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DE BEERS
A DIAMOND IS FOREVER



13 February 2003

Mackenzie Valley Environmental Impact Review Board (MVEIRB)
Box 938, 5102 – 50th Avenue
Yellowknife, NT X1A 2N7

Attention: Glenda Fratton, Environmental Assessment Coordinator

Dear: Glenda

**SUBJECT: Follow-up Information Regarding Socio-Economic Cumulative Effects Assessment**

Please accept the attached technical memorandum titled, "Socio-economic Cumulative Effects Assessment" for submission to the Public Registry. This memo was compiled in response to issues raised during the MVEIRB Technical Sessions.

Should you have any questions, please feel free to contact the undersigned.

Sincerely,
**SNAP LAKE DIAMOND PROJECT**

for Robin Johnstone
Senior Environmental Manager

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# MEMO

To: Robin Johnstone, Senior Environmental Manager, De Beers Canada Mining Inc.

From: Peter Homenuck, Senior Consultant, IER - Planning, Research and Management Services

Tel: 905-660-1060, ext. 223

Date: 13 February 2003

Subject: **Socio-economic Cumulative Effects Assessment: Follow-up to De Beers Snap Lake Diamond Project Technical Session**

## 1. Background

At the De Beers Snap Lake Diamond Project Technical Session in December 2002, questions were asked concerning the socio-economic cumulative effects assessment of the project. Clarification was specifically sought on the following issues:

- Information used to identify impacts from other projects, data sources and effects analysis
- How effects of the BHP and Diavik projects were included in the socio-economic CEA for Snap Lake (including references and information used)
- Whether any of the data used addresses residual effects of other projects

This follow-up document addresses these questions and also complements responses previously provided to Information Requests concerning the socio-economic cumulative effects assessment. It is organized in three sections*: Information and Data Sources, Inclusion of BHP and Diavik Project Effects, and Data Addressing Residual Effects. .*

## 2. Approach to the Analysis

In the analysis of socio-economic cumulative effects, the emphasis has been put on BHP and Diavik because of their size, location and contribution to the baseline socio-economic setting.

- Although we acknowledge the Lupin and Tahera mines, due to their locations in Nunavut and outside the areas containing the primary and employment catchment communities of relevance to De Beers, their effects were considered to be minimal.

- Other activities such as future oil and gas exploration and production, hunting camps and tourism are acknowledged as potentially having some socio-economic effects but a lack of specific information hinders explicit consideration of these activities.

- The Tibbitt-Contwoyto winter road is also noted but not considered in the socio-economic cumulative effects because the winter road already exists and is more than 50 kilometers away from any of the primary communities, resulting in no effect on the residents or communities.

Any influence of the above noted projects will largely be reflected in the baseline data relating to employment and effects of a wage economy.

## 3. Information and Data Sources

The sources of information for the socio-economic cumulative effects assessment include:

- *Primary Data* gathered through interviews with community representatives and other key stakeholders. This data, in particular, provided information on the impacts of BHP mine construction and operation and the Diavik construction on the mine employees and employee families in the primary communities.

- *Secondary Data* relating to other development projects considered in the Cumulative Effects analysis. In addition to the sources listed in Section 5.5 References of the EAR, the following documents were also considered:

  *Diavik Diamond Mining Inc. Environmental Assessment Submission. September 1998.*

  *BHP. NWT Diamond Project EIA. 1995.*

## 4. Inclusion of BHP and Diavik Project Effects

The socio-economic cumulative effects assessment presents scenarios of potential cumulative effects of the Snap Lake Diamond Project and other projects, particularly the BHP and Diavik diamond projects.

In order to develop scenarios, five key questions were identified, based on the main categories of potential socio-economic impacts of the various projects considered. These questions, or categories of potential impacts, *encompass* the potential positive and negative socio-economic impacts associated with the SLDP; the socio-economic impacts already experienced in the primary communities as a result of the BHP and Diavik mining projects (as expressed in interviews with community members and representatives of other stakeholder groups); and those potential impacts that have been identified for the mining and other development projects in various documents.

*Table 1 Cumulative Effects Assessment Approach* outlines the methodology for the Snap Lake Diamond Project Cumulative Effects Assessment, and compares it with the approaches adopted by the BHP and Diavik mines. A few points on the overall approach and methods should be noted, as it relates to the complexity of socio-economic cumulative effects assessment:

- Each of the diamond mine projects in the NWT have progressively taken the requirement of socio-economic CEA further. In addition, the EAs for each of the more recently proposed projects (Diavik and De Beers) have had the advantage of building on the experiences of the already existing mine (BHP). This emphasizes the point that the experiences from BHP, and to a lesser extent Diavik, form part of the base case for the DeBeers impact assessment.

- The potential socio-economic impacts of the Snap Lake project are, to a great extent, qualitative in nature. They concern positive or negative changes in the quality of life of individuals and communities, as expressed through capacity, skills, wellness, and culture. While some impacts can be measured quantitatively (employment rates, income levels, or numbers of training courses offered), the cumulative socio-economic effects of these impacts must frequently be described in terms of potential linkages between causes and effects or changes in overall well-being. The residual socio-economic cumulative effects are influenced to a large degree by the choices made by individual families and communities in light of the opportunities provided by the mines as well as the myriad of decisions and options made by government departments and communities themselves.

- The uncertainties associated with project-specific socio-economic impact assessment make cumulative assessment of the effects of several projects highly complex. The scenario approach used for the Snap Lake socio-economic CEA is intended to provide a reasoned account of the potential positive and negative effects that may occur, given particular conditions. The five key questions identified in the socio-economic CEA encompass the broad scope of identified and/or predicted socio-economic impacts for the development projects considered in the CEA.

*Table 2 Potential Cumulative Effects* presents the predicted potential socio-economic cumulative effects identified for each of the three diamond mines. The table illustrates that the Snap Lake Project CEA incorporates the predicted and/or experienced socio-economic impacts of the BHP and Diavik mines. The magnitude of potential impacts has also been considered where possible, i.e. in terms of potential mining employment generated by the three mines. The CEA for the Snap Lake project recognizes the effects of the cumulative demand for northern and Aboriginal labour and the potential impacts that this may have in terms of needs for job training and skills development programs and the provision of social support services in the communities. The CEA also considers the potential impacts on culture and traditional practices in the primary communities.

## 5. Data Addressing Residual Effects

The socio-economic CEA for the Project includes consideration of data that addresses residual effects of other projects to the extent that:

a) such effects have already been experienced in the primary communities or by other key stakeholders, and/or
b) information on predicted residual cumulative effects has been included in project-related documentation

The primary data collected (see Section 2 above) included qualitative accounts of residual effects of both the BHP and Diavik diamond projects, as experienced and described by members of the primary communities, mine project employees, and representatives of other key stakeholders. This means that, to a large extent, the residual social and economic effects have been factored into the data on individuals, families and communities, and therefore, are part of the base case for the project specific SEIA work. This data was also considered in the SLDP socio-economic CEA (as described in Section 3 above).

The EA submissions for the BHP and Diavik diamond projects identified potential socio-economic residual cumulative effects. These were also considered in the SLDP socio-economic CEA (as described in Section 4 above).

***Table 1: Cumulative Effects Assessment Approach***

| Cumulative Effects Assessment Approach | BHP | Diavik | De Beers / Snap Lake |
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| **Defining Cumulative Effects** | ▪ The consideration of CE is an evaluation of the impacts from concurrent or sequential activities.<br>▪ Cumulative effect occurs when "impacts on the natural and social environment take place so frequently in time or so densely in space that the effects of the individual events cannot be assimilated or when the impacts of one activity combine with those of another in a synergistic manner." *Canadian Environmental Assessment Research Council* | ▪ CE should include "those environmental effects of other projects that accumulate or interact with the environmental effects of the project in question." *Canadian Environmental Assessment Act* | ▪ It is the goal of the CEA section of the EAR to "assess the potential Cumulative Effects from the Snap Lake Diamond Project on the cultural, physical, biological, and economic components identified as receiving residual impacts from the projects in the previous sections [of the EAR]". *(EAR, S.12.1.1)*<br>▪ Cumulative Effects imply those residual impacts from the Snap Lake Diamond Project on a particular component in addition to the residual impacts (or effects) from other projects or activities that have been or will be carried out in the reasonable foreseeable future" *(EAR, S. 12.1.2)*<br>▪ [Regarding socio-economic CEA], "the effects on people and communities are the result of complex interrelationships. These effects are further complicated by the uncertainties surrounding other influences and decision processes." *(EAR, S. 12.2.1)* |

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| **What is Included in Cumulative Effects Assessment?** | ▪ Limited to CE initiated by the proponent, as there has been no previous industrial activity within the claim block<br>▪ Boundaries for CEA are based on Valued Ecosystem Components (VEC), which could be affected by minor, moderate or major impacts | ▪ Construction and operation of Ekati- it is of sufficient size to affect labour market and interact with Diavik. | ▪ The socio-economic CEA addresses the effects of the Snap Lake Diamond Project in combination with other existing projects and projects that have been approved or are in the regulatory review stage. These projects are largely within the SGP [Slave Geological Province] and include:<br>▪ EKATI Diamond Mine, Diavik Diamond Project, and Lupin Gold Mine;<br>▪ Other proposed mining projects in and near the region, specifically the Tahera Jericho diamond mine, and,<br>▪ The existence of the Tibbitt-Contwoyto winter road.<br>▪ In addition, the following development activities were also considered:<br>▪ Other activities such as the oil and gas exploration in the NWT,<br>▪ Ongoing land claim and resource use negotiations; and<br>▪ Hunting and research camps, and tourism activities. *(EAR, S.12.2.1)* |
| **Methods** | ▪ CE Evaluation based on the approach adopted by Davis (1992) and used by Ecologistics (1992) to assess the cumulative effects of Saskatchewan uranium mining developments.<br>▪ Define boundaries; Identify pathways between environmental effects of project; Identify past projects and activities and their environmental effects; | ▪ Scope and Assessment of CE- identify past projects<br>▪ Summary of CE on economic conditions, labour market, community and territorial infrastructure and services, health and recreation services. | ▪ CEA based on the CEAA Practitioner's Guide: scoping of key issues and spatial and temporal boundaries; residual impact analysis; consideration of environmental consequences; and consideration of monitoring and mitigation measures. *(De Beers Presentation at Technical Session, Dec 2002: Cumulative Effects Methodology)*<br>▪ Cumulative impacts on socio-economic issues from the Snap Lake project are assessed and discussed qualitatively using a range of scenarios. *(EAR, S. 12.2.1)*<br>▪ The scenarios were considered through systematic reasoning about causes and effects between possible socio-economic |

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| | Identify future projects and activities, and their potential environmental effects; Identify valued ecosystem components within the zone of influence; Assess interactions of past, present and future activities through pathways; Determine likelihood and significance of CEE; Identify monitoring measures. | | impacts and the potential positive and negative CE associated with the SLDP, given particular assumptions and conditions stated throughout the discussion. *(Response to IR 4.8.3 b (ii))*<br>▪ "Not all the criteria [referring to the Residual Impact Criteria set out in S. 12.1.6.1 of the EAR] are appropriate for evaluating residual socio-economic impacts because the applicability of these criteria to the predicted residual socio-economic impact of the Snap Lake Diamond Project is limited" *(EAR, S.12.2.1).*<br>▪ "The socio-economic CEA for the SLDP considers the primary communities and employment catchment area identified in the SEIA. Fiscal impacts on Canada as a whole are also considered". *(EAR, S. 12.2.1)*<br>▪ The socio-economic CEA assumes the full adoption and implementation of the SEIA measures…the assessment employs the use of scenarios to identify the variety of potential impacts that might develop from the starting point" *(EAR, S. 12.2.1)*<br>▪ Five key questions were developed to address the areas of predicted cumulative effects as derived from the SEIA" *(EAR, S. 12.2.1)*<br>▪ 6 steps of the socio-economic CEA:<br>1. Limitations to socio-economic CEA acknowledged, as relate to uncertainties identified in the SEIA.<br>2. Review of *Key Issues and Concerns* and predicted socio-economic impacts of SLDP<br>3. Review of socio-economic impacts associated with other projects (those considered in the CEA). Based on primary |

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| | | | data collected during profiling phase of SEIA and secondary information related to the projects.<br>4. Predicted socio-economic impacts of SLDP considered in light of documented / predicted impacts of the other projects.<br>5. Five broad categories of potential CE identified and formulated into five questions. These questions satisfy the scope of potential cumulative socio-economic impacts of the projects identified.<br>6. Two potential scenarios of CE for the SLDP developed (included in App. V of the EAR), using similar approach as applied to the SEIA scenarios. *(Response to IR 4.8.3 b (i))*<br>▪ Information sources for the socio-economic CE analysis include the primary qualitative data gathered through interviews with community representatives and other key stakeholders, as well as secondary data relating to the other development projects considered in the analysis. *(Response to IR 4.8.3 b (ii))* |

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| **Monitoring** | ▪ Ongoing communication with outfitters, aboriginal organizations, communities, governments and interest groups to ID potential problems that may lead to CE<br>▪ Initiate monitoring program (Monitor decreased fish productivity, potential vegetation and wildlife habitat due to reclamation, Caribou avoidance, decrease of country food, Grizzly bear avoidance, increased employment, community tension due to income disparity, increased overall economic development, improved social services, integration of traditional lifestyles and rotating work schedules, disturbances or relocation of outfitting operations.) | ▪ The Diavik Socio-Economic Agreement outlines the data to be gathered and analyzed. The agreement specifies what data will be collected by Diavik and that by the GNWT. | ▪ The responsibility for monitoring and manage or monitor the potential cumulative effects within the SGP by various organizations and proponents will have to be determined. *(EAR, S. 12.1.7)*<br>▪ Until Part 6 of the MVRMA is implemented, De Beers will continue to collect data in a form and manner comparable to present monitoring activities in the SGP. De Beers will also participate in regional initiatives to develop cumulative effects monitoring. *(EAR, S. 14.6)* |

*Table 2: Potential Cumulative Effects*

| Potential Cumulative Effects | BHP | Diavik | De Beers / Snap Lake |
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| **Summary** | ▪ Increased employment<br>▪ Increased economic development<br>▪ Community tension due to income disparity<br>▪ Improve social services/community stability/human health<br>▪ Traditional lifestyle, knowledge and culture<br>▪ Outfitters (sport hunting and fishing and wildlife observation)<br>▪ Territorial lands use<br>▪ Water/decreased fish productivity<br>▪ Wildlife<br>▪ Heritage resources | ▪ Increased employment<br>▪ Increased economic development<br>▪ Community tension due to income disparity<br>▪ Improve social services<br>▪ Improved health and recreation services<br>▪ Infrastructure<br>▪ Water/decreased fish productivity<br>▪ Heritage resources | ▪ Increased employment opportunities and employment rates<br>▪ Increased demand for skilled labour<br>▪ Increased need for job training programs and skills development opportunities<br>▪ Increased need for social support services<br>▪ Overall increased economic activity within the NWT<br>▪ Increased integration into the wage economy<br>▪ Increased fiscal revenues<br>▪ Increased opportunities for spin-off economic activities<br>▪ Potential for economic down-turn in the event of simultaneous mine closure<br>▪ Potential for economic diversification<br>▪ Changes in cultural practices and traditions of Aboriginal people<br>▪ Implementation of impact management measures will lead to enhanced positive and minimized negative impacts.<br>▪ The overall cumulative impacts will contribute to improved quality of life for employees and their families and will contribute to social and economic sustainability. |

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| **Employment** | ▪ BHP's Ekati mine currently employs approximately 640 people.<br>▪ Outfitting operations (sport hunting and fishing and wildlife) may experience a loss in revenue due to increase aircraft activity and human presence | ▪ During construction phase, a total of 2300 person-years of employment in the NWT<br>▪ During operations phase, a total of 400 jobs annually.<br>▪ An expected rise in employment to 550 person-years by 2016 (due to increase in skills and training).<br>▪ Decline in the number of unemployed people by 1208<br>▪ Drop in Unemployment Rate from 20% to 16%<br>▪ It is estimated that government tax revenues will increase by $60 million during construction and $8 million during operations. | ▪ Snap Lake to create around 450 jobs during construction and 525 jobs during operation<br>▪ Provision of between 1,250 and 2,300 jobs in NWT in the mining industry alone, between present time and mine closure (assuming full operation of the three diamond mines and the fact that the numbers of jobs will vary during the mines' construction and operation phases), of which at least 60% anticipated to be filled by northern or Aboriginal people – goal of up to 100%.<br>▪ Employment rates likely to increase proportionally more in the primary [small] communities than in Yellowknife and other large centres or in the region as a whole.<br>▪ Increase in fiscal revenues generated within the NWT and in the overall level of economic activity and resources available for investment by the GNWT. *(EAR, S.12.2.3.1.1)* |
| **Community Development and Social Support Services** | ▪ Increased expenditure on goods and services will stimulate economic development and will provide opportunities to expand skills and education | ▪ Positive economic change in addressing personal and family housing needs<br>▪ Increase demand for family and social services and protection services (negative short term and positive long term impacts)<br>▪ Increase in health and recreation services | ▪ A number of effects will be triggered by the overall increase in employment levels and disposable incomes from a number of projects. These include:<br>  ▪ Increased spending capacity, leading to increased opportunities for developing a local economic base *(EAR, S.12.2.3.1.1)*<br>  ▪ Potential for increased spending on addictive substances, and the associated need for increased/improved substance abuse treatment and prevention services *(EAR, S.12.2.3.1.1)*<br>  ▪ Increased need for financial management skills training and services *(EAR, S.12.2.3.1.1)*<br>  ▪ Need for immediate and ongoing training programs (to maximize the number of northern and Aboriginal hires) and to ensure a diversified economic base at mine closure *(EAR, S.12.2.4.1.1)* |

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| **Living Conditions** | ▪ Economic development related to project development will affect employment and living conditions<br>▪ Alter social and economic conditions on individuals and communities | ▪ Employment opportunities will be positive, long lasting and complementary to northern Aboriginal aspirations | ▪ The increase of employment in the primary communities is conditional upon the continued availability of a labour pool, requiring ongoing skills development and training programs in the northern communities) *(EAR; S.12.2.3.1)*<br>▪ Given increased employment opportunities in the small primary communities, and associated economic spin-offs, it is expected that rates of out-migration from small communities will be reduced. Meanwhile, overall increase in employment opportunities in the NWT may attract labour from other provinces, leading to some increased in-migration primarily to Yellowknife and other larger centres.<br>▪ Potential that local economic spin-offs lead to growth and sustainability of the smaller primary communities. *(EAR, S. 12.2.5.1.1)*<br>▪ It is likely that the nature and magnitude of the cumulative socio-economic effects of the mining industry will differ between small communities and Yellowknife, as well as between gender groups, Aboriginal and non-Aboriginal residents, and among age groups of the population. The range of potential effects will be determined by a number of factors, including: individuals' choices and decisions, community capacity and decisions, territorial and federal policies, programs, plans, and decisions, as well as the measures implemented by De Beers and the other mining companies. *(EAR; S. 12.2.5.1.1 and 12.2.6.1.1)* |
| **Infrastructure** | | ▪ Tourism and infrastructure may improve and expand<br>▪ Increase demand in community and territorial administrative and planning services and infrastructure | ▪ Social infrastructure will need to be developed to ensure the availability of Aboriginal and northern labour. This will include both job training programs and other forms of social services. *(EAR, S. 12.2.4.1.1)* |

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| **Changes on Cultural Practices and Traditions of Aboriginal People** | | | ▪ Lifestyles and practice of traditional activities of Aboriginal people in the primary communities will be affected by the increased participation in the wage economy -<br>▪ The introduction of the wage economy to the primary communities may either limit or improve mine employees' opportunities to engage in traditional activities.<br>▪ The extent to which integration into the wage economy will enable or limit participation in traditional practices will depend on individuals and communities' choices to maintain cultural traditions, as well as the employment arrangements made, in terms of recognizing needs related to traditional activities.<br>▪ actual participation could increase/decrease....<br>▪ Need for programs and activities in support of cultural promotion and education. |
| **Heritage Resources** | ▪ Possible conflict over land use | ▪ Permanent change that would contribute to cumulative loss of approximately 25.4% of the recorded archaeological sites in the Lac de Gras area. (Ekati 5.3%, Diavik 20.1%)<br>▪ Low negative effect on a sense of cultural and spiritual loss<br>▪ Positive CE: Archaeological studies have contributed to both scientific and public knowledge about the presence, nature and distribution of archaeological sites | ▪ The magnitude of the cumulative impact on heritage resources is considered to be low. To date, no sites have been destroyed as a result of the project and no sites are expected to be encountered during the construction and operations stages of the project. |

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| **Climate and Air Quality** | | ▪ Negligible effects on socio-economic conditions beyond the east island and immediate area | ▪ *Some of the air quality impacts addressed in the EAR are considered negligible and others considered low in terms of environmental consequence. The socio-economic effects are considered to be negligible.* |
| **Land Use/Vegetation and Terrain** | ▪ Possible changes to local terrain<br>▪ Possible conflict over land use | ▪ Negligible effect on socio-economic conditions. The east island is not used for plant harvesting and there is no evidence of human use | ▪ *The bio-physical impacts addressed in the EAR are considered to be negligible.* |
| **Wildlife** | ▪ Outfitting operations (sport hunting and fishing and wildlife observation) could increase noise and general disturbances causing Caribou to avoid area | ▪ Resident, subsistence or commercial hunting or wildlife on the east island is negligible | ▪ *The bio-physical impacts addressed in the EAR are considered low in terms of habitat loss and the residual effects on wildlife. The socio-economic effects are considered to be low to negligible.* |
| **Fish and Water** | ▪ Possible changes to water- Coppermine River Basin boundary | ▪ Negligible or low effects on socio-economic conditions<br>▪ Changes in water quality in Lac de Gras will not result in any health risks. Possible aversion to drinking water near site and fish harvesting | ▪ *The bio-physical impacts addressed in the EAR are considered to be negligible.* |