



**CHAIRE CONDITION AUTOCHTONE**  
Chaire de recherche du Canada sur la condition autochtone comparée

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## **The Mining Industry and the Social Stakes of Development in the Arctic**

Gérard Duhaime  
Nick Bernard  
Pierre Fréchette  
Marie-Anick Maillé  
Alexandre Morin  
Andrée Caron

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**Chaire de recherche du Canada sur la condition autochtone comparée**

Centre interuniversitaire d'études et de recherches autochtones

Pavillon Charles-De Koninck

Université Laval

Québec, QC

Canada G1K 7P4

Téléphone: (418) 656-7596

Télécopieur: (418) 656-3023

ciera@ciera.ulaval.ca

© Gérard DUHAIME, Nick BERNARD, Pierre FRÉCHETTE, Marie-Anick MAILLÉ, Alexandre MORIN  
and Andrée CARON 2003

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Gérard Duhaime<sup>2</sup>  
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Andrée Caron

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<sup>2</sup> Louis-Edmond-Hamelin Chair, Université Laval, Pavillon Charles-de-Koninck, 0450, Université Laval, Québec, Canada G1K 7P4. Gerard.Duhaime@fss.ulaval.ca.

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## INTRODUCTION

For centuries the Arctic has been considered as a vast reservoir of natural resources. The attraction exerted by furs was largely motivated by the extension of the boundaries of the major European cities to the cold latitudes of the North, including in America. The major geological expeditions at the start of the 20th century revealed the massive presence of mineral resources and paved the way for their large-scale exploitation. The mining industry set up operations throughout the Arctic, whether in its American, European or Asian part.

The impact of mining on the environment is considerable and is documented today, in particular by the AMAP program report (1997). But the Arctic is also a place where various peoples have lived for hundreds of years in the case of relative newcomers and for thousands of years in the case of the Aboriginal peoples. The social stakes of mining development in the Arctic are considerable: widespread pollution, economic boom and bust cycles, massive and temporary migration of workers into an Aboriginal environment, and so on. At any rate, nothing guarantees that social concerns will be taken into consideration when resources are exploited. Quite on the contrary, in Northwest Russia for example, the privatization of huge mining companies represented an opportunity for these companies to cut their so-called externality costs, namely social payments in the field of health, family services and other services.

This study attempts to answer the following question: what are the conditions under which social concerns can change corporate practices in order to attenuate the negative impacts of mining development and to ensure that the positive impacts do not have detrimental effects?

### Corporate rationality and society

Development brings into contact the corporation, the government and society in a given geopolitical area. Each of these social actors is pursuing its own interests, which it promotes more or less effectively depending on its capacities. Numerous exchanges take place between these actors; those considered here are flows of influence<sup>1</sup> (see Figure 1). Each of these actors

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<sup>1</sup> These relations can be represented by models, equations or charts; in equations, the corporation is represented by the symbol (C), the government (G), society (S). In both types of models, equations and

represents realities, whose large complexity can only be mentioned. The corporation is a legal entity bringing together capital with a view to making it flourish. The government is an institution that redistributes the resources levied from corporations and society. Society is all of the social institutions other than the corporation and the government: it is the plural universe of individuals and the multiplicity of their social roles, associations (unions or voluntary associations for example) and institutions (family or church for example).

The specific interest of the corporation is to make profits in order to redistribute them among its shareholders. To achieve this goal, the corporation will endeavour to impose its interests and the means to attain them on the other two collective actors, namely the government and society<sup>2</sup>. The government redistributes collectivized resources according to the perception that it has of the common good. The corporation seeks to impose its vision of the common good on the government. Neo-liberal societies have governments that endorse this corporate vision and that seek to impose it on society<sup>3</sup>. Society participates in these interrelations in various ways; it may simply contribute by its consenting silence, which in fact allows the corporation and the government to pursue their own logics<sup>4</sup>; it may participate actively by indicating its preferences or claims; it may endeavour to impose its interests<sup>5</sup> by impassioned representations, revolt or rebellion (Bergeron, 1977).

Two hypotheses will be verified here. The first hypothesis is that in the absence of explicit pressure by society or the government, corporations do not take the concerns of society (see note 2) into consideration. The second hypothesis is that society can impose its concerns on corporations by exerting simultaneous pressure on corporations and the government (see note 5).

To verify these hypotheses, the following approach was taken. First, the importance of the mining industry in the Arctic economy as a whole is highlighted using indicators. Secondly, the practices of mining companies in relation to the social environment are examined. The data used concern the mid-1990s. They deal mainly

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charts, the flows of influence are represented by an arrow (→). A chart model is presented in Figure 1.

<sup>2</sup> (G ← C → S)

<sup>3</sup> (C → G → S)

<sup>4</sup> (G → S ← C)

<sup>5</sup> (G ← S → C)

with Northern Alaska, namely the three most northern coastal regions of the American state where the Inupiat live (census division of Nome, Northwest Arctic Borough, North Slope Borough), the Canadian regions of the Northwest Territories, Nunavut<sup>6</sup>, Nunavik and Labrador. We will also present some data dealing with Greenland, a self-governing territory belonging to the Kingdom of Denmark, and the Russian portion of the Euro-Arctic Barents, namely the regions of Northwest Russia (District of Arkhangelsk, Murmansk District, Republic of Karelia, Komi Republic).

There is no pool of statistics that systematically documents this group whose homogeneity comes from the similar climate, demographical and geopolitical characteristics: Arctic or subarctic climate, major Aboriginal presence (Inuit in North America, Samis and Komis in Russia), low population density spread out across cities, towns and villages that are far apart and generally not linked by roads. The results presented here come from work carried out with a view to obtaining comparative data covering these regions and that extended over several years.

### **The mining industry and economic activity**

The economic structure of Arctic regions is characterized by a clear predominance of the tertiary sector (Table 1). The place occupied by the public administration is very important everywhere. It accounts for between one-quarter and one-half of the jobs held. At the level of the regions, this share is even greater. In Nunavik, the public administration provided more than 60% of all paid jobs in 1998.

This over-development of the public administration, observed for at least twenty years (Duhaime, 1988), is not surprising. In Canada, the United States and Greenland, it can basically be explained in two time periods. It historically ensues from the policies of Central states seeking to make the Inuit population sedentary. These initiatives had become inevitable after the mid 20th century. The militarization of the Arctic during World War II and the Cold War brought to the world's attention the material distress afflicting the Inuit, in particular following the sharp decline in the fur trade after the Crash of 1929. States took responsibility for building permanent villages and for assuming the recurrent operating costs. The second time period

coincides with the frantic growth in consumption in the 1960s and America's vulnerability to oil supplies from the Middle East underscored by the 1973 oil crisis, a situation that would fuel North America's appetite for the Arctic's mineral resources. However, at that time, the Aboriginal people opposed their claims to these plans: basically, the Aboriginal people wanted guaranteed access to the territory and to use of the resources as well as compensation for the losses resulting from the exogenous exploitation; they called for a significant place in political decision-making as it concerned their own affairs. The restructuring of the public administration and its growth ensue from subsequent agreements: the Alaska Native Claims Settlement Act (ANCSA-1971), James Bay and Northern Quebec Agreement (JBNQA-1975), Northeastern Quebec Agreement (NEQA-1978), Greenland Home Rule (1979), Inuvialuit Final Agreement (IFA-1984).

The story is not altogether different in Northwest Russia. Geological exploration carried out at the start of the 20th century revealed the abundance of the region's ore deposits (Regina and Kozlov, 2000: 37). The building of mining towns between 1900 and 1930 within the context of the centralized soviet system led to major public expenditures. However, the Aboriginal question did not have the same impact there. Sami and Komi reindeer breeders gradually saw some of their pasturelands transformed, either by the building of mines, cities and roads, or by the pollution affecting the natural environment, forcing these breeders to change areas and in some cases economic activity. The Komis were constituted in a district in 1921, then in a Soviet socialist republic in 1936; since the fall of the U.S.S.R. in 1990 this jurisdiction has taken on the name of the Republic of Komi. As for the Samis, they are spread out across Northern countries (Norway, Sweden, Finland) as well as in the Russian Barents.

If the size of the public administration within the economy as a whole is thus linked to the development of resources, the resources in question had to offer extraordinary potential. The available data confirm this fact.

In Northern Alaska, Northern Canada and Northwest Russia, the primary sector is dominated by mining, the extraction of base metals and precious metals, fuels, building materials and other non-metallic minerals. In Greenland, this place is occupied by the fisheries.

<sup>6</sup> Since April 1<sup>st</sup>, 1999, Nunavut has been constituted as a territory under the Canadian Constitution. Prior to that date, the current territory of Nunavut was part of the Northwest Territories.

For all of Alaska, metal production alone represented in 1997 a value of \$815 million US, half of which comes from the extraction of zinc (Table 2). If one adds the value of the production of industrial minerals (sand, gravel, rock) and energy minerals (coals, peat), the total aggregate value approaches \$1 billion US (Swainbank *et al.*, 1997: 17). Finally, if one adds the expenditures linked to exploration and development, the value of the mineral industry in Alaska was \$1.162 billion US. In Northern Alaska as defined here, two mines were in operation in 1997. North of Nome, the Alaska Gold Co. operated an open-pit mine whose production is insignificant. Located some 145 km Northeast of Kotzebue in the Northwest Arctic Borough, Red Dog Mine is undoubtedly much more important (Cominco, n.d., 1997(a), 1997(b), 1997(c), 1998; Info-mine, n.d.(1); Swainbank *et al.*, 1998)<sup>7</sup>. This mine is the biggest zinc mine in the world.

In Canada, the Northwest Territories were the third biggest zinc producer (16.5%) and the fourth biggest gold producer (8%) in 1997. They produced 15% of the lead and 1.5% of the silver mined in Canada that year. The total value of metallic minerals extracted in the Northwest Territories reached \$510 million CAD in 1996 and \$535 million CAD in 1997. In terms of value, zinc and gold held first and second place respectively. In 1997, six gold mines were in operation. Ptarmigan and Colomac were closed in 1997 mainly due to the drop in the price of gold. The Lupin and Con Mines suspended their operations. Only the Giant and Mon Mine (whose production is insignificant) continued operations before eventually suspending them. Two lead-zinc mines were in activity in the Far North: Polaris Mine on Little-Corwallis Island has since stopped its activities. Nanisivik Mine north of Baffin Island, in operation since 1976, estimated that it had reserves for another five years of production in 1998. Two mines began operations in 1998, the Ekati diamond mine at Lac de Gras in the Northwest Territories and the Katiniq nickel and copper mine in the Québec Arctic. Finally, a small labradorite mine was in operation in Labrador, while Inco was busy conducting the studies necessary to begin mining a massive nickel and copper deposit.

At the same time in Greenland, no major mine was in operation, although a small industry extracting semi-precious stones did exist. However, in Northwest Russia, the portrait is very different. The Kola Peninsula, the northern part of the Murmansk District,

is the most important mineral resource area of the Russian Federation. As a whole, the Murmansk District has over 200 deposits of 40 types of minerals. About 700 minerals have been found in the region, i.e. over 25% of all known minerals in the world. The area contains major reserves of such minerals and elements as phosphorous, iron, copper, nickel, cobalt, sulphur, aluminium, titanium, and others. It has 35% phosphate, 30% non-ferrous metals, 80% of rare metals, 75% phlogopite, 93% kyanite, 37% feldspar and pegmatite, and 4% of iron ore reserves of the whole Commonwealth of Independent State. The Murmansk Oblast is the largest producer of phosphate fertilizers in the world. About 50 enterprises operate in the mining and processing industries. In 1994, the Murmansk Oblast produced 100% of apatite concentrate, 41.2% of nickel, 13.0% of copper and 9.8% of ferrous ore in the whole Russian Federation (Lausala and Valkonen, 1999: 82-83). The economy of the Russian Barrents is based to a very large extent on mining, which accounts for more than 20% of the economic activity.

### **Common characteristics**

The analysis of the practices of mining corporations in their relations with the social environment first reveals that they have several traits in common and secondly that it is possible to distinguish two different types of corporations: those that do not take social concerns into account, and those that do take them into account, regardless of the source of their motivation.

Mining companies share some characteristics, aside from having the common objective of making profits. If one excepts mines belonging to sole proprietors, like small placer gold mines for example, all the corporations concerned here are huge, which a few indicators can easily illustrate. These companies are responsible for a large share of the economic activity by making highly intensive use of capital, equipment and machines of impressive size. In Schefferville, on the southern fringe of Nunavik, the abandoned facilities of the Iron Ore Company cover a 15 km<sup>2</sup> perimeter. The profits of a single year of the Ekati diamond mine, in the Northwest Territories, would be sufficient to pay all of the public services intended for the entire population of Nunavik, namely 10,000 people spread out over 14 villages on a territory that is 500,000 km<sup>2</sup> in size: education, health, social services, subsidized housing, and so on.

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<sup>7</sup> The values are estimated according to the method explained in the note accompanying Table 2.

The number of shareholders is often high. However, the number of companies is relatively low, as we have seen for the North American Arctic. Moreover, these companies are vertically integrated with one another. The Olenegorsk industrial complex, which is active in the mining and concentration of iron ore in the Murmansk District in Russia, belongs to the giant Severstal, which does the refining, itself belonging to a major Russian bank. The Colomac Mine, in the Northwest Territories of Canada, belongs to Royal Oak Mines, an American company that has some 50,000 shareholders, 80% of whom are American residents. Despite the large number of small shareholders, the number of those who make the major decisions is limited: it is the head of the executive of the parent company and his immediate committee.

All these companies invest in mining exploration operations. These operations are sometimes very long and mobilize abundant capital. When these operations are successful, the companies then invest in mining operations, by building facilities required to extract and separate the ore in order to make it a marketable product, as well as for its transport. The exploration that led to the development of the new nickel-copper complex located in Katiniq in Northern Québec and owned by Falconbridge extended over a period of 20 years; as for the investment required for actual mining, it was spread out over 3 years and represents some \$500 million CND.

All companies produce impacts. They create wealth, shared unequally between the actors involved, members of the board of directors and the executive, shareholders, employees, suppliers, government, institutions of the surrounding society. They generate waste in the air (smoke containing non-degradable organic pollutants, heavy metals, etc.), on the ground (tailings, deposits of pollutants carried by air) and in the water (deposits of pollutants carried by air and transported by sea currents, tailing confinement pond, leakage, acid run-off). Several pollutants enter the food chain and have harmful effects on living creatures, including humans; their effects are felt not only in the immediate area but also over very large distances as they are carried by major air and sea currents. These pollutants create disturbances in the human environment where they end up. The companies produce disturbances in mining town as well. These centres are vulnerable: indeed, they are based on a single industry whose profitability is partly linked to world price-setting mechanisms; moreover, they are

highly dependent on the efficiency and reliability of transportation systems (Myers, 2001; Notzke, 1994).

The decisive factors underlying these investments, operations and impacts may differ from one corporation to the next. At least, this is what the comparative examination of corporate practices revealed.

### **Corporations that pay little attention to social concerns**

Corporations that pay little attention to social concerns seek to maximize their profits by following market signals, which strictly dictate the relevance of investing, of reinvesting if the outlook is favourable (price of ore, status of reserves) or of shutting down operations. These corporations endeavour to keep their operating costs as low as possible, and avoid increasing wages, treating waste, or re-naturalizing sites at the time of closing. These externality costs are left up to the public authorities. These corporations tend to concentrate the wealth created into few hands, and consequently, make only a minimal redistribution.

Numerous companies conducted exploration campaigns without having any concern for the impact of this type of activity on the environment. In Nunavik, on a territory approximately 500,000 km<sup>2</sup> in size, promoters abandoned some 584 mining exploration sites between 1940 and 1975 (Duhaime and Comtois, 2002).



While this problem is extensive, some mining sites are very intensively contaminated. The Giant Mine, in the Northwest Territories of Canada, is one of them. Belonging to Royal Oak Mines, an American company that was mentioned previously, this underground mine was opened in 1948 and produced some 90,000 ounces of gold annually, for a total of 7.7 million ounces. The mine closed following the depreciation in the price of gold in the late 1990s and its assets were sold. Giant granted concessions to its employees following a bitter strike, during which production continued uninterrupted, except for one week following an underground explosion that resulted in the deaths of seven employees. But with its closure, the mine left behind a huge environmental problem in the form of 250,000 tonnes of arsenic mixed in the tailings. The problem is such that government officials examined the possibility of exploiting the arsenic in some way in order to offset the costs of a clean-up that the industry does not want to assume and that will likely fall on public authorities.

Numerous mines that opened during this period fall under this category: it was an era in which environmental questions, even less social stakes, were not yet on the agenda. The environmental problems extend beyond the borders of North America and are a dark collective legacy to which the mining industry contributed heavily. All Russia of the Euro-Arctic Barents, this vast reservoir of massively exploited mineral resources supplying the Russian Federation and export markets, suffers from large-scale pollution. In 1997, the Murmansk District produced a total of atmospheric pollutant emissions reaching 682,000 tonnes, 73% of which came from SO<sup>2</sup> emissions of the iron industry, and a significant portion from the phosphate fertilizer industry. Water contamination, originating in large part from the iron and mining industry, also represents a major problem in the region. Finally, soil deterioration associated with mechanical and chemical disturbances is also very great. The main causes of soil deterioration are mining industry pollutants, deposition and chemical. Moreover, radioactivity pollution is another main concern, both from polluted nuclear testing areas and from potential and real risks from nuclear waste deposits, nuclear-powered vessels (Lausala and Valkonen, 1999: 193-198; Yablokov *et al.*, 1996).

It is true that Russian companies inherited a problem dating back to the Soviet period, where the five-year plans dictated by Moscow took the place of market signals. But the fact remains that these damages to the

environment have contributed to lower production costs. Undoubtedly, it will take decades to correct this situation.

### **Corporations that pay more attention to social concerns**

Some companies pay more attention to social concerns. This attention is not necessarily at a *very high* level: it is simply more than nothing. In theory, the deciding factors underlying decisions about investments, operations and impacts continue to apply in these companies: according to their corporate rationality, they seek to maximize profits, keep production costs down, reject externality costs and so on. Yet some of their practices differ. What are these practices, and what are the conditions that make them possible, even require them? This will be the focus of the following examination of a few cases.

#### *Red Dog Mine*

In Northwestern Alaska, Red Dog Mine has been in operation since December 1989. In 1997, it produced 609,600 tonnes of zinc concentrated at 55.2%, 113,300 tonnes of lead concentrated at 56.1% as well as silver. The concentrated ore is sent to blast furnaces in Canada, Europe, Japan and Korea.

The facilities are owned by Cominco Alaska, a subsidiary of Cominco American, itself a subsidiary of Cominco. This is a mining company that is active in exploration, production, casting and refining metals. Cominco is the world's biggest producer of zinc concentrate and the world's third biggest producer of refined zinc. The company owns several mines other than Red Dog: Sullivan (zinc-lead) and Highland Valley (copper) in British Columbia, Quebrada Blanca (copper) in Chile and Polaris (zinc-lead) in the Territory of Nunavut. Several other projects are at an advanced stage in the American hemisphere and in Turkey. The company's head office is located in Vancouver. There are numerous offices in Canada, in the United States, in South America and in Turkey, in addition to its blast furnaces and refining plants. Its main shareholder is another affiliated company, Teck Corporation, which owns 34% of the shares. The geographical distribution of the registered shareholders is as follows: Canada 87.10%; United States 11.27%; United Kingdom 0.48%; other countries 1.15%.

The interest of Red Dog Mine does not lie first and foremost in its huge size, in its integration in the giant Cominco and Teck Corporation, in the spatial distribution of its operations and its shareholders. These indicators confirm the common traits described earlier. Rather, the interest lies in the land leasing provisions and their impacts.

Indeed, Cominco is the owner and operator of the facilities of Red Dog Mine. But the Northwest Alaska Native Association (NANA) Corp., a corporation created under the provisions of the Alaska Native Claims Settlement Act (ANCSA), obtains royalties therefrom. NANA receives an annual royalty in the form of a payment, which is equivalent to 4.5% of the annual production value. This rate will remain in effect until Cominco recovers its capital investment with interest. Thereafter, NANA will receive a share of the mine's net profits; this share will be 25% and will increase by 5% per five-year period, up to 50%. If the estimates of the production value made here are accurate, this means that NANA would have received in 1997 more than \$30 million US. Finally, Red Dog would have generated a profit of \$102 million US in 1997. If one considers that the mine employed approximately 417 employees on a regular basis<sup>8</sup>, half of whom are NANA shareholders, each employee represents a value of \$1.7 million US and a profit of \$244,604 US.

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<sup>8</sup> The sources differ, one mentioning 355 persons, the other 479. The datum retained here is the average of both figures.

#### *Nanisivik Mine*

Nanisivik Mine, located north of Baffin Island in Canada, has been in operation since 1976 (Breakwater Resources Ltd., n.d., 1997, 1998; Info-Mine, n.d.(2); Allen, 1998; Bourgeois, 1997). It is an underground zinc, lead and silver mine. The ore transformed into a zinc concentrate containing lead and silver, is then shipped by boat in four loads to blast furnaces in Europe. The mine is wholly owned by Breakwater Resources Ltd., which acquired it in 1996 for \$2.5 million CAD. Breakwater is active in exploration, development and mining production in the Americas and North Africa. In 1998, the company operated four mines in addition to the Nanisivik Mine: El Mochito in Honduras, El Toqui in Chile, Caribou in Québec, and Bougrine in Tunisia. The company is among the world's biggest zinc producers. The head office of Breakwater Resources is located in Toronto. It also has offices in North Bay (Ontario), Rouyn-Noranda (Québec), Joutel (Québec), Wenatchee (Washington), as well as at its mines in Honduras, in Tunisia and in Chile. The main shareholder is Dundee Bancorp Inc., which owns 33.6% of the shares.

In 1997, the mine had a record year extracting 805,000 tonnes of ore; this would result in a number of consequences. As the Nanisivik Mine is located on Arctic territory where the permafrost reaches a considerable depth, the mine cannot be heated. The temperature remains at about -20°C all year round. To avoid melting, water cannot be used during diamond drilling operations. Dry drilling techniques have been developed and a sophisticated ventilation system eliminates the dust (Allen, 1998). However, some Nanisivik residents lodged a complaint with the Government of the Northwest Territories in 1997 concerning the high levels of dust and other environmental practices of the company (Bourgeois, 1997).

In 1998, it was anticipated that the mine could remain active for at least 5 more years. The company has made the following commitments: when the time comes to dismantle the mining facilities for good once all the reserves have been depleted, all the buildings will be removed, the tailing confinement pond will be covered, the entrances to the mine will be sealed (Allen, 1998), and the site should be completely renaturalized.

#### *Katiniq Mine*

The mine located at Katiniq in Northern Québec in Canada is the most recent mine of the Raglan Mining Corporation, which is owned by Falconbridge (Falconbridge, n.d., 1996; Info-Mine, n.d.(3); Anon., 1998; George, 1996(a), 1996(b); Phillips, 1995; Wilkin, 1998). The extraction of ore began in December 1997, at the same time as the start-up of the concentrator. Approximately 2,400 tonnes of ore are processed each day, for an annual total of close to 900,000 tonnes. This ore is transformed on site into a nickel-copper concentrate for a projected annual quantity of about 130,000 tonnes. The concentrate is transported by truck over a distance of 100 km to Deception Bay, where vessels transport it to Québec City. At Deception Bay, Falconbridge is re-using a wharf built in the 1970s for an asbestos mine near Salluit. The navigation season lasts eight months and at least six maritime trips are planned each year. The first load of nickel-copper concentrate was shipped in March 1998<sup>9</sup> on the *MV Arctic*. Once in Québec City, it is transported by rail to the company's blast furnace in Sudbury. The resulting matte (a mixture of metal and sulphurs) is shipped back to Québec City by rail where it is loaded on a vessel bound for Norway. The final refining of the metal is done by Falconbridge Nikkelwerk. Once refined, the annual production of the Raglan mine at the 1998 rate totals 21,000 tonnes of nickel, 5,000 tonnes of copper, 200 tonnes of cobalt, as well as a small quantity of platinum and palladium. In 1998 the company believed that it was able to increase its annual production to 30,000 or 40,000 tonnes of nickel.

The Raglan Mining Corporation is owned by Falconbridge. The company is one of the world's nickel giants along with Inco and Rao Norilsk. It is involved in the exploration, production and refining of nickel, copper and cobalt. In addition to Raglan, in 1998 the company operated mines in the Canadian regions of Timmins (Kidd, Deep) and Sudbury (Lockerby, Craig, Onaping) as well as in the Dominican Republic (Falcondo) and continued the development of the very important Collahuasi mine (Chile), which was supposed to increase Falconbridge's copper production from 136,000 to 300,000 tonnes. The company's head office is located in Toronto. The main shareholder of Falconbridge is Noranda (Anon., 1998).

Approximately 400 persons have been working on the Katiniq mine site since 1995. The Inuit were hired

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<sup>9</sup> Unused material and the machinery used to build the mine and the concentrator were brought back to Québec City at the same time as the first shipment (Wilkin, 1998).

already at the development stage (66 Inuit, or 15% of the manpower, in 1996) (George, 1996(b)). The company made considerable efforts to involve the local Inuit communities of Salluit and Kangiqsujuaq. In 1995, the Raglan Mining Corporation and Makivik Corporation signed the Raglan Agreement which included clauses on compensation for the residents of the two neighbouring villages, the priority given to hiring Inuit workers, manpower training, subcontracting to Inuit firms, and provisions concerning the environmental stakes (Phillips, 1995). The Agreement led to the setting up of manpower training programs for the populations of Salluit and Kangiqsujuaq; two instalments of \$1 million CAD by the Raglan Corporation, the first in 1996 and the second at the time of production start-up in 1997, in the form of direct payments to the Inuit of the two villages; to the granting of a first contract for \$60 million CAD between Raglan and a joint venture (J-V) for the development of open-pit mines on the property. Kiewit, a multinational construction company, invested \$8 million CAD in the J-V and is entitled to 80% of the earnings. The minority partner, Nunumviut Development Inc., invested \$2 million CAD and is entitled to 20% of the earnings. This company was formed by the villages of Salluit and Kangiqsujuaq. As Nunumviut Development Inc. did not have the initial capital, the Makivik Corporation loaned 85% of the amount and the Kativik Regional Development Council provided the balance, namely 15%. The Department of Indian and Northern Affairs, under its "Resource Access Negotiations Program", provided the loan guarantees (George, 1996(a)).

#### *Political power and corporate practices*

These examples reveal important common traits, over and above those mentioned previously. Indeed, in all reported cases, the corporation agreed to change some of its practices to take into account pressures from its social or political environment. The factors explaining this type of behaviour are limited in number. For a corporation, the incentives to change are the following: government regulations that allow the corporation to define the pace and the means of the changes that are required; a profitable period; some economic benefits to the corporation itself; the willingness on the part of the government or society to enter into a partnership with the corporation; a cost-effective ecological approach; a flexible approach making it possible to define goals according to opportunities; and an informed public (Gunn, 2001; see also Gunn, 1995).

First, the changes made to the operations of Nanisivik and to the plans at the time of closure were imposed by pressure from society, exerted directly on the corporation and indirectly on the government. These gains were obtained in a period that was favourable for the company whose investment was likely amortized, and which could still maintain its profitability (the subsequent drop in the price of gold led to the closure). Next, the negotiation of agreements between Red Dog and NANA, and between Raglan and Makivik Corporation, reveals a clear willingness on the part of society to enter into a partnership with the company, which has everything to gain in this context. Finally, the changes to the practices of companies are obtained at a time when regimes to protect Aboriginal rights (namely: Alaska Native Claims Settlement Act of 1971 and the James Bay and Northern Quebec Agreement of 1975) and environmental protection regimes exist (National Environment Policy Act of 1969 in the USA, and Environment Assessment and Review Process of 1973 in Canada). Indeed, it seems that the basic difference between these cases and those that were mentioned earlier lies in the acquisition by Aboriginal organizations of a major power of influence. This power comes from the agreements that these organizations succeeded in reaching to satisfy their territorial claims. These result from a transformation of the political culture, which responds to the conditions in which the Inupiat and the Inuit henceforth live. They have learned the tools of the modern world, including representative democracy, negotiating, corporate rationality. Equipped with the means put at their disposal by their previous gains, they have succeeded in applying appropriate pressure to impose some of their conditions on companies wishing to exploit the resources of the territory for which the Aboriginal organizations are henceforth responsible. This process is not fundamentally different in Nanisivik, where complaints have received attention only of late, at a time when the Inuit of Nunavut acquired mastery over these tools of influence and were preparing to exercise political power beginning in 1999 with the creation of the new Territory of Nunavut.

### **Dynamics of relations**

However, it would seem that the effectiveness of society in influencing corporate practices does not settle anything decisively. Indeed, the relations between the actors in question continue over time, each concerned about its own interests. The objectives and the means at the disposal of the corporation are often much more

coherent, including over the long term, than the objectives and the means used by the surrounding actors. Society, presented here in an overly simplified form as a sort of homogenous whole, is in actual fact a vast plurality of components that are often not organized according to ideas that occasionally may be in agreement or contradictory. Society has only an analytical coherency and does not have a single voice to express what could be considered as an opinion. Moreover, in day-to-day reality the organizations of society, when facing huge corporations, cannot hope to have the same means at their disposal. Finally, the State as a whole is only homogenous in theory; in practice, it is composed of a multiplicity of superimposed layers and parallel hierarchical lines that often ignore one another and occasionally contradict one another.

In this changing landscape, who oversees the practices of corporations? The agreements may be of no effect, if the appropriate means for the situation are not implemented to oversee their application. In 1997, Nanisivik Mine employed approximately 190 persons, including 18% Inuit, out of a population of 350 for the entire community of Nanisivik. Yet when the mine opened in 1976, the owners had promised that 30% of the work force would be Inuit (Bourgeois, 1997). This result is not likely a reflection of the company's intention alone. Numerous factors are likely involved, including the constraints associated with industrial work, which may seem insurmountable to some (Duhaime, 1991). Nevertheless, the fact remains that the agreement itself was not respected. Had the corporation made too many concessions? Had the Inuit representatives asked for too much? No final conclusion can be drawn in this precise case without additional research; but everything has unfolded as if the corporation had been given free reign once society was no longer on its guard.

Can the watchful eye of public authorities re-establish some form of balance between the domination of powerful mining companies and society? This is not always certain. The environmental regimes adopted in Canada and the United States call for impact studies, but do not impose follow-up studies or corrective measures in the case where the actual consequences differ from the anticipated consequences. Katiniq Mine is a case of that nature. The Raglan Corporation anticipated positive impacts for the social environment in the form of jobs, contracts, and mitigation measures for the negative impacts on the natural environment. It would seem that this sudden wealth has in turn led to social disturbances: a stratification between the new

well-to-do ones and those left behind; an increase in social problems such as over-spending, substance abuse; a stratification between the villages favoured by the agreement with the mining corporation and the remainder of the region left out and which sees in this agreement a sort of denial of sharing as being a founding value of Inuit identity. Such a stratification is also visible in Northwest Russia. At Apatity, in the Murmansk District, it seems that approximately 55% of the population live below the poverty line with monthly earnings of less than 2000RR, namely approximately \$70 US. The wages paid by big industry exceed these sums. At the Olenegorsk mining complex, a truck driver can earn between 1800 and 6000RR, depending on the number of hours worked during the month<sup>10</sup>.

Finally, the arbitration mediated by the political power between the interests of corporations and those of the actors in society does not necessarily lead to a renewed balance; it may swing the balance in favour of the corporations, something that occurs most of the time in a market economy dominated by the neo-liberal credo. The impact of the privatization of the mining companies of Northwest Russia has been to reduce the social responsibilities that they assumed under the Soviet regime, in particular the funding of housing and health services (Riabova and Granberg, 1999). This behaviour is far from being unusual. Privatization commonly leads to such a reduction in the obligations of companies at the expense of society if the State does not step in (Duhaime *et al.*, 2001).

## CONCLUSION

The summary model presented here is valid for the analysis of this dynamic under certain basic conditions. First, it must be understood that this represents a schema requiring considerable development, which would call on the resources of several scientific disciplines: industrial and organizational sociology, political science, and so on. Indeed, the intrinsic complexity of the action and the rationality of each of the actors cannot be expressed so quickly without simplification, and all simplification is by definition unsatisfactory when it involves reporting on reality itself. Such is the ingratitude of modelling.

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<sup>10</sup> These data come from discussions or communications with Olga Borisenko and Anatoliy Korchak, researchers at the Institute on economic problems, Kola Science Center in Apatity, and with the head of the public relations department at the Olenegorsk mining complex, in September 2001.

This having been said, this model must incorporate the spatial dimension; one must consider that it operates simultaneously at the local, regional, national and international levels. Between these vertically linked geographical layers, the factors are thus mobile: the company can act at the local level, but it must answer to a parent company which acts at the global level, and which may choose to cease operations in a given geographical area when it deems that the conditions are not profitable, only to invest in a different geographical area. It goes the same way for the other actors. There are governing institutions at the local, regional, national and international levels. Similarly, there are civic institutions at each of these levels, with vertical interrelations.

Finally, this model must carefully take into account the dynamic dimension of the interrelations between the actors. Indeed, it involves a complex system of actions and reactions between the three generic actors involved here. It is all the more complex in that, as was mentioned earlier, none of the actors is a monolithic bloc. Even the interests of local and global companies differ. This fundamental characteristic, while calling for a remarkable theoretical development, could also benefit from comparative studies, for example on behaviour in various social and political contexts and on the policies of the corporations having operations in several geographical regions. Almost all of the companies in question have operations elsewhere than in the Arctic.

Within this perspective, what may be concluded from this examination of the corporate practices of the mining industry? Nothing will ever ensure that the social concerns will be heard and treated satisfactorily by companies in the absence of sufficient pressure by society. Nothing will ever ensure that government intervention will promote the inclusion of social concerns in the plans of companies. Finally, nothing will ever ensure that the inclusion of social concerns will not have immediate effects or subsequent effects that run counter to those anticipated.

Inspired by corporate rationality, companies seek to bring together favourable conditions allowing them to continue their profitable operations. Everything takes place as if they take social concerns into account only when society clearly indicates such concerns to them. In saying nothing, in consenting quite simply to the arrival of mining companies, society is helping to minimize the investment and operating costs and to maximize profits. In demanding, for example, that companies take

acceptable steps to reduce pollution emissions, to maximize the positive impacts in the social environment, to do a follow-up on the actual impacts, society is maximizing its own interest. In summary, companies only react if they are prodded to act. At any rate, they always have the possibility of not investing in the city, the region or the country if they believe that they cannot meet the requirements of society while ensuring the profitability of their investment. During negotiations, they will undoubtedly invest a lot of energy to highlight the economic benefits of their activity and to reduce the social requirements; they will threaten to postpone their investment. Mineral resources are never found at only one place in the world. And the world is the market of these huge companies.

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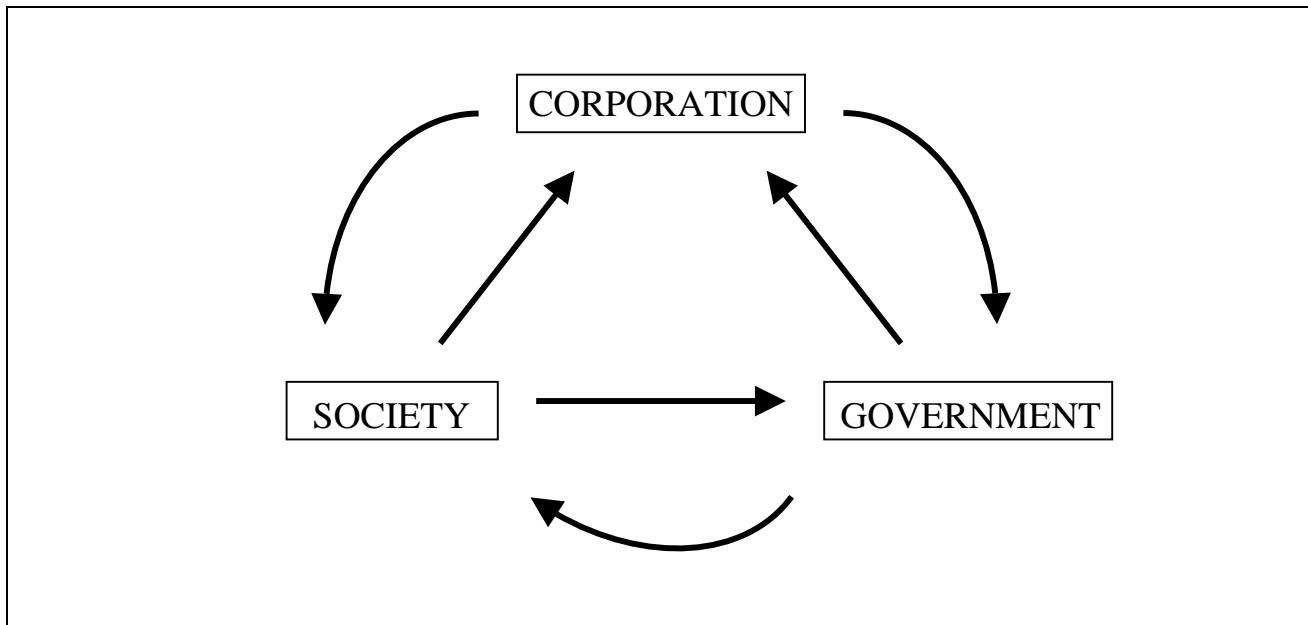
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**Figure 1**  
**Interaction model between corporations, government and society**



**Note:** The arrows, which represent flows of influence, should theoretically all be bi-directional. The model presented here illustrates the optimal conditions under which society’s concerns can be taken into consideration by corporations.

**Table 1**  
**Employed persons by industry, percentage**

	Northern Alaska	Northern Canada	Greenland	Russian Barents
	1990	1996	1988	1997
<b>Primary Sector</b>	<b>5</b>	<b>10</b>	<b>20</b>	<b>32</b>
Agric., Forestry & Fisheries	1	3	15	5
Mineral Resources	5	8	5	27
<b>Secondary Sector</b>	<b>9</b>	<b>8</b>	<b>19</b>	<b>7</b>
Manufacturing	1	2	3	0
Construction	7	6	17	7
<b>Tertiary Sector</b>	<b>86</b>	<b>82</b>	<b>60</b>	<b>61</b>
Transportation	7	6	7	6
Comm. & Public Utilities	5	4	6	6
Trade (Wholesale & Retail)	13	13	10	11
Finance	3	6	4	7
Public Administration	47	40	26	28
Services	11	12	8	3
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

**Sources:** U.S. Department of commerce, 1990; Statistics Canada, 1999; Statistics Greenland, 1991.

**Note:** In Alaska, education and health were added in the public administration.

**Table 2**  
**Metal Production, Alaska, 1997**

Products	Quantities	Estimated Values (US\$)
Gold (oz)	574 423	198 420 000
Silver (oz)	14 546 000	71 420 900
Platinum (oz)	NPA	NPA
Copper (tn)	1 720	3 543 200
Lead (tn)	87 284	48 879 400
Zinc (tn)	418 097	493 354 500
Tin (lb)	NPA	NPA
<b>TOTAL (US\$)</b>		<b>815 618 000</b>

**Source:** Swainbank *et al.*, 1998

**Note 1:** NPA = No production announced

**Note 2:** The values of gold, silver, copper, zinc and lead production are calculated on the basis of the average value of the metal during the year under study. In 1997: gold (US \$3330.76/oz), silver (US \$4.91/oz), copper (US \$1.03/lb), zinc (US \$0.59/lb), lead (US \$0.28/lb). The other values come from information provided by producers.

**Table 3**  
**Production, Red Dog Mine, 1996-1997**

Products	Quantities	Estimated Values (US\$)
Ore processed (t)	1 929 000	
<b>Zinc</b>		
Concentrate produced (t)	609 600	516 610 127
Concentrate concentration rate	55,2%	
<b>Lead</b>		
Concentrate produced (t)	113 300	202 319 938
Concentrate concentration rate	56,1%	
<b>Silver</b>		
Average concentration of silver (oz/t)	2,87%	
Recovery rate	70,0%	

**Sources:** Cominco, 1997(a), 1997(b), 1998.

**Note:** The data of Tables 2 and 3 come from different sources. As a result, we are unable to reconcile them.

**Table 4**  
**Value of the mineral production, Northwest Territories, 1997**

Mineral Products	Values ('000 CAD\$)
Metals	535 288
Non-Metals	-
Building materials	7 191
Fuels	245 557
<b>Total Northwest Territories</b>	788 036
<b>Total Canada</b>	49 843151

**Source:** Natural Resources Canada, n.d.

**Table 5**  
**Volume and value of the metal production, Northwest Territories, 1997**

Metal Products	Volume	Values ('000 \$CAD)
Gold	13 466 (kg)	199 970
Zinc	167 923 9 (t)	309 650
Lead	25 046 (t)	21 815
Silver	18 (t)	3 854
<b>Total Northwest Territories</b>	-	535 288
<b>Total Canada</b>	-	11 425 691

**Source:** Natural Resources Canada, n.d.

**Table 6**  
**Production, Nanisivik Mine, 1997**

Products	Volume
Ore extracted (t)	779 000
Concentrate produced (t)	93 300
Metals in the concentrate: Zn (t)	52 600
Metals in the concentrate: Ag (kg)	16 794
Metals in the concentrate: Pb (t)	n.a. (less than 2000)

**Source:** Breakwater Resources, 1997, 1998.

**Note :** Operating Costs : 40.93 \$ CAD/t

**Table 7**  
**Gold Production Indicators, Giant Mine, 1997**

Indicators	Results
Quantity (g) 31.1g=1 troy oz	2 800 000 g
Operating costs (\$US/oz.)	315,00

**Source:** Royal Oak Mines, 1998

**Table 8**  
**Resource Estimates for Selected Minerals in the Murmansk Oblast**

Mineral	Resources Inferred (M t.)	Proved Resources (M t)	Ore grade (%)
Apatite Ores	11 000	687	9-27
Iron Ores	3 100	1 600	25-32
Aluminium Ores	-	-	-
Nepheline	-	-	13
Kyanite	10 000	1 700	30-35
Micas	52	24	30
Feldspar	80	21	-

**Source:** Lausala and Valkonen, 1999.

**Note:** Murmansk District is one of the four entities forming the Russian Barrents, along with Arkhangelsk District, Republic of Karelia and Republic of Komi.