



**Paper presented in the Keynote Session
Prospectors and Developers Association of Canada
Annual Convention, Monday March 9, 1998**

An Overview of Worldwide Exploration Trends

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Abstract

In 1972 the Club of Rome produced a report entitled "The Limits of Growth" which summarised reserves of various metals and other natural resource commodities and then linked them to then current and future anticipated demand, reaching the simple conclusion that the world would run out of resources in the next two decades. Hindsight has shown how inaccurate this vision was and is exemplified by the success of the global exploration industry. Resources of most commodities now stand at higher levels relative to production than was the case in 1972. In achieving this level of activity the industry has evolved in particular with respect to international activity and the dramatically increased role of junior companies in the worldwide arena.

The Prospectors and Developers Association of Canada has been collecting statistics about exploration expenditures by the Canadian Junior exploration and mining companies since 1991 and has developed a profile of exploration characteristics through an economic cycle to 1997. Total annual expenditures in this cycle have increased from less than US\$100 million in 1992 to more than US\$500 million in 1997. Per company expenditures have more than doubled from less than US\$0.75 millions to US\$1.5 millions. This compares with a doubling of annual budgets by the senior mining companies surveyed by the Metal Economics Group of Halifax from US\$12 to 25 millions. The number of active Canadian juniors and the size of their operating budgets increased more dramatically than that of the world senior mining companies with the Canadian junior companies budget share growing from three to thirteen percent of that of the world

senior total.

This disproportionate increase in the activity level of the junior sector is not new and can be compared with at least two other similar cycles when interest was focused almost entirely in North America. The difference in this present cycle has been the aggressive way the junior companies have spearheaded the international expansion of the industry. Whereas the former cycles were policy driven this cycle has been demand driven. Canadian junior companies have undergone radical restructuring of the way they do business to adapt to this new business environment. They are unlikely to revert to a concentration on domestic activity now that they are appreciative of the greater global potential.

The success of the junior sector in this climate is reflected in the numbers of newly created intermediate to senior mining companies, in spite of predictions that this was impossible less than a decade ago.

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Introduction

In 1972 the Club of Rome produced a report entitled "The Limits of Growth" which summarised reserves of various metals and other natural resource commodities and then linked them to then current and future anticipated demand, reaching the simple conclusion that the world would run out of resources in the next two decades. As is evident from Slide 1L that has not been the case. And it has not been the case because of the success of our exploration industry. An industry which is now entirely market driven and internationally competitive. Perhaps the best way of demonstrating this is to look at the numbers in Slide 1L again as shown in Slide 2R and compare the relative reserve growths over a quarter of a century. Gold stands out as the success story of the period! Or is it the failure of the decade, reflecting the herd instinct being too successful at finding too much and bringing too much into production too quickly and disregarding the demand side of the free market economics equation?

Reserves 1970 and 1997 (plus cumulative production from 1970 to 1996)

1970 Global reserves (Club of Rome)	1970-96 Cumulative mine production (WBMS/ABMS)	1997 Global reserves (USGS)
Copper 279 m t	226 m t	310 m t
Zinc 112 m t	178 m t	140 m t
Tin 4.4 m t	5.8 m t	7 m t
Silver 0.171 m t	0.326 m t	0.28 m t
Gold 0.011 m t	0.043 m t	0.046 m t

(Slide 1L)

Reserves 1970 and 1997 (plus cumulative production from 1970 to 1996) Relative change in reserves after production

A	B		C	
1970 Global reserves (Club of Rome)	1970-96 Cumulative mine production (WBMS/ABMS)	B/A as %	1997 Global reserves (USGS)	C/A as %

Copper 279 m t	226 m t	81%	310 m t	111%
Zinc 112 m t	178 m t	159%	140 m t	125%
Tin 4.4 m t	5.8 m t	132%	7 m t	159%
Silver 0.171 m t	0.326 m t	191%	0.28 m t	164%
Gold 0.011 m t	0.043 m t	391%	0.046 m t	418%

(Slide 1R)

In the next few minutes we hope to provide you with some insights about who is exploring and where and what impact different segments of the exploration community are having on the world of resource availability. We are going to focus on the junior sector, which has been growing in importance for more than a decade now and on the changing structure of the worldwide minerals exploration industry; how it operates and how it is financed.



Who are the Players?

Gamah International Limited has recently completed compilation of a world directory of mining and exploration companies, known as GEM. This is the only commercially available product of its kind in the world and, while incomplete, provides a new perspective on the population we want to look at. (Slide 2L) GEM lists mining and exploration companies that are primarily in the base and precious metals, diamonds and high unit value industrial minerals businesses. It excludes companies whose primary focus is coal, oil and gas or low unit value industrial minerals. However it may include such a company if it has a subsidiary with significant involvement in the included suite of minerals. For example Fording Coal has established a wollastonite mining operation in Mexico.

(Slide 2R) More than 4,300 companies are listed in the GEM database; which include senior mining companies, junior mining companies, foreign subsidiaries established for local operational needs and corporate entities established for mine or division operating units. Excluded are service companies and government companies.

Slide (3L) shows the distribution of these companies by popular Head Office locations. The impact of the large population of Canadian companies is apparent.

Slide (3R) shows the commodities which are most commonly listed for the GEM companies as being the focus of mining or exploration. The totals will not sum to the total company population as many are exploring or mining several commodities. Clearly gold stands out as the most popular commodity. Is it coincidence or not that the popularity of gold exploration has produced the high level of resource replenishment demonstrated in Slide 1L.



Definitions

Several terms have been mentioned already such as "senior" and "junior" mining companies. Is a company that has been in existence longer warrant a "senior" title? Is a company with a producing mine and an annual exploration budget of \$1 million more senior than one with no mine but an exploration budget of

\$10 millions and a property on which it is drilling off a world scale porphyry deposit? Gamah International Limited developed a series of definitions about five years ago to provide clarity for its various surveys and databases. With little modification these have stood the test of time to distinguish two distinct populations of companies in the exploration business. Specific definitions are:

Junior Resource Company - a company that undertakes exploration and/or mine development activities operating primarily on the basis of funding its activities from equity raised for that purpose. It does not have sufficient nor sufficiently predictable internally derived cash flow to allow for reasonable forward-looking budgeting and planning on the basis of cash presumed to be forthcoming from operations. However this does not preclude the company from having some production interests.

Canadian Company - one that, if publicly traded, is quoted on a Canadian stock exchange or dealer network and raises a substantial portion and likely the large majority of its equity financing through the Canadian financial industry and under one of the provincial regulatory jurisdictions.

Active Canadian Junior Resource Company - one that has a working capital resource in place, sufficient for it to undertake a program of exploration and maintain an office and administrative facility to manage that program and complete supporting administrative documentation and communication.

(Slides 4L, R, 5L, R)

So by inference a "Senior Company" and a "Canadian Senior Company" have defined characters.



Where are the Explorers exploring?

The GEM database lists 76 countries where companies have head offices and more than 100 where companies are active in exploration or mining. This large number of countries has only been receiving this attention for a few years. (Slide 6L) Surveys conducted by Gamah International Limited over the past five years have shown that Canadian companies have increased dramatically the scope of their international operations in the period 1991 to 1996.

International Activity by Canadian Mining Companies

Year	1991	1993	1994	1995	1996
No of Countries	59	57	72	90	95

(Slide 6L)

The Gamah numbers are supported by the numbers for attendance at this convention (Slide 6R). While this is not a reflection of the monies being spent on exploration or mining operations it is a sympathetic expression of the increasing international interest in the exploration and mining industry and its worldwide scope.

International Attendance at the PDAC Convention

Year	1992	1993	1994	1995	1996	1997
No of Countries listed as home address by registered technical delegates	10	29	38	52	64	72
Number of technical delegates from countries other than Canada	35	110	265	394	723	1146

Total technical delegates	1630	1740	2066	2513	3451	4856
International %	2%	6%	13%	16%	21%	24%

(Slide 6R)

Note: For consistent comparative purposes the number of fully paid technical program registered delegates rather than the total attendees is used.

With only 180 countries in the world and with a number of them small and with constraints on exploration has the expansion of countries reached a limit?



How much are they spending on Exploration?

Prior to the decade of the nineteen nineties very few people had reason to be interested in total global exploration activities and expenditures of mining companies. Indeed for PDAC it was always assumed to be a small proportion of total exploration spending of its members and to be largely the domain of the senior corporate members. Natural Resources Canada, on its own behalf and in conjunction with the provinces, undertakes several annual surveys of exploration expenditures in Canada to gauge intentions ahead of time, forecasts during the period and detailed surveys after the period. These surveys clearly indicate trends within Canada, reflecting shifts geographically, varying emphasis on different commodity groups and changes in proportions of types of exploration work methods. They also indicate spending proportions by different participants including individuals and companies of various types, sizes and parentage. With the advent of flow through funding, Natural Resources Canada has been providing data on this as a proportion of exploration funds.

Very few countries in the world collect exploration expenditure information to the degree of detail and consistency as Canada. Large mining companies had traditionally dominated the exploration spending worldwide and therefore between the data from Governments that did collect it and corporate statements in annual reports it was possible to estimate with reasonable accuracy the (western) world pool of funding. Metals Economics Group of Halifax ("MEG") formalised the collection of world exploration spending by undertaking annual surveys of the worldwide exploration intentions of the international senior mining companies since 1982.

At the beginning of this decade it became evident that the exploration industry was changing in sympathy with the large scale geopolitical developments. Many countries opened their borders to foreign exploration companies, foreign ownership of mines was accepted, indeed welcomed and Mining Laws were rewritten to accommodate the new reality of international investment. These trends were first evident in Latin America, then South East Asia, North East Asia and most recently Africa. MEG results showed an increase in the proportion of world exploration expenditure in Latin America. This surge has been followed by other surges into other areas of the world, notably SE Asia and then Africa. (Slide 7L).

Metals Economics Group Worldwide Exploration Survey Results

(Amounts expended by reporting companies, in millions of US dollars)

Year	L Amer	Aust	Canada	Africa	SE Asia	USA	Other	Total
1991	200	353	430	315	125	341	80	1844
1992	256	324	302			363	455	1700
1993	331	333	295		124	345	272	1700
1994	544	431	280	130	168	323	178	2054

1995	785	529	329	320	257	294	181	2695
1996	963	666	461	418	415	343	259	3525
1997	1170	673	436	663	439	367	282	4030

(Slide 7L)

From the depressed exploration spending levels of 1991 a strong expansion took hold, as evidenced by Natural Resources Canada, MEG and other survey figures (Slides 7L and 7R).

Exploration Expenditures in Canada (Figures from NRCan in millions of Cdn\$)

Year	Total \$	Junior \$	Junior %
1985	730	210	29
1986	830	410	49
1987	1510	750	50
1988	1480	720	49
1989	850	260	31
1990	775	240	31
1991	530	115	22
1992	385	80	21
1993	480	145	30
1994	630	195	31
1995	720		
1996	875		

(Slide 7R)

Note. The figure for 1996 is from the Preliminary Survey Results, all others are Final Survey numbers.

The strong increase in exploration activity in Canada since the recession bottom of 1992 is reflected in the total NRCan numbers but less dramatically by the junior contribution. Compared with Junior surge to 50% at the height of the previous cycle when flow through funding encouraged Canadian efforts. Did this mean that the juniors had not recovered from the recession and were less of a component? The general sense of activity and enthusiasm suggested otherwise. We had a strong feeling that these surveys were not fully reflecting the geographic spread and level of activity nor the changing dynamics of the industry with the rise in importance of the junior companies as pioneers. The Canadian junior companies appeared to be leading the world in establishing the new dynamic.

PDAC has had Gamah undertake three surveys now and many of you will have been recipients of the forms and/or the nice but insistent telephone calls to complete and return the forms promptly. The first survey in 1994 asked about actual expenditures from 1991 to 1993 and forecasts for 1994. The second survey in 1996 asked about actual expenditures in 1995 and forecasts for 1996. The 1997 survey asked about actual expenditures in 1996 and forecasts for 1997. All have been undertaken in August or September of the year

so forecasts are based on actuals for at least half of the year.

Response rates have increased for each survey and therefore our confidence in the absolute numbers rather than the relative trends increases with the most recent data sets.

Slides 8L and 8R show the overall results of these surveys expressed in dollars amounts and percentages.

Canadian Junior Sector Exploration Expenditures by Geographic Regions (in millions of dollars).

Year	Canada	Latin America	Australia	U.S.A.	Africa	South East Asia	Rest of World	Total
1991A	37.9	19.2	0.1	4.3	0.0		2.5	64.0
1992A	41.9	20.8	0.9	4.3	0.8		1.2	69.9
1993A	53.4	42.6	1.5	10.7	1.3		1.9	111.5
1994F	59.4	163.0	4.6	19.9	15.9		3.4	266.1
1995A	135.7	86.4	2.6	24.9	54.6		63.1	367.3
1996F	205.9	176.6	9.9	48.9	88.4		117.0	646.7
1996A	193.7	219.6	0.3	43.8	114.9	52.7	30.1	655.1
1997F	199.6	253.0	0.9	41.2	132.8	57.1	30.3	714.9

Notes: Unless indicated, all dollar amounts shown are in Canadian dollars.

A = Actual; F = Forecast

The geographic regions were chosen to match those used by Metals Economics Group of Halifax, Nova Scotia.

(Slide 8L)

Canadian Junior Sector Exploration Expenditures by Geographic Regions (expressed in percentages.)

Year	Canada	Latin America	Australia	U.S.A.	Africa	South East Asia	Rest of World	Total
1991A	59.23	29.92	0.17	6.75	0.00		3.93	100.00
1992A	59.84	29.75	1.32	6.19	1.15		1.75	100.00
1993A	47.92	38.22	1.37	9.64	1.18		1.67	100.00
1994F	22.33	61.25	1.71	7.48	5.96		1.27	100.00
1995A	36.95	23.52	0.71	6.77	14.87		17.18	100.00
1996F	31.84	27.30	1.53	7.56	13.67		18.10	100.00
1996A	29.57	33.52	0.05	6.68	17.54	8.04	4.59	100.00
1997F	27.92	35.38	0.13	5.77	18.57	7.99	4.24	100.00

(Slide 8R)

The 1997 survey provided the opportunity to compare a forecast of intentions from the previous survey with the actual numbers. The two sets of numbers are very close. This close correlation could be due primarily to the time of year of the survey when more than half the year has passed and therefore forecasts have been revised to track actual to that date and reflect detailed plans for the balance of the year. The closeness could also be influenced by the reality that 1996 was a year which did not have any surprises in terms of financing ability, investor sentiment and discovery emotion. Will the same closeness be evident in 1997, in the aftermath of several high profile collapses of junior companies' share prices?

It is encouraging to see that the survey results bear out what we had suspected; namely that the junior sector of the industry had rebounded strongly and increased its level of spending activity by nearly 400% from that of the trough; a number comparable with that tracked by NRCan for the 1985 —1988 period. The big difference lay in where those dollars were being spent. The proportion in Canada has steadily declined with equivalent increases elsewhere. Slide 9L shows the MEG data shown earlier as dollar amounts in percentage terms for comparison with Slide 8R

Metals Economics Group Worldwide Exploration Survey Results

(Amounts expended by reporting companies, expressed as % of total)

Year	L Amer	Aust	Canada	Africa	SE Asia	USA	Other	Total
1991	11	19	23	17	7	18	4	100
1992	15	19	18			21	27	100
1993	19	20	17		7	20	16	100
1994	26	21	14	6	8	16	9	100
1995	29	20	12	12	10	11	7	100
1996	27	19	13	12	12	10	7	100
1997	29	17	11	16	11	9	7	100

(Slide 9L)

General conclusions that can be drawn from these two sets of numbers are that both junior Canadian and International Senior (as MEG survey is a proxy for) show the same trends of discovery of different geographic areas and a surge in spending there. The relative rates at which the two populations find and expand their activities in each area vary. The junior growth curve is faster but declines more with "Maturity" of an area. Compare Latin America and Africa from Slides 8R and 9L as shown in Slide 9R.

MEG makes an estimate of what junior companies and non reporting companies expend and add it to the results of their survey each year. The PDAC survey numbers indicate that Canadian junior companies would account for approximately 50% of that supplementary factor and therefore in 1997 the surveyed Canadian junior sector would have been responsible for more than 10% of all worldwide activity.

Comparison of M E G and PDAC Junior Trends of Spending for selected areas

(Amounts expended by reporting companies, expressed as % of total)

Year	MEG Latin America	PDAC Latin America	MEG Africa	PDAC Africa
1991	11	30	17	0
1992	15	30		1
1993	19	38		1
1994	26	61	6	6
1995	29	24	12	15
1996	27	34	12	18
1997	29	35	16	19

(Slide 9R)

What are the Junior Companies Exploring for?

The next series of figures (Slide 10L, R, 11L, R) indicate the importance of different types of exploration targets around the world and changes in trends over the past 3 years. Information on this topic is only available for the three year period because it was not solicited in the 1994 survey covering the period from 1991 to 1994.

Canadian Junior Sector Exploration Targets in each Geographic Region, 1995 – 1997

(Based on listed interests of each respondent without weighting for the actual expenditure amounts)

(a) Worldwide

Year	Precious Metals	Base Metals	Diamonds	Others
1995	307	155	42	17
1996	347	177	41	14
1997	345	182	37	18

(Slide 10 L)

(b) Canada

Year	Precious Metals	Base Metals	Diamonds	Others
1995	123	84	15	9
1996	146	104	20	7
1997	141	100	18	7

(Slide 10 R)

(c) Latin America

Year	Precious Metals	Base Metals	Diamonds	Others
1995	79	39	7	3
1996	82	38	5	0
1997	87	43	6	1

(Slide 11L)

(d) Australia

Year	Precious Metals	Base Metals	Diamonds	Others
1995	3	3	2	0
1996	1	0	1	0
1997	1	0	1	1

(e) USA

Year	Precious Metals	Base Metals	Diamonds	Others
1995	35	8	1	3
1996	35	11	2	4
1997	35	9	1	3

(f) Africa

Year	Precious Metals	Base Metals	Diamonds	Others
1995	28	3	13	0
1996	27	6	10	1
1997	28	8	9	4

(Slide 11R)

(g) S. E. Asia

Year	Precious Metals	Base Metals	Diamonds	Others
1995	N/A	N/A	N/A	N/A
1996	33	10	1	1
1997	30	13	1	1

(h) Rest of World

Year	Precious Metals	Base Metals	Diamonds	Others
1995	39	18	4	2
1996	23	8	2	1
1997	23	9	1	1

While the eight figures comprising (Slides 10-11) show clearly the priority of precious metals as exploration targets for most of the surveyed companies the interest in base metals decreases with distance from Canada. Is the continued interest in base metals in Canada a reflection of the perceived superior geologic potential, the political and infrastructure benefits for development of a base metal mine or the perception of junior companies management that base metal targets offshore cannot be financed? In 1996 and 1997, worldwide, 60% of the exploration targets were precious metals, 31% base metals, 7% diamonds and 2% other minerals. With the recent decline in the price of gold will there be a reduction in interest in exploration for gold and other precious metals? If such a decline happens will base metals exploration become more popular and will it increase the relative importance of Canada as an exploration target?

Africa dominates the search for diamonds with about 20% of the targets being for that mineral, although the percentage has been dropping over the last three years. Other regions can boast only of 2-7% of the targets being for diamonds. The number of junior companies actually spending money looking for diamonds, in Canada or anywhere else, is very small. The hundreds of companies that swarmed to the Northwest Territories a few years ago have stopped spending money there!

Not surprisingly this ratio of commodities focus is similar to that deduced from the examination of the GEM data as shown in (Slide 3R). What the GEM data didn't detect (because it wasn't asked for it) was the relationship between geography and commodity bias. Is this bias a function of political and geographic risk, short term commodity prices or geology. If it is primarily the first two then one should be able to predict that some of the base metals and North America and Australia will see a resurgence of activity as the lustre tarnishes from gold.

Metals Economics Group 1997 survey of intentions of their senior company population demonstrated that 65% of their effort was directed to precious metals and only 27% to base metals (*Engineering and Mining Journal*, January 1998, p 10-WW) as compared with 60 and 31% respectively for the Canadian juniors. If the emphasis of the seniors has shifted so strongly to precious metals then the outlook for base metals resources may be of concern in the future.

In the next two tables (Slide 12L) the size of exploration budgets of individual Canadian junior exploration companies are examined for 1996 and 1997.

Range of Actual Exploration Expenditures for 1996 (in millions of Canadian dollars)

Expenditure	>5	2-4.99	1-1.99	0.5-0.99	0.2-0.49	0.1-0.19	<0.1	0	TOTAL
# of Cos.	36	60	49	59	49	19	23	51	346
% of Cos.	10.4%	17.3%	14.2%	17.1%	14.2%	5.5%	6.6%	14.7%	100.0%
Amount	\$339.9	\$184.1	\$69.0	\$41.5	\$16.7	\$2.7	\$1.1	\$0.0	\$655.1
Amount %	51.9%	28.1%	10.5%	6.3%	2.6%	0.4%	0.2%	0.0%	100.0%

(Slide 12L)

Range of Forecasted Exploration Expenditures for 1997 (in millions of Canadian dollars)

Expenditure	>5	2-4.99	1-1.99	0.5-0.99	0.2-0.49	0.1-0.19	<0.1	0	TOTAL
# of Cos.	42	60	49	52	53	22	16	52	346
% of Cos.	12.1%	17.3%	14.2%	15.0%	15.3%	6.4%	4.6%	15.0%	100.0%
Amount	\$404.6	\$187.2	\$66.6	\$35.3	\$17.3	\$3.1	\$0.7	\$0.0	\$715.0
Amount %	56.6%	26.2%	9.3%	4.9%	2.4%	0.4%	0.1%	0	100.0%

(Slide 12L)

Slides 12L demonstrates that a small number of companies dominate the junior exploration spending. In 1996 and 1997 less than 30% of the companies were responsible for 80% of the expenditures. Ten percent of the companies made expenditures of more than \$5 million and had a mean expenditure of close to \$10 millions. Conversely the lowest 26% (in the <C\$0.2 million category) expended only 0.5% of the exploration funds, reflecting a population of companies undergoing re-organization and re-establishment of priorities. Similar results can be demonstrated for the surveys of earlier years indicating that this is a well established character of the junior industry. These dominant juniors all spent well in excess of the threshold amount that Metals Economics Group established for their survey cut off and indeed some of these companies may have been included in the MEG survey which extended its survey base in 1997 to include a larger population of companies.

To determine how much is being spent in what locations a set of geographic averages was calculated (Slide 12R).

Average per Junior Company Exploration Expenditures by Geographic Regions (in thousands of Canadian dollars)

Year	Canada	Latin America	Australia	U.S.A.	Africa	South East Asia	Rest of World	Total
1991A	499	253	1	57	0		33	842
1992A	551	274	12	57	11		16	920
1993A	703	560	20	141	17		25	1467
1994F	782	2145	61	262	209		45	3501
1995A	410	261	8	75	165		191	1110
1996F	622	533	30	148	267		354	1954
1996A	553	627	1	125	328	151	86	1872
1997F	570	723	3	118	379	163	87	2043

Note: Numbers in this table are derived by taking the area totals from the 1994, 1996 and 1997 surveys and dividing by the total numbers of companies reporting expenditures for that survey.

(Slide 12R)

For 1997, MEG has reported that its 279 survey participants would be spending US\$4.03 billion on worldwide exploration or C\$5.51 billion (*Mining Journal*, Oct. 24, 1997). This yields a per company average of Cdn\$19.7 millions. Slide 13L shows the per capita exploration budgets for each of the "junior" and "senior" sectors over the period since 1991.

Average Size of Annual exploration Budget of Survey Participants

**MEG ("Seniors") and PDAC ("Juniors")
(in millions of US\$)**

Year	Senior	Junior
1991	12	0.7
1992	11	0.8
1993	12	1.1
1994	14	2.6
1995	18	0.8
1996	16	1.4
1997	14	1.5

(Slide 13L)

The relative increase of budgets from trough to peak of economic cycle is more noticeable for juniors than seniors. The absolute level of increase is greater for juniors. The build up of junior budgets started earlier for the juniors than the seniors suggesting that the junior "response time" is faster.

The MEG per capita numbers are not a consistent set of data as they have increased the numbers of companies surveyed by inclusion of some "juniors". The 1997 downturn is a reflection of that distortion.



The Role of the Canadian Equity Markets in Junior Exploration

This junior response time is clearly linked not only with their ability to be quick to decide and move, but with the higher risk mentality of typical junior companies managements and also with their ability to finance rapidly in the equity market place. While many junior companies have strong working capital positions now after several years of good financing climate, such was hardly the case in 1993 when they started the current expansion cycle. We believe that the complete picture of the important role in the world exploration business of the junior sector is inextricably linked with the Canadian financial sector and therefore the greater the level of understanding by each of the other the better.



Conclusions

- Both the world exploration industry and the Canadian junior mining sector have experienced strong growth since the recession of 1991 - 1992, with increasing exploration spending each year, both in

Canada and, particularly, elsewhere.

- The PDAC Canadian junior sector 1997 survey results confirm the trends suggested by the 1994 and 1996 survey results and the Metals Economics Group surveys that showed Canada steadily losing out proportionally to other countries in the competition for the exploration dollar.
- While the money spent outside Canada in 1991 by the Canadian junior sector was two-thirds of that spent in Canada and twice the amount spent in Canada for 1996, the ratio is now 2.6 times that spent in Canada.
- Worldwide the average annual exploration expenditure per senior and junior company, respectively has increased from US\$12million and US\$0.7 million in 1991 to a forecast US\$14 million and US\$1.5 million for 1997.
- Over the 1991 – 1997 period the relative percentages of spending demonstrated by senior and junior populations have shifted from North America and Australia to Latin America, S E Asia and Africa with dollar amounts increasing slightly for Canada and Australia and decreasing for USA. Year over year expenditures to 1997 increased in each geographic area except the USA; some were marginal
- During the survey years several geographic areas have shown very high rates of growth of expenditures for periods of several years. Latin America was the first area for which this trend was quantified. Subsequently it appeared that South East Asia would follow suit but has had its growth in activity stalled by the Bre-X controversy. The rate of growth of spending in Africa in the past three years has mirrored that of Latin America at the start of the decade.
- The junior sector tends to discover these new areas of activity first and get in quickly with a fast build up of expenditures in spite of the fact that they may have to raise them first from an equity market that has to discover the areas as well.
- On a world-wide basis, the division between commodity targets has not changed very much over the last three years, with Precious Metals accounting for 59-60% of the targets, followed by Base Metals (30-31%). Diamonds and Others were 7-8% and 2-3%, respectively. Seniors and Juniors have both been locked into a love affair with the commodity (Au) and have successfully increased defined resources by more than for any other commodity.

Canadian junior and senior companies together constitute probably the largest group of explorers in the world and can influence exploration trends on the global scale. Their ability to react rapidly is reflected in the changing emphasis on different commodities and areas of the world. As the major changes of policy and direction of many governments of developing countries has unfolded in this decade the Canadian juniors companies have been aggressively taking advantage of every opportunity arising.

Finally we would like to leave you with three questions:

Will industry lose its love affair with gold in view of the large discovery rate of the last 26 years and the presently depressed price?

If so what will be its next romance partner?

If the next love affair is with base metals will the focus of attention revert to Canada in conformity with the present attention focus of the minority of juniors presently looking for base metals and clearly focused here in Canada?



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GEM DIRECTORY – 1998

Database contains worldwide list of Companies exploring for or mining:

- Base Metals
- Precious Metals
- Diamonds, other Gemstones
- Semi-precious stones
- High unit value industrial minerals

It excludes companies whose exclusive domain is:

- Coal
- Oil and Gas
- Low unit value industrial minerals

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GEM DIRECTORY – 1998

Includes:

- Senior Mining Companies
- Junior Mining Companies
- Foreign Subsidiaries of SMCs or JMCs
- Operating Companies for mines of joint venture activities

Excludes:

- Service Companies
- Government Companies other than mining or exploration operating entities

Total of companies in database: 4,334 (Feb. 27, 98)

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