

Northwest
Territories

Canada

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La valeur ajoutée dans l'industrie canadienne du diamant

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GLOSSARY

The following is a selection of technical terms included in this report.

baguette – small, usually rectangular to square step-cut diamond; sometimes tapered.

blocking – process of placing the table and the first four facets on the crown, and the first four facets on the pavilion of a rough or prepared diamond. To a large extent, blocking determines the symmetry and weight of the polished diamond, as well as its brilliance and dispersion.

bort – natural, polycrystalline diamond which occasionally forms as single crystals; it is milled for use in industrial abrasives.

bourse (diamond bourse) – organization of diamond dealers, manufacturers, brokers, and wholesalers who join together to transact business and protect their mutual interests. There are diamond bourses in almost every major manufacturing centre.

bruting – shaping process performed on a rough diamond, or a portion thereof, to establish the characteristic face-up outline of a round brilliant or of some mixed and fancy cuts. It is done by rotating the diamond in a lathe and shaping it with another diamond. Currently, the process is often automated; also called girdling.

carat – metric carat, the standard unit of weight used for gemstones. One carat equals 0.200 grams (or 200 milligrams); usually abbreviated to “ct”.

castings – industrial diamonds which cannot be used for drilling. They are generally used in impregnated bits.

crown – the part of a diamond above the girdle plane.

crushing bort – lowest quality of industrial diamond; crushing bort is ground into diamond powder for use as an abrasive.

diamond pipeline – metaphor describing the various stages through which diamonds pass, from mining to marketing, before they are sold to the consumer.

dop – general term for the device used to hold a diamond during sawing, bruting or polishing.

facet – flat, polished surface on a finished diamond.

faceting – process of grinding and polishing facets on a diamond or other gem.

flat – flat rough diamond crystal, or a flat piece of a diamond crystal; often associated with macles.

girdle – narrow band which circumscribes the edge of the plane separating the crown and pavilion of a polished diamond. On step cuts and most fancy-cut brilliants, the girdle is polished; on round brilliants, it is not.

girdling – see bruting.

grain – unit of weight which equals one quarter of a metric carat (0.25 ct).

grainer – term used to describe the weights of diamonds in multiples of 0.25 ct (one grain), e.g., a one carat stone is a four-grainer.

kimberlite – rare type of igneous rock which is one of only two rocks known to host diamonds in primary deposits (the other is lamproite). Kimberlite formed at great depth and was forced to the surface by volcanic action; it occurs there as pipes, dikes and sills.

lamproite – rare type of igneous rock which is one of only two rocks known to host diamonds in primary deposits (the other is kimberlite). Lamproite formed at great depth and was forced to the surface; it occurs there as volcanic pipes, dikes and sills.

loupe – watchmaker's or jeweller's small magnifying glass.

macle – flat, triangular, contact-twinned diamond crystal in which the two crystals have grown together with a 180 degree rotation in the orientation of their internal crystal structure. Such diamonds are difficult to saw because of the different grain directions caused by the twinning. Due to their irregular flat structure, they are often fashioned into fancy shapes.

makeable – diamond crystal, macle, cleavage, or chip which must be polished without preparation by sawing, cleaving or splitting. The rough form often approximates the final shape after polishing, but makeables usually require more work than sawables and yield less from the rough.

mechanical dop – adjustable clamp which holds a diamond at the correct facet angle on the scaife. Developed in the mid-1980s, mechanical dops are easier to use and often more accurate than older dops.

pavilion – the portion of a polished diamond below the girdle; sometimes called the base.

polished goods – finished diamonds available for sale.

press pot – metal pot into which a diamond is pressed before being inserted into a mechanical dop.

rough – diamond of either cuttable or industrial quality as it is recovered from the earth, prior to undergoing any manufacturing process.

sawable – classification for rough diamonds that will yield more weight as two stones after polishing if they are sawn before being polished.

scaife – a flat, cast iron wheel, 30.5 to 46 cm (12 to 18 inches) in diameter, used to grind and polish facets on a diamond.

sight – one of ten sales scheduled each year at which the Central Selling Organisation offers rough diamonds to selected clients (who are, accordingly, called sightholders). Sights are held in London, England; Lucerne, Switzerland; and Kimberley, South Africa.

sightholder – diamond dealer or manufacturer invited by the Central Selling Organisation to buy rough diamonds at a sight. The number of sightholders may vary according to economic conditions.

table – large facet in the centre of the crown of a polished diamond.

Source: Geological Institute of America, *The GIA Diamond Dictionary*, Santa Monica, CA, 1993.

ABBREVIATIONS

The following is a list of abbreviations used in this report.

Aber	Aber Resources Ltd.
AIT	Agreement on Internal Trade
BHP	BHP Diamonds Inc.
CCA	Capital Cost Allowance
CDE	Canadian Development Expense
CEE	Canadian Exploration Expense
CMR	Canada Mining Regulations
the Committee	the Federal-Territorial Committee on Value-Added Aspects of the Canadian Diamond Industry
CSO	Central Selling Organisation
ct	carat
ct/t	carats per tonne
¢/ct	cents per carat
De Beers	De Beers Consolidated Mines Limited, De Beers Centenary AG, De Beers Canada Corporation
Dia Met	Dia Met Minerals Limited
DIAND	Department of Indian Affairs and Northern Development
Diavik	Diavik Diamond Mines Inc.
FTZ	free trade zone
GATS	General Agreement on Trade and Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GNWT	Government of the Northwest Territories
GST	goods and services tax
ha	hectare
HRD	High Diamond Council of Antwerp
HRDC	Human Resources Development Canada
HST	Harmonized Sales Tax
I.G.I.	International Gemmological Institute
km	kilometres
KPMG	KPMG Consulting of Vancouver
Lytton	Lytton Minerals Limited
M&P	manufacturing and processing
MASH sector	municipalities, academic institutions, schools, and hospitals
M	million
mm	millimetres
Mct	million carats
Mct/y	million carats per year
Mt	million tonnes
NAFTA	North American Free Trade Agreement
NRCan	Natural Resources Canada
NWT	Northwest Territories
RCMP	Royal Canadian Mounted Police

RWED	Department of Resources, Wildlife and Economic Development
SCM	Agreement on Subsidies and Countervailing Measures
SR&ED	scientific research and experimental development
t	tonne
TCAs	Tax Collection Agreements
<i>TLA</i>	<i>Territorial Lands Act</i>
TRIMs	Agreement on Trade Related Investment Measures
US	United States of America
US\$	American dollars
US\$/ct	American dollars per carat
US\$/t	American dollars per tonne
WTO	World Trade Organization

EXECUTIVE SUMMARY

Diamonds were discovered in the Northwest Territories (NWT) in 1991. The first Canadian diamond mine is expected to start production in the fall of 1998. Given exploration results to date, Canada could be producing up to 10 percent of the world's diamonds early in the millennium. Diamond mining will generate a great deal of employment and economic benefits for Canada. The downstream or value-added aspects of the diamond industry present additional opportunities for wealth and employment creation. Currently, the value-added diamond industry in Canada is very small, and it is non-existent in the NWT.

People in the NWT and elsewhere in Canada are concerned that Canadians, in particular Northerners, may not benefit from a value-added diamond industry. In response to these concerns, and government commitment to encourage jobs and economic growth, a federal-territorial Committee on Value-Added Aspects of the Canadian Diamond Industry (the Committee) was established. The purpose of the Committee was to review and report to ministers on issues pertinent to the diamond industry in the North, and to investigate the opportunities for the development of Canadian value-added diamond industries, particularly in the NWT.

In order to understand the complex international diamond industry and how diamond production in the NWT would fit into it, the Committee started by compiling basic information on the Canadian and international diamond industries, along with gathering information on the economic situation in the NWT. Given the small size of the present Canadian value-added industry and the willingness of Canadian producers to sell rough diamonds in the NWT, there is an opportunity for the development of a larger value-added industry over the next few years.

The economic data developed for this report indicate that the NWT has a young, growing, but underemployed work force. It also reveals that the basic infrastructure required for a value-added industry exists in the NWT. According to a study commissioned by the Committee, the costs of establishing a business in the communities of Hay River and Yellowknife are high by Canadian standards; however, they are relatively competitive compared to the costs in representative cities that were studied from the United States and a number of European countries.

The Committee examined and compiled pertinent information on six issues as they relate to the value-added diamond industry in Canada and the NWT: trade policy, taxation, access to rough diamonds, training, the role of financial institutions, and security. This report represents the basic diamond-related facts upon which the Committee has made its recommendations to ministers. The following are the Committee's findings and recommendations that are included in this report.

Trade Policy: Findings

Canada's bilateral, regional, and multilateral trade and investment agreements provide many benefits for Canadian companies trading in world markets or investing in foreign countries. The rights and obligations of these agreements have implications for the manner in which signatories address sector-specific policy objectives. The actual limitations to any type of action, by any level of government, are set out in the particular agreements to which Canada is a signatory. Dispute settlement provisions of these agreements may be invoked when one signatory believes that another is in violation of its obligations. The complaining signatory may commence dispute settlement procedures alleging the other signatory has acted inconsistently with the agreement and seeking a remedy for such action.

Some of Canada's international trade and investment agreements, including the North American Free Trade Agreement and World Trade Organization Agreement on Trade Related Investment Measures, contain limitations on the use of trade related measures known as "performance requirements." These include measures that would require a firm to export a particular amount of product, to achieve a particular amount of domestic content, or to restrict sales of a product to a particular amount. Moreover, the General Agreement on Tariffs and Trade and the North American Free Trade Agreement prohibit the restrictions on the export of unprocessed materials for the purpose of promoting further processing of natural resources.

Requirements for further processing of rough diamonds in the NWT must be assessed against Canada's obligations regarding the use of "performance requirements" and against Canada's broader obligations (e.g., the Agreement on Subsidies and Countervailing Measures) related to trade in goods. A requirement for further processing could be vulnerable to challenge under existing international trade agreements to which Canada is a signatory. However, any proposals would have to be examined on a case-by-case basis.

Trade Policy: Recommendations

Diamonds are treated under Canadian trade policy in the same manner as other products. Therefore, the Committee sees no need to make any specific recommendations.

Tax-Related Issues: Findings

In general, the Committee concluded that the NWT has a competitive tax structure compared to many provinces. It does not levy a personal income surtax, flat taxes, corporate capital tax, or a retail sales tax. It has also maintained a stable corporate tax environment and, as with the provinces, has a small business rate to encourage secondary industries. While some provinces have adopted a manufacturing and processing tax rate, the NWT has chosen to encourage these activities through other policy instruments.

Many provinces have chosen to implement more targeted tax incentives, either as part of their income tax, mining tax, or royalty systems. Likewise, the NWT 1998 Budget announced an Equity Investment Tax Credit. The federal government provides oil and gas, mining, and manufacturing and processing tax incentives that are equally available in the North to encourage

eligible activities. Since the 1987 Tax Reform, the federal government has taken steps to either reduce or eliminate highly targeted investment incentives from the corporate income tax system to promote greater tax efficiency, neutrality, and simplicity in administration.

However, the federal government will provide a more targeted instrument through the proposed amendments to the Canada Mining Regulations. These provide significant incentives to encourage NWT diamond mining companies to locate their sorting and valuation facilities in a NWT community.

The issue of the excise tax on jewellery has been raised in the Committee's discussions. Based on the description contained in this report, it is not apparent that the excise tax on jewellery would pose a particular barrier to the development of a value-added diamond industry in the North as:

- under the tax, diamond jewellery is not treated differently from other types of jewellery;
- the tax is applied equally across all jurisdictions within Canada;
- noted in the trade section, the majority of the diamonds produced in the NWT will be destined for the export market, and diamonds manufactured in Canada for the export market are relieved from the tax; and
- diamonds manufactured in Canada for the Canadian market are subject to the same rate of tax as imported diamonds destined for the Canadian market.

Tax-Related Issues: Recommendations

In light of the concerns raised to the Committee regarding the excise tax on jewellery, the Committee has decided that further clarification of this issue is desirable. DIAND will therefore request a written clarification from Revenue Canada on the administrative practices and guidelines on the application of the excise tax on jewellery to value-added diamond industries in the North.

Access to Rough Diamonds: Findings

A steady, reliable supply of rough diamonds is necessary to the development of a diamond cutting and polishing industry. Canada, as a diamond-producing country, has a natural advantage in securing sustainable availability of rough diamonds.

Although a secure supply is only one of the factors influencing the development of a value-added industry, it is important that both mining companies and governments fully exploit this advantage for the benefit of Canadians and particularly Northerners.

The Committee welcomes the diamond mining industry in the NWT's voluntary commitments to develop off-mine-site sorting and valuation facilities in a NWT community or NWT communities, and to make rough diamonds available to qualified Canadian manufacturers. This factor is critical to providing the environment in which a domestic cutting and polishing industry

could develop. If, on the other hand, all sorting, valuation and sales were conducted offshore, the opportunity for a domestic industry would be significantly reduced. The Committee noted that should companies continue to voluntarily develop off-mine-site sorting and valuation facilities in a NWT community, and to make rough diamonds available to qualified Canadian manufacturers, there will be no need to explore the option of legislated requirements.

The Committee also noted that the proposed amendments to the Canada Mining Regulations will further encourage the NWT diamond producers to locate their sorting and valuation facilities in a NWT community.

Access to Rough Diamonds: Recommendations

Both levels of government strongly encourage diamond mining companies in the NWT to establish off-site sorting and valuation facilities in the NWT and to make rough diamonds available to qualified manufacturers for purchase in the NWT.

Training: Findings

Access to an adequately trained work force is a critical element in the development of a value-added diamond industry in Canada. Moreover, nurturing diamond industry expertise should be both an immediate and a longer-term concern. If such an industry is to develop, short-term training requirements should focus on expertise in the sorting and valuation of diamonds; skilled diamond cutters and polishers would be required in the longer term. The lack of immediate domestic expertise does not preclude the development of a value-added diamond industry. Expertise can be secured internationally, particularly from other diamond mining and diamond manufacturing countries. The development of this expertise over the longer term, however, would augment the associated benefits that would accrue to individual Canadians and our country as a whole.

Skills development is traditionally a government role. The willingness of governments to promote labour market training is shown by the wide range of programs and incentives that are available at all levels of government. The Committee noted that governments currently provide training programs for the Aboriginal peoples of the NWT. These may be used to assist this segment of the population to become involved in the value-added industry.

Training: Recommendations

All aspects of training needs for the NWT value-added diamond industry, including sorting, valuation, cutting, polishing, jewellery manufacture and security, are presently being examined; this examination must continue until completed. The participants in the examination include the federal government (Human Resources Development Canada), the Government of the Northwest Territories (Education, Culture, and Employment), the territorial public colleges, diamond mining companies, and private firms providing training in the NWT.

Support for training individuals and incentives for manufacturers to provide training appear to require an expanded approach. High training costs and low return during the initial phase of training underline the uniqueness of this challenge.

Financial Institutions and the Value-Added Diamond Industry: Findings

Large amounts of capital are required from financial institutions to support a value-added diamond industry in Canada. Expertise in diamond centres in the rest of the world has developed with the support of large, highly specialized financial institutions.

At present, Canadian financial institutions have limited experience in supporting the value-added diamond industry.

Financial Institutions and the Value-Added Diamond Industry: Recommendations

DIAND will provide this report to financial institutions in Canada to inform them of potential business opportunities from a value-added diamond industry.

Security: Findings

Security is important in all phases of the diamond industry. The ease with which diamonds can be hidden and transported, and the very high value per gram for some stones, have led to serious security problems in all diamond-producing countries in the world. Since the Canadian legal, political, economic, and social framework is different from most other diamond-producing countries, different legislative and security enforcement measures may be required.

As the Canadian value-added diamond industry develops, there is little doubt that associated criminal activities will develop. Law enforcement agencies will need to examine diamond-specific investigative tools and evaluate the appropriateness of the resources available to address diamond-related crime.

Provinces participated in discussions to make changes to the *Criminal Code* and, in 1996, the Criminal Law Section of the Uniform Law Conference passed a resolution related to the valuable minerals provisions in the *Criminal Code* relating to diamonds. On June 12, 1998, the Government introduced Bill C-51 to amend the *Criminal Code*, the *Controlled Drugs and Substances Act*, and the *Corrections and Conditional Release Act*. The Bill addresses a number of the concerns raised in the resolution.

Security: Recommendations

That Natural Resources Canada take the lead and, with other federal departments, provincial, and territorial governments, work together with law enforcement agencies to establish systems to ensure the integrity of the Canadian diamond industry. These investigations should address the possible need for diamond-specific legislation.

1. INTRODUCTION

A federal-territorial Committee on Value-Added Aspects of the Canadian Diamond Industry (the Committee) was established to review and report to ministers on issues related to the diamond industry in the Northwest Territories (NWT), and to investigate the opportunities for the development of Canadian value-added industries, particularly in the NWT. This report presents the information and issues upon which the Committee has made its recommendations to ministers.

1.1 Diamond Exploration and Mining in the Northwest Territories

In the fall of 1991, a joint venture of the Blackwater Group and BHP Diamonds Inc. (BHP) discovered diamonds at their property in the Slave Geological Province (Map 1.1.1) of the NWT. In January 1997, following the most extensive public environmental assessment for a non-uranium mine ever undertaken in Canada, BHP received all of its required licences and permits. Construction of BHP's mine, now known as the Ekati Diamond Mine, began immediately.

The BHP discovery set off one of the greatest exploration rushes in Canadian history. It resulted in the cumulative staking of over 33 million hectares (ha) of mineral claims covering most of the Slave Geological Province and over \$400 million¹ in mining exploration. As of March 1998, there were over 13 500 claims in good standing, covering over 11 million ha. The development of the exploration technique that led to the discovery of diamonds in the NWT was supported by the Geological Survey of Canada.

Increased exploration activity in the Slave Geological Province led to the discovery, in 1994, of kimberlite pipes that are the basis for a second proposed mine, the Diavik Diamond Project, in the Lac de Gras area. This project, located some 30 kilometres (km) southeast of BHP's Ekati Diamond Mine, is a joint venture between Diavik Diamond Mines Inc. (Diavik) of Yellowknife (60 percent) and Aber Resources Ltd. (Aber) of Vancouver (40 percent). In the spring of 1998, the project was being considered for environmental impacts under the federal environmental assessment process.

If both the BHP and Diavik projects reach production, the two companies will have collectively spent upwards of \$2 billion on exploration and mine development. It is estimated that the two mines will produce between 10 and 12 million carats (Mct) of diamonds a year with annual corporate revenues of between \$700 million and \$915 million. A minimum of 1 000 people will work at the two mines; a large proportion will be Northerners and northern Aboriginal people. The two companies are committed to purchasing as much as possible from northern businesses. In addition, combined annual federal and territorial taxes and royalties will be in the range of \$190 million.

A third discovery, the Jericho Project, may result in the first diamond mine in the Nunavut Territory. Owned equally by partners Lytton Minerals Limited (Lytton) and New Indigo Resources Inc. (New Indigo), the Jericho Project is located some 28 km northwest of the Lupin gold mine near Contwoyto Lake in what will be the western part of Nunavut. To

¹Unless otherwise stated, all dollars are in Canadian dollars.

date, over \$25 million has been spent on exploration and development in the region of the Jericho Project. The Jericho Project has significant kimberlite resources totalling 17 million tonnes (Mt) grading from 0.7 to 1 ct/t identified in three diamondiferous kimberlite pipes. Lytton hopes to be in production by the early 2000s with an output of approximately 700 000 ct per year.

1.2 Northern Context

The 1990s will be recorded in history as a period of profound change in the NWT.

Politically, the settlement of Aboriginal land claims will have altered forever the nature of Canada's largest territory. On April 1, 1999, the eastern territory of Nunavut will come into being, and what was one territory will become two. The people of Nunavut will, at that time, become responsible for almost all aspects of their own development. In the western part of the NWT, the settlement of land claims in the Mackenzie Valley will also result in greater local control over political, social, and economic developments.

Economically, the juxtaposition of the settlement of land claims with the finding of diamonds in the early part of the decade has resulted in a rare opportunity for the Aboriginal groups to play a greater role in their own self-determination. The growing financial power of the Aboriginal groups, a direct result of the settlement of land claims, has resulted in the development of Aboriginal corporations which are taking advantage of the opportunities afforded by the diamond developments. Increasingly, Aboriginal leaders and young people are looking for opportunities in the modern economy that will not mean an end to a traditional way of life. They see these opportunities in diamond mining as well as in the potential value-added industries in the NWT.

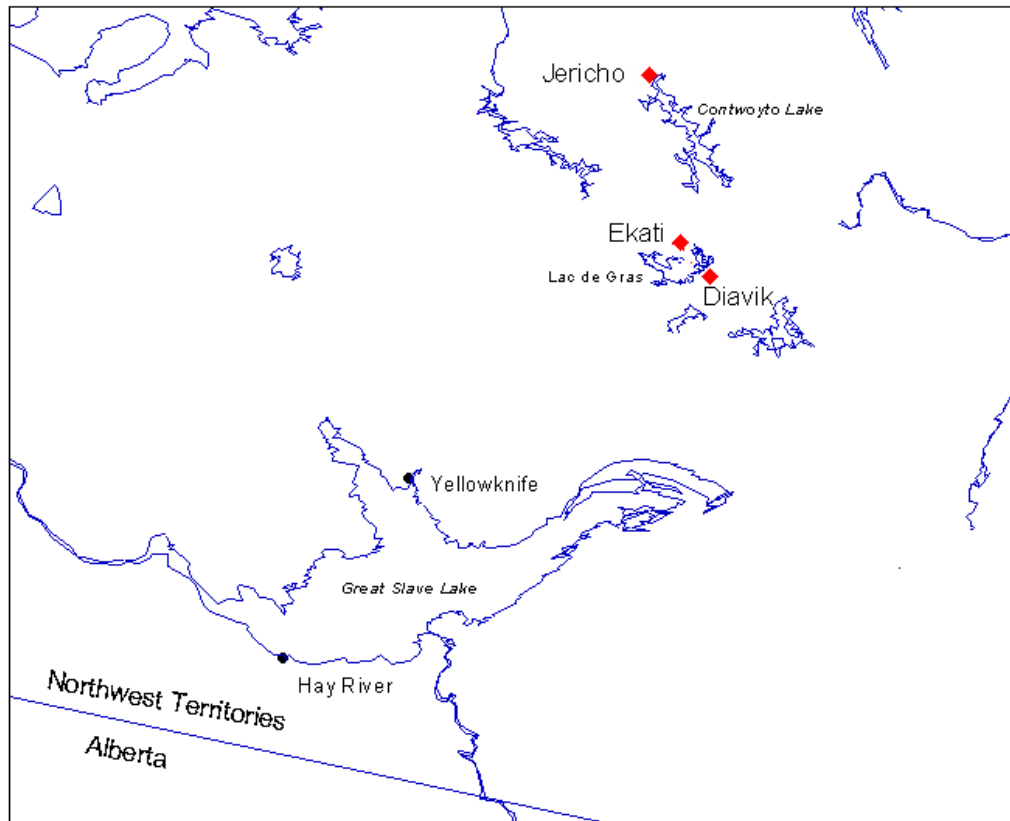
1.3 Striking of the Committee on Value-Added Aspects of the Canadian Diamond Industry

Both the federal government and the Government of the Northwest Territories (GNWT) are committed to the encouragement of jobs and economic growth. This goal is at the forefront of issues raised with respect to the development of the new diamond industry in the NWT. This new industry has sparked strong interest among Northerners of potential opportunities associated with locating diamond sorting and valuation facilities in the North, developing a local cutting and polishing industry, and activities in the service and jewellery sectors.

GNWT's interest has been expressed in statements made by the territorial Minister of Finance in the NWT Legislative Assembly:

“... diamonds mined in the Northwest Territories must be valued and sorted in a manner that provides an accurate value for royalty and taxation purposes and maximize the economic potential for the Northwest Territories;
... the sorting and valuation facility or facilities must be located in an NWT community, off the mine site; and
... potential NWT manufacturers be given the opportunity to purchase diamond 'rough' to maximize the economic potential for value-added industries in the North.”

Map 1.1.1 Major Diamond Properties in the NWT



200 0 200 400 kilometres

- Communities
- ◆ Diamond Properties

Distances

Yellowknife to Diavik	- 313 km
Yellowknife to Ekati	- 316 km
Yellowknife to Jericho	- 405 km
Yellowknife to Hay River	- 197 km
Hay River to Edmonton	- 849 km

This map produced by
Information Management Group
DIAND, NWT Region, Yellowknife.
This information is for visual
purposes only.

In response, the Committee was established. Membership on the Committee includes four federal departments: Indian Affairs and Northern Development (DIAND), Natural Resources Canada (NRCan), Finance Canada, and Industry Canada – and two territorial departments: Resources, Wildlife and Economic Development (RWED), and Finance. These are the most directly affected by, or have the opportunity to most directly affect, the development of a value-added diamond industry in the NWT. DIAND and RWED are the co-chairs of the Committee.

The purpose of the Committee is to review and report to ministers on issues pertinent to the diamond industry in the North, and to investigate the opportunities for the development of Canadian value-added industries, particularly in the NWT. (The Committee's Terms of Reference are provided in Appendix I.)

1.4 Legislative Mandates of the Departments Participating on the Committee

Mining in the NWT is conducted within a regulatory framework that has a strong focus on environmental considerations under the *Canadian Environmental Assessment Act*. This reflects the federal government's broader commitment to ensure that the environmental impacts of mining are minimized, and that mining companies operate in a manner that conforms to the basic principles of sustainable development.

The exploitation of minerals, including diamonds, from federal Crown land in the NWT is regulated by the *Territorial Lands Act* (TLA) and its regulations, and is managed by the Canada Mining Regulations (CMR). These regulations provide for the payment of a royalty to the Crown in exchange for severing minerals from Crown lands. The TLA and its regulations fall under the authority of DIAND. As a result, DIAND has the lead responsibility for diamond mining in the territory.

The TLA gives the Governor-in-Council the authority to make regulations for the leasing of mineral rights and the payment of royalties. The CMR are being revised to ensure that diamond producers provide a facility in the NWT where a government-appointed diamond valuator can value the diamonds in order to determine royalties due to the Crown. The regulatory role of DIAND, within the diamond pipeline,² ends once royalties have been collected.

Industry Canada's goal is to create the economic conditions that promote investment, trade, and innovation in the private sector while building a fair, efficient, and competitive marketplace. Industry Canada's Competition Bureau, through the *Competition Act*, governs business conduct in Canada with the aim of promoting competition in the marketplace.

NRCan, under the Canadian Minerals and Metals Policy, is responsible for integrating the concept of sustainable development in federal decision-making that affects the minerals and metals industry. The cornerstone to these actions is a commitment to strong partnerships with industry, educational institutions, and other organizations to develop and commercialize new material processes and technologies. NRCan is also developing action plans to strengthen downstream industries. These action plans will widen the ripple effect of sustainable

²The diamond pipeline is explained more fully in section 2.19.

development to include value-added, knowledge-based, small and medium-sized enterprises to promote the long-term viability of Canada's resource communities, many of which are located in rural and remote regions.

The federal Department of Finance's fundamental purpose is to assist the federal government in developing and implementing economic, social, and fiscal policies and programs that foster growth and create jobs. The department serves as the federal government's primary source of analyses and advice on the broad economic, social, and financial affairs of Canada. In addition, the department provides analyses, advice, and recommendations on tax and trade policy, and prepares tax and trade legislation.

In the territorial government, RWED's mandate is to promote economic self-sufficiency through the sustainable development of natural resources and to enhance the creation of new, sustainable opportunities in the traditional and wage economies. Under this mandate, the department is working to develop a diamond industry in the NWT and to increase NWT economic benefits from diamond developments.

The NWT Department of Finance is responsible for acquiring and managing the financial resources of the GNWT. This includes the development of fiscal and tax policies that enable the government to carry out its mandate while encouraging the economic growth and development of the NWT.

During its deliberations, the Committee called upon the expertise of a number of other federal and territorial departments to assist on specific issues. The Department of Foreign Affairs and International Trade, with its mandate for managing international negotiations and fostering the expansion of Canada's international trade, assisted in the discussion of relevant trade issues. Human Resources Development Canada (HRDC) and the NWT Department of Education, Culture and Employment provided information on training programs. The Department of Justice and the Office of the Solicitor General reviewed security-related matters. In addition, extensive consultations were undertaken with the Royal Canadian Mounted Police (RCMP), which falls under the mandate of the Solicitor General. And Revenue Canada, which is responsible for the administration of revenue and trade, provided assistance on issues surrounding the import, export, and domestic sale of diamonds.

1.5 Methodology of the Committee and Development of the Report

Following the establishment of the Committee, the Terms of Reference were developed (Appendix I), a Study Group with representation from each of the member departments was formed, and a series of meetings were held in Ottawa and Yellowknife.

The Committee and the Study Group met with a number of local groups in Yellowknife, as well as with the RCMP, European diamondaires, a number of the potential Canadian diamond mining companies, De Beers, which represented the Central Selling Organisation (CSO), and the Government of Western Australia. (Appendix II lists organizations that met with the Committee and/or the Study Group, and contains papers presented to the Committee.) In addition, a great deal of time was spent reviewing diamond literature and preparing questionnaires that were sent to stakeholders. (A sample questionnaire and a list of the recipient organizations are included in

Appendix III.) Given the small sample size and the promise of confidentiality, the Committee is not reporting on the questionnaires.

A necessary first step was to compile basic information on the Canadian and international diamond industries (Section 2), along with information on the economic situation in the NWT (Section 3). This was considered essential to developing an understanding of the complex international diamond industry and how diamond production in the NWT would fit into it. At the same time, it was considered necessary to have information on the existing value-added industry in Canada; this will be the basis upon which a value-added industry in the NWT would be established.

1.6 Identified Value-Added Issues

Given the complexities of the diamond value-added industry, a large number of issues requiring further study and consultation were identified by the Committee and Study Group. The purpose of Section 4 of this report was to examine and compile pertinent information on the following issues:

- trade policy,
- taxation,
- access to rough,
- training,
- finance and banking, and
- security.

This report presents the basic diamond-related facts upon which the Committee has made its recommendations to ministers.

2. CANADIAN DIAMONDS IN A WORLD CONTEXT

2.1 Developments in the Canadian Diamond Industry

In 1997, diamond exploration in the NWT represented some \$112 million of an estimated \$124 million spent nationally on this activity. Given their considerable interests in the Canadian diamond industry, both BHP and De Beers have opened offices in Vancouver, British Columbia, within the last few years.

The most developed project is the Ekati Diamond Mine near Lac de Gras. Fifty-one percent of the mine is owned by BHP, 29 percent by Dia Met Minerals Limited (Dia Met), and 10 percent each by C. Fipke and S. Blusson of Canada. Another project near Lac de Gras, the Diavik project, is owned 60 percent by Diavik, a subsidiary of Rio Tinto plc of London, England, and 40 percent by Aber of Canada. Additional prospects in the same region include the Jericho Project owned by Lytton and New Indigo, the Camsell Lake project owned by Aber and Winspear Resources Ltd. (Winspear), and the AK-CJ properties jointly held by Mountain Province Mining Inc. (90 percent) and Camphor Ventures Inc. (10 percent). Monopros Ltd., a subsidiary of De Beers, has an option to earn 60 percent of the AK-CJ project.

2.1.a The Ekati Diamond Mine

BHP has spent close to \$1 billion developing the Ekati Diamond Mine. The company reports that the diamonds recovered to date, from five kimberlite pipes at its Lac de Gras property about 300 km northeast of Yellowknife, compare favourably internationally. Proven and probable reserves total 65.9 Mt. As shown in Table 2.1.1, the pipes have an average grade of 1.09 carats per tonne (ct/t), which is high by world standards.³ This table also shows that, as a whole, the diamonds average US\$84/ct with a grade of US\$91.50/t.

Table 2.1.1
Ekati Diamond Mine Kimberlite Pipes

Pipe	ct/t	US\$/ct	US\$/t
Panda	1.03	130	134
Misery	4.26	26	111
Koala	0.95	122	116
Fox	0.4	125	50
Sable	0.93	64	60
Average	1.09	84	91.5

³The value of the pipes has been assessed based on packages of rough diamonds sent to the CSO in London and to dealers in Antwerp, Belgium, and Tel Aviv, Israel.

In terms of value per carat (quality of the diamonds) the Panda, Koala and Fox pipes compare very favourably with the best pipes in South Africa, Botswana and Russia. These pipes are reported to contain diamonds of all sizes and qualities; up to 30 percent are gem-quality.

The pipes are to be mined by open-pit and then by underground methods over a period of 17 years. Operating costs will be in the range of US\$22 to US\$26 a tonne. It is likely that the life of the mine will be extended to at least 25 years, pending future bulk sampling on additional pipes such as Koala North and Beartooth. Panda will be developed first, followed by Misery and Koala.

All of the pipes, except one, are less than 5 ha. This is small compared to the major producing pipes in Russia (Udachnaya, 20 ha), Botswana (Jwaneng, 45 ha; Orapa, 106 ha), and South Africa (Venetia, 13 ha; Finsch, 18 ha; Premier, 32 ha).

When the mine enters production in the fall of 1998, between 550 and 600 workers will be employed. Initially, BHP will produce around 3.5 million carats per year (Mct/y). This will rise to an average of 4-6 Mct/y over the life of the mine. The mine and processing plant will operate 24 hours a day, 365 days a year.

BHP has not yet announced its marketing plan. It is likely that multiple channels will be used to market the rough diamonds. These channels might include selling "run of mine" – rough diamonds that have not been sorted, selling "assortments" – rough diamonds that have been sorted and prepared for sale to manufacturers, contractual sales to diamantaires, and selling to the CSO, etc. BHP and Dia Met have appointed I.D.H. Diamonds, a rough dealer in Antwerp, to act as marketing consultant for the Ekati Diamond Mine.

2.1.b The Diavik/Aber Project

The Diavik/Aber joint venture plans to develop four kimberlite pipes located under Lac de Gras, 30 km southeast of the Ekati Diamond Mine, at a cost of some \$750 million. The pipes are small (approximately 1 ha) by world average, but they are very high grade in terms of ct/t. Subject to approval, production is planned for 2001.

According to Diavik, by the time that production begins, the proposed mine will represent a total investment of approximately \$1 billion. The mine life is expected to be 16 to 22 years, and mining will consist of a combination of open-pit and underground methods. At full production, the operation is expected to produce 6 to 8 Mct/y. The rate of diamond production will decrease to 3 million to 4 million ct per year beyond year 15. The mine is expected to generate in excess of \$70 million per year in various taxes and royalties.

At full production, Diavik estimates it will spend \$25 million annually in wages and benefits for 350 (\pm 50) workers. Another \$90 million will be spent annually to purchase goods and services, with approximately one-half spent in the NWT. The company has indicated that it intends to maximize employment and business opportunities for NWT residents, particularly for local Aboriginal people.

2.1.c The Jericho Project

The Jericho Project is located some 28 km northwest of the Lupin gold mine near the northern shore of Contwoyto Lake. Lytton will complete a pre-feasibility study in 1998 on its Jericho Project, which consists of three diamondiferous kimberlite pipes, two of which are land-based. A large bulk sample from the JD-1 pipe of 9 400 tonnes yielded 10 539 ct (1.12 ct/t) with an average value, according to the CSO, of US\$60/ct or US\$67/t ore. The sample contained 67 diamonds larger than 5 ct; the largest stone was just over 40 ct, and the largest gem-quality diamond was 23.89 ct. Preliminary studies indicate that the Jericho Project could support a 700 000 ct/y mine, and production could start early in the millennium.

2.1.d Future Prospects

Aber and Winspear are exploring the Camsell Lake area, some 100 km south of Lac de Gras. In 1997, 13 drill holes intersected kimberlite dike material, and 11 of these are interpreted as representing one kimberlite dike. Significant quantities of coloured diamonds were recovered from a small sample of 137 kilograms that contained 401 diamonds. Some 44 percent of the diamonds were white (colourless); 3 percent, off-white; 39 percent, yellow; 2.7 percent, green; 1 percent, pink; plus some off-yellow, brown, and amber. Close to 88 percent of the diamonds were transparent. Plans in 1998 are to process 100 to 200 t of this material to obtain size distribution of the diamonds and a preliminary estimate of value; other targets on the property will also be drill tested.

The AK-CJ property, located 115 km southeast of Lac de Gras, consists of four diamond-bearing pipes. A mini bulk-sample completed on each of the four pipes in the first half of 1998 showed some very encouraging diamond grades.

2.2 World Production

As shown in Table 2.2.1, world production of natural rough diamonds in 1996 was estimated to be 109.7 Mct valued at US\$7.57 billion, for an average price of US\$69/ct. World production of natural diamonds grew from 43 Mct in 1980 to around 110 Mct in the mid-1990s, representing a growth rate of 4.5 Mct/y. The major diamond-producing countries, by number of carats (ct), were Australia, Botswana, Zaire, Russia, and South Africa. However, when ranked by value, the order becomes Botswana, Russia, Angola, South Africa, and Namibia. (More information on the world diamond industry is provided in Appendix IV.)

2.3 Diamond Mine Ownership

In South Africa, the mines are privately owned, with approximately 85 percent of the production coming from mines owned by De Beers; in Australia, the mines are privately owned (not by De Beers); in the Congo, 25 to 40 percent of the production is controlled by the government-owned company MIBA; in both Botswana and Namibia, the mines are owned 50 percent by the government and 50 percent by De Beers; in Angola, where production is from alluvial deposits, most mining and marketing is controlled to some extent by Endiama, a government-owned company; and in Russia, the mines are owned 100 percent by the government.

Table 2.2.1
World Diamond Production, 1996

	Carats (millions)	Average Price (US\$/ct)	Value (US\$ billions)
AFRICA			
Jwaneng mine ¹	11.2	130	1.45
Orapa mine ¹	5.6	60	0.34
Letlhakane mine ¹	0.9	115	0.1
Total Botswana¹	17.7	107	1.89
Namdeb mine ¹	1.4	320	0.45
ODM mine	0.1	180	0.01
Total Namibia	1.5	315	0.46
Venetia mine ¹	4.3	110	0.47
Premier mine ¹	1.6	95	0.15
Finsch mine ¹	2.1	60	0.13
Namaqualand mine ¹	0.7	180	0.13
Kimberley mine ¹	0.6	110	0.07
Koffiefontein mine ¹	0.1	130	0.01
De Beers in South Africa ¹	9.4	102	0.96
Other South African mines	0.6	105	0.06
Total South Africa	10	102	1.02
Angola	3.7	300	1.1
Zaire	15	25	0.4
Other Africa	2.8	140	0.4
Total Africa	50.7	104	5.27
OTHER COUNTRIES			
Russia	13.7	89	1.2
South America	4	100	0.4
Australia	40	10	0.4
Illicit	0.3	750	0.2
Miscellaneous	1	100	0.1
Total other countries	59	45	2.3
Total world	109.7	69	7.57

¹ Sold entirely via the CSO.

Sources: Standard Equities Ltd., Cape Town, South Africa; also based on De Beers' 1996 annual report, on Ashton Mining's 1996 annual report, on estimates by Diamond Counsellor International, and on a few estimates by Terraconsult and Diamond International.

2.4 Rough Grade Definition

Grade is the weight of diamonds expressed as ct/t of ore. It varies widely from one mine to another, but generally falls somewhere between 0.3 and 1.3 ct/t. The value of the ore per tonne equals the grade times the average value per carat of all the individual diamonds in the deposit.

2.5 Size (Weight) of Rough Diamonds at Mines

The average size of stones at individual mines varies from 0.01 ct (about 1 mm in size) to more than 0.7 ct. According to De Beers, many mines in the world average about 0.4 to 0.5 ct per stone. However, the number of stones larger than 1 ct (0.2 g) produced at mines is very small, in the order of 400 000 stones per year, and, in carat terms, represents only about 0.5 percent of the total carats produced in the world. Most rough diamonds mined are small. To put this into perspective, the length of the side of a 10 ct rough octahedron crystal, which is considered a large stone, is only about 10.5 mm; the length of the side of a 1 ct stone is close to 6.5 mm, and a 0.5 ct stone has a side of 5 mm.

2.6 Mine Production Costs

Operating costs (excluding depreciation and interest) for kimberlites and lamproites are approximately US\$5/t to US\$6/t for large and easy-to-access diamond mines operating in good climatic conditions, and up to US\$30/t for small mines located in remote areas and operating under harsh climatic conditions. The total production costs for larger and smaller diamond mines are around US\$15/t and US\$40/t respectively.

2.7 Structure of the Canadian Value-Added Diamond Industry

Canada's cutting industry is very small, but its long-term potential is good. Canada will soon become an important producer of gem-quality diamonds, and Canadian labour costs are in line with those in New York, Antwerp, Australia, and Israel.

The two major Canadian manufacturers are Sirius Diamonds Ltd. with a factory in Sidney, British Columbia, and Polar Star Diamonds Ltd. with a factory in Edmonton, Alberta. Other manufacturers include Cohenor Inc. and Hope Diamond Co. Reg'd. with small factories in Montréal, Quebec.

Diamond tools and manufacturing equipment include drill bits, segments for circular blades, grinding wheels, and specialty tools. The major manufacturing plants are located in and around Montréal, as well as in Québec City, North Bay, Winnipeg, and in the lower mainland area of British Columbia. In addition, one company located in Calgary produces synthetic diamond films.

There are approximately 20 important diamond jewellery manufacturing plants located in Canada, mainly in the Toronto region, but also in Montréal and Winnipeg.

2.8 World Value-Added Diamond Industry

Natural diamonds are cut in some 30 to 40 countries. However, as shown by Table 2.8.1, the major diamond cutting centres are Kempen and Antwerp, Belgium; Ramat Gan and Tel Aviv, Israel; New York City; and Surat and Bombay, India. With the exception of India, which is a very small producer of diamonds, none of these countries mine diamonds. Many other countries also cut diamonds, but their industries are small.

In 1996, total world trade of diamonds in all forms (rough, cut, and polished) was 260 Mct valued at close to US\$23 billion. Among the four major manufacturing centres, India, Israel and Belgium are net exporters of polished, and the United States is a net importer of polished diamonds. Belgium is known as the world's largest trading centre for rough and polished diamonds. Belgian trade in rough was US\$7.1 billion in imports and US\$6.3 billion in exports. Belgian trade in polished was US\$4.4 billion in imports and US\$5.2 billion in exports.

Diamond cutting is labour-intensive. Increasingly, automated cutting and polishing techniques are competing with low-wage operations. Types of automated equipment used include automatic girdling machines (sometimes connected with stroboscopes), automatic blocking and faceting machines, lasers to shape rough diamonds, and computers that suggest an optimal cut based on the shape, dimensions, and inclusions in a rough stone.

Major diamond cutting centres have an associated range of indirect jobs such as brokers, wholesalers, suppliers of machinery and equipment for cutters, bourses, insurance companies, travel agencies, and jewellery manufacturing, etc.

As a result of higher labour costs, factories in New York tend to cut larger and better quality stones. Belgium and Israel have middling labour costs and, consequently, typically cut stones of intermediate size and quality. India, with the lowest labour costs, cuts the smallest and least expensive diamonds. The literature indicates that the average price per carat of polished diamonds produced in New York is about US\$1 400; from Antwerp, an estimated US\$1 000 to US\$1 100; from Tel Aviv, US\$1 000; and from India, US\$250.

Diamond manufacturing is similar to many other industries where new technologies have been developed in order to compete with low-wage economies. Belgium and Israel, with De Beers, have taken the lead in developing this technology, which is used in different cutting centres for a variety of reasons. Examples are listed below.

- Israel – for reducing the cost of production and getting a better cut.
- India – for getting a better cut and to overcome a shortage of skilled workers.
- China – to overcome the lack of know-how.
- United States – to reduce cost of production.
- Botswana – to get a better cut.

Using technology, it is now possible for a new manufacturer to become competitive in a relatively short period of time. The net result is increased capital costs and reduced labour requirements. Most manufacturers agree that technology and automation are key to developing an industry in a relatively high labour-cost country. However, they also assert that currently

available technology is only appropriate for certain sizes and qualities of stones and, in many cases, cannot replace the eye of an experienced cutter.

2.9 Classification (Sorting) of Rough Diamonds

Diamonds undergo a number of sorts. The first, for size, is undertaken by the mining company to determine an initial value of the production for mine valuation. It is often done at or near the mine, and usually requires only a few sorters. The mining company uses this sort for insurance and security purposes.

Governments require that diamonds undergo a separate sort in order to determine the value of production for the purpose of determining royalties. Sorting for government valuation is undertaken by a contracted expert diamond valuator. It typically takes place at a facility provided by the mining company or, in the case of those companies selling the majority of their production through the CSO, at a facility provided by the CSO. Final sorting for shape and quality (colour and clarity) into detailed categories for final valuation requires more people. It is often done near a major centre for security reasons and easy access to a larger pool of labour, expertise, transportation, and other services.

The major classification and valuation centres are Kimberley, South Africa; Gaborone, Botswana; Windhoek, Namibia; Perth, Australia (2 200 km away from the Argyle mine); Mirny (primary sorting) in Yakutia Province; and Moscow (classification), Russia. Other valuation facilities are located in capital cities such as Freetown, Sierra Leone; Conakry, Guinea; and Kinshasa, Congo.

De Beers' main sorting house is in London, England, but De Beers also sorts rough diamonds in Lucerne, Switzerland. Sorting costs vary according to the type of production, degree of automation and labour costs. Production with a high gem content costs more to sort and value. Sorting costs vary from US35 cents per carat (¢/ct) to about US\$1/ct.

Each diamond mine contains diamonds that are specific to the mine in terms of size, crystal shape, clarity, colour, and surface markings, etc. In a mine, the stones are classified in the following order: weight, shape, clarity, and colour. Rough diamonds, mined at different locations in the world and sold in whole or in part to the CSO, are classified into a total of some 15 000 categories by the CSO. This large sample, called the "master sample," is kept at the CSO's office in London, England. The CSO attaches a price to each category of roughs contained in the master sample. All of the prices are contained in a proprietary price book used by the CSO's 600 sorters in London, as well as by other valuers. All CSO price changes are recorded in this book. In London, previously sorted rough diamonds from sorting centres (which are partly or wholly owned by De Beers), in Botswana, Namibia, and South Africa are resorted, valued, and prepared into parcels for sale.

Gem-quality diamonds from a mine can be divided or classified into 250 to 500 categories (piles). At some mines, such as alluvial mines, the number of categories is much lower. Industrial diamonds only need to be classified into a few piles. After classification of a production run, each pile is weighed.

**Table 2.8.1
Overview of Diamond Manufacturing**

	Belgium	Israel	India	Thailand	South Africa	United States
People Employed	2 100	7 500	800 000	9 500	1 600	350
Type of goods cut	+2 ct, esp. makeables	+15, all shapes better qualities	mostly under \$100 per ct -21 makeables cheap cleavage	sawable -15	+15 better qualities	sawable +2 ct large stones best quality
Avg. wages per worker per month (fully burdened)	\$3 000	\$2 500	\$120	\$200	\$800	\$5 000
Productivity (no. of ct per day)	high	high	low, but improving	high	medium	high
Automation	extensive	extensive	some, mostly manual	more than India, but mostly manual	extensive	limited, manual skills are critical
Hours per week	48	45	54	50	45	40
Make of polished	excellent	yield preferred to make	was weak, but improving	very fine	good	excellent
Marketing of polished	traded on Antwerp market, worldwide offices	buyers come to Tel Aviv, worldwide offices	internal, worldwide distribution via families	internal, Far East, worldwide	international, New York, Hong Kong, Antwerp	internal, worldwide
Size of factory units	small (avg. 10)	medium (avg. 30)	mostly cottage, some large modern factories	large (up to 500)	large (up to 500)	small

Note 1: Figures in US dollars.

Note 2: +/- signs refer to sieve sizes.

Source: City of Yellowknife Diamond Industry Development Task Force, 1998.

Diamonds are released to the market in a controlled manner by the CSO at “sights.” These are held about every five weeks in Europe (London and Lucerne) and South Africa (Johannesburg) for about 170 to 180 carefully chosen buyers known as “sightholders.” Diamdel, a De Beers subsidiary, is the largest sightholder; it distributes rough diamonds to manufacturers that are too small to qualify for sights. De Beers indicates that the minimum and maximum annual rough diamond purchases from the CSO per sightholder are respectively US\$5 million and 10 percent of the CSO’s annual sales. Rough diamonds larger than 3/4 ct represent about two-thirds of the total value of rough diamonds sold by the CSO.

The majority of the sightholders are manufacturers with large cutting operations, but some of the largest sightholders are rough dealers that sell their goods to a large number of small manufacturers.

Each manufacturer receives a narrow range of goods in which it specializes. Large dealers receive a wide range of goods because they supply many small manufacturers. Once the stones are cut and polished, they are sold to diamond merchants or wholesalers of polished diamonds. Finally, the diamonds are sold to manufacturing jewellers and retail outlets.

2.10 Marketing of Rough Diamonds

Diamond producers have a variety of marketing methods. Large producers may sell their entire production to diamantaires or to the CSO. When production is sold to the CSO, it is purchased at the selling price less 10 percent to cover costs such as advertising, marketing, classification, and valuation. Large producers may sell most of their production to the CSO, and market a small portion (5 to 20 percent, called a “window”) independently of the CSO in order to develop an in-house expertise as well as to check market prices of both rough and polished diamonds (e.g., Russia).

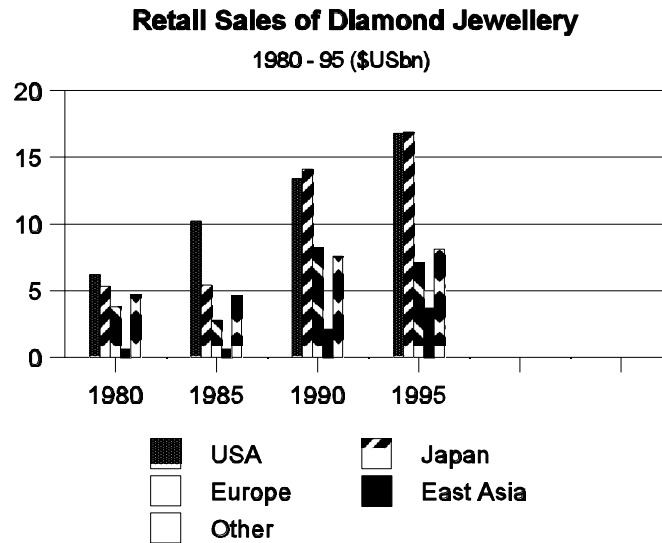
Small to medium-sized producers may sell their rough by tender. This method optimizes profits, but there is a danger of collusion when there are only a few buyers. Tenders are also sensitive to short-term swings in the markets. Tenders are held in a number of locations. Trans Hex of South Africa, holds its tenders in Cape Town and Johannesburg, and Endiama holds its in Luanda, Angola. Other tenders are held in Bengui, Central African Republic; Moscow, Russia; Antwerp, Belgium; and, since June 1998, Tel Aviv, Israel.

Small producers of alluvial diamonds may sell to traders (middle-men) who have sales offices in large trading centres where they sell to dealers and manufacturers. Small producers may also sell directly to polishers to avoid the middle-men.

2.11 Marketing of Polished Diamonds

As shown in Graph 2.11.1, over the past 15 years, the diamond jewellery market has increased two and one-half times. This increase has been driven by De Beers’ marketing and advertising campaigns. De Beers spends approximately US\$200 million annually on advertising around the world. Their now famous slogan of “A diamond is forever” has recently been complemented by the “Shadows” campaign.

Graph 2.11.1



Growth is anticipated in the long term in several markets, especially the Gulf States, India, Pakistan, China, and Turkey. It is believed that the millennium will also provide a considerable boost to sales.

In the short term, there is concern arising from weakened markets in Japan and East Asia which, in the past, have accounted for 40 percent of total sales. One consequence is an oversupply of small rough diamonds on the market leading to an oversupply of small polished goods. At the beginning of 1998, there was an estimated \$5 billion in rough and polished diamonds in the “diamond pipeline” (Section 2.19). Even with an almost 50 percent reduction in rough supply from the CSO, this will take time to work through the pipeline. While American demand is forecast to grow by 6 percent globally, it is unlikely to offset the decline in the Japanese and East Asian markets.

A recent development is using laser inscription to brand a polished diamond with a trademark. The product is then promoted and marketed not simply as a diamond but, for example, as a “De Beers” diamond or a “Colorado” diamond. The technology for laser inscription of diamonds (on the girdle) is readily available. Attempts have been made to market branded diamonds; the most successful are probably Colorado diamonds from the only producing diamond mine in the United States (Kelsey Lake). These are cut in the United States, marketed through a limited number of retailers as “Colorado Diamonds,” and sold at prices 10 to 15 percent higher than equivalent non-American diamonds. The annual production from Kelsey Lake is small, approximately 100 000 ct per year; supply is also a factor in price.

De Beers recently announced intentions to conduct a limited test of De Beers branded diamonds. Their system marks the diamond in a manner that does not affect the quality of the stone, and can only be detected with a special machine invented by De Beers. Each stone would be given a unique serial number.

De Beers would not sell its branded stones directly, i.e., they would not compete directly with their sightholders to sell polished stones to the consumer. Rather, De Beers would maintain control over the quality and quantity of stones that are branded by offering branding services to sightholders who agree to sell the diamonds through traditional distribution channels. The impact of De Beers' branded diamonds on the polished market could be immense. As with other luxury items, it would lead to brand name distinctions being made in what traditionally has been a generic market.

The creation of a brand market may be important to the establishment of a diamond manufacturing industry in the NWT. The development of a "northern" or "Arctic" brand for NWT diamonds could provide an opportunity for a niche market. The polished diamonds sold under a Canadian brand could be marketed domestically for the tourist industry, and potentially to the United States. In this case, the proximity to and trading relationship with the United States, the world's largest diamond jewellery market, can be considered an advantage.

2.12 Uses of Gem-Quality Diamonds

Gem-quality diamonds are used in jewellery. World retail sales of diamond jewellery have increased rapidly in the 1990s. In 1997, preliminary figures indicate that some 67 million sold pieces of diamond jewellery were worth US\$52 billion, with a total diamond content value of some US\$12 billion and a diamond content weight of 21 Mct. In 1996, the major markets for jewellery in terms of diamond content value were the United States, 35 percent; Japan, 25 percent; East Asia, 19 percent; Europe, 11 percent; and other countries, 10 percent. Recent economic downturns in the Japanese and southeast Asian economies have caused great concern to the international diamond industry due to the impact on demand and, consequently, price.

2.13 Canadian Jewellery Market

Although it ranks among the top ten in terms of expenditures per capita (approximately US\$20 in 1995), in world terms, total sales in Canada are small. In addition, the Canadian diamond jewellery market has been quite erratic over the past few years. Retail sales in 1995 were estimated at \$808 million. This represents a decrease of 13 percent from 1992, and reflects a decrease of 4 percent in the number of pieces sold and a 5 percent decrease in the average price. However, Canadian jewellery sales rebounded slightly in 1996 as the market grew by 3 percent; by 1997, Canada had the fastest growing diamond jewellery market in the world as sales increased by 20 percent. The outlook for 1998 continues to be very positive.

In Canada, 90 percent of diamonds are purchased as women's jewellery; one in nine pieces (representing 25 percent of the value) is an engagement ring. Over 85 percent of purchases were acquired as gifts. Pieces between \$100 and \$499 account for more than one-half of all women's pieces (53 percent), but represent only 17 percent of the total market value. Other facts of interest on the Canadian market include:

- rings account for 58 percent of all pieces acquired;
- 70 percent of pieces are diamond only, of which 35 percent are solitaires;
- the average number of diamonds per piece was 6.2;

- 38 percent of all non-bridal pieces are purchased in December (the next highest month is May with 8 percent);
- 82 percent of diamond engagement rings are round brilliant cuts; and
- the average carat content of diamond engagement rings is 63 points.

2.14 Uses of Industrial Diamonds

Industrial diamonds are diamonds that do not meet the standards of gem-quality diamonds because of their colour, clarity, size, or shape. Industrial diamonds include natural and synthetic diamonds.

Diamonds are the hardest substance known. For this reason, the major use of industrial diamonds is as an abrasive. Industrial diamonds are used in equipment that drills, cuts, grinds, and polishes rocks (such as granite and marble), non-ferrous metals, carbon fibres, composites, glass, refractories, ceramics, concrete, plastics, and masonry bricks, etc. Natural and synthetic industrial diamonds are widely used in the automotive, advanced technology, and aerospace industries.

2.15 Synthetic Diamonds

Synthetic diamonds compete with natural industrial diamonds as an abrasive mineral, and with silicon carbide, alumina, tungsten carbide and cubic boron nitride as a manufactured abrasive material. The value of world synthetic diamond production is estimated at US\$650 million to US\$800 million. Most marketed synthetic diamonds are 0.6 mm to 0.8 mm and smaller.

In 1997, synthetic diamonds were produced in some 20 countries. The two leading producers are De Beers of South Africa and General Electric of the United States. Together, these two companies control approximately 70 percent of world production; both produce a full range of synthetic diamond products. The smaller producers specialize in certain sizes and types of products. De Beers has plants near Johannesburg, South Africa; at Robertsfors, Sweden; Hamburg, Germany; and Shannon, Ireland. General Electric has plants at Worthington, Ohio, and Dublin, Ireland.

Synthetic diamonds are preferred to natural industrial diamonds in many industrial applications because they can be tailored (size and shape) to the customer's needs. In general, larger crystals are used for cutting softer materials, and smaller crystals are used for the tougher materials.

2.16 Processing (Refining) of Industrial Diamonds

Low-value natural and synthetic diamonds can be processed into higher-value products by simple methods. Processing methods for grit, powders, and stones follow. Natural grit (about 40 microns to 1 mm) is crushed, washed, dried, screened into sizes and separated into shapes (short vs. elongated) with the use of vibrating tables.

The short are sold, the elongated are ground again, and the cycle is repeated. Synthetic grit and powders are separated into sizes and shapes, cleaned of their surface impurities and dried. Stones (+1 mm) are screened, separated into shapes, and sold. Or they can be lightly rounded mechanically for long life and resistance to premature breakdown; rounded mechanically and polished for resistance to

wear, high impact, and premature breakdown; or, rounded and polished with acids for resistance to severe impacts and high temperatures. No industrial diamond processing plants exist in Canada.

2.17 Prices of Natural Diamonds

2.17.a Gem-Quality Rough Diamonds

The price of a rough stone depends on its carat weight, shape, clarity, and colour. The prices vary widely, but the following is an indication of the prices paid at cutting and polishing factories for gem-quality (fine-quality) rough stones.

A 1 ct stone that sells for \$20 is very low quality,
\$200 is medium quality,
\$400 is good quality, and
\$600 is top quality.

2.17.b Industrial Diamonds

Crushing bort sells for about 30¢/ct; castings for \$1/ct to \$2/ct; industrial stones for \$7/ct to \$10/ct; flats (e.g., a high-quality thin macle) for \$50/ct; and dies (larger diamonds of high quality but poor "often yellow" colour that make them unsuitable as gems) for up to \$200/ct.

2.18 Forecast and Outlook

Worldwide, the demand for 3 grainers (0.75 ct) and up to 2-3 ct polished diamonds in good colour and clarity is expected to be strong, while the surplus of small inexpensive polished diamonds should continue for a few years. At present production levels, prices for natural industrial diamonds should continue to decline due to strong competition from synthetic diamonds.

Over the next few years, increases in natural diamond production are expected from an expansion of the Orapa mine in Botswana, and the introduction of Canadian mines to the market. Production at the Jubilee mine in Russia is increasing and, if needed, De Beers could expand the Venetia, Finsch and Premier mines in South Africa. Finally, the Catoca mine is under development in Angola. Decreases in production will probably come from the Argyle mine in Australia and from the Udachny mine in Russia.

2.19 The Diamond Pipeline

The "diamond pipeline" refers to the steps that diamonds undergo as they are transformed from rough diamonds at the mine into cut and polished diamonds set in jewellery. The pipeline is illustrated in this report using three examples:

- all rough diamonds produced in 1996,
- a single US\$20 rough diamond cut in a low-wage cutting centre, and
- a US\$600 rough diamond that would be cut in a higher-wage cutting centre.

2.19.a 1996 Rough Diamond Production

The majority of rough diamonds come from six major diamond-producing countries: South Africa, Russia, Botswana, Australia, Namibia, and Angola. Canada will join this group in October 1998 when production of Canadian diamonds is expected to begin. Canadian rough diamonds will enter the international diamond pipeline, along with diamonds from all producing countries (Graph 2.19.1).

The first step in the pipeline occurs when the producer sorts the rough diamonds for marketing purposes. In 1996, the total value of diamonds produced in the world and sold as mine sales was US\$7.7 billion. These rough diamonds were bought primarily by the CSO and independent diamantaires, who in turn re-sorted and sold them for US\$8.7 billion – a mark-up of US\$1 billion, or approximately 13 percent.

The rough diamonds were sold by the CSO and the independent diamantaires to various sightholders and rough dealers; they either cut and polished them, or further sorted them for resale. At this stage of the diamond pipeline, the diamonds were sold for US\$8.9 billion – a mark-up of US\$0.2 billion or 2.3 percent. This rough was purchased by diamantaires for cutting and polishing in approximately 40 countries with the major centres in India, Israel, Antwerp, Southeast Asia, and New York.

In 1996, cutting and polishing increased the value of the rough diamonds to US\$11 billion. This represented an addition of US\$2.1 billion in value or 24 percent. The polished diamonds were sold to jewellery manufacturers around the world; in 1996, the value of diamonds set in jewellery was US\$12.4 billion. This represented a US\$1.4 billion, or slightly under 13 percent, increase in the value of the diamonds. The greatest mark-up occurs when finished jewellery is sold to millions of consumers; the largest market is the United States. In 1996, the US\$12.4 billion worth of diamonds set in jewellery was sold at the retail level for US\$53.9 billion. This represented a mark-up of US\$41.5 billion, or 335 percent.

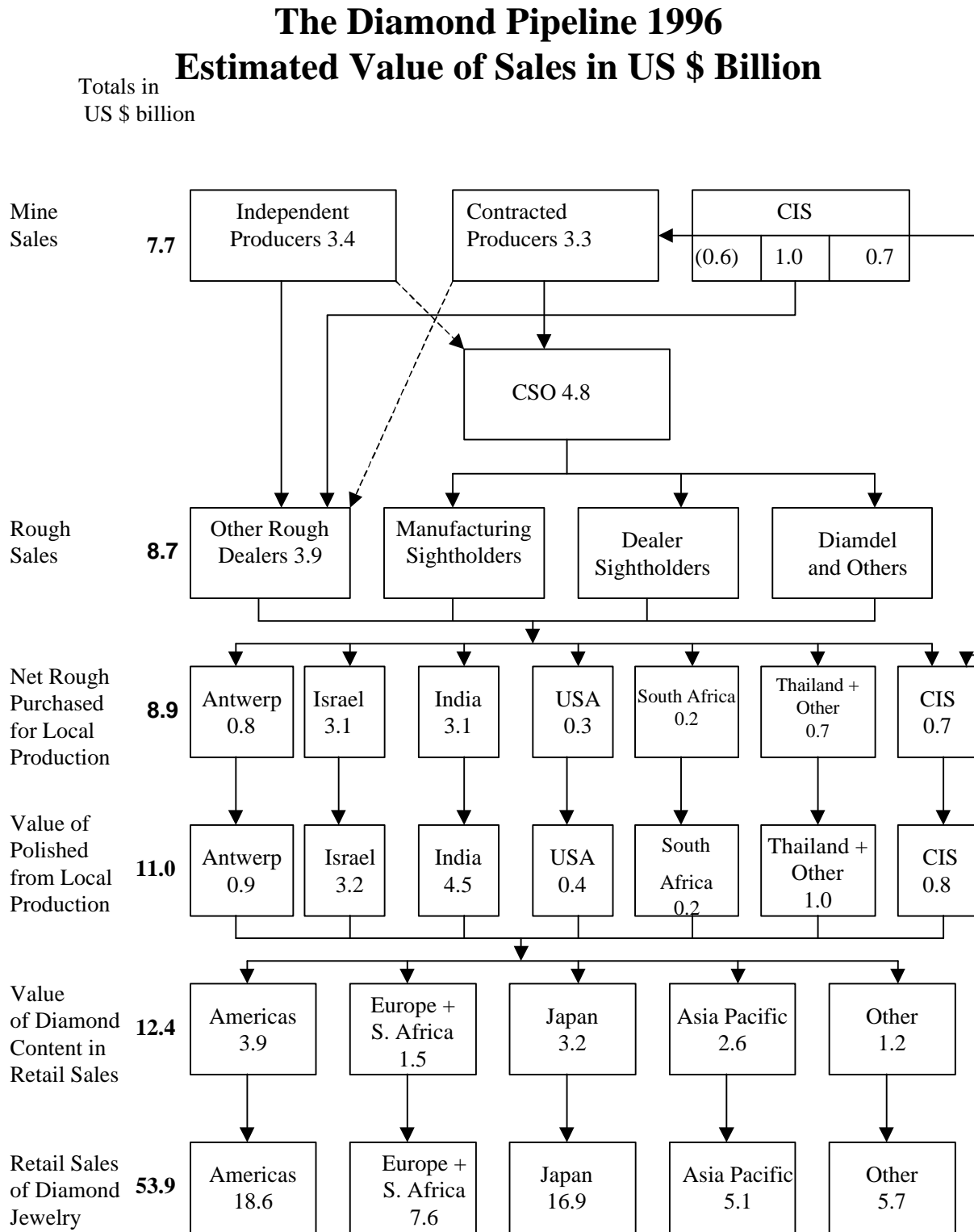
Under this example, the US\$900 million of diamonds that will be produced in the NWT would be sold to diamantaires and sightholders for approximately US\$1.017 billion. These rough diamonds would be further sorted and sold for US\$1.040 billion. They then would be cut and polished, increasing their value to US\$1.285 billion. The content of the polished Canadian diamonds set in jewellery would be worth US\$1.449 billion. In the end, the diamonds set in jewellery would retail for almost US\$6.3 billion, a 600 percent mark-up.

2.19.b The US\$20 Per Carat Rough Diamond

De Beers provided the Committee with an example of a single rough diamond which, by the time it enters the cutting factory, has a value of US\$20. This US\$20 value is from the costs of mining, sorting, and valuation. In the manufacturing sector, the value-added to the diamond is US\$5.20. According to De Beers, the component costs of this US\$5.20 are:

- US\$1.00 – Financing costs: based upon the diamond being three months in production and two months awaiting cash receipt from sales,
- US\$2.10 – Direct costs: associated with labour and consumable costs at the factory floor,

Figure 2.19.1



Notes

1. Diamond mining's current potential is over US\$8 billion, including industrials. Because of the 15 percent "deferred purchases," some production remains "stored" in the ground. Also because of stocking at mine level, diamond mine sales are not the equivalent to diamond mining. The "independent producers" include stolen and smuggled goods from all sources.
2. It has been taken into account that Argyle supplied rough in the first half of the year to the CSO, and the Russians sold US\$600 million to the CSO. Moreover, Argyle is considered "independent," even though undoubtedly most of its production was acquired by the CSO on the open market.
3. The progressive increases in value reflect value-added and profits of the various intermediate phases.
4. The value of diamond centres in retail sales represent wholesale (ex-cutting centre) prices.
5. This chart ignores changes in inventory in the cutting and trading centres. On this macro level, except for Russia, their impact is marginal on the figures. In Russia, mine sales include a US\$1 billion withdrawal from stocks.
6. The retail figures include the value of the precious metals, designs, distribution costs, and other semi-precious stones, etc.
7. Americas refers to the United States, Canada, Brazil and Mexico. Other South American countries appear in the "other" category.

Source: Chaim Even-Zohar, Mazal U'Bracha Archives, 1997.

- US\$0.70 – Overhead costs: management, supervisory, security, personnel, maintenance, and depreciation costs,
- US\$0.60 – Administration costs: associated with the sorting and transport of the diamonds, and
- US\$0.80 – Profit: attributed on the basis of a 3-4 percent norm for the industry when processing small sizes in large volumes.

When set in jewellery, this diamond would retail for US\$50.

2.19.c The US\$600 Per Carat Rough Diamond

WWW International Diamond Consultants Ltd. generated a scenario for the Committee, using its own set of assumptions, based on a rough diamond that enters the factory with an average value of US\$600/ct. The company identified this value of diamond as more appropriate for a NWT or Canadian cutting and polishing operation.

According to this example, working with rough diamonds of this value would require that labour costs are kept well below 10 percent of the value of the rough in order to accommodate the other costs of production and still achieve a profit. In addition, labour costs in the NWT were assumed to be at least 50 percent higher than in Israel, where a polisher will take home around US\$1 500 to \$1 750 per month.

With a rough diamond of US\$600 per carat, the resulting polished would have to be in the range of US\$1 400 to US\$1 450 to cover all costs, including financing, without any profit; more than one-half of the weight, at least 55 percent, would be lost in the polishing process. The profit would depend on whatever price can be achieved over this one.

Under normal circumstances, and using an Israeli or South African factory as the basis of the calculations, the costs were summarized as follows:

- US\$35/ct to US\$40/ct – direct labour costs, and
- US\$10/ct to US\$15/ct – all other costs (administrative, security, and other overhead costs).

For the polisher to receive approximately US\$3 000 per month gross, high productivity rates would have to be realized of 3 ct to 4 ct per day per worker. To achieve this and to speed up the process, automatic machinery for “blocking” the goods after bruting or rounding the stones would be essential. Polishers would have to specialize in the “chain” system usually utilized in Israel whereby a worker concentrates on polishing just the top, bottom, or the final faceting.

The time the diamonds would spend in the factory would have to be kept to an absolute minimum in order to reduce the costs of financing, which are calculated at the rate of 1 percent per month. A given series of rough diamonds would spend two months going through the entire process of polishing. For sales, a parcel must be completed before presenting it to a buyer; only a very large polished diamond can be sold individually. The same series of polished would normally require 60 days credit before being offered to the purchaser, making a four-month financing cost in total, or adding 4 percent to the price of the polished.

Also, with a work force of 25 polishers, 2 000 ct per month of rough diamonds averaging US\$600/ct would be required – a monthly value of US\$1.2 million and an annual turnover of about US\$15 million.

BHP will be producing a range of sizes and qualities of diamonds that will be entering the diamond pipeline. The make-up of this production is not known; therefore, the quantity of diamonds suitable for manufacturing in the NWT and Canada is uncertain.

3. NORTHWEST TERRITORIES DATA

3.1 Economic Situation of the Northwest Territories

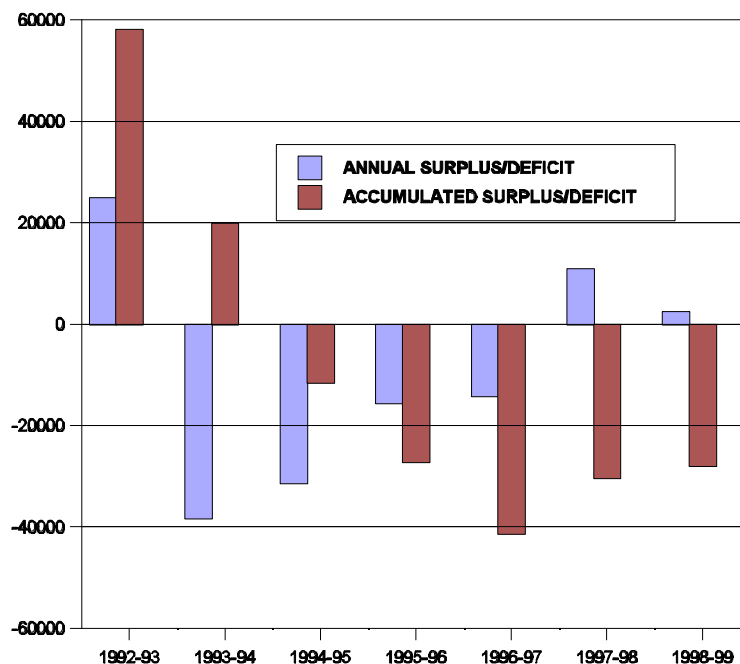
Mining, government, and tourism are the cornerstones of the NWT economy. Exploration expenditures in the NWT in 1997 were higher than in any other Canadian jurisdiction. In 1997, the NWT had the highest average weekly earnings in Canada, which supported a growing retail and service sector.

3.1.a Fiscal and Economic Outlook

3.1.a.i Fiscal Situation

As shown in Graph 3.1.1, for the fiscal year 1996-1997, the GNWT had a \$12 million annual deficit; a \$12 million annual surplus is projected for 1997-1998. The budget forecasts a small annual surplus of \$2.4 million for 1998-1999. Total revenues are forecast to be \$1 163 million and expenditures are forecast at \$1 160 million. The accumulated deficit is expected to fall to \$28 million by March 31, 1999, down from \$41 million in 1996-1997.

Graph 3.1.1
NWT Budgetary Balances
 1992/1993-1998/1999 (P)
 (\$000)

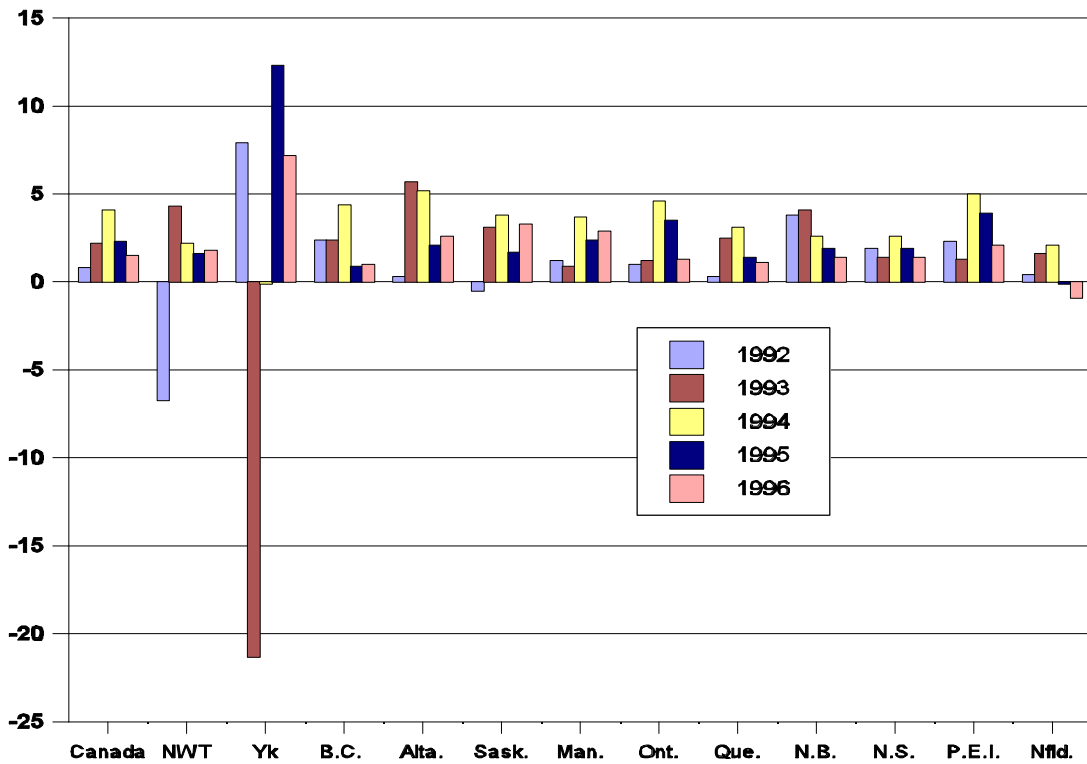


P – projected for 1997/1998 and 1998/1999

3.1.a.ii Gross Domestic Product

In 1996, real growth in the NWT economy exceeded the national average by 3.6 percent. Reduced government expenditures were offset by an increase in private sector investment in the economy, particularly in the mineral sector. Real gross domestic product (GDP) growth for Canada and the provinces and territories is shown in Graph 3.1.2. Consumer expenditures in the NWT were weaker than in Canada as a whole due to reductions in territorial government employment and the uncertainty related to the future of the gold mining sector.

Graph 3.1.2
Real GDP Growth, Canada
 1992-1996
 (percent)

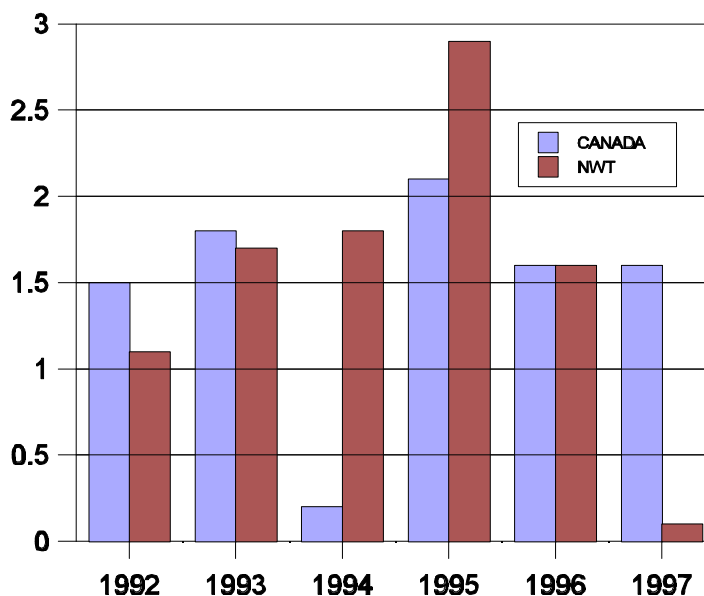


3.1.a.iii Inflation

Inflation in Yellowknife, the largest community in the NWT, has been variable since the early 1990s. As illustrated in Graph 3.1.3, in 1997, inflation was well below the Canadian average of 1.6 percent. Employment uncertainty has reduced consumer spending, thereby reducing demand for consumer goods.

Inflation rates for the NWT are only measured in Yellowknife.

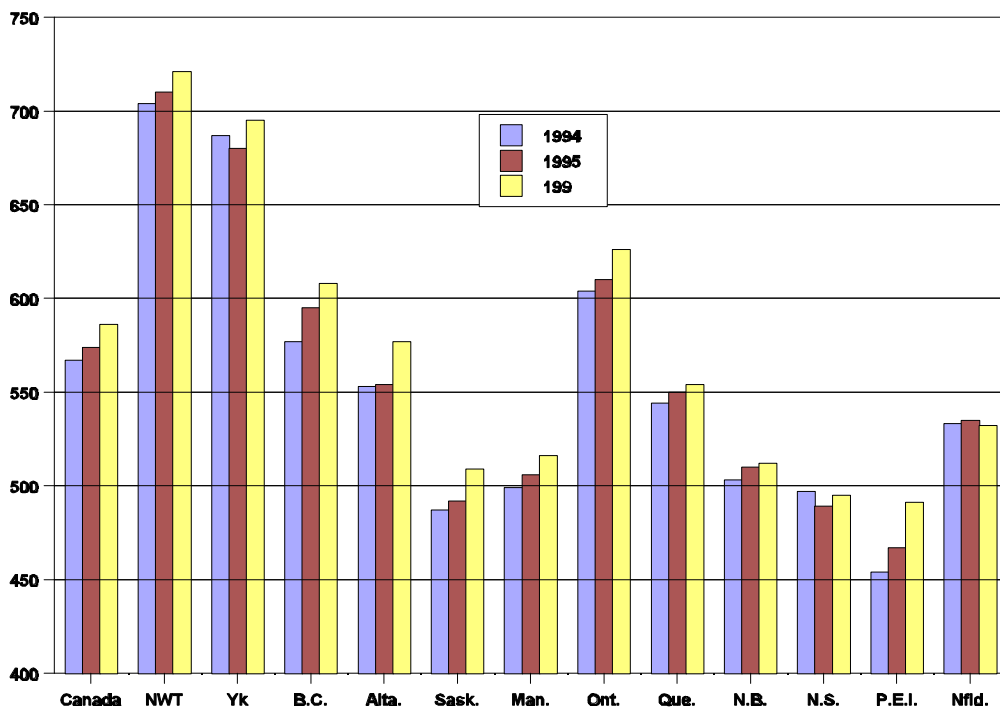
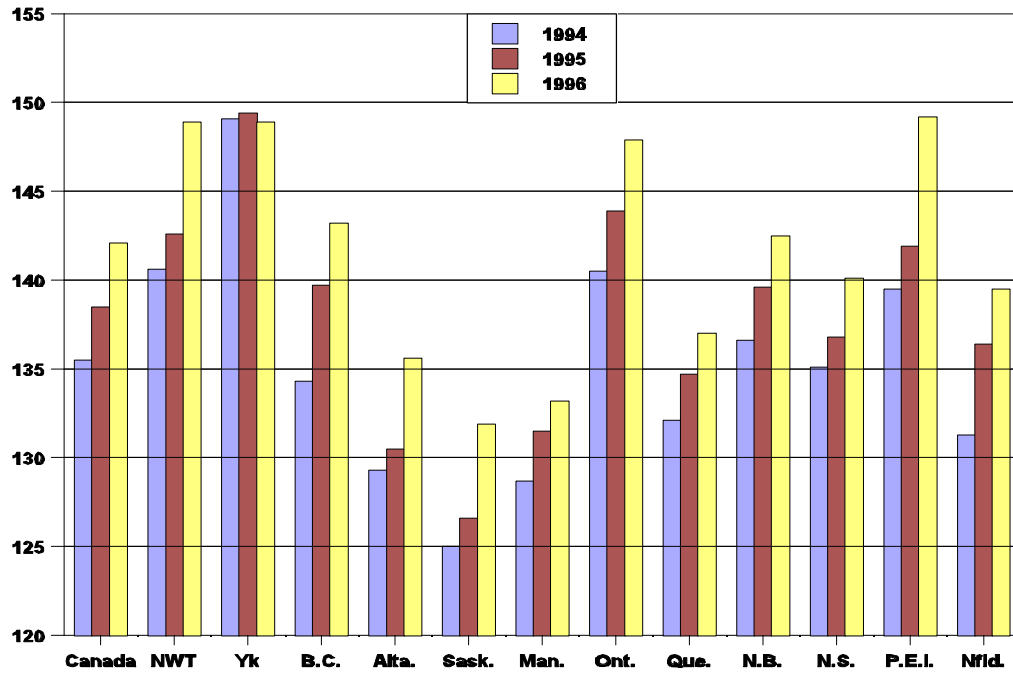
Graph 3.1.3
Inflation Rates, Canada and the NWT
1992-1997
(percent)

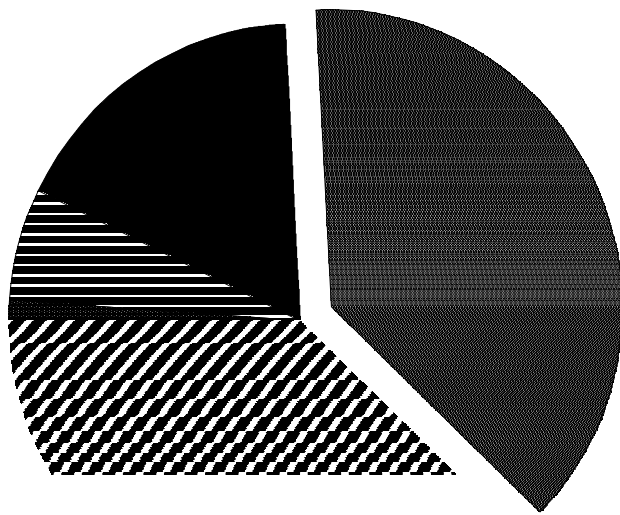


3.a.iv Earnings

Since 1994, average hourly earnings have increased in all of the provinces and both territories. As can be seen from Graph 3.1.4, in 1996, average hourly earnings in the NWT were the third highest in Canada, tied with Ontario and behind only Yukon and Prince Edward Island.

In addition, average weekly earnings in the NWT for the same period were the highest in Canada. As shown by Graph 3.1.5, Yukon had the second highest weekly earnings with Ontario having the third. These high earnings in NWT and Yukon are driven by the high cost of living in these more remote northern areas.





Aboriginal persons. The participation rate for non-Aboriginals in the NWT is significantly higher than the total rate in Canada. While the participation rate is high in larger communities in the NWT such as Yellowknife, the rates are low in small communities where the population is predominantly Aboriginal and there are fewer job opportunities.

In both Canada and the NWT, the participation rate for males is higher than for females. In the NWT, 78 percent of males participate in the labour force – 9 percent higher than the rate for females. In Canada, the spread is more pronounced with 73 percent of males participating compared with 59 percent for females. Within the Aboriginal population, 66 percent of males and 55 percent of females participate.

The unemployment rate in Canada increased from 6.5 percent in 1981 to 10.2 percent in 1996. In 1994, the unemployment rate in the NWT was 17 percent. The unemployment rate of 30 percent of Aboriginal people in the NWT is significantly higher than that for Canada and the NWT.

3.1.a.vii Education and Technology

Aurora College in the western Arctic and Nunavut Arctic College in the eastern Arctic provide post-secondary learning opportunities to Northerners. The development of the college system in the NWT has greatly affected access to, and demand for, post-secondary education.

Many educational programs are offered at the community level; this has greatly increased access, particularly for Aboriginal peoples in the North. During the last five years, enrollments have increased at a rate of 4.1 percent per year. Aboriginal persons comprise the majority of students attending NWT public colleges, almost one-half of the NWT students attending southern colleges and training institutions, and 28 percent of the NWT's university students.

Aurora College and Nunavut Arctic College offer a variety of programs, including certificate and diploma, trade, and university partnership programs. Areas of study include technology/trades, fine arts, management and administration, and nursing.

Apprentices obtain their in-school technical training from Aurora College.

Currently, 10 Internet service providers are located throughout the NWT. Access to the Internet provides commercial opportunities. Also, facilities are available in Yellowknife and other centres to provide the high-speed linkups needed for teleconferencing.

The Digital Communication Network project is currently under way, and it will increase the capacity for these types of services as well as open up opportunities for all Northerners. This network will connect 58 communities in the NWT by December of 1998. It will connect all schools, community learning centres, libraries, colleges, health facilities, and government systems throughout the NWT. It will provide an electronic gateway for a variety of services, including long-distance education and health services. This private-sector project is made possible by the territorial government guaranteeing to act as an anchor tenant. This approach

provides the territorial government with the communications backbone it requires for the coming century, while allowing the private sector to participate.

3.1.a.viii Medical Services

Unique health-care delivery is needed in the NWT because of the small size of most communities and the vast distances between them. Health care is provided by a combination of community health centres, hospitals, private practitioners, and relationships with out-of-province facilities and practitioners.

There are 43 health centres and six hospitals in the NWT. Community health nurses, social services workers, community health aides, and mental health workers staff the health centres. These centres provide most of the primary care – care similar to that provided by family physicians in other jurisdictions. Physicians in communities and from southern centres provide services to communities on a regularly scheduled basis.

Six hospitals provide both primary and secondary care. H. H. Williams Hospital in Hay River provides care in both of these areas, as well as long-term care. It operates 34 acute-care beds at 29 percent occupancy and 16 long-term care beds at 60 percent occupancy.

Yellowknife, with a population under 20 000, has a broad range of primary and secondary care services. Stanton Regional Hospital (Stanton), with 135 beds, opened in 1988. It serves as the secondary care centre for the catchment population of the western NWT. Stanton resident specialties include obstetrics/gynaecology, internal medicine, paediatrics, orthopaedics, ophthalmology, ear, nose and throat, radiology, general surgery, and psychiatry. Special visiting clinics, such as urology and cardiology, offer additional services for patients referred from outlying communities.

The population of the NWT is not large enough to support the delivery of tertiary care – the specialized care that is available at large hospitals in southern Canada. Physicians based in Edmonton, Winnipeg, and Montréal provide it on a contractual basis.

Unlike other jurisdictions in Canada, where the bulk of medical travel is funded by patients or private insurers, the bulk of the medical travel in the NWT is funded through the public system.

Telecommunications and computers are helping to reduce the cost burden associated with small and geographically dispersed communities. Systems are being developed that will allow the transfer of information and health services without leaving a community.

3.1.a.ix Transportation and Infrastructure

The NWT is connected to southern centres by air, land and sea. In the western Arctic there are four or six daily return flights to Edmonton. The flying time is approximately 1 hour and 30 minutes. Some flights connect directly to Vancouver with an additional 1 hour and 30 minutes

flying time. Numerous flights depart daily to Toronto from Edmonton with a flying time of just over 3 hours.

Also of interest to the diamond industry, direct flights to London's Heathrow Airport depart from Calgary International Airport. Flights depart hourly from Edmonton to Calgary with a travel time of 45 minutes. The flying time from Calgary to London is 8 hours and 35 minutes.

The current highway system is crucial to community development, tourism, and mineral development in the western Arctic. Currently, about 20 transport carriers, 12 bus carriers, and 12 cartage companies operate in the NWT. Yellowknife is nearly 1 500 km by road from Edmonton. Hay River is 400 km closer to Edmonton on the same road system.

A system of public and private winter roads provides opportunities for transporting goods to places accessible only by air at other times. The winter road to the Lac de Gras area is used to transport fuel, equipment, and supplies for mine construction and operation.

3.2 Costs of Establishing a Business in the NWT vs. Elsewhere

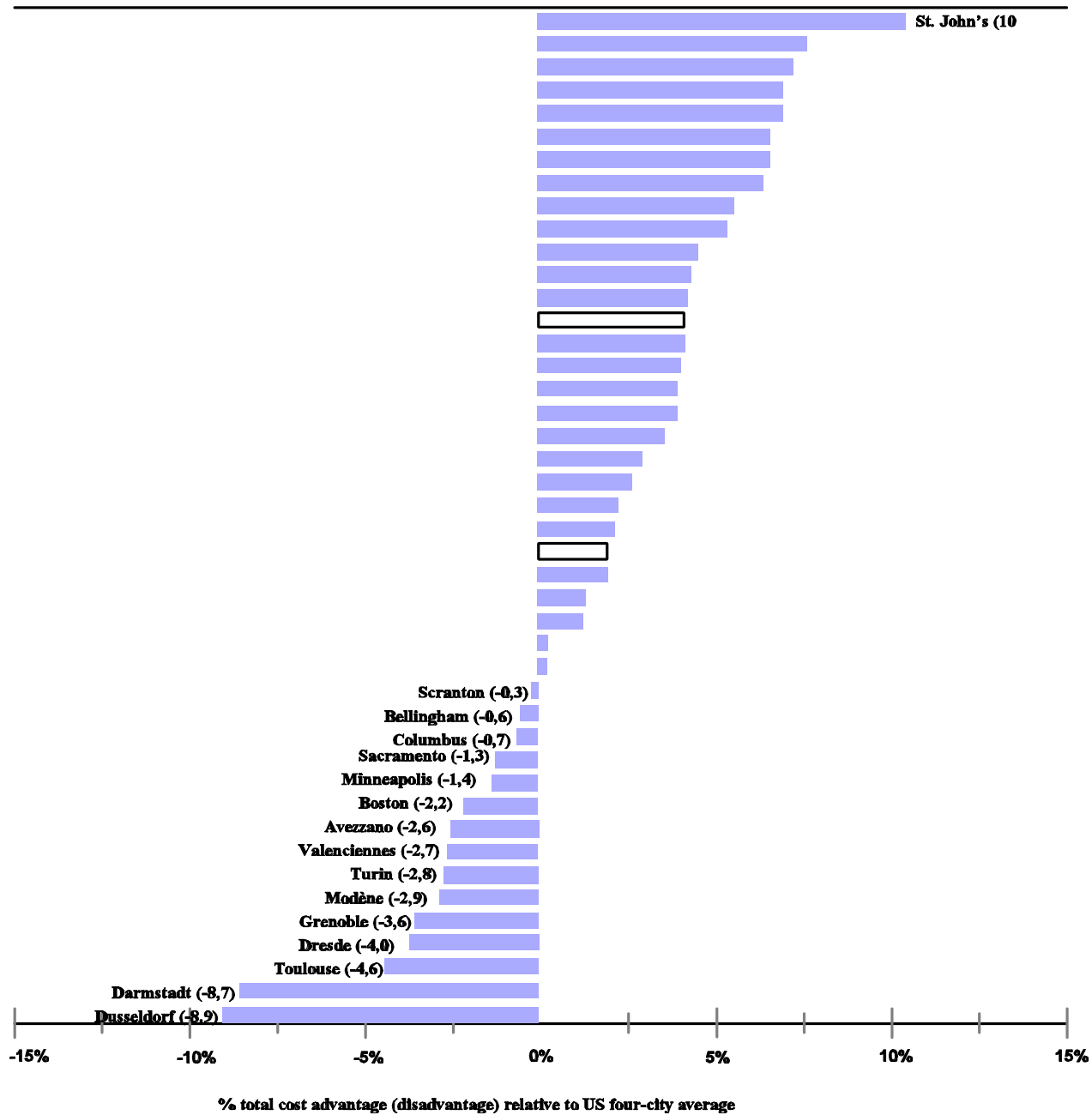
KPMG Consulting (KPMG) from Vancouver conducted an analysis of the costs of doing business in Yellowknife and Hay River. The results are comparable with the cost-factor results for 42 Canadian, US, and European cities included in a major KPMG study, *The Competitive Alternative*.⁴ Hay River and Yellowknife were chosen as representative samples of NWT communities for this study. The analysis covered eight manufacturing industries: electronics, food processing, pharmaceuticals, medical devices, metal fabrication, plastics, software production, and telecommunications equipment. The model considered a number of location-sensitive cost factors including the following costs: industrial land acquisition, construction, labour, electricity, transportation, interest and depreciation, and federal, regional, and local taxes.

Overall, costs in Yellowknife and Hay River were found to be generally expensive by Canadian standards, but still relatively competitive compared to the costs in other representative international cities that were examined. Costs in Yellowknife were found to be considerably higher than in Hay River.

The positions of Hay River and Yellowknife relative to the other cities in the KPMG study are shown in Graph 3.2.1.

Based on average total costs for the eight industry sectors examined, Hay River ranked 14th in overall cost advantage relative to a four-city United States (US) average among the cities examined in *The Competitive Alternative*; Yellowknife ranked 24th. Measured in terms of an overall cost index, Hay River received an index rating of 96.0 relative to the four-city US average of 100.0; Yellowknife received an index rating of 98.2. This index rating translates into an average cost advantage, based on total operating costs after tax of 4.0 percent over the four-city US average for Hay River, and 1.8 percent for Yellowknife.

⁴*The Competitive Alternative* is available from Industry Canada.



These overall rankings show Hay River to have total business costs equivalent to more expensive cities in southern Ontario (excluding Toronto), which is the highest-cost region in Canada outside of Toronto and Vancouver. Costs in Hay River were found to be marginally lower (less than one-third of 1 percent) than in three Swedish cities (Karlskoga, Gothenburg, and Malmo) which were the lowest-cost cities examined outside of Canada.

Yellowknife's costs are higher than in every other Canadian city examined, including Toronto and Vancouver. Costs in Yellowknife were also found to be higher than the three Swedish cities examined, but roughly equivalent to Norfolk, Virginia, the lowest-cost city among the 10 American cities examined.

Both Yellowknife and Hay River rated better in the software and telecommunications equipment sectors than in the other six sectors considered. This can be attributed to the following: transportation is a much less significant cost factor for these sectors; and the absence of a regional sales tax, which has a greater effect on these two sectors than the others. Both these factors would likely apply to the diamond manufacturing sector as well.

3.2.a Costs of Setting Up a Sorting Facility

Processing costs of sorting depend directly on labour costs. Apart from sorting tables, the machinery required for a sorting plant includes electronic scales, jeweller's loupes (magnifying glasses), a colour chart, and microscopes. The major capital cost for a sorting facility is in providing a building with excellent lighting and a sophisticated security system.

3.2.b Costs of Setting Up a Cutting and Polishing Factory

The two major costs in a cutting and polishing operation are the cost of the rough diamonds and the cost of labour. The division of costs between these two major components varies dramatically with the type of stone cut or polished. The processing costs of cutting gems and near gems, and polishing can vary dramatically depending on the cost of labour and the amount of automation.

The next largest cost is providing a building with adequate lighting and security. (Appendix VI provides more information on the cost of buildings in the NWT and other regions in Canada.)

Tables 3.2.1 and 3.2.2 show representative costs for a cutting and polishing factory using state-of-the-art automated equipment. These estimates were provided by Bettonville, a Belgian company, and Advanced Diamond Technology Ltd. from Israel. By far the largest equipment cost for a cutting and polishing factory is the laser cutting machine at US\$130 000. Some in the diamond industry believe that automating a new facility as much as possible helps to offset a lack of experienced cutters and makes it more cost competitive; however, traditional cutting machines are much less expensive.

Table 3.2.3 provides a cost breakdown, provided by Bettonville, for a 10 person cutting and polishing factory. This 10 person factory, in which good-quality 4 to 8 grain sawables would be

Table 3.2.1
Capital Costs for Cutting Factory Machinery
 FOB Belgium

Equipment	Cost/Machine (US\$)
Sawing machine	325.00
Automatic bruting machine	7 000.00
Computer	10 000.00
Safes and office equipment	30 000.00
Polishing machine	8 000.00
Laser cutting machine	130 000.00
Balancing machine	1 500.00
Scouring machine	4 145.00
Spindle bench	735.00
Press pots (for holding diamonds)	.50 to .60

To determine the cost of this equipment in Yellowknife, in Canadian dollars, multiply by 1.5.

Source: Bettonville, 1994

Table 3.2.2
Capital Costs for Highly Automated
Cutting and Polishing Factory

Bruting Department

Required Investment	Price per Piece (US\$)
Bruting machines	6 000.00
Sarin centring system	26 000.00

Polishing Department

Required Investment	Price per Piece (US\$)
Machines for bottom – final	6 900.00
Machines for top – final	7 300.00
Holdings	28.00
Pots – set	5 000.00
Mechanical support	9 450.00
Tables for automatic polishing	4 450.00
Angle setter	14 600.00

Source: Advanced Diamond Technology (ADT) Ltd.

Table 3.2.3
People and Equipment Required for a
Cutting and Polishing Factory

People	Equipment
1 manager/marker	
1 sawer	25 sawing machines
1 table polisher	
1 automatic bruter	7 automatic bruting machines
1 bruter/fixer	3 machines and setting
1 automatic blocker	16 P-50 automatic blocker machines
1 automatic polisher – top and bottom	16 P-202 polishing machines
1 fixer for polishing	
1 polisher for halves	
1 polisher for stars	

Source: Bettonville

cut would be approximately 100 square metres in size. The total output of a full automatic program would reach 100 pieces per day or 75 ct rough per day. The total cost was estimated at US\$300 000.

3.2.c Existing NWT Services for a Diamond Industry

The NWT has a wide range of businesses and services in place that could support a diamond value-added industry. As with any new industry, a learning period would be required for these businesses and service providers to completely understand the industry, and the unique services and products it would require.

Selected services include: accounting and taxation, banking, metallurgical engineers, education and training, feasibility studies, insurance, marketing and promotions, safety, airline services, communications, computer services, welding and welding supplies; engineering and drafting, heavy equipment sales and parts, ventilation products, security, and retail jewellery.

3.3 Federal and Territorial Programs and Services Available

Both the federal and territorial governments provide programs and services to encourage small and medium-sized businesses in Canada. (A list of these programs and services is included in Appendix V.)

4. IDENTIFIED VALUE-ADDED ISSUES

Given the complexities of the diamond value-added industry, a large number of issues requiring further study were identified. The Committee and Study Group undertook to identify the issues and to compile information on each one. The issues requiring further study were, for the most part, raised during the consultation process. These include trade policy, taxation, access to rough, training, finance and banking, and security.

4.1 Trade Policy

The majority of the diamonds that will be produced in the NWT will be destined, in some form, for the export market. Therefore, they will be subject to the international trade agreements that Canada has signed. In addition, the diamonds will also fall under the internal trade agreements that Canada, the provinces and the territories have signed.

The following notes are meant to provide brief summaries of Canada's international and internal trade obligations as they might affect efforts to capture an increased amount of value-added content from diamond production. These summaries are meant for general guidance only, and any specific measures put forward for consideration should be analyzed in the light of the full range of Canada's international and internal obligations.

4.1.a Benefits of International Trade and Investment Agreements

The main benefits of international trade and investment agreements include the following:

- expansion of market access opportunities for Canadian exporters of goods and services,
- protection and guarantee of fair treatment for Canadian firms investing in other countries,
- protection from harmful unilateral action by trading partners through recourse to open and fair dispute settlement procedures, and
- growth and jobs depend on international trade.

4.1.b Coverage and Obligations of the Government of Canada

- The federal government is fully responsible under the General Agreement on Tariffs and Trade (GATT) and the General Agreement on Trade and Services (GATS) for measures (e.g., laws, regulations, etc.) taken by the provincial, territorial and local governments and for observance of obligations contained in the World Trade Organization (WTO) agreements, and remains ultimately answerable for any violation of WTO obligations.
- Any WTO Member may invoke the WTO dispute settlement mechanism in response to a measure taken by a regional or local government or authority within the territory of Canada;
- If a measure is found to be inconsistent with the obligations under the WTO agreements, Canada is required to take such steps as may be available to it to ensure that the measure is

- removed or brought into conformity. If Canada fails to bring the measure into conformity, the disputing Party may seek compensation or may suspend benefits to Canada (i.e., retaliation).
- The Government is also responsible for ensuring compliance to the North American Free Trade Agreement (NAFTA) obligations by sub-national governments. For investment measures, this obligation includes measures of local governments although there is an exception from Canada's national treatment, most-favoured-nation treatment, and performance requirement obligations with respect to local government measures that existed at the time the NAFTA came into force.
- Under NAFTA provisions, the US or Mexico could seek to have a measure removed through arbitration respecting a measure or an American or Mexican investor could request international arbitration for damages suffered as a result of an alleged breach of NAFTA.

4.1.c Prohibition of Quantitative Export Restrictions

- WTO/GATT obligations prohibit members from restricting the exports of unprocessed products and materials in order to promote further processing domestically.
- WTO members may maintain "import and export prohibitions or restrictions necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade."
- Under NAFTA, all three countries will eliminate prohibitions and quantitative restrictions applied at the border, such as quotas. Each NAFTA country maintains the right to impose border restrictions in limited circumstances, for example, to protect human, animal or plant life or health, or the environment.
- NAFTA prohibits all three countries from applying export taxes unless such taxes are also applied on goods to be consumed domestically.

4.1.d Limitations on Imposition of Performance Requirements

- No NAFTA country may impose specific "performance requirements": in connection with any investments in its territory, namely specified export levels, minimum domestic content, preferences for domestic sourcing, trade balancing, technology transfer, or product mandating.
- Measures which deny investors, their investments, or service providers of another NAFTA country any rights or preferences provided to Aboriginal peoples are exempt from the non-discrimination and performance requirements disciplines of the investment provisions of the NAFTA.

- Under NAFTA, Governments can make the granting of an incentive contingent upon certain requirements such as locating production, training and employing workers, or conducting research and development in the territory.
- The WTO Agreement on Trade Related Investment Measures (TRIMs) prohibits Canada (and other Members) from imposing or maintaining certain investment-related measures that adversely affect trade in goods. Examples of such measures are requirements on local content, trade balancing, import substitution, foreign exchange, and export limitation.
- Investors, both domestic and foreign, are required to comply with the environmental, labour, health and safety, municipal zoning, and all other laws and regulations that affect businesses in Canada.

4.1.e Key Elements of the World Trade Organization Agreement on Subsidies and Countervailing Measures

4.1.e.i Subsidies Disciplines

The provisions of the WTO Agreement on Subsidies and Countervailing Measures (SCM) apply to federal, provincial, and municipal government programs.

The SCM contains definitions of subsidies. A government practice must fall within the definition in order to be subject to the SCM. Government assistance must also be found to be “specific” (or targeted) within the meaning of the SCM in order to be subject to trade action.

The SCM contains three categories or subsets of subsidies.

1) Prohibited Subsidies: These are subsidies that are (i) contingent on export performance, or (ii) contingent on the use of domestic over imported goods. Such subsidies are prohibited *per se*: if they are challenged in the WTO there is no requirement to demonstrate any sort of trade distortion (i.e., the mere fact that they exist is enough to prohibit them).

2) Non-Actionable Subsidies: These are subsidies that are exempt from trade action **provided they are given in a manner that meets the prescribed criteria** in the SCM. The types of subsidies under this category include:

- i) generally available subsidies (i.e., subsidies found not to be specific or targeted to certain enterprises or industries, in law or in fact),
- ii) assistance meeting prescribed research and development criteria,
- iii) assistance meeting prescribed regional development criteria, and
- iv) assistance for certain environmental measures.

3) Actionable Subsidies: This category covers all other types of subsidies (in essence, any subsidy that causes adverse affects to another Party).

4.1.e.ii Countervailing Measures

Countervailing Measures apply to domestic/unilateral action.

In order to apply a countervailing measure, the following must be demonstrated:

- i) the existence of a subsidy,
- ii) injury, and
- iii) causal link between the subsidy and injury.

If the level of subsidy is less than 1 percent on an *ad valorem* basis, the investigation must be terminated and no countervailing measure applied.

4.1.f Multilateral Recourse to Trade Action

Countervailing Measures apply to domestic/unilateral action.

Any subsidy that is considered to be contrary to the SCM can be challenged in a multilateral dispute settlement forum within the WTO.

4.1.g Diamond Mining and the Agreement on Internal Trade⁵

In order to determine how value-added could best be promoted within the existing internal trade structure, the Study Group developed the following questions.

4.1.g.i Which domestic trade or investment agreements have the provinces or territories signed and ratified, or are currently negotiating?

The GNWT, along with all other governments of Canada – federal, provincial, and territorial – are signatories to the Agreement on Internal Trade (AIT), which came into effect in July, 1995. The AIT aims to either eliminate or reduce barriers to the free movement of persons, goods, services, and investments within Canada, and to establish an open, efficient and stable domestic market. All Parties to the AIT recognize and agree that enhancing trade and labour mobility within Canada would contribute to the attainment of this goal.

Signatories have agreed to be guided by four principles. Specifically, Parties will:

- i) not establish new barriers to internal trade and will facilitate cross-boundary movement within Canada;
- ii) treat persons, goods, services, and investments equally, irrespective of where they originate in Canada;

⁵The replies are given from the perspective of the Agreement on Internal Trade only. They do not take into account Canada's obligations under international agreements.

- iii) reconcile relevant standards and regulatory measures to provide for the free movement of persons, goods, services, and investments within Canada; and
- iv) ensure that their administrative policies operate to provide for the free movement of persons, goods, services, and investments within Canada.

4.1.g.ii How do the domestic trade or investment agreements affect municipalities?

Municipalities are not covered currently by the terms of the AIT. In February 1998, however, the provinces and territories, save for British Columbia and Yukon (Yukon was not present at a meeting on this issue), agreed to abide by the terms of a new annex covering the procurement of their municipalities, academic institutions, schools, and hospitals (the MASH sector) subject to ratification by their Cabinets. This annex is expected to come into effect in a year's time.

4.1.g.iii With respect to the Agreement on Internal Trade outlined above, how are DIAND's province-like responsibilities for mineral resources North of 60°N treated?

The obligations in the AIT apply to all federal, provincial and territorial governments.

4.1.g.iv Does the Agreement on Internal Trade restrict the Government of Canada/DIAND from stipulating, in the form of a regulation, that all diamonds mined in Canada must be sorted for government valuation for the purpose of ascertaining royalties in Canada or, more specifically, that all diamonds mined in the Northwest Territories must be sorted for government valuation for the purpose of ascertaining royalties in the Northwest Territories?

A firm answer depends on the details of the proposal. However, it would appear that the AIT would not prevent the federal government from requiring that diamonds mined in the NWT be sorted in either Canada or the NWT for the purposes of ascertaining royalties.

4.1.g.v Does the Agreement on Internal Trade restrict the Government of Canada/DIAND from stipulating, in the form of a regulation, that all diamonds mined in Canada must be sorted for market in Canada or, more specifically, that all diamonds mined in the Northwest Territories must be sorted for market in the Northwest Territories?

The AIT's goals include eliminating or reducing the barriers to the free movement of goods within Canada. The AIT does not prevent the federal government from requiring that diamonds mined in the country be sorted within Canada. This measure would not impede trade within the country.

With respect to the requirement that diamonds mined in the NWT be sorted in the NWT, the terms of the Investment Chapter (Chapter 6) apply. As given in Article 607, a Party may not impose a performance requirement.

Article 607: Performance Requirements

1. No Party shall impose or enforce, in relation to an investor of a Party or an enterprise in its territory, or condition the receipt of an incentive by an enterprise on compliance with, any requirement to:
 - a. achieve a specific level or percentage of local content of goods or services;
 - b. purchase or use goods or services produced locally; or
 - c. purchase goods or services from a local source.

A Party may, under exceptional circumstances, adopt a measure inconsistent with Article 607 for regional economic development purposes provided that:

- the measure does not impair unduly the access of persons, goods, services or investments of another Party; and
- the measure is not more trade restrictive than necessary to achieve its specific goal; and
- the Party notifies the other Parties of the details of the measure.

Companies do, however, require licences or approvals from governments to extract minerals. This licensing process is outside the AIT, as given in Article 1102 of the Natural Resources Processing Chapter (Chapter 11). A Party to the AIT, as part of this licensing process, could try to negotiate and reach an agreement that the firm will carry out certain activities, including sorting diamonds in the NWT. Such a processing requirement, however, could be challenged as a violation of the AIT and, in particular, the general rules, which provide for the free exit and entry of goods, services, persons, and investments. Whether such a challenge would be sustained would depend on the scope a panel accorded to Article 1102.

Article 1102: Scope and Coverage

3. This Agreement does not apply to:
 - (a) the licensing, certification, registration, leasing or other disposition of the rights to the harvesting of forestry, fisheries or mineral resources;
 - (b) the management or conservation of forestry, fisheries or mineral resources.

4.1.g.vi Could the Government of Canada/DIAND offer subsidies or incentives to diamond producing companies to sort their diamonds for market purposes in the Northwest Territories, or in any other region of Canada, without violating these agreements?

A Party to the AIT may offer incentives, including subsidies, to diamond-producing companies to sort their diamonds in the NWT or in any other region of Canada subject to certain prohibitions. (Incentives are broadly defined and encompass cash grants, loans, debt guarantees, or equity injections made on preferential terms; reductions in taxes or government fees otherwise payable; and any forms of price or income support that result in a draw on the public purse.)

However, governments may not offer incentives that

- entice a business to relocate to its province or territory (“job poaching”), or
- allow a business to undercut competitors in another province or territory in obtaining a contract issued in Canada.

Moreover, a Party to the AIT is to try and refrain from providing incentives that would

- sustain uneconomic operations and injure the interests of another Party,
- increase capacity beyond that warranted by market conditions, or
- be excessive taking into account factors, such as the economic viability of the project.

4.1.g.vii If the Government of Canada/DIAND did offer subsidies or incentives and was in violation of these agreements, what could be the ramifications?

The AIT anticipates that disputes will mainly be resolved through discussion and negotiation. However, it does contain a formal dispute resolution process that permits governments, private companies or individuals to lodge complaints.

The government-to-government dispute resolution process involves consultations, assistance from the ministerial-level Committee on Internal Trade and, finally, a reference to an impartial panel for review.

Persons or companies may request the assistance of a government to pursue their case. The process involves consultation initially, with ultimate recourse to a panel. Where a government is not prepared to act on behalf of a complainant, the latter may take steps to establish a panel, provided that an independent screener rules that the case is not frivolous.

Governments are responsible for their own costs of pursuing disputes. Panels can, however, award costs – but not damages – to private companies or individuals.

The results of a panel review may be made public, providing a strong incentive for governments to comply with panel rulings. There is, however, no access to the courts to either appeal or enforce a panel finding.

4.1.g.viii Could the City of Yellowknife or the Town of Hay River or any other city, town, or municipality in Canada offer subsidies or incentives to companies to cut and polish diamonds in their respective jurisdictions without violating these agreements?

The AIT does not apply to municipalities except with respect to procurement as described in the answer to Question 4.1.g.ii above.

4.1.h The Duty Deferral Program

There has been some discussion about a free trade zone (FTZ) as a possible economic development tool to assist the development of a Canadian value-added diamond industry. The establishment of FTZs in Canada is governed by the duty deferral provisions of the Customs Tariff, which were streamlined and enhanced effective January 1, 1996. Broadly, this program and other federal legislation relieve or defer certain duties and taxes on imported goods destined for export in the same or value-added condition, or pending formal entry for domestic consumption. The amendments to the program lessen the paperwork traditionally required by Customs, provide up-front duty deferral to the extent possible, and facilitate the international movement of goods; this results in important cost savings and improved competitiveness for small, medium-sized and large Canadian businesses.

The duty deferral program is designed to be easily merged with local incentives (e.g., loans to new business, access to infrastructure, marketing and legal services) to allow innovative entrepreneurs, municipalities, and provinces to develop zone-type operations to serve export markets and thereby attract investment. Unlike similar programs elsewhere in the world (e.g., US foreign trade zones), benefits are available to business anywhere in Canada rather than in designated geographic zones.

The extent to which this import/export-based program could encourage value-added activities in the Canadian diamond sector is uncertain. The main imported direct manufacturing input to this business would appear to be diamonds in a variety of processed states.

Currently, diamonds, whether rough, cut or polished, are duty-free on importation into Canada. As well, duty deferral is generally not viewed as the determining factor for making “economic zones” successful in those jurisdictions that have them. Other factors such as common services, local incentives, transportation links with strong logistical support, and a unique marketing strategy are vastly more important to their success.

A discussion on how the *Excise Tax Act* works is provided in Section 4.2.h.i.

4.1.i Findings

Canada's bilateral, regional, and multilateral trade and investment agreements provide many benefits for Canadian companies trading in world markets or investing in foreign countries. The rights and obligations of these agreements have implications for the manner in which signatories

address sector-specific policy objectives. The actual limitations to any type of action, by any level of government, are set out in the particular agreements to which Canada is a signatory. Dispute settlement provisions of these agreements may be invoked when one signatory believes that another is in violation of its obligations. The complaining signatory may commence dispute settlement procedures alleging the other signatory has acted inconsistently with the agreement and seeking a remedy for such action.

Some of Canada's international trade and investment agreements, including NAFTA and TRIMs, contain limitations on the use of trade-related measures known as "performance requirements." These include measures that would require a firm to export a particular amount of product, to achieve a particular amount of domestic content, or to restrict sales of a product to a particular amount. Moreover, the GATT and NAFTA prohibit the restrictions on the export of unprocessed materials for the purpose of promoting further processing of natural resources.

Requirements for further processing of rough diamonds in the NWT must be assessed against Canada's obligations regarding the use of "performance requirements" and against Canada's broader obligations (e.g., SCM) related to trade in goods. A requirement for further processing could be vulnerable to challenge under existing international trade agreements to which Canada is a signatory. However, any proposals would have to be examined on a case-by-case basis.

4.1.j Recommendations

Diamonds are treated under Canadian trade policy in the same manner as other products. Therefore, the Committee sees no need to make any specific recommendations.

4.2 Tax-Related Issues

Throughout the Committee's deliberations, a number of issues relating to the incidence of federal and territorial taxes were raised, as was the question of how the tax system currently acts to either encourage, or pose a barrier to, the creation of value-added diamond industries in the North. This section provides basic information on the structure and incidence of federal and territorial taxes, with reference to the diamond industry. It also discusses a number of taxation issues that have been raised with the Committee by various stakeholders.

In particular, comparative personal and corporate tax rates – federal and provincial – are provided, followed by a brief description of federal, provincial and territorial tax collection agreements. General information on capital taxes, the goods and services tax (GST), payroll taxes, property taxes, and fuel taxes is then provided and examples of relevant tax incentives are briefly discussed. Finally, the section ends with a discussion of several of the tax issues raised during the Committee's deliberations.

A broader issue with respect to taxation in general is competitiveness. Although the NWT benefits from being close to the sources of diamonds, other factors such as labour costs and taxes will influence operating costs in the NWT relative to existing cutting and sorting operations. Some of the basic tax information provided is relevant to this issue; however, competitiveness and industrial development, in general, are discussed in Section 3 of this report, **Northwest Territories Data**.

4.2.a Federal and Territorial Taxation Powers

Under the Canadian Constitution, the federal government has unlimited powers of taxation. As with the provinces, the GNWT is limited to direct powers of taxation within the NWT (e.g., personal and corporate income taxes). The GNWT, like most provincial governments, has chosen to harmonize its income tax system with that of the federal government. That is, the GNWT imposes personal income taxes that are levied as a percentage of federal taxes payable and corporate income taxes that are levied on the same income base as the federal tax system. Both of these taxes are collected by the federal government on behalf of the territorial government as part of the Canada-NWT Tax Collection Agreement, which is discussed later in this section.

4.2.b Comparative Corporate Tax Rates

Table 4.2.1A provides a summary of provincial and territorial corporate tax rates for 1997, indicating differences in rates between activities where applicable. As can be seen from this table, all provinces provide a lower tax rate for small business income while some provinces also provide lower tax rates for manufacturing and processing (M&P) income. The GNWT has not chosen to adopt a M&P rate as some other provinces have.

The NWT has generally maintained a stable corporate and personal tax environment.

- The general corporate income tax rate has been 14 percent since January 1, 1994.
- The small business corporate income tax rate was decreased to 5 percent on July 1, 1991.

While Tables 4.2.1A and 4.2.1B provide information on the general tax rates among provinces, it is also important to note the special incentives provided to both mining and M&P. Thus, Table 4.2.2 provides more detailed information on the federal tax treatment of these activities in the federal corporate income tax system. This is significant given the tax contribution of mining in the NWT, particularly in the context of diamond mining.

4.2.c Comparative Personal Income Tax Rates

Table 4.2.1A also shows the provincial and territorial personal income tax rates, which are expressed as a percentage of Basic Federal Tax (with the exception of Quebec). In addition to these rates, all the provinces and Yukon levy surtaxes on higher income taxpayers, and three levy flat taxes as a percentage of income. The GNWT does not have a surtax or a flat tax, but does have a 1 percent payroll tax paid by employees. Table 4.2.1B compares top marginal tax rates and provides details on all the relevant surtaxes on higher income taxpayers.

Many provinces also provide tax credits for various reasons. The NWT has a cost-of-living tax credit based on net income, which increases to a maximum of \$645 for a taxpayer with a net income of \$66 000.

Taxpayers resident in the NWT and other northern parts of Canada are also entitled to a northern deduction of up to \$2 737.50 a year (\$7.50 per day of residence) per person. The maximum deduction is increased to \$5 475 a year (\$15.00 per day of residence) when the taxpayer is the only person at the taxpayer's residence claiming the deduction. This deduction is limited to 20 percent of the taxpayer's net income.

Taxpayers in these areas also qualify for a deduction for travel expenses for vacations (two trips per year, including family members) or for medical reasons (unlimited, if no equivalent treatment is available locally) if their employer has paid or reimbursed them for those travel expenses and the amount of assistance from their employer has been included in their income.

4.2.d Comparative Capital Tax Rates

Another area in which provinces and territories differ is in the field of capital taxes. A brief summary of capital taxes levied in the different provinces and territories is provided in Table 4.2.3. The GNWT does not levy a capital tax.

Table 4.2.1B
1997 Federal, Provincial, and Territorial
Surtax and Flat Tax Rates, and Top Marginal Rates¹

	FEDERAL	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	NWT	Y.
	%	%	%	%	%	%	%	%	%	%	%	%	%
Tax Rate	29	69	59.5	58.5	63	24	48	52	50	45.5	51	45	50
High-Income Surtax	8	10	10	10	8	10	46		25	8	54.5		5
Flat Tax (NI)								4	2				
Flat Tax (TI)										0.5			
Quebec Abatement						16.5							
Top Marginal Rate	31.3	53.3	50.3	50	51.1	52.9	51.6	50.4	51.9	46.1	54.2	44.4	46.5
Top Provincial Rate		22	19	18.7	19.7	21.6	20.3	19.1	20.6	14.8	22.9	13.1	15.2
Net Self-Employed Tax							2						
Top Marginal Rate on Self-Employed							53.6						
Income Level (\$)	63 500	59 800	92 800	79 300	93 100	54 400	64 700	30 000	46 600	45 500	81 200	n/a	61 700

¹ Rates are as of December 31, 1997. A number of provinces have now presented their 1998 budgets which include, in some cases, reductions in the provincial personal income tax rates.

Table 4.2.2
Comparison of Taxation Systems Applicable to Mining,
and Manufacturing and Processing Industries in Canada

	Mining	Manufacturing and Processing
Federal Corporate Income Tax Rate	28% plus surcharge (29.12%); nets to 21.84% after 25% resource allowance.	28% less 7% manufacturing and processing credit; nets to 21% plus surcharge (22.12%).
Depreciation	Most mining assets are eligible for deduction at rate of 25% Declining Balance Basis. (see accelerated CCA below)	Assets used in an industrial process are eligible for deduction at rate of 30% Declining Balance Basis.
Accelerated Capital Cost Allowance (CCA)	Eligible capital expenditures on new mines or mine expansions may be deducted to the extent of income from the mine.	No equivalent.
Intangible Development and Property Expenses	Claimable as Canadian Development Expense (CDE) (30% Declining Balance Basis). Includes cost of acquiring mining property. The other significant costs are haulage ways and overburden removal <u>after</u> the start of production.	Includes expenditures for goodwill; customer lists; trademarks, patents, franchises, concessions or licences; payments for easements or right of access. Some of these costs are treated as eligible capital property (75% of cost deducted at 7% Declining Balance Basis). Developmental engineering product development costs are generally treated as period costs.
Exploration Expenses	Fully claimable in the year as Canadian Exploration Expense (CEE) (may be carried forward indefinitely and drawn down as required). Includes all pre-production development expenses.	No direct equivalent although all scientific research and experimental development (SR&ED) costs (capital and current) are generally fully deductible as well as eligible for investment tax credits.
Earned Depletion	Earned depletion was phased out in 1990; however, some companies continue to carry pools of unused depletion allowances to be claimed. Some provinces offer bonus deductions for some expenses, e.g., exploration.	No equivalent; however, some provinces offer bonus deductions for certain manufacturing assets.
Royalties	Not deductible for federal income taxes (resource allowances provided in lieu). Note: some provinces provide for full deductibility of royalties/mining taxes in the calculation of provincial corporate income taxes.	No equivalent.
Pass Through of Investment Incentives to Other Taxpayers	Flow-through shares available for CEE (which include both “grassroots” exploration and pre-production development).	No equivalent.
Non-Income Taxes (Capital, Payroll)	Subject to federal and provincial capital taxes; some provinces provide special rules under capital tax regimes for resource companies.	Subject to federal and provincial capital taxes.

Table 4.2.3

**Main Features of Federal and Provincial Capital Taxes
Paid by Corporations, 1997**

	General		Financial Institutions	
	Rate	Base	Rate	Base
Federal	0.225%	Taxable capital > \$10M	1%/1.25% (1) 0.5-1.5%	Taxable capital > \$200M/\$300M; Taxable capital > \$10M - life ins. companies
Newfoundland	No	No	4%	Taxable capital > \$5M but < \$10M; else all capital taxed
Prince Edward Island	No	No	3%	Taxable capital > \$2M
Nova Scotia (2)	0.5%	Taxable capital > \$5M but < \$10M	3%	Taxable capital > \$0.5M (\$10M if trust/loan with headquarters)
	0.25%	else all capital taxed		
New Brunswick (2)	0.3%	Taxable capital > \$5M	3%	Taxable capital > \$10M
Quebec	0.64%	Taxable capital (with a \$2M deduction for new corporations)	1.3184% (3) 0.25%	Basic rate Compensatory rate
			1.25% (4)	Life insurance companies
Ontario	0.3% (5)	Taxable capital > \$1M (6)	0.6-0.9% (7) 0.09%	Banks, trusts and loan companies, credit unions Surcharge on large deposit-taking institutions with Taxable capital > \$400M
			1.25% (4)	Life insurance companies
Manitoba	0.3% (5)	\$3M Taxable capital < \$10M	3%	Taxable capital > \$2M (exemption, not a deduction)
	0.5%	Taxable capital > \$10M	0.2%	Insurance companies
Saskatchewan (8)	0.6%	Taxable capital > \$10M	3.25%	Taxable capital > \$10M
Alberta	No	No	2% (9)	Taxable capital
British Columbia	0.3% (5)	Taxable capital > \$1.5M	3%	If taxable capital > \$750M, all capital taxed;
			1%	If taxable capital > \$1.5M but < \$750M
Northwest Territories	No	No	No	No
Yukon	No	No	No	No

Sources: W. G. Williamson, A. G. Lahmer, *Preparing Your Corporate Income Tax Returns*, 18th edition 1998, CCH Canadian Limited.

- (1) From February 28, 1995 until October 31, 1998, a 12% surcharge applies to the capital tax payable by financial institutions, excluding insurance companies -- 0.15% on capital in excess of \$400M.
- (2) Effective after March 31, 1997. The tax is part of the HST.
- (3) 1.28% + 3% surtax = 1.3184%.
- (4) Reduce by income tax.
- (5) Exploration and development deductions that have not been claimed for ITA purposes are deductible for capital taxes.
- (6) Corporations with a taxable capital between \$1M and \$2.3M face a reduced capital tax.
- (7) 0.6% on the first \$400M capital, 0.72% on the excess for non-deposit-taking institutions, 0.9% on the excess for deposit-taking institutions. Credit unions are phased in from 0.05% in 1998 to 0.6% in 2002.
- (8) Large resource companies pay the greater of the general capital tax and a special gross resource-revenue tax.
- (9) Beginning in 1995, Alberta reduces the effective tax rate applicable to corporations with a head office in the province and less than \$200M of capital. In general, the reduction to the base is 10% of accounting income allocated to Alberta.

4.2.e Federal, Provincial, and Territorial Tax Collection Agreements

Most provincial and territorial governments have deemed it advantageous to harmonize their tax systems with the federal government. This helps to ensure a simpler, more cost-effective system that is administered by Revenue Canada. These arrangements are governed by tax collection agreements that set out the basic parameters and obligations of each level of government.

Provinces and territories set a general corporate rate that will apply in their jurisdiction. Provinces and territories can also apply different tax rates for small business and/or M&P to encourage or discourage these activities as long as the federal base for these activities is maintained. Revenue Canada administers these three different rates without charge. Provinces and territories can apply a corporate income tax rate for specific industries only if they are willing to then fully administer the changes.

Revenue Canada will administer a fully harmonized provincial capital tax at no cost to provinces and territories. If provinces or territories choose to apply capital taxes to a different base, they could either pay Revenue Canada to administer the tax or they could do the design, administration and audit themselves.

The following criteria were agreed to by federal, provincial, and territorial ministers of Finance in December 1997.

4.2.e.i Minimum Set of Criteria

Under no circumstances should the federal government administer provincial taxes that do not satisfy the following principles.

1. Legality – The measure must be within the constitutional parameters of the province, be consistent with the Charter and existing legal jurisprudence, be clearly authorized by provincial statute, and must not violate or impair the fulfilment of international obligations.
2. Agreed Set of Basic Principles – The measure must be consistent with the set of basic principles that both federal and provincial levels of government agree with, which include the following:
 - Self-assessment – The measure must not jeopardize the system of self-assessment upon which the integrity of the Canadian tax system rests.
 - No Double Taxation – The provincial or territorial tax should not lead to taxing Canadians on the same income or transaction by more than one province or territory.
3. Mutually Acceptable Contractual Arrangements – Revenue Canada and provinces must be satisfied that the arrangement reached between the two parties is agreeable. Revenue Canada, in negotiating contractual arrangements with the provinces or territories, will take into account the following:

- Fairness – All provincial measures must meet accepted standards of service that include:
 - fair redress mechanisms, including impartial reviews;
 - provision of complete information about entitlements and obligations;
 - strict privacy and confidentiality framework; and
 - fair processes to gain entitlements and fulfil obligations.
- Feasibility – The measure must not impair the ability of Revenue Canada to deliver existing taxes or programs.

4.2.e.ii Economic Union Criteria

The basic criteria above do not address the objective of maintaining the economic union, which is a primary concern of the federal government.

Is it appropriate for the federal government, either through a federal department or an agency, to administer a provincial measure that is injurious to another province or to the economic union in general? This question must be balanced by the realization that measures not administered by the federal government can be implemented by provinces on their own, whether in the Tax Collection Agreements (TCAs) or not. Indeed, in tax areas beyond those covered by the TCAs, this is already happening. Even within the TCAs, provinces have the option of administering portions of their income tax by themselves.

Some practical solution is needed in order to balance the principle of the economic union with the reality that a measure can be implemented whether or not it violates the principle.

1. Measures that Injure the Economic Union – Some taxes or measures could injure the economic union where they impose large negative externalities, specifically in the form of discrimination in application, beyond a province’s borders. Actions of this type would simply not be administered.
2. Measures Not Fully Harmonized – Revenue Canada would administer a tax measure on a full cost-recovery basis if it was different from the existing national tax system. Full cost-recovery would encompass not only the incremental collection costs, but also the relevant portion of Revenue Canada’s overhead and support costs. Revenue Canada would apply established costing methodology in the determination of full costs.
3. Fully Harmonized Tax Measures – A tax measure that mimics the existing national tax system would be administered on a zero cost-recovery basis. The types of taxes that would fall into this category would be those that are exact replicas of the federal tax system, using the definitions and design features of the national system.

4.2.e.iii Process

This process for deciding on the “administrability” of provincial tax measures will allow the opportunity for a province, if it believes its request has not been handled properly by the federal

government, to have its case considered in a multilateral forum, such as the periodic meetings of finance ministers. As well, if one province objects to another province's measure, it will have the opportunity to raise the issue in a multilateral forum.

4.2.f Other Taxes

4.2.f.i Retail Sales Tax

Table 4.2.1 compares the rates of provincial sales taxes in Canada. The NWT is one of only three jurisdictions in Canada without a provincial sales tax. The absence of a retail sales tax is a significant, comparative benefit to individuals and businesses in the NWT.

The provinces of Newfoundland, Nova Scotia and New Brunswick have harmonized their sales taxes with the GST. Quebec's sales tax is substantially harmonized with the GST. In these provinces, most businesses receive full credit for any provincial sales tax they have paid. In five other provinces (Prince Edward Island, Ontario, Manitoba, Saskatchewan, and British Columbia) goods for resale and some capital equipment are exempt from the retail sales tax, but businesses must pay sales tax on some supplies, furniture, and other goods.

4.2.f.ii Goods and Services Tax

The issue of whether the GST poses an impediment to the development of a value-added diamond processing industry was also raised during the course of Committee discussions. A brief description of this tax is provided in this section, as well as a description of the mechanisms currently in place to ensure that this tax is levied only on the final consumption of goods and services.

In 1991, the Manufacturers' Sales Tax was replaced by the current GST at a rate of 7 percent. This is a multi-stage sales tax, or value-added tax, designed to tax the final consumption of goods and services.

A GST registrant can recover, by way of an input tax credit, the GST paid on purchases of rough diamonds or purchases or imports of equipment for use in its commercial activities. In addition, the GST would be zero-rated on export sales of the finished diamonds. Zero-rated goods and services are taxable supplies, but are subject to a 0 percent rate of tax.

There are cash-flow implications of paying the GST on taxable inputs and then having to claim an input tax credit to obtain a net tax refund. However, there are administrative options available that would minimize any cash-flow costs.

For example, exporters should file their GST returns as frequently as possible. If a company files its returns on a monthly basis, it is able to claim a net tax refund – GST paid on inputs exceeds GST collectible on sales – as quickly as possible.

In addition, an input tax credit may be claimed as soon as the amount is paid or becomes due. For purposes of the GST, an amount is generally regarded as becoming due on the earlier of the day the supplier issues an invoice for the amount and the date of that invoice. Consequently, in the case of credit purchases, it is not necessary to wait until the tax is paid before claiming an input tax credit for purposes of obtaining a net tax refund.

Also note that a registrant may file its return claiming a net tax refund as soon as a reporting period has ended, as opposed to waiting until the due date of the return.

Further, Revenue Canada has a number of mechanisms available to ensure that businesses receive their refunds on a timely basis, such as the ability to file returns electronically and direct deposit of refunds.

4.2.f.iii Property Tax

Other than the requirement for security measures, diamond processing facilities are no more capital-intensive than other office buildings of similar size. If a facility is built in the NWT, it is most likely to be built in municipalities such as Yellowknife or Hay River where property taxes are set by the municipality.

4.2.f.iv Fuel Tax

Although the diamond mines in the NWT are expected to be big users of fuel, it is not anticipated that processing activities will use significant amounts of fuel or power, and the transportation costs for finished diamonds will be small relative to the value of the product.

4.2.g Income Tax System Incentives

The following section broadly outlines the federal approach to tax incentives, as well as an initiative by the GNWT. For illustrative purposes, a brief description of other federal and provincial tax incentives designed to encourage particular economic activities is outlined in Appendix V.

While many federal tax incentives were eliminated in the 1987 federal tax reform, key corporate tax incentives have been retained for: M&P activities, small business, natural resource development, scientific research and experimental development (SR&ED), and regional development.

These incentives are provided through:

- tax rate reductions for M&P activities and small business,
- investment tax credits for SR&ED and certain regional activities,
- accelerated write-offs (e.g., mining equipment for new or expanded mines, SR&ED machinery and equipment),
- full deductibility of mineral exploration and pre-production development costs, and

- resource allowance deductions that generally exceed the disallowed deduction for mining taxes.

The amount of business assistance delivered through the corporate tax system has decreased significantly in real terms over the last decade. With few exceptions, these incentives only reward winners (i.e., companies with profitable operations); the major exception is the refundability of SR&ED investment tax credits to small businesses.

4.2.g.i Northwest Territories Equity Investment Tax Credit Program

In the 1998 budget, the NWT introduced an equity tax credit program that will provide tax credits of 30 percent of eligible investments, to a maximum annual investment of \$100 000 per taxpayer. In cases where the investment is eligible for the 15 percent federal Labour-Sponsored Venture Capital tax credit, the federal credit will be matched by the NWT. In other cases, the NWT will provide a 30 percent credit. Investments in equity of most small privately held corporations operating in the NWT will be eligible. The investor will be required to keep his or her investment for at least five years, or eight years in the case of investments in labour-sponsored funds eligible for the federal credit.

4.2.g.ii Other Provincial and Federal Tax Incentives

Examples of specific relevant tax incentives are outlined or listed in Appendix V, including the following:

- Atlantic and Gaspé Investment Tax Credit,
- Newfoundland Growth Enterprise Tax Holiday (EDGE),
- Ontario Current Cost Adjustment (OCCA): Special Allowance for Pollution Control Equipment,
- Temporary 125 Percent Deduction for Manufacturing and Processing Acquired for Use in Quebec, and
- Mining Exploration Tax Credit in British Columbia.

4.2.g.iii Mining Tax or Royalties

All Canadian jurisdictions impose mining taxes or royalties on mining production. In the NWT, mining royalties are imposed on mine production from all mineral leases issued under the CMR and are collected by DIAND.

The federal government, through the CMR, and most provinces offer a processing allowance against their royalties or mining tax for processing within the province. This processing allowance is usually based upon the cost of processing assets, and the allowance may vary according to the degree of processing undertaken. Such an allowance is necessary to ensure that the mining tax is only imposed on profits from mining, not processing, if revenue for the mining tax is based on the sale price after processing. However, if the allowance is generous enough,

and limited to facilities within the jurisdiction, it will act as an incentive to locate processing facilities within the jurisdiction.

The federal mining royalty regime in the CMR contains a processing allowance that does provide a significant incentive for diamond mining companies operating in the NWT to locate sorting and valuation facilities in the NWT. The current regulations provide for an annual deduction of a processing allowance of 8 percent of the original cost of processing assets located in the NWT up to a maximum of 65 percent of the value of the output of the mine prior to the deduction of the processing allowance.

This incentive will be enhanced by the amendments being proposed to the regulations for the fall of 1998.

While the mill assets located at the mine site are obviously processing assets, the proposed amendments include a definition of “processing” that specifically includes the sorting of diamonds for sale. This will encourage mining companies to locate their sorting facilities in the NWT, rather than in another jurisdiction where the capital cost of sorting facilities would not be eligible for a processing allowance.

The proposed amendments include a requirement that diamond production be valued by a government valuator prior to sale or export from the NWT at facilities provided by the diamond mining company. The proposed amendments also contain a provision that deems any sorting facility in the NWT where government valuation takes place to be part of the mine for royalty purposes. This allows the cost of any assets at an off-mine-site sorting facility to be eligible for depreciation allowance for royalty purposes. This removes any disincentive, which would otherwise be in the royalty regime, for the location of sorting facilities at the mine site as opposed to in an existing community.

4.2.h Tax Issues Raised to the Committee

Throughout the Committee’s discussions, a number of different proposals were presented to use the federal and territorial tax systems as a mechanism to encourage Canadian value-added diamond industries. In some, but not all, cases, particular application to the North was suggested.

4.2.h.i Diamonds and the *Excise Tax Act*

A number of representations were made to the Committee on the current excise tax on jewellery, suggesting that it may pose an impediment to the creation of a value-added diamond cutting and polishing industry in the North.

The following is a factual description of the excise tax.

- The excise tax on jewellery is applied under the *Excise Tax Act* (the Act) to items commonly or commercially known as jewellery, including diamonds and other precious and semi-precious stones (rough or processed).

- Manufacturers or producers of goods subject to excise tax are required to operate under an excise tax licence (“E” licence) unless they qualify as a “small manufacturer” under the Act. Manufacturers or producers include mines, diamond cutters and jewellery manufacturers.
- The tax on jewellery is payable by manufacturers or producers at the time of delivery to a purchaser based on the sale price of taxable items manufactured in Canada and by importers on the duty-paid value of taxable imports at the time of importation.
- The rate of tax is 10 percent on the sale price of goods manufactured or produced in Canada or on the duty-paid value of imported goods.
- The excise tax is not a value-added tax. It is charged only once and not on each successive transaction through the distribution chain to the retail level like the GST.
- Since the excise tax is generally paid by jewellery manufacturers and importers, and taking into consideration mark-ups between the manufacturing level and the retail level, the effective rate of tax as a percentage of consumer retail price is generally far less than 10 percent (e.g., a 1993 Jewellery Tax Evaluation Report concluded that the excise tax on jewellery only accounted for approximately 4.5 percent of the final price of a diamond solitaire ring selling for \$6 090 at the retail level).
- Excise tax licensees enjoy a deferment of tax liability where they purchase or import goods which are subject to excise tax for incorporation into goods of their own manufacture with one exception applicable to diamonds.
- The liability for excise tax flows through the distribution chain to the point where the goods are ultimately sold to either the consumer or other unlicensed persons (e.g. A licensed diamond cutter can purchase or import rough diamonds or partially processed diamonds exempt from excise tax under the licence; when the cutter sells the goods of his manufacture to another licensed person (see exception), no tax is payable for the same reason.; the one exception is that Revenue Canada requires a “retail” jewellery manufacturer to purchase or import diamonds on an excise tax-paid basis).
- Wholesalers may become licensed subject to departmental criteria. Licensed wholesalers may purchase or import diamonds exempt from tax for resale purposes and not for further manufacture. Upon sale to an unlicensed person, the wholesaler would account for tax based on the purchase price or duty-paid value of the good.
- Goods exported by a licensed manufacturer or a licensed wholesaler are not subject to excise tax provided that satisfactory evidence of exportation is maintained.
- Where a licensed jeweller sells an excise-taxable item to a tourist but exports it directly without the tourist taking possession in Canada, the jeweller may sell the item without payment of excise tax.
- Consumers who purchase jewellery, including diamonds, in Canada or import them into Canada pay the excise tax either at the time of purchase or upon importation.

4.2.h.ii Export Tax on Diamonds

Some countries have used an export tax on rough diamonds to encourage producers to make them available for sale within the producing country, and hence to encourage value-added industries. As outlined in the Trade Section of this Report, NAFTA prohibits all three countries from applying export taxes unless such taxes are also applied on goods to be consumed domestically (Article 314 on Export Taxes and the exceptions referred to in the article relate specifically to Mexican agriculture products). This means that since the tax would apply equally to domestic consumption and exports, there would not be any incentive for furthering processing domestically.

4.2.h.iii Diamond Cutting and Polishing Training Programs

A significant barrier to establishing a viable diamond cutting and polishing training program is the cost of rough diamonds required for practice (see Section 4.4.d). The income tax system may provide some assistance in this regard, to the extent that corporations are encouraged to provide rough diamonds directly for their own employees' training purposes, or as charitable donations to eligible institutions.

Rough diamonds as a training tool

The cost of any diamonds that are destroyed or become worthless as part of the training process would generally be deductible as a business expense. Proper accounting would require that the cost of such diamonds be removed from inventory and deducted as a training expense. However, corporations may ignore this "internal" transaction and just adjust the inventory balance, in which case the cost of the diamonds used for training become a cost of diamonds sold. In either case, the cost of these diamonds is effectively deducted in determining income subject to income tax.

However, the cost of any diamonds that are not destroyed or do not become worthless as part of the training process would generally not be deductible as a training expense. Rather, the cost of these diamonds would only be written off as an expense when the diamonds are sold and the proceeds are reported as income.

Rough diamonds as a charitable donation

Donations made by corporations to eligible institutions, including registered charities, Canada, and a province, are deductible in computing taxable income within certain limits. The donation deduction is limited to 75 percent of net income plus 25 percent of the amount of taxable capital gains arising from the donation of appreciated capital property, and 25 percent of any capital cost allowance recapture arising from the donation of depreciable capital property. Unused deductions may be carried forward for up to five years.

Generally, when property (e.g., a rough diamond) is disposed of as a gift, the taxpayer is deemed to have received proceeds upon disposition equal to the fair market value of the property gifted. These deemed proceeds would also be the amount of the donation where the gift is made to a registered charity, to Canada, to a province, etc.

Therefore, if rough diamonds are donated to an eligible institution for tax purposes, the net result would be that income for tax purposes is reduced by the cost of the diamonds donated (i.e., the same result as would occur if the training occurs "in-house").

It should be noted, however, that if property is transferred to an eligible institution in exchange for a right, privilege, material benefit, or advantage, then the transfer would not be considered a gift and there would not be a donation deduction. However, in this instance, depending upon the circumstances, the fair market value of the diamonds transferred may be a deductible business expense. Again, the net result would be that income for tax purposes is reduced by the cost of the diamonds donated.

4.2.i Findings

In general, the Committee concluded that the NWT has a competitive tax structure compared to many provinces. It does not levy a personal income surtax, flat taxes, corporate capital tax, or a retail sales tax. It has also maintained a stable corporate tax environment and, as with the provinces, has a small business rate to encourage secondary industries. While some provinces have adopted a M&P tax rate, the NWT has chosen to encourage these activities through other policy instruments.

Many provinces have chosen to implement more targeted tax incentives, either as part of their income tax, mining tax, or royalty systems. Likewise, the NWT 1998 Budget announced an Equity Investment Tax Credit. The federal government provides oil and gas, mining, and M&P tax incentives that are equally available in the North to encourage eligible activities. Since the 1987 Tax Reform, the federal government has taken steps to either reduce or eliminate highly targeted investment incentives from the corporate income tax system to promote greater tax efficiency, neutrality, and simplicity in administration.

However, the federal government will provide a more targeted instrument through the proposed amendments to the CMR. These provide significant incentives to encourage the NWT diamond mining companies to locate their sorting and valuation facilities in a NWT community.

The issue of the excise tax on jewellery has been raised in the Committee's discussions. Based on the description contained in this report, it is not apparent that the excise tax on jewellery would pose a particular barrier to the development of a value-added diamond industry in the North as:

- under the tax, diamond jewellery is not treated differently from other types of jewellery;
- the tax is applied equally across all jurisdictions within Canada;
- noted in the trade section, the majority of the diamonds produced in the NWT will be destined for the export market, and diamonds manufactured in Canada for the export market are relieved from the tax; and
- diamonds manufactured in Canada for the Canadian market are subject to the same rate of tax as imported diamonds destined for the Canadian market.

4.2.j Recommendations

In light of the concerns raised to the Committee regarding the excise tax on jewellery, the Committee has decided that further clarification of this issue is desirable. DIAND will therefore request a written clarification from Revenue Canada on the administrative practices and guidelines on the application of the excise tax on jewellery to value-added diamond industries in the North.

4.3 Access to Rough Diamonds

4.3.a Existing Trade Centres

As indicated earlier in this report, the reliable, consistent supply of diamond rough has been a factor in the development of most major cutting and polishing centres.

“... in order for Israel (as a cutting centre) to survive and prosper in the next century it has to become a rough centre, ...If one can't enter the game of rough one can't produce polished.”

Martin Rapaport, Diamantaire, April, 1998

The CSO supplies the major cutting centres (Antwerp, New York, Bombay, and Tel Aviv). A significant number of sightholders as well as independent suppliers are based in those centres, and they ensure that rough is available.

4.3.b Rough Diamonds in the Diamond Pipeline

Value is added at each stage in the diamond pipeline. As rough diamonds pass through each dealer's hands, the price increases. Some dealers add value by sorting the rough diamonds in more detail, while others earn a percentage as a handling fee.

There is a price advantage for a manufacturer to purchase as early in the pipeline as possible. Most smaller manufacturers usually purchase far down the diamond pipeline, and therefore pay a high price for the rough.

Manufacturers of the size and scale that are considering establishing in the NWT and in Canada are currently buying close to the end of the pipeline. They likely purchase diamonds in Antwerp that have passed through several hands.

4.3.c Supply

The steady, reliable supply of rough is as important as the price. A manufacturer must be able to obtain, on a regular basis, the size, quality, and quantity of rough needed for the manufacturing facility. Without diamond rough, the facility cannot operate. The Committee was reminded a number of times that a manufacturer should never rely upon one source for all of its rough diamonds.

It was explained that if, for any reason, supply from the one source was interrupted, the manufacturer would be caught short, and may have trouble meeting its commitments or may be forced to pay a premium price for diamonds from another source.

The importance of a supply of rough diamonds is demonstrated by the almost unanimously positive responses to the question posed to international rough diamond dealers: “If Canadian rough was offered for sale in the NWT, would you be willing to travel there on a regular basis to purchase it?”

The majority of responses to the Committee's questionnaire from international rough diamond dealers indicated that the rough did not have to be sold at a discount, only that it had to be fairly and competitively priced.

There was no clear consensus from rough diamond dealers on how they would prefer the rough diamonds to be made available for sale. Questionnaire responses ranged from run-of-mine, to parcels and fully sorted goods.

A number of dealers indicated that the soon-to-be-produced Canadian diamonds were of interest simply because they are Canadian. There was a willingness expressed to buy the NWT diamonds in Canada, but there was also a concern that if they purchased the diamonds from a Canadian producer in Antwerp, there would be no guarantee that the diamonds were indeed Canadian.

4.3.d Status

In May 1998, BHP announced that it will build a sorting and valuation facility at the Yellowknife airport and sell to Canadian and northern manufacturers, as long as they meet the basic customer criteria that BHP will establish. Several potential northern manufacturers are discussing the purchase of rough diamonds with BHP.

4.3.e Findings

A steady, reliable supply of rough diamonds is necessary to the development of a diamond cutting and polishing industry. Canada, as a diamond-producing country, has a natural advantage in securing sustainable availability of rough diamonds.

Although a secure supply is only one of the factors influencing the development of a value-added industry, it is important that both mining companies and governments fully exploit this advantage for the benefit of Canadians and particularly Northerners.

The Committee welcomes the diamond mining industry in the NWT's voluntary commitments to develop off-mine-site sorting and valuation facilities in a NWT community or NWT communities, and to make rough diamonds available to qualified Canadian manufacturers. This factor is critical to providing the environment in which a domestic cutting and polishing industry could develop. If, on the other hand, all sorting, valuation and sales were conducted offshore, the opportunity for a domestic industry would be significantly reduced. The Committee noted that should companies continue to voluntarily develop off-mine-site sorting and valuation facilities in a NWT community, and to make rough diamonds available to qualified Canadian manufacturers, there will be no need to explore the option of legislated requirements.

The Committee also noted that the proposed amendments to the CMR will further encourage the NWT diamond producers to locate their sorting and valuation facilities in a NWT community.

4.3.f Recommendations

Both levels of government strongly encourage diamond mining companies in the NWT to establish off-site sorting and valuation facilities in the NWT and to make rough diamonds available to qualified manufacturers for purchase in the NWT.

4.4 Training

All participants in the diamond industry have identified trained workers as a necessary component in developing a value-added diamond industry in the NWT. Almost all respondents to the questionnaires indicated that assistance in establishing a facility was needed and that training of the workers was a type of assistance that would be most welcome. Training is required for sorting work as well as work in the cutting and polishing industry.

4.4.a Existing Territorial and Federal Funding Programs

There are a variety of existing territorial and federal funding programs to support the training of workers (Appendix V). The GNWT has a number of programs that could support the development of trained workers including Apprenticeship Support, Training on the Job, and Student Financial Assistance. In addition, the federal HRDC offers a variety of funding sources through the Employment Benefits and Support Measures, Employment Insurance Support Measures, and the Opportunities Fund and Youth Employment Initiatives. Effective October 1, 1998, these HRDC programs will be provided by the GNWT.

It appears that companies interested in establishing sorting or manufacturing plants would be able to access the above training programs, assuming that the required levels of funding were available.

4.4.b Training for Sorting

Training will be required for two different types of sorting work. The diamond mining companies will require sorters to ensure that they know the value of their production and to begin their marketing process. The federal government will require sorters to prepare the rough diamonds so that the government diamond valuator will be able to establish their value to determine Crown royalties before the diamonds are sold or exported.

When production begins in the fall of 1998, sorters will be hired from other diamond countries to undertake the diamond mining company's initial sort in the NWT. BHP has indicated that

- it will undertake initial sorting in the NWT for valuation as well as for its own production and control purposes,
- it must develop a knowledge of its own production, something that will only happen once commercial production is under way,
- it will initially require experienced sorters who will be hired outside of Canada, but it will also hire locally, and
- as Canadian expertise is developed, it will increase the degree of sorting for market in the NWT.

In addition, the federal government is hiring a government diamond valuator. This person will also require some sorting assistance. It appears that the government diamond valuator will be hired from outside Canada but will be required to obtain and train sorters locally.

A number of organizations are willing to teach, and capable of teaching, the rough diamond sorting courses required to ensure that local sorters are available.

SECURCheck, a new Yellowknife business, has recently joined with the International Gemmological Institute (I.G.I.) of Belgium to offer ongoing seven-day rough diamond courses. The courses, to be

held in Yellowknife, will provide initial training of sorters, and successful participants will receive the “I.G.I. Rough Diamond Diploma.” Both De Beers and the High Diamond Council of Antwerp (HRD) have also expressed an interest in working on this issue. Any course that is developed must be done with the support of the producer(s), since the trainers would need to use local rough diamonds if they are to train sorters capable of sorting NWT production.

4.4.c Training for Manufacturing

It is the cutting and polishing of rough diamonds that constitutes manufacturing. Diamond manufacturing, by definition, drastically reduces the size of the rough diamond. The goal of a new facility is to reduce cutting losses to less than 50 percent of the caratage of the rough diamond. With a few notable exceptions, manufacturing is undertaken by the large number of private diamantaires, not by the diamond mining companies. Diamond manufacturing factories range in size from very small family-run operations to the huge factories of India. Training is generally the responsibility of factory owners, although they may take advantage of government programs designed to assist the development of a skilled labour force.

It has been estimated that it will take approximately six months to train workers to cut and polish diamonds as productive members of a cutting and polishing team. After about five years of cutting and polishing, a worker could manage a small team of cutters and polishers, but as many as 10 to 15 years of experience would be required before the cutter would be expected to handle diamonds of a size greater than 2 ct. It would only be after 20 years that the worker would be competent in all aspects of the industry and become a factory manager.

The training for cutters is primarily a hands-on apprenticeship process, often one-on-one. The time will depend primarily on the level of automation used. Some preliminary theory course work is required, but the majority of time must be spent working on diamonds. Most existing manufacturers generally provide training on the job in order to maintain staff levels.

There are several diamond cutting schools in the world; among them, there is one in South Africa (funded and supported by De Beers), one in Antwerp (funded and supported by HRD), and one in Florida (private).

4.4.d Impediment to Training for Manufacturing

The major impediment to the development of a trained work force is the cost of obtaining the rough diamonds required for training purposes. The manufacturing trainees must work and learn on diamonds. As they do this, they will make mistakes that considerably reduce, if not destroy, the value of the stone. The cost can be considerable – \$1.5 million to \$2 million per year for 10 to 16 trainees. The treatment of rough diamonds as a charitable donation is covered in Section 4.2.h.iii of this report.

If the training takes place in an existing facility, the loss can be minimized by careful monitoring and control of the trainees. Losses would be greater, of course, at entirely new facilities, and it can take five or more years before these new facilities reach caratage losses of less than 50 percent.

4.4.e Training for Jewellery Manufacture

Nunavut Arctic College began teaching jewellery courses in 1990. They offer a one-year certificate course and a two-year diploma course. Courses have been offered in numerous communities across the eastern Arctic. As part of the program, jewellery equipment remains in

the community for use by graduates after a multi-year course. The program focuses on teaching of technical skills as well as design, creativity, history, and business. A new branch of Inuit art is developing that combines Inuit culture and the Arctic environment with the craft of jewellery making.

Aurora College plans to deliver the first jewellery course ever held in the western Arctic in Rae, NWT. This course, modelled after the Nunavut Arctic College courses, will be held in September 1998.

4.4.f Aboriginal Training Programs

As noted in Section 3.1.a.vi of this report, Aboriginal peoples in the NWT have a high unemployment rate. This is because there have been few opportunities to find jobs that do not involve many years of formal education or moving outside of one's community or region – not because they are unwilling to work. Value-added diamond industries located in the North can tap into the available work force. This work force, which is predominately Aboriginal, already has many members with artistic interests and abilities. Northerners have extensive experience, through traditional arts and crafts, in working independently with materials requiring fine detail such as moose hair tufting, beadwork, and carving.

As is shown in Appendix V, a number of programs are available to assist unemployed people through retraining or upgrading their skills. In addition to programs available to all Canadians, other programs have been identified that are designed specifically for Aboriginal peoples.

HRDC has recently entered into regional bilateral agreements with Aboriginal groups in all jurisdictions; HRDC resources for these training and labour market programs and services have been devolved to the Aboriginal groups. Under this program, Aboriginal groups receive all financial resources and set their own priorities. Approximately \$11 million is allocated to Aboriginal organizations in the NWT through bilateral agreements with HRDC.

4.4.g Findings

Access to an adequately trained work force is a critical element in the development of a value-added diamond industry in Canada. Moreover, nurturing diamond industry expertise should be both an immediate and longer-term concern. If such an industry is to develop, short-term training requirements should focus on expertise in the sorting and valuation of diamonds; skilled diamond cutters and polishers would be required in the longer term. The lack of immediate domestic expertise does not preclude the development of a value-added diamond industry. Expertise can be secured internationally, particularly from other diamond mining and diamond manufacturing countries. The development of this expertise over the longer term, however, would augment the associated level of benefits that accrue to individual Canadians and our country as a whole.

Skills development is traditionally a government role. The willingness of governments to promote labour market training is evidenced by the wide range of programs and incentives that are available at all levels of government. The Committee noted that governments currently provide training programs for the Aboriginal peoples of the NWT. These may be used to assist this segment of the population to become involved in the value-added industry.

4.4.h Recommendations

All aspects of training needs for the NWT value-added diamond industry, including sorting, valuation, cutting, polishing, jewellery manufacture, and security, are presently being examined; this examination must continue until completed. The participants in the examination include the federal government (Human Resources Development Canada), the GNWT (Education, Culture, and Employment), the territorial public colleges, diamond mining companies, and private firms providing training in the NWT.

Support for training individuals and incentives for manufacturers to provide training appear to require an expanded approach. High training costs and low return during the initial phase of training underline the uniqueness of this challenge.

4.5 Financial Institutions and the Value-Added Diamond Industry

As discussed in Section 2 of this report, the diamond pipeline refers to the steps that diamonds undergo as they are transformed from rough diamonds at the mine to cut and polished diamonds set in jewellery. The role of financial institutions in the diamond value-added industry will be discussed with respect to the stages identified in the diamond pipeline. This section is not a comprehensive look at the role played by financial institutions in the value-added diamond industry; but, rather, is a quick overview of some of the major aspects of this segment of the industry.

4.5.a The Role of Financial Institutions

As with any other commodity, different types of financing are required to support the diamond industry at each stage of the diamond pipeline. Bank financing or large capital assets are required to support the diamond industry from the producer stage through to the retail sales of diamond jewellery.

4.5.b Types of Financing

Although there are some private, family-held companies at each stage of the diamond pipeline, financing from external sources is still usually required. The need for financing arises in the diamond industry because of the high value of diamonds and the value-added to diamonds at every stage of processing. Although mine sales were estimated to be US\$7.7 billion in 1996, as presented in Graph 2.19.1, rough sales and local production totalled US\$17.6 billion.

Essentially, diamantaires are treated as small businesses for the acquisition of financing for their activities. Diamantaires have difficulty securing financing because they require financing to purchase diamonds, a commodity that is not as easily valued as other commodities, such as gold, which has a world price. And these small companies seldom have any other assets such as real estate or capital equipment. Diamantaires can obtain loans to finance further purchases based on the value of their inventories, but the value of those inventories is constantly changing as the diamond market changes. As a result, most financing is provided on the basis of the personal and professional reputation of the company, inventories, and personal assets. However, when the diamond market is contracting, as in the past few years, financing is more difficult to obtain. Complicating this is the fact that cash is the basis of the business, not credit. Purchases from independent producers and the CSO must be paid prior to the receipt of the goods and usually in cash.

Although diamond banks in diamond centres have a strong understanding of the diamond industry, they do not have diamond expertise on staff *per se*. The basis of the business is intelligence about the diamond market, individuals and companies involved in the diamond industry, and in-depth knowledge and understanding of the nature of small business and venture capital financing. It should be stressed that knowledge of diamond companies and personal relationships between diamantaires and bank officials are the keys to the personal nature of the diamond banking business. The personal and professional reputations of individuals and their companies have major impacts on the ability to secure financing from external sources.

4.5.c Diamond Transactions

Companies involved in the diamond industry require external financing for a number of reasons, and these are related to where in the diamond pipeline a company's business takes place.

4.5.c.i Rough Sales

A diamond producer sells its production to buyers, including the CSO, at an agreed-upon price, or on the open market, or through a combination of these two.

All producers and diamond dealers, including the CSO, require that cash be paid for rough diamonds, usually within 10 days of agreeing on the purchase price. Payment is made to diamond traders who then prepare the rough diamonds in the assortments desired by the purchaser. Following receipt of a cash payment and the preparation of the assortment, the goods will be delivered to the purchaser, usually within 10 days.

The time from when goods are purchased to when they are available to the diamantaire for sale to companies further down the diamond pipeline (other diamantaires or jewellery manufacturers) usually requires financing from sources external to the companies themselves.

Most diamantaires retain an inventory of rough diamonds in order to be as flexible as possible in responding to changes in market demands. For most diamantaires, this means that an inventory of rough diamonds needs to be financed to some extent.

Financial institutions support the diamond dealers by providing financing for inventories as well as for the time lag between the acquisition of additional rough diamond stocks and the time of sale. The amount of money required by diamantaires to finance rough diamond purchases depends in large part on the conditions in the diamond market.

Since the early 1990s, a tightening in the diamond market and the recent Asian monetary crisis have meant increased price competition in the rough diamond market. Increased competition has resulted in lower rough prices and, therefore, reduced rates of return for diamantaires. Also, due to market restrictions, the amount of time stock remains in inventory has increased substantially. The result of all of these changing factors in the global diamond industry is that diamantaires have increased their overall financing requirements.

Globally, it has been estimated that US\$4.5 billion is in outstanding diamond loans in the major cutting centres of New York, Antwerp, Tel Aviv, and Bombay.

4.5.c.ii Cutting and Polishing

In order to set up a cutting and polishing facility, capital is needed to purchase specialized equipment and rough diamonds, and to hire the trained cutters and polishers. Also, large amounts of capital are required to fund the time from when a rough diamond is purchased and paid for to when the proceeds from the sale of polished are received. The vendor is obliged to offer long terms of credit downstream, often for up to 180 days.

4.5.d Financial Institutions Specializing in Diamond Banking

Today, all important diamond centres have financial institutions, primarily banks, that deal specifically with the diamond industry.

4.5.d.i Belgium

The first financial institution specializing in financing the diamond industry was the Comptoir Diamantaire Anversois, established in Belgium in 1934, as a joint venture between

leading Belgian banks and De Beers. This bank, now known as the Antwerpse Diamantbank, specializes in the diamond industry, particularly Belgian companies. It is the largest Belgian-based financial institution that deals in diamonds.

4.5.d.ii Israel

In Israel, diamantaires accessing external financing for their overseas diamond transactions must be licensed by the Ministry of Industry and Trade to deal in diamonds; this entitles them to open a US dollar account called a Chani account. In 1996, approximately 1 720 licences to deal in diamonds were issued, of which some 1 580 also opened a Chani account. The remainder of the licensees were either working only in the local industry or had private financing for their diamond transactions.

Prior to 1990, Chani accounts were financed directly by the central Bank of Israel's Diamond Fund. Since 1990, the individual diamond banks have been funding Chani accounts from their own resources. Diamantaires must provide collateral valued at 160 percent of the amount obtained from their Chani accounts.

The type of collateral required to secure funds from a Chani account varies from bank to bank and from customer to customer. Types of collateral include other bank guarantees, foreign currency deposits, real estate, overseas bank drafts, other trust receipts, or personal guarantees. These types of collateral are commonly used in financial institutions specializing in the diamond industry and are not limited to Israel.

It has been stressed to the Committee that diamond bankers are reluctant today to lend money against diamonds pledged in trust to banks as banks lack the expertise to value the diamonds appropriately. Generally, diamonds held in trust will represent no more than 10 percent of the collateral.

4.5.d.iii India

Approximately 40 banks are involved in financing India's diamond industry. The larger ones include the State Bank of India, the Bank of Baroda, and the ABN/AMRO Bank. Indian diamantaires who deal internationally will also use the Belgian and Israeli diamond banking facilities.

The Indian diamond industry is estimated to owe the Indian banks around US\$1 billion at any given time. In addition, it is estimated that the industry also owes offshore diamond banks about US\$850 to US\$900 million at any given time.

India's principal export market is the United States, which consumes 30 percent of India's polished diamond exports. The United States is also the market for the majority of consignment goods. This means that Indian suppliers to the United States require financing to carry inventories for six to nine months and sometimes longer depending on market conditions.

Compared to other industries in India, the diamond industry has a high rate of return. For this reason, financial institutions in India are willing to assume more risk on loans to companies in the diamond industry. Also, bankruptcies in the diamond industry are limited and loans require full collateral.

Similar to Israel, Indian banks secure their diamond loans against hard collateral and the movement of their goods through the diamond pipeline. The diamond banks provide financing at

two stages of the diamond business – namely, the purchase of rough diamonds for cutting and polishing, and the post-shipment financing of export credits extended to overseas customers. Most recently, interest rates charged for financial services are about 10 to 12 percent for periods of 30 to 40 days and are about 14 percent for periods longer than 90 days.

About 40 percent of the Indian diamond bank lending is for the import of rough for the cutting and polishing process; the remaining 60 percent is for export financing. Diamond financing is extended in rupees at 12 percent for pre-shipment, 11 percent for post-shipment up to 90 days, and 15 percent beyond 90 days. The Indian diamantaires have traditionally proven to be very astute in utilizing the exchange rate fluctuations. When devaluations are expected, foreign currency is acquired in advance and export proceeds are repatriated late, assuring higher local currency proceeds. Bankers expect the rupee to be allowed to float freely within three years.

4.5.e Financial Institutions and the Diamond Industry in Canada

A number of Canadian banks have been approached informally about their interest in providing financing for a domestic value-added diamond industry. Their initial response was that they had insufficient knowledge of the industry or of its financial needs to take a position. A diamantaire seeking a loan would be treated as any other small businessperson, and the success of the application would depend upon its business plan.

At present, none of the large European diamond banks have established diamond-specific branches in Canada. One of the Belgian banks involved in the diamond industry has opened a general branch in Canada and, if a diamond inquiry is received, it will be referred back to the diamond branch in Antwerp, as is presently done with diamond banking inquiries in other countries.

It should be stressed that financing the cutting and polishing of diamonds, and their subsequent progress through the diamond pipeline is a specialized activity. It bears no resemblance to project financing of potential mines – an area in which the Canadian banks have much experience.

4.5.f Findings

Large amounts of capital are required from financial institutions to support a value-added diamond industry in Canada. Expertise in diamond centres in the rest of the world has developed with the support of large, highly specialized financial institutions.

At present, Canadian financial institutions have limited experience in supporting the value-added diamond industry.

4.5.g Recommendations

DIAND will provide this report to financial institutions in Canada to inform them of potential business opportunities from a value-added diamond industry.

4.6 Security

While undertaking research for this report, the Committee was reminded that security was one issue that could not be ignored. Although the Committee is aware that the issue of security is not directly related to the creation of a value-added diamond industry in the NWT, it is also aware that the theft of diamonds will have an adverse impact on mining companies, royalties collected by the federal government, and cutting and polishing industries in the NWT and across Canada. Increased costs relating to policing and the courts could result as well.

4.6.a Background

Security is important in all phases of the diamond industry. The concerns raised in relation to the development of a diamond industry in Canada directly mirror concerns related to the world diamond industry. The ease with which diamonds can be hidden and transported, and the very high value per gram for some stones have led to serious security problems in all diamond-producing areas of the world.

At the mine, the mining company is directly responsible for security. Diamond mines around the world spend huge amounts of money designing and constructing mines that are as secure as possible and follow this up with large annual security expenditures. Security at a mine is two-fold:

- to stop someone from stealing diamonds and moving them out of the mine, and
- to ensure that workers could not be blackmailed from outside to steal stones.

Each mine has elaborate security systems that include, but are not limited to, pre-hire screening, large internal security forces, high razor-tape topped fences, video monitoring, and the use of info-cards that monitor where, when and how long an individual has been in any area of the plant. In some areas of the mine, employees are always accompanied by escort. Vehicles used within the fenced areas of the diamond mines in South Africa never leave the mine; this is to discourage smuggling out stolen diamonds. In some countries, anyone leaving the mine (employee or visitor) can be subject, on a random basis, to full body x-rays and/or strip searches.

Criminals have developed ingenious ways of moving stolen diamonds from a mine including swallowing and hiding them on their bodies (hence the use of x-rays and body searches), flying them out on homing pigeons, hitting diamonds over the security fence encased in tennis balls, and hiding them in personal effects such as shampoo bottles.

Criminal groups have been known to plant a person (with no criminal record) in a mine; that person will work diligently for a number years with a view to being promoted to more responsible jobs where the possibility of handling rough diamonds increases dramatically. When in a position where diamonds can be stolen, this person steals them.

A mine's security force is one of the most vulnerable areas. If members of the security force are corrupt, the possibility of theft increases dramatically. One of the most costly thefts in a diamond mine was orchestrated by the head of security at that mine.

Not all criminal activity is as straightforward as voluntary theft. Employees working at the last stages of the diamond recovery process have been coerced into stealing diamonds when their families have been threatened. The criminal will approach the employee and state that a member of his or her family will be harmed if diamonds are not stolen. Companies have tried to

safeguard against this by dramatically reducing the opportunities for directly handling the diamonds and by increasing the monitoring of employees.

The concerns about security extend to valuation centres and on to the processing side of the industry. At valuation facilities, employees are only allowed to bring in sealed packages of cigarettes and cannot take them out again. All lunches are supplied by the company and leftovers are incinerated. Uniforms worn by sorters have no pockets and no cuffs. All movements are controlled and monitored, and employees or visitors leaving the facility before the vaults are closed may be subject to searches. Although security at smaller offices and processing centres is not as oppressive as at valuation facilities, access is controlled and elaborate inventory-auditing processes are employed.

It is important to note that the concerns about security within the diamond industry are not limited to companies. Countries such as South Africa and Botswana have enacted diamond-specific legislation that controls, among other things, who can possess diamonds. Australia includes security in its mine-specific legislation. These countries have units of their national and or state police forces that are dedicated to the diamond industry. Decreasing the theft of rough diamonds is seen as a method of ensuring increased government revenues through royalties and taxes.

4.6.b The Situation in the NWT

The concern in the NWT is that the lure of the diamonds has already attracted criminals, and efforts may be under way to have gang members planted in the work force before the mine actually opens. In the hope of decreasing this possibility, BHP is screening all of its potential work force before hire. A potential employee seeking work in a non-sensitive area of the BHP mine, such as in the open pit, will undergo both a reference check and a criminal records check. However, persons seeking employment in a high-security area of the Ekati mine will undergo psychological profiling and an extensive background check that will include a criminal records check, a credit check, and fingerprinting. They will also be required to be photographed. The company has developed a sophisticated security system that includes video monitoring and the use of cards to control entry to various areas of the plant and monitor an employee's whereabouts throughout the processing plant. The company has indicated that it will surround the processing plant with a fence, and that there will be electronic monitoring of all personal effects as employees leave the mine.

It is further realized that all those involved in the world diamond industry, including criminals, are extremely mobile. Criminals are attracted to areas of the world where it is easiest to undertake their activities and where there is little answerability.

In anticipation of the commencement of mining, the Department of Justice and the RCMP have taken a number of preliminary steps to address the security issue.

The RCMP has, for the past two years, had a small Yellowknife-based team study security issues in diamond-producing area of the world. This team has developed a number of strategies that it feels will enable the police to better combat criminal activity associated with the new diamond industry. Of the strategies identified by this team, three are considered to be pressing in nature:

- fingerprinting rough diamonds,
- establishing a permanent diamond squad, and
- developing diamond-specific-legislation.

4.6.c Fingerprinting Rough Diamonds

Recently, equipment has been developed in Australia to “fingerprint” rough diamonds so that their source can be determined accurately. Although all diamonds are comprised of pure carbon, their chemical composition is unique based on the strength of relative concentrations of minute quantities of impurity elements. The impurity elements come from the host rock in the mine or pit. This new fingerprinting technique enables one to determine exactly the composition of the rock and thus exactly where the rough diamond was mined.

The RCMP has indicated a desire to lease or purchase this equipment, and to use it as a tool in their fight against theft. For its effective use, an inventory of fingerprints from every diamond mine in the world would have to be developed. Then the police would be able to determine accurately the source of the recovered diamonds.

One use of fingerprinting as an anti-crime tool is directly related to the emerging Canadian value-added diamond industry. At present, the value-added industry in the NWT and the rest of Canada is quite small. It appears that part of the reason that the industry may grow will relate to the fact that the diamonds are Canadian. Companies appear willing and eager to establish value-added industries based upon a supply of Canadian diamonds. The intent would be to cut and polish them and then market them as “Canadian.” It is expected that both Canadians and tourists would be willing to purchase these Canadian diamonds. However, if diamonds mined in other countries are smuggled into Canada and sold as Canadian diamonds, confidence in the ability to sell Canadian diamonds would be threatened. If the ability to fingerprint the diamonds is available, the industry will more confidently be able to sell its diamonds as Canadian ones.

BHP has indicated a willingness to actively participate with the RCMP on a partnership basis. It may be possible to obtain further partners within the diamond industry and, since this technique can be used to fingerprint almost any material, with other federal departments.

4.6.d Establishing a Permanent RCMP Diamond Squad in Yellowknife

In the NWT, responsibility for mining (including diamond mining) rests with the federal government. Because of this, providing policing for the diamond industry rests with the federal government and is provided through the RCMP’s Yellowknife office. As noted above, the RCMP has had a small diamond group in Yellowknife for the past two years. The group, which grew from two to three persons (for a one-year term) in mid-1997, has spent a great deal of time becoming familiar with the diamond industry and security issues related to it. However, even though the responsibility for diamond security rests with the RCMP, this diamond group has never been totally dedicated to diamonds as it is still responsible for other aspects of its federal mandate.

The RCMP wishes to be pro-active with the producing mines, the new value-added industry, and other agencies. A continuous federal policing presence is seen as a requirement in order to provide a service that is able to react when needed. More information on this is available in Appendix II.

4.6.e Diamond-Specific Legislation

As indicated at the beginning of this section, a number of countries have enacted diamond-specific legislation as a way of ensuring proper controls. Examples of the types of diamond-specific legislation include:

- The *Diamonds Act* of South Africa. This Act established the South African Diamond Board, which controls the possession, purchase, sale and export of diamonds;
- The *Precious and Semi-Precious Stones (Protection) Act* of Botswana, which provides protection for the precious stones industry and regulations for dealings in precious and semi-precious stones. The Act provides control for dealing in precious stones by licensing all dealers and people who would handle rough or uncut precious stones; and
- The *Diamond (Ashton Joint Venture) Agreement Act* enacted by the Government of Western Australia governs all aspects of the diamond industry operations in the state. The Act details all of the operational issues including authority as to who can be in possession of a rough diamond.

In addition, the *Minerals (Prospecting and Mining) Act, 1992*, in force in Namibia sets the control of the possession of rough diamonds found in the country.

In its submission before the Committee, the RCMP made the case that, although existing legislation in Canada meets some of the needs of the new diamond industry, it falls short in some areas. The presentation (Appendix II) noted the difficulty of fitting the dynamics of this new industry perfectly into existing legislation; in those areas where the legislation falls short, legislation must be developed to fit the dynamics of the new industry.

A permit feature in other diamond-specific legislation is felt by some to be an important weapon against black market diamond activities.

This type of diamond-specific legislation could evolve as the industry grows in Canada. The significant feature would be the authority to deal in or possess rough diamonds.

4.6.f Findings

Security is important in all phases of the diamond industry. The ease with which diamonds can be hidden and transported, and the very high value per gram for some stones, have led to serious security problems in all diamond-producing countries in the world. Since the Canadian legal, political, economic, and social framework is different from most other diamond-producing countries, different legislative and security enforcement measures may be required.

As the Canadian value-added diamond industry develops, there is little doubt that associated criminal activities will develop. Law enforcement agencies will need to examine diamond-specific investigative tools and evaluate the appropriateness of the resources available to address diamond-related crime.

Provinces participated in discussions to make changes to the *Criminal Code* and, in 1996, the Criminal Law Section of the Uniform Law Conference passed a resolution related to the valuable minerals provisions in the *Criminal Code* relating to diamonds. On June 12, 1998, the Government introduced Bill C-51 to amend the *Criminal Code*, the *Controlled Drugs and Substances Act*, and the *Corrections and Conditional Release Act*. The Bill addresses a number of the concerns raised in the resolution.

4.6.g Recommendations

That NRCan take the lead and, with other federal departments, provincial, and territorial governments, work together with law enforcement agencies to establish systems to ensure the integrity of the Canadian diamond industry. These investigations should address the possible need for diamond-specific legislation.

APPENDICES

APPENDIX I

December 24, 1997

TERMS OF REFERENCE A STUDY OF VALUE-ADDED ASPECTS OF THE CANADIAN DIAMOND INDUSTRY- NORTHWEST TERRITORIES

PURPOSE

To make recommendations, which may include a strategic framework and specific actions, to Ministers on the value-added aspects of the Canadian diamond industry.

OBJECTIVES

To identify ways to maximize the long term benefits of the diamond industry for Canada focussing initially on the Northwest Territories (NWT).

To examine the value-added aspects of the diamond industry.

To explore strategies for encouraging secondary industries, associated with the diamond industry, in Canada and in the NWT.

STRUCTURE

1. Membership will be senior officials from:

Department of Resources, Wildlife & Economic Development-Government of the Northwest Territories (GNWT) (Co-Chair)

Department of Indian Affairs and Northern Development (Co-Chair)

Natural Resources Canada

Finance Canada

Finance-GNWT

Industry Canada

Representatives from other agencies and departments will be invited to participate as required.

2. The Committee of Senior Government Officials (Committee) will be jointly funded by the GNWT and by the Federal Government.
3. The Committee may draw upon outside expertise in formulating its recommendations.
4. A Study Group will be established by the Committee to provide detailed information and analysis. Membership of the Study Group shall be established by the Committee. The Study Group will coordinate research and presentations by outside expertise, as required by the Committee.

PROCEDURES

1. The Committee will present findings and recommendations to the responsible agencies by March 31, 1998.
2. Either Co-Chair of the Committee may call meetings of the Committee. At least five working days' notice shall be provided to each member of the Committee.
3. All currently existing research must be provided to the Study Group. In addition, all research and information available or requested by or developed by the Committee or Study Group, by internal or external experts, should be accessible to all members of the Committee.
4. Where possible, all presentations or briefings by outside experts requested by the Committee should be made at full meetings of the Committee.
5. The Committee should be kept informed of the progress of amending the Canada Mining Regulations but acknowledges that this process is not included in its mandate.
6. The Committee should be kept informed of the progress of the Working Group on Diamond Security.

ISSUES

The Committee agrees that the following issues must be considered as part of the development of recommendations on the value-added aspects of the Canadian diamond industry:

1. How can national and regional benefits from the developing diamond industry be maximized? This will include a review of public policy measures and take into consideration the long-term view of Northern development.
2. Should government treat diamonds differently than other mineral commodities?
3. Is there a role for government in the marketing of diamonds?
4. What are the various issues surrounding sorting and valuation - eg., the process(es), where it should take place?
5. What opportunities are there for the development of a secondary Canadian diamond industry - including the availability of rough diamonds for sale in Canada?
6. What are the training requirements for a Canadian diamond industry?

December 24, 1997

7. What are the international and interprovincial trade implications of the findings or recommendations?

CONTEXT

1. The Committee will not make any recommendations proposing the implementation of subsidies by the federal government to assist in the development of a value-added industry in Canada or more particularly, the Northwest Territories.
2. The Committee will not make any recommendations which alter in any manner any existing licences or agreements.
3. Any recommendations made by the Committee will be consistent with the existing International and Internal Trade Agreements.

APPENDIX II

GROUPS/ORGANIZATIONS THAT MET WITH THE COMMITTEE

Town of Hay River
Northwest Territories Chamber of Commerce
City of Yellowknife, Diamonds Industry Development Task Force
Northwest Territories Chamber of Mines
RCMP "G" Division
BHP Diamonds Inc.
Diavik Diamond Mines Inc.
Aber Resources Ltd.
Ashton Mining of Canada Inc.
De Beers Canada Inc.
Richard Wake Walker, WWW International Diamond Consultants Ltd.,
London, England
David Elliot, Diamond Tenders (Belgium) n. v., Antwerp, Belgium
Bill Preston, Government of Western Australia, Perth, Australia

PRESENTATIONS MADE TO THE COMMITTEE

TOWN OF HAY RIVER

February 5, 1998

I would like to take this opportunity to thank the Joint Federal Territorial Task Force on Diamonds for allowing the Town of Hay River to make a brief presentation today, on an issue that we have been actively involved in for the past 4 years. As a note, we were just advised of this chance to provide our comments and concerns Tuesday evening, and as such have not had significant time to properly prepare. We would like to thank Mr. Hiram Beaubier for arranging this opportunity.

For the benefit of members of this Task Force, I would like to reiterate a portion of the presentation that Hay River provided to the Environmental Assessment Review Board when they conducted hearings into the BHP Mine near Lac de Gras back in 1995.

“We still believe very strongly that if you can make a profit mining diamonds in a high cost area of the world like the NWT, then you can also find a way to make a profit by sorting and grading diamonds here as well.”

Four years ago, the Town of Hay River sent a delegation to Europe, at the town's expense, to learn more about the diamond industry and secondary business opportunities that could be located in Hay River. With the information gathered, we then went forward to ensure that industry and government were aware of our ambition.

The Town of Hay River has corresponded with then federal Ministers of Northern Affairs and Finance, along with their territorial counterparts on this subject. We have also met with both the federal and territorial governments to ensure that we all work to create an environment that will not only allow, but also encourage industry to establish secondary processing in the diamond industry in the NWT.

Our own business community realized that there would be new found opportunities to deal with the mines. I am pleased to say that many Hay River businesses have established successful relationships with BHP, and other potential diamond producers.

This brings us to date wherein we would like to work with the Joint Task Force in removing any impediments to having the diamond industry undertaking as many functions as can be identified in the north.

Diamonds are a commodity traded in a global market at world prices. Government must look at the whole issue of tariff and taxes to ensure that this fledgling industry remains competitive on an international basis. If the mines remain competitive and profitable, there will be room for secondary industry to grow and prosper. What if anything will the federal government be doing with the taxation effect of the GST? We understand that this tax may limit the ability of Canadian firms to be involved in any form of secondary industry. A situation which may not apply to non-Canadian based firms.

TOWN OF HAY RIVER (cont'd)

In recent months, there has been a lot of discussion regarding the secondary industry. Grading-sorting- cutting and polishing. These secondary industries may take 5, 10 or even 20 years to establish, but they are worth nurturing. However, before we can realize the full benefit that the secondary industry can provide, we must be certain that the producers have a clear understanding of what the Northerners want to achieve, and governments that are willing to work with industry to arrive at this goal.

In conclusion the governments of Canada and the NWT must ensure that they adopt public policies which will ensure that this new industry can compete on a level playing field and at the same time remain profitable, in order that it will be able to withstand world market fluctuations. By achieving these goals, we will send the message to industry that the North is the place to do business with respect to all aspects of the diamond industry.

We challenge our governments to initiate policies which will promote investment, rather than introducing regulations to control this new business sector in our Northern economy.

Thank you.
Mayor Jack Rowe

PRESENTATIONS MADE TO THE COMMITTEE

NWT CHAMBER OF COMMERCE

February 1998

I would like to welcome the Federal members of the Task Force to the NWT. Thank you for granting the NWT Chamber of Commerce standing. We want to use our time to share with you a vision of how value added or secondary diamond industries could strengthen our economy and substantially contribute to our quality of life.

To be clear the NWT Chamber of Commerce fully supports the activities of the primary diamond producers who are making a very substantial contribution to our economy. We are also fully supportive of organizations in the NWT who seek to participate in the majority of the value of diamonds, which is added after the diamonds are mined.

Your Task Force's focus and the focus of the NWT Chamber of Commerce's presentation today is on the value added or secondary diamond industries and establishing that they can benefit the North.

I have one objective today. That is that I want each of you to leave this meeting saying what can I do to make this vision happen. In short let us put on our Nike's and just do it.

Seldom in a lifetime do bureaucrats or business persons get the privilege and responsibility to stand at the confluence of events where their decisions will impact a jurisdiction and quality of life for its citizens for decades to come. The last time it happened in the North was the Berger Inquiry.

You have a heavy responsibility on your shoulders. Together with your Ministers and the people of the North you have it within your grasp to leave a tremendously positive legacy. A legacy which will live on. Live on in the life of our country and the quality of life of its people.

I am deeply troubled. My perception is that there is a no can do mentality on the part of government surrounding the creation of secondary diamond industries in the North. I am staggered to hear that government has obtained three or four legal opinions about what it cannot do to foster secondary diamond industries in the North.

When you go home I want you to be motivated to take that same energy and put those lawyers to work giving you lists of what you can do. Please, leave it to our competitors to hire lawyers to tell us what we cannot do.

Likewise, the Federal government has spent considerable resources analysing and explaining why legislation and regulations do not permit actions supporting the development of secondary diamond industries in the North. I am not sure how the same legislation allows Canada to undertake Hibernia, the Heavy Oil Sands and a dozen other major economic development initiatives around the country.

NWT CHAMBER OF COMMERCE (cont'd)

I do know that with all the resources at your disposal and the multitude of programs and legislation that you can find a way. If need be, change the legislation so that it can benefit the North. There can be no better role for government.

The more ways that you can find to help us help ourselves become economically self-sufficient the smaller the financial drain we will be on Canada in the future.

When you leave today I want you to ask the questions; How am I going to make this vision happen? What can I do to overcome the impediments to making it happen?

So now you know our objective let me share with you the vision.

The NWT is located among North America's most promising diamond properties including the NWT, Northern Saskatchewan and Northern Alberta. It has a willing and able work force, a track record of providing services and infrastructure to the mineral industry, and is one of the safest and lowest tax environments in Canada.

The vision is to generate the critical mass to become the Diamond Centre of North America as this new industry emerges. Diamonds can do for the economy in the first half of the 21st century what gold did in the last half of this century.

Working with industry, all three levels of government, and a guaranteed supply of rough diamonds we have a window of opportunity to become the centre of a new industry in North America. The importance of this opportunity can not be over emphasized. Communities are fortunate to have one chance in a lifetime to grab a hold of their bootstraps and take control of their economic future. This is our chance, we need to take it.

NWT CHAMBER OF COMMERCE (cont'd)

**WHAT ARE SOME OF THE SECONDARY/VALUE ADDED
DIAMOND INDUSTRIES THAT SHOULD BE CONSIDERED IN
THE NWT?**

- i. Sorting for market;
- ii. Diamond manufacturing (bruting, cutting, polishing);
- iii. Jewellery and fur garment manufacturing (combining northern diamonds, gold, silver, ivory, bone, fur, gems, carvers, tufters, artists etc.);
- iv. Jewellery, finished diamond and fur wholesale and retail;
- v. Tourism based on the diamond and jewellery industries;
- vi. Specialty security, repair, supply, transport and support businesses;
- vii. Training based on the diamond, jewellery and fur industries; and,
- viii. Others?

NWT CHAMBER OF COMMERCE (cont'd)

WHAT TYPES OF INCENTIVES COULD WE CONSIDER INCLUDING IN AN INCENTIVES PACKAGE OR SPECIAL ECONOMIC ZONE TO ATTRACT VALUE ADDED/SECONDARY DIAMOND INDUSTRIES THAT ARE NOT SUBSIDIES?

Security

- Legislation to enhance the security and control of rough diamonds.

Access to Rough Diamonds

- Guaranteed access to rough diamonds;
- Access to rough diamonds at first in food chain market prices for rough diamonds.

Training and Day Care Assistance

- Assistance in recruiting employees/trainees;
- Provision of initial in the classroom and workshop training;
- Provision of Human Resource Development Funding for on the job Northern trainees on a five year declining basis;
- Provision of day care for single parents at secondary industry work sites.

Financing

- Loans from the Aurora fund to finance secondary diamond businesses;
- Non-recourse loans or guarantees from the NWT Business Credit Corporation /Business Development Bank of Canada to help Northerners get started in secondary diamond businesses;
- Persuading the commercial banks/agencies of the diamond banks to locate the expertise in Yellowknife so as to be able to make working capital loans against diamond inventory.

Incubating Small Jewellery Manufacturers

- Funding a jewellery manufacturer and retailer incubator to help Northerners launch these new businesses. (There are over 600 in the United States so NAFTA cannot consider them a subsidy.) Incubators reduce the costs and barriers to entry by providing commonly needed resources on a shared basis during start-up.

Infrastructure

- Construction of infrastructure/tourism attractions, perhaps through a Private, Public Partnership, to house a significant component of the secondary diamond industry;
- Provision of a secure site at a dollar-a-year lease rate.

NWT CHAMBER OF COMMERCE (cont'd)

WHAT TYPES OF INCENTIVES COULD WE CONSIDER INCLUDING IN AN INCENTIVES PACKAGE OR SPECIAL ECONOMIC ZONE TO ATTRACT VALUE ADDED/SECONDARY DIAMOND INDUSTRIES THAT ARE NOT SUBSIDIES?

Taxes

- Exemption from federal income tax for 10 years;
- Exemption from territorial income tax for 10 years;
- Exemption from municipal taxes for 10 years;
- Removal of the luxury tax on diamonds, the only remaining such tax in Canada;
- An in-bond or equivalent area that exempts product to be exported from GST.

Other

- ?
- ?
- ?

NWT CHAMBER OF COMMERCE (cont'd)

ADDRESSING THE OBJECTIONS AND IMPEDIMENTS

Some of the impediments and objections that have been raised by government and opponents of the value-added secondary diamond industries are listed below. I will address each of them as we go through the list. What concerns me about this list is the energy that is going into the why-not attitude rather than the can-do attitude. I am sure we all remember the children's story about the little train engine, "Yes I can."

- i. Creating a secondary diamond industry in Yellowknife could have been done before with other peoples' diamonds, gems and precious metals. Why is it a good idea now?
- ii. Existing resident businesses will object to incentives to bring new businesses north.
- iii. Yellowknife did not try to create a secondary industry with gold. Why should we investigate developing secondary industries based on diamonds?
- iv. The North gets its benefits from mining the Diamonds; other communities in Canada get the benefit from the secondary diamond industries.
- v. There is not a large enough northern labour pool willing to take advantage of these jobs and training opportunities.
- vi. These are very skilled jobs. The Northern labour pool does not have the skills required and it will take too long to acquire them.
- vii. Many potential employees are single parents and will not be able to take advantage of this opportunity because they need to take care of their children.
- viii. Countries which mine diamonds do not manufacture diamonds.
- ix. Manufacturing diamonds cannot be done profitably in North America.
- x. The cost of labour in Yellowknife is too high to be competitive.
- xi. The cost of doing business in Yellowknife is too high to be competitive.
- xii. Most diamond manufacturing is moving to India and other low wage countries. Are these really the opportunities you want to create for Northerners?
- xiii. Diamonds will bring a criminal element to your community. Would it not be better to let the Industry go somewhere else?
- xiv. There are no banks in Yellowknife with the skills to lend working capital against inventories of diamonds.

NWT CHAMBER OF COMMERCE (cont'd)

- xv. The North American Free Trade Agreement may prohibit Northerners from developing incentives to attract the secondary diamond industry.
- xvi. Neither the Yellowknife Diamond Industry Development Task Force nor the GNWT have a business plan on how to attract and develop the secondary diamond industry.

In summary I have left you with a vision. A vision which you can help implement. Which will have a profound impact on a large and economically depressed area of Canada. A vision and a partnership which will allow people to help themselves and improve their quality of life.

I urge you, I implore you to take the immense amount of resources and abilities at your disposal and give us the tool kit of incentives so that we can help ourselves. A tool kit which will make the NWT the most attractive place in the world for secondary diamond industries.

Thank you ladies and gentlemen.

Now let's just put on those Nikes and "Just do It."

David M. H. Connelly
President
NWT Chamber of Commerce

PRESENTATIONS MADE TO THE COMMITTEE

CITY OF YELLOWKNIFE DIAMOND INDUSTRY DEVELOPMENT TASK FORCE

“OF ALL THE PARTIES INVOLVED, THE
NORTHWEST TERRITORIES STANDS TO GAIN
THE LEAST FROM THIS LUCRATIVE INDUSTRY”¹

Ladies & Gentlemen of the Task Force:

Thank you for the opportunity to submit a presentation.

In light of the stakes to Northerners, we think it is important to be frank at the outset that we are absolutely staggered by the intransigence of the Federal Government and their unresponsiveness to those whom they have an obligation to represent. The emerging Canadian diamond industry represents, even in Ottawa terms, a significant economic opportunity.

In particular, we fail to see evidence of the Department of Indian Affairs and Northern Development's support for this Canadian and northern opportunity. Ottawa will enjoy some \$200 million in annual royalty revenues from BHP alone, and seems content with the simple exploitation of a natural resource.

We believe what is missing is support from Canadian public policy in the pursuit of an *achievable vision*; a vision which capitalizes on the value-added opportunities, making Yellowknife the Diamond Capital of North America.

As it stands, Northerners, and Yellowknife in particular, will receive insignificant fiscal benefit. We are fortunate that producers, and in particular, BHP, have demonstrated excellent corporate citizenship and are making significant efforts to hire local people and support local businesses.

We certainly would not diminish the value of the benefits resulting from the development, but they pale in comparison to the potential benefits which are achievable from this industry - an industry in which fully 80% of the value-added opportunities result from post-production activities. While DIAND is engaging consultants “debunking the myth of northern benefits”, we are actively pursuing industry relationships.

Combined Federal and Territorial annual expenditures for the 67 000 residents of the Northwest Territories is approximately \$2 billion. With uncertain gold prices, division, government restraint, and limited economic alternatives, the northern economy could take a

¹Ethel Blondin-Andrew, MP, House of Commons, October 1997

CITY OF YELLOWKNIFE
DIAMOND INDUSTRY DEVELOPMENT TASK FORCE (cont'd)

significant step towards economic self-reliance by maximizing the opportunities associated with the diamond industry.

Yet, we see little evidence that the Federal government is working cooperatively with us to achieve this vision of economic self-reliance. Indeed, there is evidence to suggest that the Federal department with a mandate for northern development, is intent on working against us.

In truth, it must be admitted that we share responsibility for this late-awakening to the realities of potential benefits. However, no matter who has “dropped the ball,” we are actively, and cooperatively seeking associated opportunities, and continue to feel that the Federal Department responsible for Northern Development is working against us - not with us.

Having vented some simmering indignation, we do welcome you to Yellowknife. For some of you, this may be your first opportunity to see the reality of Northern Canada. We hope that your impressions are favourable. We have a dynamic and relatively cosmopolitan capital city which affords a lifestyle favoured by individuals employed in a number of economic sectors.

Yellowknife is a capital city with pride and a future. Our recreational, medical and other facilities, amenities, and services reflect a quality and capacity beyond the common understanding of many southern Canadians.

Our comments in this submission fall within three broad and interrelated subject areas of the Task Force itself, the Federal regulatory regime, and the opportunities associated with the secondary processing of diamonds.

Federal Territorial Task Force

1. Since the Federal Government announced the formation of this task force, some 350 jobs have been lost in Yellowknife. Several hundred more are expected to be lost in 1998 due to GNWT restructuring.
2. When discussing the content of this submission, members of our task force inquired as to the Terms of Reference to more accurately form this presentation. We have of course, discovered that agreement with respect to Terms of Reference has not yet been reached, and further, that Federal representatives have presented additional and seriously restrictive clauses.
3. When the formation of this task force was announced, we understood that membership and participation would be at the senior bureaucratic levels. We are pleased that efforts have been made on this occasion to have many of those individuals available.
4. Finally, we urge members of the Task Force to take a long-term view of northern development by recognizing, and understanding the consequences of the missed opportunities of the 1970s. Diamond development is an opportunity which we cannot afford to miss.

CITY OF YELLOWKNIFE
DIAMOND INDUSTRY DEVELOPMENT TASK FORCE (cont'd)

Recommendations to the Task Force

In a letter to Minister Stewart dated December 2, 1997, to which we have not received a response, we outlined our support for Terms of Reference which reinforced principles of Northern involvement and transparency of process. Specifically, we suggested that Terms of Reference ensure that:

- substantive amendments to the Canada Mining Regulations relating to the emerging diamond industry, be delayed to ensure inclusion of Task Force recommendations;
- a recommendation as to whether diamonds are indeed just another type of “mineral”, or whether they should be treated differently is required;
- a thorough review of International experience relating to diamond sorting, valuation and marketing, and an analysis of options available to Canada is performed;
- a review of public policy and taxation measures which could be undertaken to maximize spin-off benefits to Canada in general, and Yellowknife and the NWT, in particular is performed;
- a long-term view of Northern development is considered;
- meetings are held in the North with Northern stakeholders; and
- there is a public release of the final report.

We believe these items should continue to be the issues of primary focus.

Regulatory

There has been extremely limited opportunity for public consultation with respect to amendments to the Canada Mining Regulations (CMR). A list of consultees sourced from DIAND shows that, apart from other government agencies, only mining companies and the NWT Chamber of Mines are included.

From what we understand of the proposed amendments, we are generally supportive of the administrative changes and amendments with respect to the royalty regime and related issues, such as the deductibility of Impact and Benefit Agreements (IBAs).

Further, we understand that other amendments have been proposed, none of which articulate and rationalize the uniqueness of diamonds as a mineral resource. In fact, they state just the opposite.

CITY OF YELLOWKNIFE
DIAMOND INDUSTRY DEVELOPMENT TASK FORCE (cont'd)

It is our contention, that without a thorough review of legislation from other producing jurisdictions, Canada may be poorly positioned to compete in an international environment. We believe that legislative and regulatory amendments, amenable to industry and international trading partners, can and should be considered with a view to providing a regulatory framework encouraging the maximization of value-added opportunities.

Through broader consultation and review of proposed amendments, an opportunity would be presented for our Task Force, and others, to contribute input with respect to the regulatory structure of this new and exciting Canadian industry.

Value-Added Opportunities

It is our contention, supported by discussions with Industry leaders, that a significant and profitable secondary processing industry can be developed and sustained in Yellowknife, leading to the vision of a Canadian Diamond Center of Excellence. This can be achieved with assured access to diamond rough, world class joint venture partners, and public sector support.

To the best of our knowledge, the Federal government has not undertaken any feasibility analysis of diamond processing in the North. We firmly believe that this is an urgent and critical step which must be taken before key Federal decisions are made.

It must be made clear that we are not, in any way, asking industry to subsidize this effort. The City of Yellowknife exists, in large part, because of gold. Within this community, there is broad understanding of the dynamics of commodity markets.

These business and employment opportunities fall within 3 broad areas of the “diamond pipeline” as follows:

- cleaning and sorting of the diamond rough, both for valuation and market purposes;
- diamond manufacturing; and
- jewellery manufacturing.

While estimates with respect to employment potential vary, and depending on the focus of selected business opportunities, significant potential employment benefits exist.

Through our own initiatives, and in concert with the GNWT, we are taking steps to assess Industry Needs at steps along the diamond pipeline to fully explore the most promising opportunities.

As well, we are working cooperatively with public and private sector partners to explore areas of common interest and cooperation.

CITY OF YELLOWKNIFE
DIAMOND INDUSTRY DEVELOPMENT TASK FORCE (cont'd)

As an example of the type of support we would appreciate from the Federal government, we would direct your attention to the support provided to a company in Calgary, who, we understand, has solicited funds from HRD Canada to implement training in diamond cutting and polishing for approximately 30 individuals. The obvious rhetorical question is why wasn't this done in Yellowknife?

The City of Yellowknife is fully prepared to aggressively promote the benefits and opportunities of locating secondary processing functions in Yellowknife, and to that end, has developed promotional products for broad application within the industry.

Our vision is to generate the critical mass of partners to establish Yellowknife as the Diamond Capital of North America. Yellowknife is not only centrally located within North America's most promising diamond properties; we have an able and willing work force, and competitive investment and operating environments.

We are strongly motivated to capture benefits from this industry and we are optimistic that a cooperative approach with the Federal department responsible for Northern Development is a critical element to our long-term success.

PRESENTATIONS TO THE COMMITTEE

ROYAL CANADIAN MOUNTED POLICE “G” DIVISION YELLOWKNIFE

CANADIAN DIAMOND OPERATIONS THE NEED FOR EFFECTIVE SECURITY PLANS

Reality of Loss

Diamond operators have been developing methods of minimizing production loss (theft) for over one hundred years. It is a problem common to every producer and a problem that must be taken very seriously. The vast majority of employees will never become involved. They neither sought the job with ill intention nor succumb to the pressures of opportunity. A small percentage do become involved. It is likely something less than 1 person out of 10. Organized crime has taken a very keen interest in the diamond industry. The commodity is one that is high in value and small in volume. Diamonds are easily concealed and therefore easy to smuggle. They are easily laundered virtually anywhere in the world. The most common method by which organized criminals draw employees into the fray is by first offering a substantial reward for the first delivery of a rough diamond. Diamonds are then demanded under threat of alerting authorities to the initial theft. The employee is drawn progressively deeper and deeper into the process of stealing diamonds. This is, of course, one of literally hundreds of scenarios that feed the black market. Groups of people, called collection cells, often work in concert, once drawn into the system. Numbers exceeding 40 have been involved on one shift at a diamond mine in South Africa. Closed, hands-off systems are not immune to leakage. These systems are simply compromised through well thought-out engineered techniques. What closed systems do however accomplish is the reduction of the pressures of opportunity in the first place.

Minimizing Loss

Producers can minimize loss through effective security and awareness programs. It starts with effective pre-employment screening practices. That, simply put, means knowing who you are hiring and then properly placing them within the system. The next step is to ensure that their integrity is protected by a security and safety program. Employees should become involved in the security process. A large part of a security program is to protect and involve the 9/10 people that will never become a part of the problem, while a smaller part of the program is geared toward capturing those who form the intention to steal. Organized crime represents the greatest threat to a producer and its work force. It is on this threat that the security plan must therefore focus. If organized criminals have the perception that a company's security practices are sound, they will not go away, but they will look for an environment that is more penetrable.

ROYAL CANADIAN MOUNTED POLICE
"G" DIVISION - YELLOWKNIFE (cont'd)

The Black Market Diamond Trade

Diamond leakage at the production level threatens diamond market confidence. Diamond leakage goes well beyond simply affecting the victim producer. It can have adverse effects on other producers and the downstream industry. Should the public lose confidence in the diamond market, the industry could suffer huge consequences, if not extinction. We must take advantage of diamond experience elsewhere to avoid needless mistakes in Canada, for the consequences could have global implications. Worthy of noting, 14% of the value of every rough diamond that is stolen, at the production level, is lost government revenue. If Canada suffers similar loss to that of many other producing countries, we are talking about multiples of millions of dollars each year in royalty loss alone.

Security Plans

It is well within the realm of possibility that multiples of diamond operations could develop in Canada. It is likely that such operations would vary in degree of size and their approach to security. One small operation with a relaxed security philosophy could have tremendous negative implications. A minimum security standard, developed through consultation with diamond producers, could help ensure that the best interests of the Canadian diamond industry are being looked after. A governing body has to take the first step and facilitate the process once decided.

Ray Halwas
Royal Canadian Mounted Police
NCO I/c Federal Enforcement
"G" Division

Two RCMP members, from the Yellowknife Federal Unit, have been working on the "diamond project" for the past 1 ½ years. Their research has taken them to the Argyle Mine (Australia), Venetia Mine (South Africa) and the Jwaneng Mine (Botswana). These mines are open-pit operations, similar in profile to those operations anticipated in northern Canada. Each of these mines suffer diamond loss and are continuously striving for improved diamond control. Diamond-specific legislation, x-ray body scanning and progressive security practices provide the best protective measures. At present, we (Canada) neither have diamond-specific legislation nor the ability to use x-ray body scanning devices. By default, effective security practice is our only defence.

**ROYAL CANADIAN MOUNTED POLICE
“G” DIVISION - YELLOWKNIFE (cont'd)**

**CANADIAN DIAMOND INDUSTRY - A NEED FOR
LEGISLATIVE CHANGE**

Background

Criminality associated with the diamond industry is a serious problem in other producing countries and will in all likelihood be a problem for Canada. The industry is as unique as the commodity itself. Existing legislation in Canada is able to meet some of the needs of this industry, but it also falls short in some areas. It is difficult to fit the dynamics of this new industry perfectly into existing legislation. In those areas where the legislation falls short, we must work at developing legislation to fit into the dynamics of the industry.

Criminal Code Amendments

Through consultation with the RCMP, Justice Canada has recognized a need for amending the *Criminal Code*. The Uniform Law Conference of 1996 recommended changes to Sections 394 and 656 of the *Criminal Code* to include "uncut rough diamonds." We have also identified the need to define "uncut rough diamond." It must be noted that these proposed changes have not yet been passed and there is no guarantee that they will.

In dealing with the possession of rough diamonds, if passed, Section 394 would make it an offence for a person to possess rough diamonds that the police had reasonable and probable grounds to believe were stolen and there was no evidence to the contrary. The maximum penalty would be five years in prison without having to establish a value on the diamonds. Possessing the rough diamonds, alone, would not constitute an offence. The police would require background material to believe that the stones were stolen, from where they were stolen, etc. They would also have to consider evidence to the contrary. On cases where the police have developed evidence over a period of time and are actively investigating a specific case, this section could be useful, although the general theft section, 322, could also be used. If police seized rough diamonds found during warranted searches for drugs or other illicit commodities or found them in the possession of individuals as a result of information received from the public, such seizure could still be challenged on the basis that the officer did not have reasonable and probable grounds to believe the stones were stolen. Indeed, it could be argued that the stones could equally have come into possession of the individual by other means such as being bought out of country and smuggled into Canada. There can be little doubt, however, that, if seizure is not effected, the stones would never be seen again.

Section 656 of the *Criminal Code* would cover the possession of rough diamonds on a mine site. If a person was found in possession of rough diamonds, in absence of evidence to the contrary, they would be criminally liable for the theft of the stones. If passed, this amendment would be quite useful for site applications. This section is, however, raising some difficulty and, as it appears, it may not withstand a charter challenge.

ROYAL CANADIAN MOUNTED POLICE
“G” DIVISION - YELLOWKNIFE (cont'd)

These amendments may or may not be in effect for operations in October 1998. The process will however continue until such time that they are either passed or dismissed from further consideration. Justice Canada is monitoring the amendment process.

The Need For New Legislation

The reference to new legislation is reference to a "Rough Diamonds Act" for Canada. This is a totally different issue than the *Criminal Code* amendments, although new legislation could provide legislative assistance to *Criminal Code* investigations. For the purpose of this paper, I will deal only with the main and integral feature of what needs to be included in a new piece of legislation. That is, a permit or licence requirement to possess or deal in rough diamonds. Other major diamond-producing countries have diamond-specific legislation in way of a specific statute. The requirement for authorization to possess rough diamonds is an indispensable weapon against black market diamond activities, according to De Beers.

The system would work something like this. The federal government would maintain a central registry of permits and licences. The actual issuing process could be divested to the Territorial/Provincial level to allow them the ability to maintain control as they see fit. A federal department could also manage the issuance of permits/licences as well. A rough diamond dealer (cutter, dealer, broker) could obtain a dealer's licence. He or she would be required to maintain records of rough transactions which might be subject to inspection, which would be regulated by the Minister of the administering department. Those individuals who receive or wish to purchase a rough diamond could obtain a permit from the dealer, the record of which would immediately be provided to the central registry. A copy of the permit would be provided to the individual.

This system would disadvantage the untoward and assist the genuine dealers in doing what is right. A genuine diamond cutter, for example, would ensure that the dealer who sold him rough diamonds in Canada had a permit. The system would help ensure that the honest merchants and citizens are not buying stolen rough which could realistically be seized from them down the road to be returned to the lawful owner. The requirement for record keeping would provide for a mechanism for the administering department to ensure the rules are being followed.

A "Rough Diamonds Act" would provide for criminal penalties, administrative penalties, powers of inspectors/police, and provision for search.

Given the situation now, with the individual on the street with a pail of diamonds. On the strength of the "Rough Diamonds Act" the diamonds could be seized for failing to possess a permit. If the individual had obtained the diamonds legally and did not obtain the permit, he could be dealt with administratively or be charged for a permit offence under the "Rough Diamonds Act." With the diamonds under seizure, the theft investigation could continue. Fingerprinting analysis could be applied. The source of the diamonds may be able to be identified. The fact that he did not have a permit would provide lack of evidence to the contrary that they were stolen. The individual would likely be charged under the *Criminal Code* and possibly under the new act. The diamonds could be returned to their rightful owner. The same

ROYAL CANADIAN MOUNTED POLICE
"G" DIVISION - YELLOWKNIFE (cont't)

scenario could unfold for diamonds discovered during a drug search. The permit requirement is the ingredient that would enable the system to work and, at the same time, provide an advantage and protect the integrity of the honest dealer. If reliable information was received that a suspect had a kilogram of rough diamonds in his home, and there was no record of a permit being issued, on the strength of the "Rough Diamonds Act" the police could conduct a search under warrant and recover the diamonds. The strength of the *Criminal Code* alone, even with proposed amendments, would not provide for this ability.

The authorization process would also serve to accurately capture domestic transition of rough for Canada (legal transition). Trends in transition of rough could assist in discovering organized crime activities. Its ability to enhance *Criminal Code* investigations is certainly an important feature, given that the honest dealers would never be subject to the *Criminal Code* application. What may be a most significant feature is that without a permit requirement the criminal element is not answerable. There would be no justification mechanism for possessing rough in Canada. That would make Canada attractive as a free trade zone for black market rough. It could result in black market rough from other countries being brought in for trade since the laws would be powerless in Canada to recognize legal from illegal transactions. Those dealing in black market rough could simply chose not to cooperate, and be assured they will do exactly that.

Ray Halwas, 98-02-26
NCO I/C "G" DIVISION FEDERAL ENFORCEMENT SECTION

**ROYAL CANADIAN MOUNTED POLICE
"G" DIVISION - YELLOWKNIFE (cont'd)**

**JUSTIFICATION FOR A 3 MEMBER DIAMOND
UNIT FOR "G" DIVISION**

HISTORY

In January of 1996 the "G" Division Federal Enforcement Section was tasked with the "Diamonds Project." The purpose of the project was to determine the impact that the Canadian diamond industry will have on policing, and to work with diamond producers and other agencies in developing long-term strategic plans for delivering a police service.

The Federal Enforcement Section is comprised of two members and their positions are federally funded. These two members are required to deliver a service to the entire NWT/Nunavut. There are 196 Federal Statutes of which a lesser number apply to the North. The Federal Unit is responsible for enforcement under these specialized statutes. Because the RCMP has no dedicated Customs and Excise Sections or Immigration and Passport Sections in the North, by default, the Federal Unit also manages this area of responsibility. The Unit also provides the VIP Security service for the North. The Diamonds Project is simply an extra duty.

The two officers on the Federal Unit have received experiential training from diamond producers and police forces with experience in the industry. They have also received formal training in rough diamond identification/grading and intelligence management.

Present Status

The Diamond Project continues to grow at an accelerated rate as we rapidly approach the production phase. After a year of working on the project it was becoming more and more obvious that the two member unit could neither provide a fully satisfactory service to the project nor the federal mandate due to pressures from both sides. Federal funding was approved for one additional position for one year, to assist with the federal mandate. This position was installed in August of 1997 and it expires in June of 1998. It was funded with special projects money on short term.

With the additional position we were able to initiate 13 new projects of which the greater portion are comprehensive. The projects are listed below:

1. EXISTING ROUGH DIAMOND TRADE IN CANADA
2. LEGAL ISSUES
3. INTELLIGENCE
4. DIAMOND FINGERPRINTING
5. SECURITY AWARENESS
6. ANTWERP
7. MEMBER FAMILIARIZATION PROGRAM
8. POLICE/PUBLIC AWARENESS
9. CODE OF ETHICS

ROYAL CANADIAN MOUNTED POLICE
“G” DIVISION - YELLOWKNIFE (cont'd)

10. PARTNERSHIPS
11. TRAINING ASSISTANCE PROGRAM
12. LOCAL JEWELLERY INDUSTRY CRIME WATCH
13. DIAMOND INDUSTRY CRIME AWARENESS

The **problem** we are trying to successfully address at this time is that another year has passed, the project has continued to grow and we will be down to two Federal Enforcement members in three months. If we are to provide an effective policing service to this industry we require a dedicated diamond unit. A unit that can work pro-actively with producers, the downstream industry and other agencies. Through providing a continuous service we will be in a most advantaged position to provide a reactive service when required. The Federal Enforcement Section simply cannot take the pressures that this project demands any longer. A new and separate unit is the only answer, if we want to be effective. Our first producer is scheduled to be on line for October of 1998. That in itself will present us with an entirely new set of challenges.

WHAT ARE THE OPTIONS:

- 1.1 We could sit back and let this industry develop without us. The criminality will naturally continue to evolve however we won't see it. Years down the road we will likely receive a complaint from a producer that they have lost multiples of millions of dollars over a number of years, and we will have to investigate. The investigation will be very costly and go on for a number of years. Of course, we will first have to find out what a rough diamond looks like! This is the very scenario that unfolded in Australia. The investigation has cost the Australian government , to date, \$3 million and the company considerably more. This cannot realistically be seen as an option.
- 1.2 We could attempt to continue for another year through trying to renew the one-year term position. Even if the position was approved, the situation would remain relatively ineffective. It would result in two members working part-time on the diamonds project and would simply be a piece-meal effort. With one operation commencing this year and another starting to develop, this option would not meet with much success. At present, two members are dealing for the most part exclusively with BHP, and they are just developing. Once Diavik starts developing and BHP starts operations, policing demands are going to multiply rapidly.
- 1.3 Creating a 3 member dedicated unit represents a real service delivery option. In the words of Pat Gilroy (D/Chief Executive Western Australia Chamber of Mines); "Either you provide a service or you do not. If you do not have people dedicated to the industry you are not providing a service." A minimum of three members represents the minimum requirement that we need to walk into this industry and provide a real service with real continuity. The 3 members would work within the NWT/Nunavut however they would have to maintain national and international contact with other agencies and police departments, given the nature of the diamond industry. They would be working with over 50 exploration companies, one producer and one developing mine. They would also have to provide a service to any downstream industry in the North as well as any sorting and evaluation

ROYAL CANADIAN MOUNTED POLICE
“G” DIVISION - YELLOWKNIFE (cont'd)

facilities. A "duties and responsibilities" breakdown is attached. It is likely that, over time, through working on real problems and addressing industry needs more human resources will be required to do the job. Unit members could address that need through exploring partnerships with interested parties. It is certain, at this time, that we require three people.

DIAMONDS UNIT - DUTIES AND RESPONSIBILITIES

1. Unit member development will remain a priority until October of 1998, start-up for our first Canadian diamond operation. An emphasis must be placed on the member newly introduced to the diamond community. In-house training will provide this member with much of what he/she requires to do the job. Outside training opportunities will also be explored. Should other divisions identify a need for dedicated services, the "G" Division unit will represent a good training environment for them.
2. Unit members will deal with information relative to criminal activity. This includes planning, collection, evaluation, collation, analysis and dissemination. Intelligence will have four components: site, regional, national and international. National intelligence data banks, including NCDB and ACIIS, will help provide for the sharing of and retrieval capability for related information. The most integral intelligence component is the site component. Unit members must depend on and work with diamond operators if they are to develop a clear focus for off-site policing.
3. Statistical data relative to rough diamond exports and imports will be utilized to identify industry trends. Protocol must be developed with Revenue Canada Customs that will facilitate recovery of this information in a timely and appropriate manner. Frequent enquiries concerning dealer exports/imports are anticipated, therefore a streamlined enquiry procedure is necessary.
4. PROJECTS INITIATED FOR 1997/98: ongoing
 - 1) existing rough diamond trade in Canada
 - 2) legal issues
 - 3) intelligence
 - 4) diamond fingerprinting
 - 5) security awareness
 - 6) Antwerp (**project complete**)
 - 7) member familiarization program
 - 8) police/public awareness
 - 9) code of ethics
 - 10) partnerships
 - 11) training assistance program
 - 12) local jewellery industry crime watch
 - 13) diamond industry crime awareness

ROYAL CANADIAN MOUNTED POLICE
“G” DIVISION - YELLOWKNIFE (cont'd)

5. Our first diamond operation will be up and running by October of 1998. Diamond investigations will require the undivided attention of the diamonds unit. Preparatory measures and related projects will therefore have to reach a level of maintenance by that time. There will be no opportunity to "pause" the system and wait. Limited resources will dictate that the full emphasis be placed on looking for and dealing with the problem of criminality associated with diamond loss.
6. PROJECT #14: This project will manage the protocol for diamond investigations within the Royal Canadian Mounted Police. The creation of the diamonds unit and its mandate will be communicated to all members of the force, as the initial step. Criminal Operations Officers will then be asked to identify a diamond coordinator for their division. The diamonds unit will provide a newsletter on a quarterly basis (approx.), which will contain general information of interest to other divisions, to coordinators for dissemination as they see fit. The diamond industry will affect each division differently and in some cases not at all. Specifics, such as enquiries with a local diamond cutter, will also be channelled through division coordinators for furtherance to the appropriate investigating unit. The expected result of this process should provide for an informed member at the HQ level in each division. This process is expected to assist divisions in addressing their own needs.
7. PROJECT #15: This project will include work performed in assisting diamond operators with contingency planning. The police will have a role in life safety programs on diamond mining sites. Armed assaults are a realistic threat to remote diamond mines. This is one area where the diamonds unit can assist in way of providing for preparatory measures and setting out clear expectations should such an incident occur. Police involvement in life safety programs will extend beyond that of the diamonds unit.
8. The BHP diamond project will be on line in October of 1998. The Diavik project is in the development phase and there exists in excess of 50 other active diamond exploration companies in the North. The diamonds unit will need to provide a service, to some degree, to the entire diamond community. This may include, for "G" Division, but is not restricted to evaluation, sorting and cutting facilities and related rough diamond transition. Three human resources represent the minimum requirement to provide a service at this time. As the industry continues to develop, added pressures may support the need for additional resources. These future needs can be addressed through a partnership approach with the diamond mining community.

Ray Halwas 98-02-26
NCO I/c "G" Division Federal Enforcement

PRESENTATIONS MADE TO THE COMMITTEE

BHP Diamonds Inc.¹
Ottawa, March 1998

Overhead 1

PRESENTATION OUTLINE

- Introduction
- Agreements and basis for investment
- Marketing program
- Conclusions

Overhead 2

INTRODUCTION

- Project history
- Location
- Project description
- Project development status

Overhead 3

PROJECT HISTORY

- Summer 1990 NWT Diamonds Project joint venture formed between BHP and Dia Met
- Fall 1991 First diamonds discovered at Point Lake
- Fall 1993 BHP opens Koala Camp and Yellowknife office
- Dec. 1993 Project Description submitted
- July 1995 Environmental Impact Statement submitted
- Nov. 1996 Project approved
- Jan. 1997 All licences and permits finalized

Overhead 4

LOCATION

Map showing location of BHP's Ekati Diamond Mine in NWT

¹Based upon a computer-generated overhead presentation.

BHP Diamonds Inc. (cont'd)

Overhead 5

PROJECT DESCRIPTION

- Ownership - BHP 51%, Dia Met Minerals 29%, Fipke, Blusson 10% each
- Mining - 5 open pits, 2 underground mines
- Reserves - 78 million tonnes, 17 year life
- Exploration - ongoing, confident of 25 year project life
- Production - approx. 4 million carats/yr
- Capital budget of C\$714 m + sunk costs of \$201 m + working capital = total of approx. \$1 billion

Overhead 6

PROJECT DEVELOPMENT STATUS

- Construction about 75% complete
- Production in October 1998
- \$650 million spent to date
- On time, safely, and within budget
- No significant environmental issues
- Meeting and exceeding targets

Overhead 7

AGREEMENTS AND BASIS FOR INVESTMENT

- EARP process
- Government approval
- Socio-Economic Agreement with GNWT
- Socio-economic benefits
- IBAs
- Statements from EIS
- Issues

Overhead 8

EARP PROCESS

- Project scope defined in review
- Highest level of review possible in Canada
- 2½ year process
- Full opportunity for all issues to be addressed

BHP Diamonds Inc. (cont'd)

Overhead 9

GOVERNMENT APPROVAL

- Full federal and territorial government support to proceed with the project
- All licences and permits in place
- No requirements or references to secondary industries in any approval documents

Overhead 10

SOCIO-ECONOMIC AGREEMENT WITH GNWT

- Addresses socio-economic benefits from the project
- Spirit of cooperation, communication and mutual support
- Dispute resolution mechanisms
- No reference to secondary industries

Overhead 11

SOCIO-ECONOMIC BENEFITS

- Targets established in agreement with GNWT met and exceeded by BHP
- Over 40% northern hire (target 33%), equal to 500 person years employment
- \$200 million - or over 50% northern expenditures (target 28%)
- 18% Aboriginal employment, \$90 million Aboriginal expenditures

Overhead 12

IBAs

- Mandated by government for project approval
- 2 agreements signed; implementation proceeding smoothly
- Address benefits from the project; value-added opportunities not an issue

Overhead 13

SORTING AND VALUING

- “Implicit in the [marketing] plan is the intent to do cleaning and final sorting of rough diamonds at a site readily accessible to potential customers. While such a site remains to be selected, it is most likely to be Antwerp in Belgium which is the world’s major diamond centre.”

- Environmental Impact Statement Summary
(July 1995)

BHP Diamonds Inc. (cont'd)

Overhead 14

DOWNSTREAM ACTIVITIES

- "...the Proponent [Ekati] believes that any diamond processing and manufacture beyond the sale of rough diamonds is unattractive economically and has no plan to enter into this part of the business. No cutting, polishing or other such downstream processing will be established as [part of this project.]"
- Environmental Impact Statement Summary
(July 1995)

Overhead 15

ISSUES

- Potential for changing the "rules of the game" after full public review and commitment of investment
- Need for fiscal and political stability
- Consistency with policies, trade agreements and existing legislation
- Effect on NWT investment climate

Overhead 16

MARKETING PROGRAM

- Entry to diamond industry
- Ekati marketing principles
- Current status
- Sorting and valuing
- Off-site sorting facility
- Canadian access to rough
- Sales within Canada

Overhead 17

ENTRY TO DIAMOND INDUSTRY

- Complex, secretive, closely-knit industry - caution required for new entrants (Ekati, NWT and Canadian governments)
- Avoid costly mistakes by mastering basics before assessing more complex activities
- Importance of Antwerp - 70% of rough trade
- no concept of guaranteed supply in industry except producer/CSO contracts

BHP Diamonds Inc. (cont'd)

Overhead 18

EKATI MARKETING PRINCIPLES

- Multiple channels for price comparison and diversification
- Develop own expertise, using consultants initially
- Careful client selection based on financial strength, expertise and compatibility
- No Ekati subsidies for buyers or downstream activities
- Freedom to make marketing decisions

Overhead 19

CURRENT STATUS

- Good progress being made
- Antwerp office established
- Consultants appointed
- Other marketing channel arrangements under review (CSO, joint ventures, direct dealer sales)

Overhead 20

SORTING AND VALUING - (1)

- Awaiting new mining regulations
- Ekati in discussion with DIAND regarding valuation methodology for royalties
- A valuation of goods before leaving Canada benefits all parties with respect to royalties, security, insurance and control
- Ekati stated in 1996 its preference for royalty valuation in Canada to be in NWT

Overhead 21

SORTING AND VALUING - (2)

- Initial sorting in NWT is for valuation
- Training and skills development
- Final sorting for market is best done in the market place (Antwerp)
- Ekati has planned minesite sorting/valuation
 - lower cost, better security, more convenient
- Ekati is willing to consider off-site NWT facility in cooperation with government

Overhead 22

SORTING AND VALUING - (3)

- Closure required on possible additional demands
- Initially functions are restricted by
 - limited Ekati experience
 - no specialized expertise in NWT
 - market entry strategy (succeed with basics first)
- In the future, functions could be expanded
 - more detailed sorting, sales office

BHP Diamonds Inc. (cont'd)

Overhead 23

CANADIAN ACCESS TO ROUGH

- Ekati will work constructively to meet legitimate NWT and Canadian demand
 - usual client selection criteria
 - no “guaranteed” supply; usual sales terms
 - in discussion with the few potential buyers
 - initial sales through Antwerp office
 - no buyer should be dependent on a single source of supply

Overhead 24

SALES WITHIN CANADA

- Two types
 - domestic companies
 - foreign companies, e.g., CSO, Antwerp dealers
- Sales will not be made to a government entity
- NWT sorting/valuation facility could be a suitable base for Canada sales negotiations
- Excise tax issues for domestic sales

Overhead 25

CONCLUSION - (1)

- Ekati is meeting its commitments to provide significant benefits to Aboriginal groups and the NWT
- Ekati is conditionally willing to establish an off-site sorting and valuation facility
- Ekati will work constructively to meet legitimate NWT and Canadian demand

Overhead 26

CONCLUSION - (2)

- Marketing freedom
- Ekati, NWT and Canada will need time to become familiar with the industry
- Ekati - a good news story for everyone
- We are seeking mutually beneficial cooperation

PRESENTATIONS MADE TO THE COMMITTEE

DIAVIK DIAMOND MINES INC.¹

March 12, 1998

DIAVIK DIAMONDS PROJECT Maximizing Benefits for Northerners

Overhead 1

Who are we?

- **Diavik Diamonds Joint Venture**
60% Diavik Diamond Mines Inc. (DDMI)
(A subsidiary of Rio Tinto PLC)
40% Aber Resources Ltd.
- **DDMI is project manager**

Overhead 2

A Canadian Opportunity

- Long-term jobs
- Active partnership with Aboriginal peoples
- Economic benefits for Canadians, especially Northerners
- Environmentally sustainable development
- Internationally significant mining investment
- Shareholder value

Overhead 3

Potential Project Benefits

- Investment \$1 000 000 000
- Jobs 350±50 operations
270 indirect
- Salaries & Benefits \$25 million/year
- Purchasing \$90 million/year
- Royalties & taxes \$70 million/year

¹Based upon the overheads of the presentation.

DIAVIK DIAMOND MINES INC. (cont'd)

Overhead 4

Project Economics

- High up-front risk and cost
- Significant lead times required prior to production
- Harsh operating conditions
- Ongoing investment in community
- Benefits shared with Crown through royalties and taxes
- Very sensitive to market value of diamonds
- A number of decision points before the mine is a reality
- Significant benefits for the North

Overhead 5

Our Experience

- Mining is the primary wealth generator
- Increased regulatory and financial burden decreases recoverable reserves
- Diamond markets are increasingly competitive and dynamic
- Maximizing diamond value requires market flexibility
- Limited downstream opportunities exist
- “Cherry picking” would reduce project value to shareholders and Canadians

Overhead 6

DDMI's Approach to Downstream Activities

- Valuing and sorting will be done in NWT for royalty and joint venture product splitting purposes
- Marketing strategy to maximize value will develop over next few years as Diavik approaches production
- DDMI supports a competitive, commercially based industry that does not restrict or interfere with the marketing of rough diamonds

Overhead 7

The Best Option

- Maintain an efficient, predictable and competitive regulatory and fiscal regime that encourages sustainable development
- Determine appropriate sharing of Crown revenues between Northerners and other Canadians
- Support training and skills development for local Canadians in all areas related to the diamond industry
- Consider reduction of excise tax for jewellery manufactured in NWT

Overhead 8

A Word of Caution

“Government’s must be careful that ‘value-added’ does not diminish value to shareholders and Canadians”

PRESENTATIONS MADE TO THE COMMITTEE

ASHTON MINING OF CANADA INC.

(March 26, 1998)

(1) Introduction

This submission is made to the Study Group established in support of the Committee of Senior Government Officials representing the Government of Canada and the Government of the Northwest Territories, which has been directed to review the value-added aspects of the Canadian diamond industry, with particular reference to the NWT.

This submission comments on three principal issues to be addressed in the study in relation to the inception of diamond production in the NWT, namely

- the location of facilities for sorting and valuation of rough diamonds;
- the development of domestic facilities for cutting and polishing of diamonds, and the manufacture of jewellery; and
- the governing framework for the diamond industry to be embodied in the revised Canadian Mining Regulations.

In addressing these issues, it recognized that the study is principally directed toward the NWT, with an emphasis on the Ekati Mine and in anticipation of potential future production from the Lac de Gras property of Diavik Diamond Mines Inc. Nonetheless, two related comments are offered:

- (a) Policies and procedures established in relation to diamond mining in the NWT will inevitably set benchmarks for comparable activities in other territories and provinces where diamond exploration is currently under-way, and where areas of comparable prospectivity are located. Therefore, to this extent, the outcome of the study will be of consequence to Canada at large, as well as to the NWT
- (b) The two deposits noted above are of particularly high value on a global scale. However, future deposits still to be discovered may be economically viable, but nonetheless of a less profitable nature.

(2) Sorting and Valuation

Sorting and valuation for royalty purposes do not offer substantial employment opportunities. Accordingly, these activities are most efficiently carried out near the mine site. Moreover, experience elsewhere has shown that as confidence grows, sorting and valuation procedures evolve to the point where government agencies rely more heavily on actual sales receipts than on valuation at the time of production.

ASHTON MINING OF CANADA INC. (cont'd)

Sorting for market purposes is a more varied and specialized exercise. Given long-established practices in the diamond industry, it is best done closer to the point of sale where parcels can be tailored to the requirements of individual customers.

(3) Cutting, Polishing and Jewellery Manufacture

During the course of its review, the Study Group will have become well acquainted with the complexities of the international diamond market. Mine producers seldom have significant involvement in downstream processing activities. Their emphasis is on the high-risk exploration process, and on capital-intensive investment in production facilities. Accordingly, their interests are best served by ensuring a sales process where maximum value can be realized for the rough product.

Not surprisingly, local authorities wish to see as much value-added activity as can be realistically effaced in the region where primary production takes place. This is generally difficult in a highly variegated international market. Moreover, the immediate prospects in the *NWT* may be open to question given high labour and related costs, and the limited skill base which is presently available.

If the Study Group is inclined to recommend the promotion of downstream activities in the *NWT*, care should be taken not to impair the competitive position of local producers of rough stones through added costs or constraints on marketing. It would therefore be appropriate to provide the opportunity, but not the obligation, for primary producers to sell to local fabricators.

(4) Regulatory Framework

Revisions to the Canada Mining Regulations are expected to be issued for public comment very shortly. Two points are worthy of emphasis in that regard:

- (a) The regulations should treat the prospecting for and mining of diamonds in the same manner as other mineral commodities. Diamonds should not be singled out for special attention. Again, it is important to remember that deposits under development or expected to be developed in the *NWT* exhibit unusually high values at current diamond prices. The forthcoming regulations should therefore not rely unduly on these special circumstances.
- (b) Similarly, the royalty regime should be one which ensures, for the benefit of Canadians at large, that a range of deposits of more modest unit values can still be utilized, and that development of this significant resource will not be limited to only the richest deposits.

APPENDIX III

QUESTIONNAIRES

A series of questionnaires developed by the Study Group were sent to a number of Canadian and international organizations that are or possibly could be involved in the Canadian diamond industry. As far as possible, all companies contacted have been listed below.

Potential Canadian Diamond Producers

Aber Resources Ltd.	Vancouver
Ashton Mining of Canada Inc.	North Vancouver
BHP Diamonds Inc.	Yellowknife
Dentonia Resources Ltd.	Vancouver
Dia Met Minerals Ltd.	Kelowna
Mr. Charles Fipke	c/o Dia Met Minerals Ltd., Kelowna
Mr. Stuart Blousson	c/o Dia Met Minerals Ltd., Kelowna
Diavik Diamond Mines Inc.	Yellowknife
Glenmore Highlands Inc.	Vancouver
Horseshoe Gold Mining Inc.	Vancouver
Kennecott Canada Exploration Inc.	Vancouver
Kettle River Resources Ltd.	Greenwood, BC
Lytton Minerals Limited	Vancouver
Monopros Limited	Toronto
Mountain Province Mining Inc.	Vancouver
SouthernEra Resources Limited	Toronto
Winspear Resources Ltd.	Vancouver

Existing and Potential Canadian Rough Diamond Dealers and Manufacturers

Canadian Diamonds International	Calgary
Cohenor Inc.	Montréal
Diamond Productions Ltd.	Montréal
Five Star Diamonds Corp.	Montréal
Hope Diamond Co.	Montréal
J.S.N. Jewellery Inc.	Concord, ON
MAG	Montréal
Millennium Diamond Manufacturing Corp.	Toronto
Polar Star Diamonds Ltd.	Edmonton
Sirius Diamonds	Sydney, BC
Zimmy Diamonds	Winnipeg

Existing and Potential Canadian Users of Industrial Diamonds

Boart Longyear Inc.	North Bay, ON
Diacan	
Diamond Systems Inc.	Brampton, ON

Existing and Potential Canadian Users of Industrial Diamonds (cont'd)

Diamond Productions Ltd.	Montréal
Diaset Products Ltd.	Delta, BC
Dimatec Inc.	Winnipeg
Fordia Limitée	Ville Ste Laurent, QC
Hobic Oil Bit Industries Corp.	Richmond, BC
JKS Lamage	North Bay, ON
JKS & Boyles	North Bay, ON
Muskox Diamond Abrasives	Yellowknife
North Star Diamond Abrasives Ltd.	Montréal
Pilot Diamond Tools Ltd.	North Bay, ON

Central Selling Organisation

De Beers Canada Corporation	Vancouver
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International Rough Diamond Dealers and Manufacturers

Belgium

Arslanian Frères	Antwerp
I.D.H. Diamonds	Antwerp
Lewy-Friedrich n.v.	Antwerp
Overseas Diamonds Ltd.	Antwerp

Israel

Cohen & Sons	Ramat Gan
Israel Diamond Manufacturers Ltd.	Ramat Gan
LID Ltd.	Ramat Gan
Lustig & Samuels Diamond Manufacturers	Ramat Gan
Schachter & Namdar Polishing Works Ltd.	Ramat Gan
Schwartz & Sons Diamond Manufacturers	Ramat Gan
Mr. Daniel Steinmetz	Ramat Gan

Republic of South Africa

Diamond Development Company (Proprietary) Limited	Johannesburg
Transvaal Diamond Cutting Works	Johannesburg
Zlotowski's Diamond Export Corporation Ltd.	Johannesburg

United Kingdom

IDC (Holdings) Ltd.	London
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International Rough Diamond Dealers and Manufacturers (cont'd)

United States

Fischer Diamonds

Leo Schachter & Co. Ltd.

Schumacher Diamonds

New York

New York

Bismarck, N.D.

Sample Questionnaire

QUESTIONNAIRE FOR INTERNATIONAL ROUGH DIAMOND DEALERS AND MANUFACTURERS

The answers provided on these questionnaires are for the confidential use of the members of the Committee on Value Added Aspects of the Canadian Diamond Industry - Northwest Territories and its Study Group only. No names of individuals, companies or associations will be used when compiling the results of the questionnaires.

1 If Canadian rough was offered for sale in the NWT, would you be willing to travel there on a regular basis to purchase it?

yes ___

no ___

If no: 1(a) Why not?

1(b) What incentive would you require to become a regular buyer of Canadian rough in the NWT?

2 If Canadian rough was offered for sale in a major Canadian city outside of the NWT, would you be willing to travel there on a regular basis to purchase it?

yes ___

no ___

If no:

6 Would you consider setting up a manufacturing facility in the NWT?

yes ___ no ___

If **yes**: 6(a) Would you require any assistance to establish the plant?

yes ___ no ___

6(b) What form would the assistance take?

If **no** 6(c) What would you require in order to set up such a facility?

7 Would you consider setting up a manufacturing facility elsewhere in Canada?

yes ___ no ___

If **yes**: 7(a) Would you require any assistance to establish the plant?

yes ___ no ___

7(b) What form would the assistance take?

If **no** 7(c) What would you require in order to set up such a facility?

8 Do you see / feel there is the potential to develop a Canadian diamond value-added industry?

yes ___ no ___

If **no**: 8(a) What are the barriers to the development of a Canadian value-added industry?

9 Would you be willing to train Canadians in diamond manufacturing?

yes ___ no ___

If **yes**: 9(a) Would you be willing to do training in Canada?

yes ___ no ___

Further Comments: Please feel free to continue if more space is needed.

APPENDIX IV

OVERVIEW OF THE WORLD DIAMOND INDUSTRY

Summary

World production of natural rough diamonds in 1996, the latest year for which statistics are available, was estimated at between 110 million and 117 million carats¹ (Mct). This compares with 110 Mct in 1994 and 113 Mct in 1995. It is anticipated that Canadian production will eventually reach 10 Mct, slightly under 10 percent of world production.

Three major events in 1997 affected the international diamond industry. The downturn in Asian economies, particularly in Japan but also in Korea and Taiwan, reduced the profitability of many manufacturing (cutting and polishing) centres. The 5 year renewal of the contract between the Government of Botswana and De Beers Centenary AG (De Beers) and the thirteen month contract signed between De Beers and Almazy Rossii-Sakha (Alrosa) of Russia both helped to stabilize the market.

Elsewhere, Angola's first and very large 66 ha kimberlite mine, at Catoca, is being developed as a joint venture with Endiama of Angola and Alrosa of Russia as the major partners. By the year 2000, production is expected to be close to 1 Mct/y and continue for the next 70 years. Alrosa will market 90 percent of the output. De Beers announced that it will build a 12 storey building in 1998 to house a purpose-built and secure diamond sorting and valuation operation in Angola's capital Luanda, near Endiama's headquarters, at a cost of US\$30 million. The building will include facilities for the training of Angolans in the sorting and valuing of rough diamonds. The diamonds will be sorted on a CSO basis. In 1996, Angola's diamond production is estimated at some 3.7 Mct/y.

Other events in 1997 were the cancellation of the contract between Congo and De Beers; evaluation by Argyle Diamonds of its options, either underground development or deepen the open pit; restricted supply of large rough by De Beers, and its price support of 3 grainers (0.66 to 0.89 carats) and larger; the abundant supply of lower grade rough for both industrial use and jewellery and the decline in prices for rough smaller than 3 grainers; and the decline in prices for small polished diamonds which caused a deterioration in the profitability at cutting centres.

Plans to open a rough bourse in Tel Aviv in June 1998 will provide manufacturers with another direct source of rough diamonds.

In early 1998, the government of South Africa's inquiry into the country's diamond industry is expected to produce its report. The government has a political commitment of creating more jobs and is looking at the diamond sector including new diamond tax laws and all aspects of value added, especially the cutting and polishing and the jewellery manufacturing industries.

¹One carat equals 0.2 grams.

THE WORLD DIAMOND-CUTTING INDUSTRY

India cuts more carats of rough diamonds than any other country. In fiscal year 1996/97 it imported 98 Mct rough valued at US\$3.26 B (US\$33/ct) and exported 18 Mct polished worth US\$4.2 B (US\$233/ct). About 90 percent of Argyle's cuttable production is cut in India. Imports of rough by India have increased steadily from 38 Mct in 1990 to 98 Mct in 1997. During that period rough import prices have decreased steadily from a high of US\$52/ct to US\$33/ct. Polished exports from India have increased steadily from 9 Mct in 1990 to 18 Mct in 1997; this growth rate is much higher than the growth rate in diamond jewellery sales. So, as one can expect, polished export prices have decreased steadily from US\$286/ct to US\$233/ct during that period.

Israel is the second largest exporting country. In 1996, rough for local production of polished (net imports minus exports) was 5.74 Mct valued at US\$2.98 billion (US\$520/ct) and net polished exports were 3.8 Mct worth US\$3.99 billion (US\$1050/ct). Israel is also the leader in diamond cutting and polishing technology, including lasers and robots that cut, shape and polish diamonds. Israel cuts a very wide range of diamonds and is renowned for its fancy cuts.

New York cuts the largest and best-quality stones. In 1996, US manufacturers (most are in New York City) imported rough worth US\$730 million and exported rough (not suitable for local production of polished) worth US\$174 million, for a net of US\$558 million. In 1996, polished trade in the United States was US\$2.2 billion exports and US\$5.8 billion imports.

In Russia, most production of rough diamonds comes from Yakutia. As Russia wants to maximize employment, an increasing quantity of diamonds mined in Russia are now cut in Russia. In 1997, preliminary figures indicate that polished production in Russia was US\$650 million-US\$700 million. Most production is exported, as domestic sales for diamond jewellery account for only about US\$30 million.

Employment related to diamond-cutting varies widely from factory to factory, running anywhere from 1 to 3 000 workers. Total employment (full-time and part-time) in diamond-cutting varies widely from country to country. For example, there are 300-400 cutters in the United States; 2 100 cutters in 300 factories in Belgium; some 9 000 cutters in 35 factories in Thailand (there were no factories in 1980); 7 500 workers in some 500 factories in Israel; approximately 10 000 workers in some 50-60 factories in Russia; 1 600-2 000 cutters in 150 factories in South Africa; 10 000 workers in 80 factories in China; and over 800 000 workers in 30 000 factories in India.

The existing diamond cutting centres have developed over the past 20-40 years. Diamonds are easily transportable, and of high value. This combination allows them to be moved to the most efficient and economic location(s) for further processing. There are several factors that must be considered when determining the location of a cutting facility. They are: access to rough, taxation, financing, trained workers and marketing of polished diamonds.

In Belgium, while Antwerp had been a centre for diamond trade for centuries, after the Second World War, it flourished as a cutting centre due to low taxation rates, a flexible Belgium banking system (supported and funded by government and De Beers) and the availability of rough through the trading centre.

The development of New York as a diamond cutting centre began in the late 1800s and flourished in the 1920s and 30s. Immediately preceding the second World War, Jewish polishers from Amsterdam moved to New York. With the assistance of an import tax on polished diamonds, the number of cutters continued to grow. New York has developed as a trade and import centre for the large American market. It still is an important cutting centre for large stones, where knowledge and skill are the determining factors, rather than labour costs.

The Israeli diamond industry was set up after the second World War, thanks to subsidies from the Israeli authorities. Financing and a favourable tax system were provided. A trained work force quickly arrived after the establishment of the state of Israel in 1948. As with the Belgian industry, in order to compete with low wage countries, new technologies have been developed. In recent years, however, Israeli cutters have had more and more difficulty obtaining a steady supply of rough diamonds.

The Indian cutting industry began in the 1960s. The major attraction was low labour costs. However, the government also encouraged the development of the industry with a favourable tax structure. The supply of rough was a problem until the opening of the Argyle mine in the early 1980's provided a large supply of near gem (or Indian goods).

The following are manufacturing productivity indicators provided by Lens Diamond Industries (a De Beers subsidiary).

Location	Daily Production (ct / cutter)
Thailand	60
Antwerp	80
Lens Diamond Industries	100

Note: for 4 stones per carat using traditional methods.

This level of productivity compares to:

Technological Advance (Machine)	Daily Production (ct / cutter)
AF	120
Combination	140
TT	600
TU	800 - 1200

Note: the listed machines are used at the preparatory and early stages of cutting and polishing.

A simplified method of classifying the stones from a specific deposit can be described as follows. Once the rough diamonds from a production run have been cleaned of their surface

impurities with acids to show their real colour (without cleaning, an under-valuation of 5 percent to 20 percent could arise), they are weighed, counted, sieved for size (weight), and separated into 5 to 10 piles depending on the size distribution of the stones in the deposit. For small diamonds (i.e., smaller than 0.5 ct), weight is the most important classification factor. The diamonds are then classified according to their shape.

Shapes

De Beers uses the following system. Stones are well-formed octahedrons or dodecahedrons without obvious flaws; shapes are like stones but are slightly deformed "elongated" or flatter on the edges and lightly flawed; cleavages are broken or very irregular "misshapen" crystals; macles are inter-grown crystals that are thick and often triangular; and flats are thin wedges, whole or broken, including thin macles. Because a dodecahedron has a higher yield than an octahedron, it is about 10 percent more expensive for the same quality.

The majority of round brilliants, which is the most popular cut diamond, are produced from octahedra but also dodecahedra. Stones produce round brilliant polished; shapes yield marquise, oval, emeralds; thick macles produce triangles, hearts, marquise, pears; thin macles and flats produce baguettes.

Manufacturers classify their rough as follows. Sawables are well formed and high quality octahedrons and dodecahedrons that can be sawn or cleaved into two stones before being polished and have a yield of 45-70 percent. This class is sub-divided into spotted which are

APPENDIX V

FEDERAL AND TERRITORIAL PROGRAMS AND SERVICES

1. Federal

The federal government has a number of programs and services aimed at supporting and encouraging small and medium sized businesses in Canada. A few of these are listed below, however, a detailed listing is available in the Guide to Government of Canada Services and Support for Small Business 1997-1998:

1. Financing::

- ! Small Business Loans Act;
- ! Business Development Bank of Canada;
- ! Aboriginal Business Canada;
- ! Community Futures Development Corporation;
- ! Community Economic Development Program;
- ! Commercial Development Program; and
- ! Resource Access Negotiations Program.

2. Accessing New Markets:

- ! Simplifying Internal Trade;
- ! Exporting;
- ! Export Financing; and
- ! Importing.

3. Small Business Tax Requirements and Services:

- ! Business Number and Integrated Services;
- ! Simplified tax returns and claims; and
- ! Scientific Research and Experimental Developmental Investment Tax Credit.

4. Science, Technology and Innovation:

- ! Industrial Research Assistance Program;
- ! Technology Partnerships Canada; and
- ! Canadian Technology Network.

5. Your Business and Federal Legislation:

- ! Incorporating Your Business;
- ! Protecting Your Assets: Intellectual Property; and
- ! Market Place Rules.

HRDC Programs Which Can Directly Provide or Support Training Related to Mining

A. Employment Benefits and Support Measures:

Employment Insurance Benefits \$3.2 million

(To be transferred to Government of the Northwest Territories - October 1, 1998.)

Eligibility: must be unemployed and: have established an insurance benefit or have one that has ended within the previous 36 months of the request, or have established a claim for maternity/parental benefits within previous 60 months after which time the individual stayed out of the labour market to care for the new-born or adopted child.

1. Targeted Wage Subsidies

To encourage employers to hire individuals who they would not normally hire in the absence of a subsidy. Subsidies to a participant's wages help to defray the costs associated with an individual's orientation to the work site and the job.

2. Self-Employment

Assists individuals in creating jobs for themselves by offering income support, advice concerning assessing capital, coaching and technical assistance while they launch their own business.

3. Job Creation Partnerships

Provides individuals with work experience which leads to ongoing employment. Is a flexible benefit designed to respond to the needs of the individual and communities. Involves community participation, planning and agreement in the creation of a sustainable employment strategy.

4. Training Purchases

A temporary benefit intended to support the purchase of training, coordinator services and project-based training activities which help individuals to obtain skills from basic to advanced (sunsetting June 30, 1999).

Employment Insurance Support Measures

1. Employment Assistance Services

To assist organizations to provide employment services to unemployed persons by providing: diagnostic services, job search skills, group counselling and related activities to those facing barriers to employment. Organizations are eligible to receive a contribution to cover overhead costs and provide assistance to individuals, enabling their access to such services as: transportation, dependant care and special needs for persons with disabilities.

2, Local Labour Market Partnerships

- ! Encourage and support employers, employees and/or employer associations and communities to improve their capacity to deal with human resource requirements and implement labour force adjustments for the unemployed or those facing loss of employment.

B. The Opportunities Fund: \$0.25 million

1. Support to Individuals

Can cover these costs:

- ! living expenses of participants during their participation on a project or activity - to supplement their current source of support;
- ! the actual cost of Dependant Care;
- ! disability-related costs or expenses of an individual to bring about their participation;
- ! tuition costs incurred by a participant; and
- ! other personal support, accommodation and transportation costs.

2. Participant Wages

- ! Covers participant wages and employment-related costs as contributions paid to employers to subsidize the wages and benefits (EI & CPP) of the worker.

Overhead

- ! May include: administrative and other non-participant staff wages and benefits, licences, permits, fees for professional services, specialized services, bank interest, utilities, materials, supplies, travel insurance, rental of premises, leasing or purchasing of equipment, costs of audits, evaluations and assessments, and administrative functions in support of agreement activities.
- ! Costs of modifications and equipment related to accommodating persons with disabilities. Course costs.

C. Youth Employment Initiatives \$1 million

1. Youth Employment Strategy (YES)

- ! Canada works with partners to help young people acquire the experience, skills and information they need to prepare for and participate in the world of work.

2. Youth Employment Initiatives

- ! Create a first job and provide access to labour market information through partnerships with business, labour, industry, not-for-profits, communities and other levels of government.

! Youth Employment Initiatives have four main activities:

- ! Youth Internship Canada-,
- ! Youth Service Canada;
- ! Student Summer Job Action; and
- ! Youth Information.

3. Youth Internship Canada

! Helps youth who are unable to get a job without assistance. Contribution funds are provided to others to develop projects which offer unemployed and under employed youth positions.

4. Youth Service Canada Projects

! Provides funds to organizations which create community service projects for economically or socially disadvantaged youth.

5. Student Summer Job Action

! Provides wage subsidies to employers who create jobs for students. Provides loans for students who want to start a summer business. Delivered in partnership with private and not-for-profit sector groups.

! Includes the following sub-programs:

- ! Summer Career Placements (SCP);
- ! Partners in Promoting Summer Employment (PPSE);
- ! Small Business Loans (SBL); and
- ! Human Resource Centres for Students (HRCC-S).

6. Youth Information

! Provides access to labour market information necessary for education, career and job search decisions.

Source: Extracted from HRDC publications Yellowknife

D. Support for Aboriginal Peoples

1. Aboriginal Labour Market Program

! This program has been devolved to the Aboriginal organizations for delivery based upon their identified priorities.

! Approximately \$11.1 million is allocated to Aboriginal organizations in the NWT through the bilateral agreements with HRDC. Information on these regional bilateral agreements are available through HRDC's Yellowknife office (867) 669-5045.

E. Sectoral Partnerships Initiatives

• HRDC is providing money and support to private sector businesses in human resources processes. The objectives of the Sectoral Partnerships Initiatives (SPI) are:

- ! to develop effective partnerships in the private sector;
- ! to improve the relevance of the training system;
- ! to foster a continuous learning culture in the private sector;
- ! to support the mobility of labour across Canada; and
- ! to contribute to Canada's labour market information.

! As an example, the SPI, in partnership with the mining industry led to the creation of the Mining Industry Training and Adjustment Council (MITAC) in July, 1996. The MITAC has the mandate to address the industry's human resources needs through skills upgrading and occupational standards.

Federal initiatives and tools to guide individuals through these programs and services:

- ! The Canada Business Service Centres (CBSCs), one of which is located in Yellowknife, provide information from all levels of government on programs, services and regulations. CBSC provides service to individuals by: telephone, the Internet, in person, through an infofax system;
- ! Industry Canada's web site, Strategis (<http://strategis.ic.gc.ca>), is also available to deliver a wide range of business information along with information of government programs and services. This web site is also linked to the provincial and territorial web sites;
- ! The Business Development Bank of Canada's (BDC) network of branches across Canada promotes the creation and development of small businesses through specialized financing for commercially viable enterprises. BDC also offers a full range of services including business counselling, management training and mentoring to support small businesses; and
- ! Statistics Canada provides information profiles on social and economic changes in Canada along with regular updates on the state of the economy in Canada, by province and industrial sector. They also provide statistics on demography, health, education, justice, culture and household income and expenditures.

II Territorial

The Government of the Northwest Territories (GNWT), through the Department of Economic Development and Tourism, has a number of programs and services in place to encourage business development and job creation in the north. These include:

- ! The NWT Business Credit Corporation acts as a last resort lender and a developmental agency to provide financial support in the form of loans, loan guarantees, and bonds to resident business enterprises;
- ! Training on the Job, which assists Northern residents to obtain the skills needed for permanent, meaningful employment;

- ! The Business Development Fund and the Small Business Grant Program which provide grants and contributions, which do not have to be repaid, to entrepreneurs and small businesses; and
- ! The NWT Development Corporation which, through direct ownership or joint ventures, supports business ideas which have potential for significant job creation and long-term viability.

III Other Federal and Territorial Tax Incentives

The following is a sample of the types of federal and provincial tax incentives that are available in Canada.

1. Atlantic Investment Tax Credits

- ! The Atlantic Investment Tax Credit (AITC) was introduced in the March 1977 federal budget. Its objective is to promote economic development in the Atlantic region (i.e., Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island, the Gasp6 region and their associated offshore areas. The current rate of AITC is 10 percent.
- ! The AITC applies to eligible expenditures on new buildings, machinery and equipment employed in the following activities: farm~ing; fishing; logging; mining; oil and gas; and manufacturing and processing. It does not apply to the services sector.

2. Newfoundland Growth Enterprise Tax Holiday (EDGE)

- ! Since 1994, Newfoundland has allowed a potential new business or significant business expansion in the province to apply for designation as an "EDGE" - Economic Diversification and Growth Enterprise Corporation, entitling it to significant tax and grant benefits.
- ! An EDGE corporation must satisfy the Newfoundland government that it represents a potential capital investment of at least \$300 000, or incremental sales of at least \$500 000, and the potential of creating and maintaining at least ten permanent jobs in the province.
- ! An eligible EDGE corporation is entitled to various benefits, including:
 - ! 10 year tax holiday from provincial income tax, post-secondary education and health (payroll) tax and retail sales tax. Following the tax holiday, taxes would be phased in at 20 percent per year over five years. This is not provided through credits or deductions but remission orders of the Newfoundland government. Such a procedure is used since Revenue Canada does not administer the program;
 - ! Municipalities which join the program also offer a 10 year property and/or business tax holiday, followed by a five year phase in of taxes;
 - ! The 10 year holiday may be extended in economic zones where the unemployment rate exceeds the provincial average;
 - ! A grant of \$2 000 will be offered for each permanent job created in the first five years, prorated if the job is for part of the year; and

- ! Unserviced crown land will be leased to an EDGE corporation for up to 50 years for \$1 if serviced land is unavailable at a reasonable cost, with an option to purchase for \$ 1.

3. Ontario Current Cost Adjustment (OCCA): Special Allowance for Pollution Control Equipment

- ! This deduction is a once-only claim that is separate from, and in addition to, ordinary capital cost allowance claims. The special deduction is for new pollution control equipment acquired after May 17, 1989. When first introduced, the OCCA applied to a broader range of equipment, including manufacturing and energy conservation equipment.
- ! The special deduction consists of 30 percent of the cost of qualified pollution control equipment acquired in or after 1992. Eligible assets must be new, first used by the corporation in Ontario and used by the corporation for the purpose of earning income from a business.

4. Temporary 125 Percent Deduction for Manufacturing and Processing Acquired for Use in Quebec

- ! Manufacturing and processing equipment acquired after May 12, 1988 for use in Quebec is eligible for a 100 percent write-off in the year of acquisition. The write-off is provided in a special addition to Class 12.
- ! This property, including both depreciable assets and intangible technology transfers, is also eligible for a separate additional 25 percent deduction if acquired after March 25, 1997 and before January 1, 1999. The additional 25 percent deduction must be calculated separately because it is not to be subject to recapture on disposition of an asset.

5. Mining Exploration Tax Credit in British Columbia

- ! The Government of British Columbia has recently (April 1998) announced that it will introduce a refundable tax credit for mining exploration undertaken in B.C. The credit will be available to individuals and corporations for exploration activities in the province after August 1, 1998. Details of the program, including eligibility criteria and application procedures, will be worked on in conjunction with industry during the next three months. This measure will provide an incentive to the industry of approximately \$7 million in 1998/99, rising to \$9 million in 1999/2000 and future years.

6. Other relevant credits include:

- ! British Columbia Film and Video Production Credit;
- ! British Columbia Small Business Tax Holiday;
- ! Manitoba Manufacturing Investment Tax Credit;
- ! Manitoba Scientific Research Investment Tax Credit;
- ! Manitoba Film and Video Production Tax Credit;
- ! New Brunswick Research and Development Tax Credit;

- ! New Brunswick Labour Incentive Fund Credit;
- ! Nova Scotia Research and Development Tax Credit;
- ! Nova Scotia Credit for ISO Standards;
- ! Nova Scotia Film Industry Credit;
- ! Federal Research and Development Tax Credit; and
- ! Canadian Film and Video Production Tax Credit.

Exemption from Tax for International Banking Centres - Income must be derived from accepting deposits and making loans to non-residents.

Exemption of income earned by foreign ships and aircraft companies from Canadian Income Tax - Non-residents operating ships or aircraft, or an airline in international traffic are exempt from Canadian income tax.

APPENDIX VI

RELATIVE BUSINESS COSTS IN THE NORTHWEST TERRITORIES

March 31, 1998

Relative business costs in the Northwest Territories

This letter presents our analysis of relative business costs in the Northwest Territories, using the methodology contained in our 1997 publication *The Competitive Alternative*.

Our analysis indicates that both Yellowknife and Hay River are cost-competitive with many of the international jurisdictions we examined. While Yellowknife is the most expensive of the 19 Canadian cities examined, it ranks ahead of all U.S. jurisdictions examined. Hay River ranks 14th among the 19 Canadian cities examined, and ahead of all cities examined outside of Canada.

1.0 Study objectives

As part of its ongoing efforts to promote Canada as a business location, and to get international firms to “Think Canada”, Industry Canada collects data on the costs of doing business in many parts of Canada. As a step in this process, you require an independent analysis of comparative costs of doing business in Yellowknife and Hay River, Northwest Territories, so that you can assess their relative competitiveness for existing and potential new businesses.

2.0 Methodology

This study was conducted in a manner that ensures that the result for Hay River and Yellowknife are directly comparable with the results of a major KPMG cost-competitiveness study, *The Competitive Alternative*, published in October 1997. That study examined location-sensitive costs for 42 Canadian, U.S. and European cities, and examined eight manufacturing sectors.

To ensure consistency of results, this study examined the same location-sensitive cost factors for the same eight sectors, all of which are detailed below. All cost data and exchange rates used in this study are as at March 31, 1997, the same date for all data and analysis contained in *The Competitive Alternative*.

2.1 Industries

This analysis covered the same eight manufacturing industries examined in *The Competitive Alternative*:

# Electronics	# Pharmaceuticals
44. Food Processing	# Plastics
45. Medical Devices	# Software Production
46. Metal Fabrication	# Telecommunication Equipment

These industries were selected because they represent a mix of traditional capital-intensive industries (e.g., metal fabrication) and skilled-labour-intensive industries (e.g., software). The specific operations cover a wide range of land, building, equipment, management and labour requirements.

2.2 Location-sensitive cost components

A proprietary KPMG computer model was used to estimate the total costs that each industry operation would experience in its first 10 years of business in both Yellowknife and Hay River. The model was designed to differentiate the following location-sensitive cost factors:

- # Industrial land acquisition costs;
- # building construction costs, incorporating development charges;
- # annual labour costs, including wages, statutory benefits (or wage-based taxes), employer-sponsored benefits, and labour productivity differences among countries;
- # electricity costs;
- # transportation costs;
- # telecommunication costs;
- # interest and depreciation charges; and
- # federal, regional and local taxes, including any tax incentives firmly embedded in law.

Other costs (e.g. machinery and equipment, raw materials) have been considered to be either location-insensitive or of limited materiality to the industries examined, and thus have been held constant for each location.

2.3 Ranking and index rating systems used

Throughout this report, reference is made to how the results for Hay River and Yellowknife compare to the results for the 42 cities included in *The Competitive Alternative*. In presenting the results, two different approaches have been used:

- # Rankings show the “order” of cost-competitiveness of locations, either for a single cost factor, or overall, with first place ranking signifying that a community has the lowest costs for a particular factor, and 44th place ranking signifying the highest costs for a particular factor.
- # **Index ratings** are used to quantify the degree of variation in overall costs between communities. Index ratings vary around a base of 100.0, which represents the average total costs of four U.S. cities, Boston, MA, Colorado Springs, CO, Norfolk, VA, and Scranton, PA. (Refer to *The Competitive Alternative* for more information on the four-city average methodology.) Index ratings of less than 100.0 indicate overall costs below the U.S. four-city average, while index ratings of greater than 100.0 indicate overall costs above the U.S. four-city average.

2.4 General nature of results

Like any modeling analysis, a number of general and specific assumptions have been incorporated in the modeling of each operation, in each location. Further business model assumptions are provided in Appendix A.

While care has been taken in developing these findings, the results are necessarily of a general nature and should not be interpreted as a definitive opinion on the relative merits of locating a real-life facility in Yellowknife or Hay River as compared to other jurisdictions. Further work would be required, both for financial and non-financial factors, to determine the best site for any specific facility.

2.5 Validity of results

As requested by you, this study was conducted using the same model industry parameters (i.e., 90-150 employees in each operation) as were used in our previous study, *The Competitive Alternative*. This approach was vital to meet your need of assessing current business costs in each of Yellowknife and Hay River, as compared to other locations across Canada.

Due to the small size of the labour force in the two communities examined, an investment of the size modeled in this study would be expected to impact the dynamics of the labour market in either community. To the extent that employees would need to be recruited from outside the Northwest Territories, wages or salaries for such “imported” labour could be higher than those for existing employees in the two communities. Salary and wage levels for the existing labour force may also be impacted. Thus, the comparison presented in this report is most accurate in reflecting the costs being faced by a new entrepreneur starting a very small enterprise in either community.

In your interpretation of these results, please bear in mind the fact that costs in small labour markets are generally more sensitive to change as a result of new investment than costs in significantly larger markets.

2.6 Further information on methodology

Further details of the methodology used in this study are contained in Appendix A.

3.0 Results

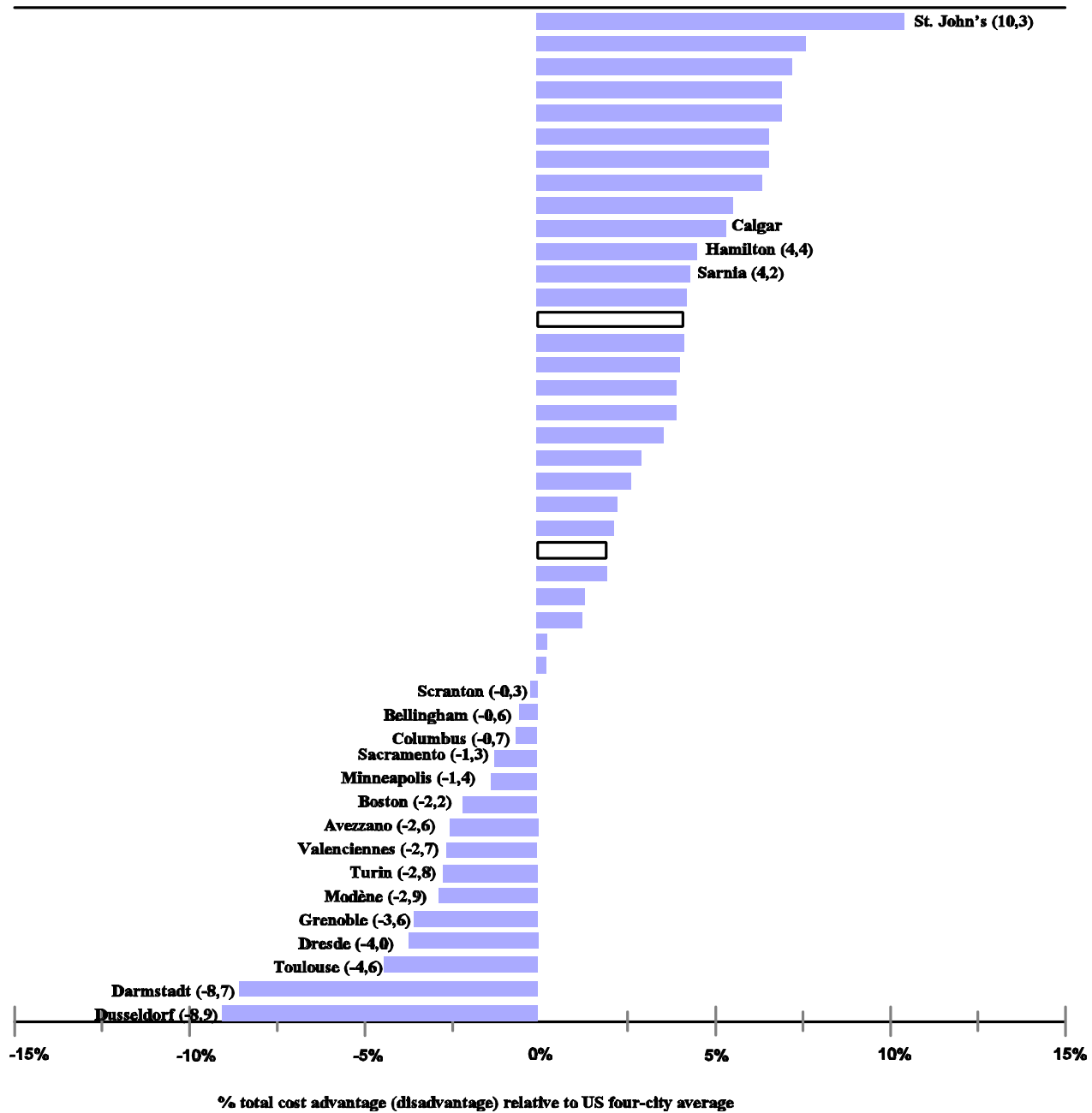
All results in this report are expressed in U.S. dollars, unless otherwise specified. Canadian dollar amounts were converted to U.S. dollars at a rate of US \$1.00 = CDN \$1.37.

The overall results for Hay River and Yellowknife, based on the average of all eight sectors examined, can be summarized at two levels:

- # **International level - Relative to the 42 cities examined in *The Competitive Alternative*, costs in Yellowknife and Hay River, like all Canadian cities in general, were found to be competitive. Based on average total costs for the eight industry sectors examined, Hay River would rank in 14th place and Yellowknife in 24th place among the cities examined in *The Competitive Alternative*.**
- # **Costs in Hay River were found to be lower than costs in every non-Canadian city examined. Costs in Yellowknife were found to be lower than every U.S., Italian, French and German city examined, but higher than some Swedish and U.K. cities examined. Hay River and Yellowknife's positions relative to all cities examined in *The Competitive Alternative* is illustrated in Exhibit 1.**
- # **Hay River's overall index rating is 96.0, while Yellowknife's index rating is 98.2, relative to the U.S. four-city average of 100.0. This index rating translates into an average cost advantage, based on total operating costs after tax, of 4.0% and 1.8% respectively over the U.S. four-city average.**
- # **National level - A total of 17 Canadian cities were examined in *The Competitive Alternative*, with Hay River and Yellowknife representing two additional Canadian locations. All cities which rank ahead of Hay River are Canadian, placing Hay River slightly behind the median among the Canadian cities. Yellowknife was found to have the highest location-sensitive costs of all Canadian cities examined.**
- # **These overall rankings show Hay River to have total business costs equivalent to the more expensive cities in southern Ontario (excluding Toronto). Costs in Hay River were found to be marginally higher (1.2 to 2.4 percent) than in either Edmonton or Calgary, the two southern Canadian cities closest to Hay River.**
- # **As detailed later in this report, the most significant component of these cost differences are labour costs.**

Exhibit 2 summarize the results for Yellowknife and Hay River on a sector-by-sector basis. In general, results for each industry tend to be relatively consistent, with only a few minor variations. The better-than-average performance of both cities in the software and telecommunications equipment sectors is attributable to the following reasons:

- # Transportation is a much less significant factor in these sectors than in many of the other sectors examined. Although both Yellowknife and Hay River are still at a relative disadvantage to most other cities in terms of transportation costs for these two sectors, this disadvantage does not have the same level of relative significance when calculating the overall results for the software and telecommunications sectors as for some other sectors.
- # The cost premium for labour in the NWT in these two sectors is relatively lower than in some of the traditional sectors. This effect may be a result of relatively lower demand for knowledge workers in these centres, and consequently a shallower talent pool than would be found in larger Canadian cities.



- # The two cities examined in Alberta also fare relatively well in these two sectors. Neither Alberta nor NWT impose a provincial sales tax, and for a number of reasons, the incidence of sales tax is relatively greater in these two sectors, but particularly in the software sector, than in a number of other sectors. As a result, the absence of provincial sales taxes provides some advantage to both Alberta and NWT in these sectors.

Exhibit 2
Results for Yellowknife and Hay River, by industry sector

Sector	Yellowknife			Hay River		
	Index Rating	Overall Rank	Rank In Canada	Index Rating	Overall Rank	Rank In Canada
Electronics	97.2	22	19	94.3	12	12
Food Processing	98.8	26	19	97.2	17	16
Medical Devices	98.9	27	19	96.3	15	15
Metal Fabrication	100.4	31	19	97.2	19	16
Pharmaceuticals	99.1	28	19	96.9	16	16
Plastics Manufacturing	100.6	31	19	97.3	20	16
Software	94.6	18	18	92.3	11	11
Telecom Equipment Mfg	97.4	20	17	96.1	11	11
Overall Average	98.2	24	19	96	14	14

Detailed tables of actual values and relative rankings for Yellowknife and Hay River, by industry and by cost factor, are contained in Appendix B. Rankings in that Appendix represent the rankings these cities would have received among 44 cities, had they been included in *The Competitive Alternative*.

To allow you to undertake further detailed comparisons of Yellowknife and Hay River relative to any city included in *The Competitive Alternative*, we include a copy of the *Detailed Results Book* which accompanies *The Competitive Alternative*. This results book presents detailed tables of results by city, industry and cost factor, in a format identical to that used in Appendix B. When comparing Hay River and Yellowknife’s rankings to rankings of cities in the *Detailed Results Book*, it is important to remember that rankings in that book are based on 42 cities. Had the two Northwest Territories cities been included in *The Competitive Alternative*, rankings for all cities ranked equal to or higher than Hay River or Yellowknife would have increased by one or two places respectively.

3.1 Land acquisition and building construction costs

Our analysis found Hay River to have lower industrial land costs than any city examined in *The Competitive Alternative*. Yellowknife ranks fifth in land costs in all industries. Comparable industrial land costs are \$19,200, and \$33,000 per acre for Hay River and Yellowknife respectively, as compared to \$25,000 per acre in Sarnia, the first-ranked city for this cost factor in *The Competitive Alternative*. In general, industrial land prices in the Northwest Territories are low by Canadian, U.S. and international standards.

Building construction costs in Hay River and Yellowknife are relatively high. Construction costs in Hay River ranked 12th overall, higher than in most Canadian cities, while construction costs in Yellowknife ranked 23rd, higher than in every Canadian city other than Ottawa.

These results are not surprising given the location of these cities. Land costs remain relatively low while building costs are high, due to the distance and associated costs of transporting building materials.

Combining the impact of both land prices and construction costs, Hay River compares relatively well due to extremely low land prices which offset moderate construction costs. For total initial facility investment costs, Hay River ranks fifth overall. In Yellowknife, the attractive land prices are less able to compensate for the relatively high construction costs, and Yellowknife ranks 19th among the 44 cities in terms of initial facility investment costs.

3.2 *Total labour costs*

Labour costs are the largest single component of total location-sensitive costs. Hay River and Yellowknife's rankings for this cost factor, 13th and 30th respectively, are roughly in line with their overall rankings, Labour costs in both cities are higher than most or all cities in other regions of Canada.

These labour costs are reflective of the generally higher costs of living found in the Northwest Territories. Yellowknife has higher labour costs than Hay River, as would typically be expected between a larger administrative centre and a smaller outlying town.

3.3 *Electricity costs*

Electricity pricing in the Northwest Territories is higher than any other region in Canada. When comparing total electricity costs, Yellowknife and Hay River rank 37th and 41st respectively, behind cities in Canada, Sweden, the U.S., the U.K. and France.

This result is not surprising given the costs of providing electricity infrastructure to a small but widely dispersed population, as is the case in the NWT.

3.4 *Transportation and distribution costs*

Hay River and Yellowknife rank 43rd and 44th respectively among all other cities in *The Competitive Alternative* in terms of transportation and distribution costs, which represent a mix of road freight costs associated with distributing product within North America and sea freight costs associated with exporting product to Europe.

These costs result from the distances of Hay River and Yellowknife to both the major markets of North America, and to an ice-free port for the exporting of product.

One possible offsetting factor, is the potential benefit of utilizing backhaul freight rates to reduce the relative cost of transporting product from the Northwest Territories to southern markets. Backhaul has not been factored into the methodology for either *The Competitive Alternative* or this study, since no accurate statistics exist in respect of the availability and cost of backhaul on any given route.

3.5 Telecommunication costs

Hay River and Yellowknife rank 31st and 32nd overall in terms of telecommunication costs. All Canadian, U.S. and U.K. cities rank ahead of the two Northwest Territories' cities. These cities' relatively high telecommunication costs are a product of two factors:

- # A higher incidence of long distance calls than in other locations.
- # Higher long distance rates in the Northwest Territories. The competitive long distance market has had a significant influence on reducing long-distance rates elsewhere in North America, as compared to prevailing rates in the NWT.

3.6 Non-income taxation costs

With no territorial capital taxes, sales taxes, or business taxes, the two NWT cities compare well in terms of non-income taxes. The only non-income taxes which apply in the Northwest Territories are the Federal Large Corporations Tax, which applies consistently across Canada, and local property taxes.

When property-based taxes are measured in terms of dollars per square foot of building space, Hay River and Yellowknife rank seventh and ninth respectively.

3.7 Corporate income tax costs

Corporate income taxes are a product of both taxable income and income tax rates. Due to the relatively higher costs of doing business in both Hay River and Yellowknife as compared to other Canadian cities, taxable income tends to be relatively lower in the two NWT cities than in most other Canadian centres. This results in relatively lower corporate income tax costs for Hay River and Yellowknife.

4.0 Data points to be added to the "Think Canada" slide deck

As requested by you, set out below are the comparable figures for the Northwest Territories which can be added to the "Think Canada" slide deck.

- | | | |
|-----------------------------|-------|-----------------------|
| # Corporate income tax rate | 36.1% | (% of taxable income) |
| # Payroll taxes | 7.2% | (% of gross payroll) |

#	Transportation/distribution costs	193.4	(index, Canada = 100)
#	Annual electricity costs	\$270	(US\$'000)
#	Construction costs	\$3,683	(US\$'000)
#	Industrial land costs	\$196	(US\$'000)

5.0 Conclusion

The results of this study indicate that manufacturing costs in the Northwest Territories are:

- # competitive compared to most of the other countries examined; but
- # generally expensive by Canadian standards; and
- # higher in Yellowknife than in Hay River.

We appreciate this opportunity to provide assistance to Industry Canada, and look forward to discussing these results with you.

Yours very truly
KPMG Consultants, Vancouver

Calculation Details

	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	
Run Time	0.6578125	0.6604513889	0.66157407407	0.66248842593	0.66399305556	0.66497685185	0.66615740741	0.66761574074	

Initial Investment

Land	269	96	115	154	115	192	96	115	144
Buildings	5282	2201	3081	4401	3081	4401	2201	2641	3411
	5551	2297	3196	4555	3196	4593	2279	2756	3555
<i>Rank - Land</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>Rank - Buildings</i>	<i>12</i>	<i>12</i>	<i>12</i>	<i>12</i>	<i>12</i>	<i>12</i>	<i>12</i>	<i>12</i>	<i>12</i>
<i>Rank - Total Investment</i>	<i>3</i>	<i>4</i>	<i>6</i>	<i>6</i>	<i>6</i>	<i>4</i>	<i>4</i>	<i>4</i>	<i>5</i>
Cash	100	100	100	100	100	100	100	100	100
Inventory	1000	1500	2500	400	2000	700	3000	5000	2013
Fixed Assets	9270	4300	3200	6200	3200	2700	3100	6400	4796
	15921	8197	8996	11255	8496	8093	8497	14256	10464

Initial Financing

Debt	6368	5464	4048	5628	4248	6070	4248	7128	5400
Equity	9552	2732	4948	5628	4248	2023	4248	7128	5063
	15921	8179	8996	11255	8496	8093	8497	14256	10464

Sales	16350	24500	15100	14200	19900	14200	18900	32700	19481
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Calculation Details

	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	
Run Time	0.6578125	0.6604513889	0.66157407407	0.66248842593	0.66399305556	0.66497685185	0.66615740741	0.66761574074	
Total Operating Costs	4545	5098	4633	4727	5321	4521	4880	5285	4876
<i>Rank - Operating Costs</i>	24	25	30	31	29	35	20	22	28
Interest	338	290	215	298	225	322	225	378	286
Depreciation	1536	709	630	1081	630	643	584	1026	855
Total Before Taxes	6418	6097	5478	6106	6176	5486	5689	6689	6018
National Income Tax	774	368	492	676	626	761	86	586	546
Regional Income Tax	652	420	465	459	605	511	685	742	567
Municipal Income Tax	0	0	0	0	0	0	0	0	0
National Capital Tax	13	4	3	1	4	0	28	20	9
Regional Capital Tax	0	0	0	0	0	0	0	0	0
Sales Tax	0	0	0	0	0	0	0	0	0
Property Tax	49	20	27	39	27	40	20	24	31
Business Tax	0	0	0	0	0	0	0	0	0
Gross Receipts Tax	0	0	0	0	0	0	0	0	0
Total Taxes	1488	812	988	1175	1262	1312	818	1372	1153
<i>Rank - Taxes</i>	12	14	12	10	12	10	9	11	11
Total Location-Sensitive Costs	7906	6908	6466	7282	7438	6798	6507	8061	7171

Calculation Details

	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	
Run Time	0.6578125	0.6604513889	0.66157407407	0.66248842593	0.66399305556	0.66497685185	0.66615740741	0.66761574074	

Calculation Details

	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River	Hay River
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	
Run Time	0.6578125	0.6604513889	0.66157407407	0.66248842593	0.66399305556	0.66497685185	0.66615740741	0.66761574074	
Rank	7	7	7	7	7	7	7	5	7
<hr/> <hr/>									
Capital Taxes as a % of Total Assets	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.1%	0.1%
Rank	20	21	20	20	20	18	24	21	21
<hr/> <hr/>									
Other Taxes as a % of Sales	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rank	1	1	1	1	1	1	1	1	1
<hr/> <hr/>									
Statutory Benefits: % of Wages	6.5%	7.9%	6.5%	12.8%	6.7%	6.8%	5.9%	6.4%	7.4%
Rank	7	8	6	29	8	5	2	6	8
<hr/> <hr/>									
Cross Check: Should Be Zero	0	0	0	0	0	0	0	0	0
<hr/> <hr/>									

Calculation Details

	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	35884
Run Time	0.65783564815	0.6604861111	0.66159722222	0.66252314815	0.6640162037	0.66501157407	0.66619212963	0.66765046296	
Initial Investment									
Land	462	165	198	264	198	330	165	198	247
Buildings	6124	2551	3572	5103	3572	5103	2551	3062	3955
	6585	2716	3770	5433	2716	3260	4202	2756	3555
<i>Rank - Land</i>	5	5	5	5	5	5	5	5	5
<i>Rank - Buildings</i>	19	19	19	19	19	19	19	19	19
<i>Rank - Total Investment</i>	3	4	6	6	6	4	4	4	5
Cash	100	100	100	100	100	100	100	100	100
Inventory	1000	1500	2500	400	2000	700	3000	5000	2013
Fixed Assets	9270	4300	3200	6200	3200	2700	3100	6400	4796
	16955	8616	9570	12067	9070	8933	8916	14760	11111
Initial Financing									
Debt	6782	5744	4307	6033	4535	6700	4458	7380	5742
Equity	10173	2872	5264	6033	4535	2233	4485	7380	5369
	16955	8616	9570	12067	9070	8933	8916	14760	11111
Sales	16350	24500	15100	14200	19900	14200	18900	32700	19481

Calculation Details

	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	
Run Time	0.65783564815	0.6604861111	0.66159722222	0.66252314815	0.6640162037	0.66501157407	0.66619212963	0.66765046296	

Locaation-Sensitive Costs

Labour	3316	3430	3262	3058	3761	2818	3689	3963	3412
Statutory Benefits	201	253	198	378	236	180	202	235	235
Employer-Sponsored Benefit	792	820	780	431	899	674	882	947	815
Productivity Adjustment	-43	-45	-42	-42	-49	-37	-48	-51	-45
Total Labour	4266	4458	4197	4125	4847	3635	4725	5093	4418
<i>Rank - Salary</i>	34	34	36	36	37	38	32	35	35
<i>Rank - Total Labour</i>	29	31	32	36	35	33	30	30	30
Electricity	256	428	185	412	185	462	206	231	295
Transport: Land	117	286	192	230	230	288	59	98	187
Transport: Sea	190	275	315	217	349	489	59	157	256
	308	562	506	447	579	776	118	255	444
Telecommunications	187	187	209	236	243	122	328	243	219
Total Utilities	751	1177	900	1095	1006	1360	652	729	959
<i>Rank - Electricity</i>	41	41	41	41	41	41	41	41	41
<i>Rank - Transport</i>	44	44	44	44	44	44	44	44	44
<i>Rank - Telecommunications</i>	31	31	31	31	32	31	31	31	32

Calculation Details

	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	
Run Time	0.65783564815	0.6604861111	0.66159722222	0.66252314815	0.6640162037	0.66501157407	0.66619212963	0.66765046296	
<i>Total Operating Costs</i>	5016	5635	5097	5220	5853	4995	5377	5822	5377
<i>Rank - Operating Costs</i>	33	37	38	39	38	40	33	34	38
Interest	359	304	228	320	240	355	236	391	304
Depreciation	1592	733	663	1128	663	690	608	1054	891
<i>Total Before Taxes</i>	6968	6672	5988	6667	6757	6040	6221	7267	6573
National Income Tax	626	221	359	538	472	626	0	420	408
Regional Income Tax	569	338	391	374	521	427	595	662	485
Municipal Income Tax	0	0	0	0	0	0	0	0	0
National Capital Tax	17	6	5	3	5	0	29	24	11
Regional Capital Tax	0	0	0	0	0	0	0	0	0
Sales Tax	0	0	0	0	0	0	0	0	0
Property Tax	136	56	78	111	78	112	56	67	87
Business Tax	0	0	0	0	0	0	0	0	0
Gross Receipts Tax	0	0	0	0	0	0	0	0	0
<i>Total Taxes</i>	1347	621	822	1025	1077	1165	680	1173	990
<i>Rank - Taxes</i>	9	2	6	7	6	7	4	5	5

Calculation Details

	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife	Yellowknife
Region	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT	NWT
Industry	Electronics	Food Process	Medical Dev	Metal fabri	Pharmaceuti	Plastics ma	Software	Telecom equ	Average
Run Date	35884	35884	35884	35884	35884	35884	35884	35884	35884
Run Time	0.65783564815	0.6604861111	0.66159722222	0.66252314815	0.6640162037	0.66501157407	0.66619212963	0.66765046296	
<i>Total Location-Sensitive Costs</i>	8315	7293	6821	7692	7833	7205	6901	8441	7563
Non-Location-Sensitive Costs									
Other Direct Costs	4905	14455	2982	3515	4975	4260	756	13080	6116
Other Indirect Costs	613	1225	3586	1386	4776	923	8505	8175	3648
<i>Total Non-Location Sensitive Costs</i>	5518	15680	6569	4899	9751	5183	9261	21255	9764
<i>Total Costs</i>	13833	22973	13389	12591	17584	12388	16162	29696	17327
<i>Net Profit After Income Tax</i>	2517	1527	1711	1609	2316	1812	2738	30044	2154
	15.4%	6.2%	11.3%	11.3%	11.6%	12.8%	14.5%	9.2%	11.5%
<i>Overall Ranking</i>	22	26	27	31	28	31	18	20	24
<i>Overall Index Rating</i>	97.2	98.8	98.9	100.4	99.1	100.6	94.6	97.4	98.2
<i>Net Profit Before Income Tax</i>	3712	2086	2461	2520	3309	2864	3333	4086	3046
	27.7%	8.5%	16.3%	17.7%	16.6%	20.2%	17.6%	12.5%	16.5%
<i>Effective Combined Income Tax</i>	32.2%	26.8%	30.5%	36.2%	30.0%	36.8%	17.9%	26.5%	29.6%

