u>		<u>611.4</u>		<u>1,138.7</u>	

Sources: Federal/Provincial Field Expenditures Survey
 As B.C. did not join survey until 1985, Statistics Canada
 Catalogue 61-216 was used for 1984 B.C. value.

Note: Expenditures do not include overhead expenses.

Table 6. Distribution of mineral exploration expenditures within Canada and within regions

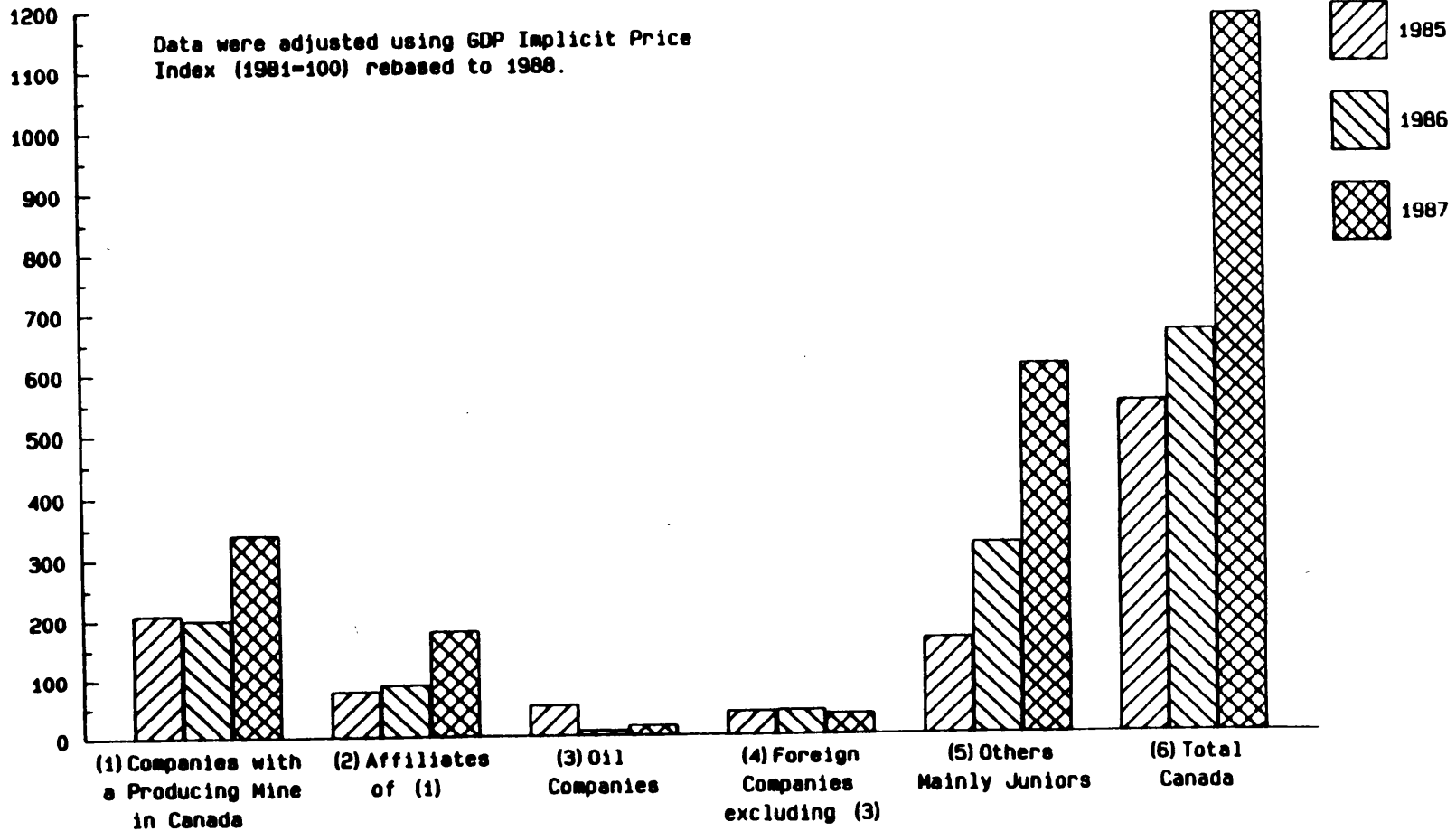
	(percentages)							
	<u>1984</u>		<u>1985</u>		<u>1986</u>		<u>1987</u>	
	Within Canada	Within Regions	Within Canada	Within Regions	Within Canada	Within Regions	Within Canada	Within Regions
BRITISH COLUMBIA	20.4		14.9		10.3		12.5	
ONTARIO	18.4		19.0		22.4		27.1	
QUEBEC	29.2		27.6		39.5		36.5	
Alberta		9.1		16.8		4.5		2.4
Saskatchewan		50.4		44.8		55.7		59.9
Manitoba		<u>40.5</u>		<u>38.4</u>		<u>39.9</u>		<u>37.7</u>
TOTAL PRAIRIES	14.8	100.0	17.9	100.0	10.8	100.0	9.3	100.0
New Brunswick		42.1		38.0		26.7		11.6
Nova Scotia		26.3		24.6		42.7		53.1
Newfoundland		<u>31.6</u>		<u>37.4</u>		<u>30.6</u>		<u>35.3</u>
TOTAL ATLANTIC	5.9	100.0	6.5	100.0	6.6	100.0	6.9	100.0
Yukon Territory		37.2		32.7		43.8		33.0
Northwest Territories		<u>62.8</u>		<u>67.3</u>		<u>56.2</u>		<u>67.0</u>
TOTAL TERRITORIES	11.3	100.0	14.2	100.0	10.4	100.0	7.7	100.0
TOTAL CANADA	<u>100.0</u>		<u>100.0</u>		<u>100.0</u>		<u>100.0</u>	

Source: Based on data cited in Table 5

Figure 8

TOTAL CANADIAN EXPLORATION EXPENDITURES BY TYPE OF COMPANY 1985 TO 1987

1988 \$ millions



Source: Federal-Provincial Field Expenditures Survey
Note: Overhead expenditures are not included.

Juniors, which in 1983 constituted about 15 per cent of total exploration, have increased in importance such that by 1987 their share of total expenditures is estimated to have been over two thirds of the total. This represents a fourfold increase in their relative share of total exploration expenditures. However, it is also remarkable that absolute expenditures by juniors increased from about \$71 million in 1983 to an amount approaching \$1 billion in 1987.

5.5 Exploration Expenditures by Type of Commodity Sought

Figure 9 shows total Canadian exploration expenditures based on commodities for the period 1985 to 1987, and gives an indication of the changing emphasis of total exploration expenditures by commodity sought over the period. In 1987, precious metals, mainly gold, accounted for 84 per cent of total exploration expenditures in Canada, base metals 11 per cent, uranium 2 per cent and other metals and minerals including coal 3 per cent.

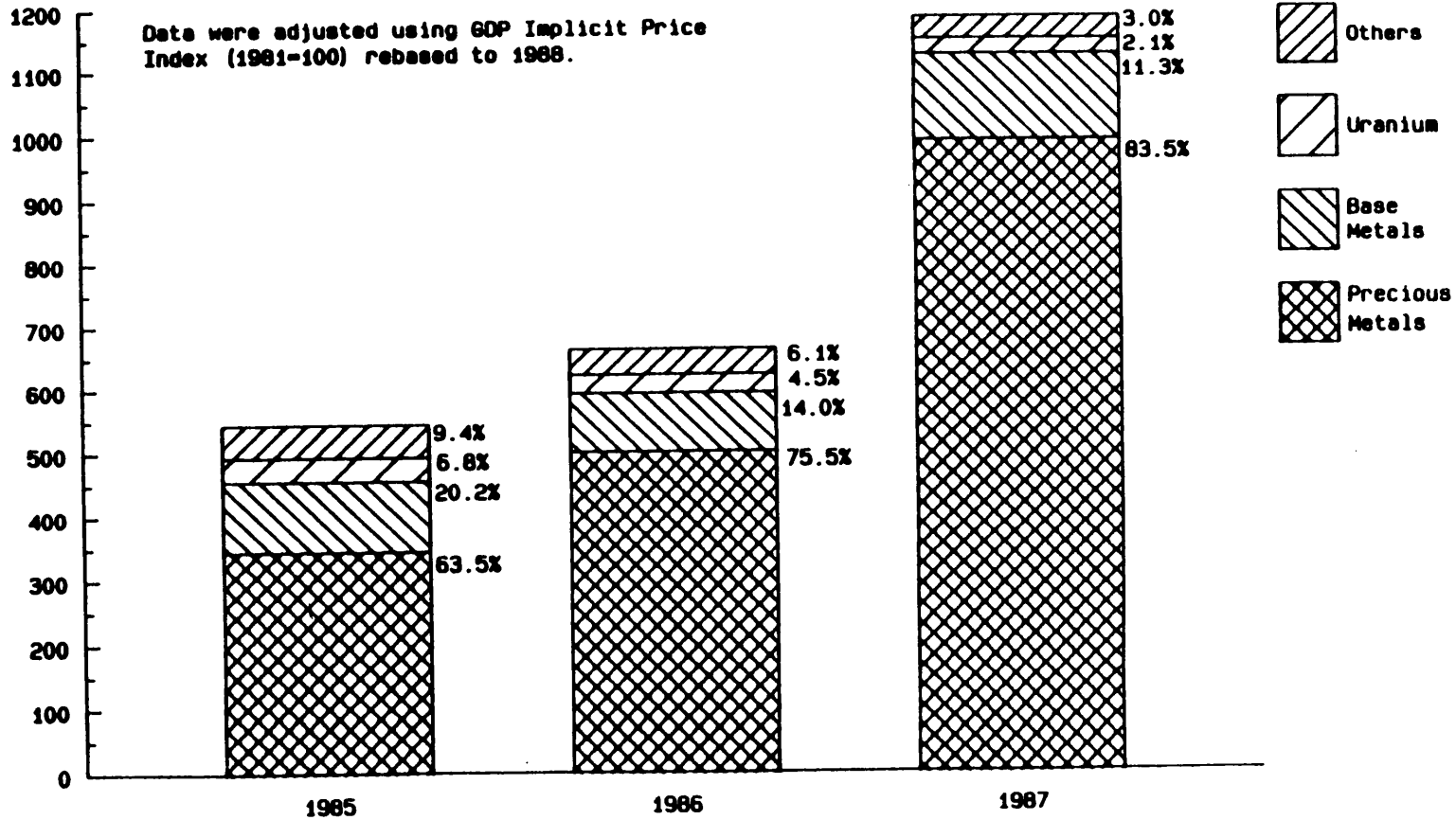
The commodity distribution of expenditures in 1987 reflects the trend in recent years of increased interest in exploration for gold and other precious metals, and a relative decrease in interest in base metals, uranium and other metals. However, absolute dollar amounts spent on exploration for base metals increased in 1987 over 1986.

The data for 1988 are not yet available. However, industry representatives claim that there has been a revived interest in base metals exploration and that the 1988 commodity-related exploration data will further reflect this when they become available.

Figure 9

TOTAL CANADIAN EXPLORATION EXPENDITURES DISTRIBUTION BY COMMODITIES SOUGHT 1985 TO 1987

1988 \$ millions



Source: Federal-Provincial Field Expenditures Survey
Note: Overhead expenditures are not included.

SECTION D. HISTORICAL PERSPECTIVE ON FLOW-THROUGH SHARE FINANCING ACTIVITY 1983-1988

The growth in the popularity of flow-through shares as a source of financing for exploration is illustrated in Figure 10. Funds raised by flow-through shares increased dramatically to \$1,183 million in 1987 from \$34 million in 1983. The amount raised for 1988 is currently estimated at \$850 million; although, to date, details on company specific financings account for a total of only \$744 million for 1988.

The proportion of exploration expenditures accounted for by flow-through share financing increased from about 7 per cent in 1983 to slightly in excess of 90 per cent in 1987. In 1988, in comparison, the level of flow-through financing of mineral exploration declined to approximately 60 per cent mainly as a result of the decreased participation of senior companies in the flow-through share market. The increase in the proportion of exploration funded by flow-through shares is evident from Figure 5 and Figure 10.

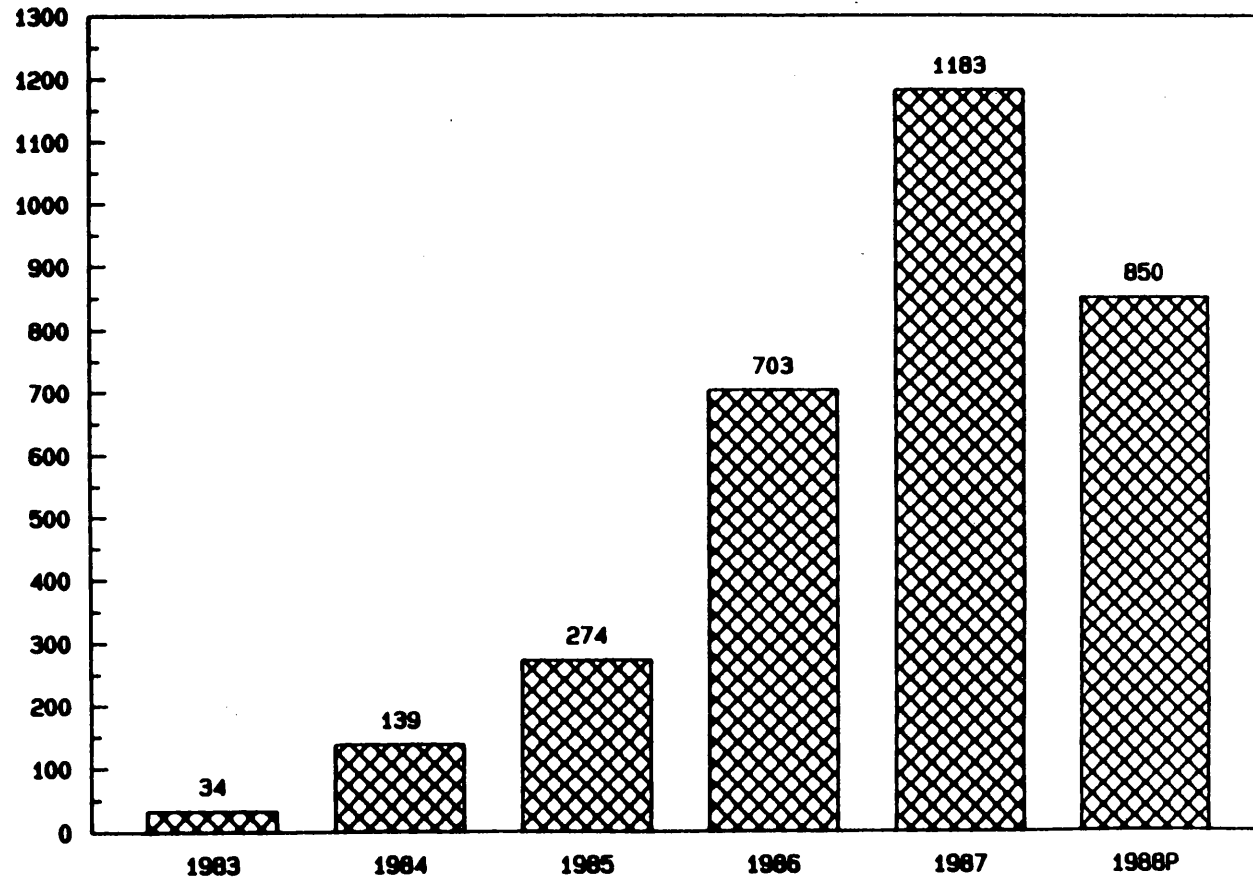
It should be noted that exploration expenditures and amounts financed by flow-through shares cannot be directly compared. Exploration data are compiled on a calendar-year basis, whereas the amount of flow-through share funds raised is compiled on a taxation-year basis. Since 1986, this latter data has included money raised for spending in the so-called "look-back period", that is, January and February of the following year. Thus, a certain amount of the money raised for a given year would actually have been spent in the first two months of the following year. For example, a certain amount of money raised in 1987 would have been spent in early 1988.

Concurrent with this rise in flow-through share funding has been the increase in the proportion of total exploration undertaken by junior mining companies. It is the juniors who made the most use of the flow-through share mechanism in 1987 and 1988. It is estimated that juniors accounted for close to eighty per cent of the total amount raised by flow-through shares in 1988. However, as was pointed out earlier in this report it is the juniors who are expected to feel the brunt of the reduced level of flow-through share financing in 1989 even though they may continue to account for by far the majority of flow-through share funded exploration.

Figure 10

FLOW-THROUGH SHARE FINANCING LEVELS 1983 TO 1988

Millions of dollars



Source: Energy, Mines and Resources Canada
P-Preliminary EMR Estimate as of July 31, 1989.

Summary statistics for flow-through share financing for 1988 are presented in Tables 7 through 12. These statistics are derived from data collected by EMR from the Montreal, Toronto and Alberta stock exchanges between January 1988 and June 1989. Vancouver data are compiled from the "Vancouver Stockwatch".

Table 7 shows the break down by dollar amount for senior, established junior and new junior* company financing in 1988. Tables 8, 9, 10 and 11 show summaries of flow-through share financing for all companies, for senior companies, for established junior companies and new junior companies according to various dollar intervals of financing. Table 12 provides a break down of dollars raised on each of the four stock exchanges broken down into senior, established junior and new junior companies.

* The description "new junior" refers to exploration companies which have no significant real assets such as mineral deposits and does not necessarily mean a newly incorporated company.

TABLE / TABLEAU 7

FLOW-THROUGH SHARE FINANCING
DISTRIBUTION BY CATEGORY OF COMPANY
TAXATION YEAR 1988

FINANCEMENT PAR ACTIONS ACCRÉDITIVES
RÉPARTITION PAR CATÉGORIE DE SOCIÉTÉ MINIÈRE
ANNÉE D'IMPOSITION 1988

VALUE OF FLOW-THROUGH SHARES / VALEUR DES ACTIONS ACCRÉDITIVES

	DOLLARS / DOLLARS	PERCENT / POURCENTAGE
Senior / Grandes	171,151,304	23.00
Established junior / Petites, établies	360,964,643	48.51
New junior / Petites, nouvellement constituées	212,020,643	28.49
	-----	-----
TOTAL / TOTAL	744,136,590	100.00

NUMBER OF COMPANIES / NOMBRE DE COMPAGNIES

	NUMBER / NOMBRE	PERCENT / POURCENTAGE
Senior / Grandes	48	8.35
Established junior / Petites, établies	193	33.57
New junior / Petites, nouvellement constituées	334	58.09
	----	-----
TOTAL / TOTAL	575	100.00

NOTE: Preliminary data as collected at the Montreal, Toronto and Alberta Stock Exchanges between January 1988 and June 1989. Vancouver data are compiled from the "Vancouver Stockwatch".

NOTA: Données provisoires, recueillies aux bourses de Montréal, de Toronto et de l'Alberta entre janvier 1988 et juin 1989. Les données de la bourse de Vancouver proviennent du "Vancouver Stockwatch".

SOURCE: Economic and Financial Policy Analysis Branch, EMR

SOURCE: Direction de l'Analyse de la Politique Économique et Financière, EMR

TABLE / TABLEAU 8

ALL COMPANIES / TOUTES LES SOCIÉTÉS

FLOW-THROUGH SHARE FINANCING LEVELS / NIVEAUX DE FINANCEMENT PAR SOCIÉTÉ
BY COMPANY / AU MOYEN DE L'ÉMISSION D' ACTIONS ACCRÉDITIVES
IN TAXATION YEAR 1988 / DURANT L'ANNÉE D'IMPOSITION 1988

BREAKDOWN BY FUNDING LEVEL / RÉPARTITION PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.98	0.13	30	5.22
50 001 - 100 000	3.84	0.52	44	7.65
100 001 - 250 000	21.73	2.92	122	21.22
250 001 - 500 000	41.37	5.56	106	18.43
500 001 - 1 000 000	71.67	9.63	95	16.52
1 000 001 - 3 000 000	207.79	27.92	114	19.83
3 000 001 - 5 000 000	128.63	17.29	33	5.74
5 000 001 - 7 000 000	57.40	7.71	10	1.74
7 000 001 - 10 000 000	124.60	16.74	15	2.61
10 000 001 - 50 000 000	86.14	11.58	6	1.04
	-----	-----	---	-----
	744.14	100.00	575	100.00

CUMULATIVE TOTAL BY FUNDING LEVEL / TOTAL CUMULATIF PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.98	0.13	30	5.22
1 - 100 000	4.82	0.65	74	12.87
1 - 250 000	26.54	3.57	196	34.09
1 - 500 000	67.92	9.13	302	52.52
1 - 1 000 000	139.59	18.76	397	69.04
1 - 3 000 000	347.38	46.68	511	88.87
1 - 5 000 000	476.00	63.97	544	94.61
1 - 7 000 000	533.40	71.68	554	96.35
1 - 10 000 000	658.00	88.42	569	98.96
1 - 50 000 000	744.14	100.00	575	100.00

NOTE: Preliminary data as collected at the Montreal, Toronto and Alberta Stock Exchanges between January 1988 and June 1989. Vancouver data are compiled from the "Vancouver Stockwatch".

NOTA: Données provisoires, recueillies aux bourses de Montréal, de Toronto et de l'Alberta entre janvier 1988 et juin 1989. Les données de la bourse de Vancouver proviennent du "Vancouver Stockwatch".

SOURCE: Economic and Financial Policy Analysis Branch, EMR

SOURCE: Direction de l'Analyse de la Politique Économique et Financière, EMR

TABLE / TABLEAU 9

SENIOR COMPANIES / GRANDES SOCIÉTÉS

FLOW-THROUGH SHARE FINANCING LEVELS / NIVEAUX DE FINANCEMENT PAR SOCIÉTÉ
 BY COMPANY / AU MOYEN DE L'ÉMISSION D' ACTIONS ACCRÉDITIVES
 IN TAXATION YEAR 1988 / DURANT L'ANNÉE D'IMPOSITION 1988

BREAKDOWN BY FUNDING LEVEL / RÉPARTITION PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.00	0.00	0	0.00
50 001 - 100 000	0.00	0.00	0	0.00
100 001 - 250 000	0.15	0.09	1	2.08
250 001 - 500 000	1.76	1.03	5	10.42
500 001 - 1 000 000	4.30	2.51	5	10.42
1 000 001 - 3 000 000	24.41	14.26	11	22.92
3 000 001 - 5 000 000	64.31	37.58	17	35.42
5 000 001 - 7 000 000	11.00	6.43	2	4.17
7 000 001 - 10 000 000	50.72	29.63	6	12.50
10 000 001 - 50 000 000	14.50	8.47	1	2.08
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	171.15	100.00	48	100.00

CUMULATIVE TOTAL BY FUNDING LEVEL / TOTAL CUMULATIF PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.00	0.00	0	0.00
1 - 100 000	0.00	0.00	0	0.00
1 - 250 000	0.15	0.09	1	2.08
1 - 500 000	1.91	1.12	6	12.50
1 - 1 000 000	6.21	3.63	11	22.92
1 - 3 000 000	30.62	17.89	22	45.83
1 - 5 000 000	94.93	55.47	39	81.25
1 - 7 000 000	105.93	61.89	41	85.42
1 - 10 000 000	155.65	90.94	47	97.92
1 - 50 000 000	171.15	100.00	48	100.00

NOTE: Preliminary data as collected at the Montreal, Toronto and Alberta Stock Exchanges between January 1988 and June 1989. Vancouver data are compiled from the "Vancouver Stockwatch".

NOTA: Données provisoires, recueillies aux bourses de Montréal, de Toronto et de l'Alberta entre janvier 1988 et juin 1989. Les données de la bourse de Vancouver proviennent du "Vancouver Stockwatch".

SOURCE: Economic and Financial Policy Analysis Branch, EMR

SOURCE: Direction de l'Analyse de la Politique Économique et Financière, EMR

TABLE / TABLEAU 10

ESTABLISHED JUNIOR COMPANIES / PETITES SOCIÉTÉS ÉTABLIES

FLOW-THROUGH SHARE FINANCING LEVELS / NIVEAUX DE FINANCEMENT PAR SOCIÉTÉ
BY COMPANY / AU MOYEN DE L'ÉMISSION D' ACTIONS ACCRÉDITIVES
IN TAXATION YEAR 1988 / DURANT L'ANNÉE D'IMPOSITION 1988

BREAKDOWN BY FUNDING LEVEL / RÉPARTITION PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.13	0.04	4	2.07
50 001 - 100 000	0.55	0.15	7	3.63
100 001 - 250 000	4.04	1.12	20	10.36
250 001 - 500 000	14.38	3.98	36	18.65
500 001 - 1 000 000	25.02	6.93	34	17.62
1 000 001 - 3 000 000	119.64	33.14	62	32.12
3 000 001 - 5 000 000	55.50	15.38	14	7.25
5 000 001 - 7 000 000	34.58	9.58	6	3.11
7 000 001 - 10 000 000	48.80	13.52	6	3.11
10 000 001 - 50 000 000	58.32	16.16	4	2.07
	-----	-----	---	-----
	360.96	100.00	193	100.00

CUMULATIVE TOTAL BY FUNDING LEVEL / TOTAL CUMULATIF PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.13	0.04	4	2.07
1 - 100 000	0.69	0.19	11	5.70
1 - 250 000	4.73	1.31	31	16.06
1 - 500 000	19.11	5.29	67	34.72
1 - 1 000 000	44.13	12.23	101	52.33
1 - 3 000 000	163.77	45.37	163	84.46
1 - 5 000 000	219.27	60.75	177	91.71
1 - 7 000 000	253.85	70.33	183	94.82
1 - 10 000 000	302.64	83.84	189	97.93
1 - 50 000 000	360.96	100.00	193	100.00

NOTE: Preliminary data as collected at the Montreal, Toronto and Alberta Stock Exchanges between January 1988 and June 1989. Vancouver data are compiled from the "Vancouver Stockwatch".

NOTA: Données provisoires, recueillies aux bourses de Montréal, de Toronto et de l'Alberta entre janvier 1988 et juin 1989. Les données de la bourse de Vancouver proviennent du "Vancouver Stockwatch".

SOURCE: Economic and Financial Policy Analysis Branch, EMR

SOURCE: Direction de l'Analyse de la Politique Économique et Financière, EMR

TABLE / TABLEAU 11
 NEW JUNIOR COMPANIES / PETITES SOCIÉTÉS NOUVELLEMENT CONSTITUÉES
 FLOW-THROUGH SHARE FINANCING LEVELS / NIVEAUX DE FINANCEMENT PAR SOCIÉTÉ
 BY COMPANY / AU MOYEN DE L'ÉMISSION D' ACTIONS ACCRÉDITIVES
 IN TAXATION YEAR 1988 / DURANT L'ANNÉE D'IMPOSITION 1988

BREAKDOWN BY FUNDING LEVEL / RÉPARTITION PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.85	0.40	26	7.78
50 001 - 100 000	3.28	1.55	37	11.08
100 001 - 250 000	17.53	8.27	101	30.24
250 001 - 500 000	25.23	11.90	65	19.46
500 001 - 1 000 000	42.35	19.98	56	16.77
1 000 001 - 3 000 000	63.74	30.06	41	12.28
3 000 001 - 5 000 000	8.81	4.16	2	0.60
5 000 001 - 7 000 000	11.82	5.58	2	0.60
7 000 001 - 10 000 000	25.08	11.83	3	0.90
10 000 001 - 50 000 000	13.32	6.28	1	0.30
	-----	-----	---	-----
	212.02	100.00	334	100.00

CUMULATIVE TOTAL BY FUNDING LEVEL / TOTAL CUMULATIF PAR NIVEAU DE FINANCEMENT

LEVEL / NIVEAU DOLLARS / DOLLARS	Funds / Fonds raised / levés \$millions / millions de \$	Percent / Pourcentage of funds / des fonds raised (%) / levés (%)	Number / Nombre of / de companies / sociétés	Percent of / Pourcentage total number of / du nombre total companies (%) / de sociétés (%)
1 - 50 000	0.85	0.40	26	7.78
1 - 100 000	4.13	1.95	63	18.86
1 - 250 000	21.66	10.22	164	49.10
1 - 500 000	46.90	22.12	229	68.56
1 - 1 000 000	89.25	42.10	285	85.33
1 - 3 000 000	152.99	72.16	326	97.60
1 - 5 000 000	161.80	76.31	328	98.20
1 - 7 000 000	173.62	81.89	330	98.80
1 - 10 000 000	198.70	93.72	333	99.70
1 - 50 000 000	212.02	100.00	334	100.00

NOTE: Preliminary data as collected at the Montreal, Toronto and Alberta Stock Exchanges between January 1988 and June 1989. Vancouver data are compiled from the "Vancouver Stockwatch".

NOTA: Données provisoires, recueillies aux bourses de Montréal, de Toronto et de l'Alberta entre janvier 1988 et juin 1989. Les données de la bourse de Vancouver proviennent du "Vancouver Stockwatch".

SOURCE: Economic and Financial Policy Analysis Branch, EMR

SOURCE: Direction de l'Analyse de la Politique Économique et Financière, EMR

TABLE / TABLEAU 12

FLOW-THROUGH SHARE FINANCING
DISTRIBUTION BY STOCK EXCHANGE AND CATEGORY OF COMPANY
TAXATION YEAR 1988

FINANCEMENT PAR ACTIONS ACCRÉDITIVES
RÉPARTITION ENTRE BOURSES, PAR CATÉGORIE DE SOCIÉTÉ MINIÈRE
ANNÉE D'IMPOSITION 1988

COMPANIES / SOCIÉTÉS	DOLLARS / DOLLARS	PERCENT / POURCENTAGE
ALBERTA STOCK EXCHANGE / BOURSE DE CALGARY		
Senior / Grandes	3,850,000	3.96
Established junior / Petites, établies	30,294,699	31.19
New junior / Petites, nouvellement constituées	62,992,538	64.85
	-----	-----
SUBTOTAL / SOUS-TOTAL	97,137,237	100.00
MONTREAL EXCHANGE / BOURSE DE MONTREAL		
Senior / Grandes	77,142,482	42.59
Established junior / Petites, établies	59,685,974	32.95
New junior / Petites, nouvellement constituées	44,304,766	24.46
	-----	-----
SUBTOTAL / SOUS-TOTAL	181,133,222	100.00
TORONTO STOCK EXCHANGE / BOURSE DE TORONTO		
Senior / Grandes	143,734,297	39.47
Established junior / Petites, établies	198,981,500	54.64
New junior / Petites, nouvellement constituées	21,427,920	5.88
	-----	-----
SUBTOTAL / SOUS-TOTAL	364,143,717	100.00
VANCOUVER STOCK EXCHANGE / BOURSE DE VANCOUVER		
Senior / Grandes	51,006,527	17.05
Established junior / Petites, établies	149,919,160	50.12
New junior / Petites, nouvellement constituées	98,183,131	32.83
	-----	-----
SUBTOTAL / SOUS-TOTAL	299,108,818	100.00
ALL EXCHANGES / TOUTES LES BOURSES (*)		
Senior / Grandes	171,151,305	23.00
Established junior / Petites, établies	360,964,642	48.51
New junior / Petites, nouvellement constituées	212,020,643	28.49
	-----	-----
TOTAL / TOTAL	744,136,590	100.00

(*) Interlisted placements are only counted once in the ALL EXCHANGES total, explaining a difference of \$197,386,404 between such total and the sum of the four exchanges totals / Les placements inscrits sur plus d'une bourse n'apparaissent qu'une fois dans le total TOUTES LES BOURSES, ce qui explique l'écart de 197,386,404\$ entre celui-ci et la somme des quatre bourses prises individuellement.

NOTE: Preliminary data as collected at the Montreal, Toronto and Alberta Stock Exchanges between January 1988 and June 1989. Vancouver data are compiled from the "Vancouver Stockwatch".

NOTA: Données provisoires, recueillies aux bourses de Montréal, de Toronto et de l'Alberta entre janvier 1988 et juin 1989. Les données de la bourse de Vancouver proviennent du "Vancouver Stockwatch".

SOURCE: Economic and Financial Policy Analysis Branch, EMR

SOURCE: Direction de l'Analyse de la Politique Économique et Financière, EMR