Responsible Extraction:

An analysis of the Northwest Territories Mineral Development Strategy Panel report

Prepared for:
Government of the Northwest Territories
Standing Committee on Economic Development & Infrastructure

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PEMBINA institute

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- driving down energy demand by encouraging energy efficiency and transportation powered with cleaner energy sources
- promoting pragmatic policy approaches for governments to avoid dangerous climate change, such as increasing the amount of renewable energy plugged into our electricity grids
- recognizing that the transition to clean energy will include fossil fuels for some time — advocating for responsible development of Canada's oilsands and shale gas resources

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1. Introduction

Historically, mining has played a significant role in shaping the economy and society of northern Canada. As northerners reflect on the positive and negative legacies of the mining industry, they increasingly raise questions about environmental, social and economic sustainability. The formation of the Northwest Territories (NWT) Mineral Development Strategy (MDS) is an important opportunity to address those questions, particularly as the Government of the Northwest Territories (GNWT) prepares to take more control over subsurface resources from the federal government on the eve of devolution.

The Pembina Institute shares the GNWT's vision of a socially, economically and environmentally sustainable Northwest Territories, and supports responsible resource development at a pace and scale that maximizes benefits to NWT communities and residents. We take a rational and evidence-based approach to development that promotes environmental stewardship and community well-being.

The Pembina Institute is also a strong proponent of democratic processes and meaningful public consultation. Therefore, it is of particular concern that the MDS Engagement Panel (the Panel) does not represent an adequate range of perspectives and expertise on responsible mining issues, and that the process to date has not included consultation with the general public. **We strongly recommend that the GNWT undertake a more balanced and open public consultation process as it drafts its response to the Panel's recommendations.**

While we agree with several recommendations made by the NWT Mineral Development Strategy Panel in its May 2013 report, we have also found many of the recommendations to lack supporting evidence or, in several cases, found recommendations to be based on faulty assumptions.

The Pembina Institute agrees with the Panel that the GNWT should:

- work with federal and Aboriginal government partners to reach fair and timely settlement of outstanding land claims
- support the completion and implementation of land use plans
- put in place a legally-enforceable progressive mine reclamation and security policy, with associated regulations
- ensure inspections and monitoring of mineral development and mine operations are undertaken in a timely and fully transparent manner, following devolution
- continue to develop the Heritage Fund to ensure it benefits future generations

Contrary to the Panel's report, the Pembina Institute:

- challenges the assumption that public subsidies to the mineral industry have high returns in terms of jobs and government revenues

- considers increasing government shares of economic rent as a way to ensure "…northerners benefit from mineral development to the greatest extent possible"[1]
- questions the notion that the mineral industry's northern workforce can be significantly enlarged within the next five to 15 years to match labour demands from the industry
- challenges the assumption that economic stability can be achieved by ensuring that resource-based industries "remain a central part of the economy"[2]
- considers current mining activities to have significant impacts on the environment
- questions the notion that current mining practices satisfy criteria for environmental sustainability, including through adequate reclamation
- challenges the idea that the current regulatory system is broken and needs to be streamlined through the federal Regulatory Reform Action Plan
- does not consider the free entry system to be necessary, or beneficial, to NWT communities, or the economy
- questions the Panel's interpretation of the Protected Areas Strategy as a project to be controlled by the GNWT

The Pembina Institute recommends that the GNWT:

- cease all forms of subsidy to resource-extraction industries
- optimize its share of economic rent by introducing new taxes on industry and by increasing royalties
- work with communities to identify the appropriate scale and pace of resource development
- work with co-management boards and the Cumulative Impacts Monitoring Program to put mechanisms in place to enforce and monitor appropriate scale and pace of resource development
- allocate considerably more resources to inspection and monitoring than Aboriginal Affairs and Northern Development Canada does currently
- clarify several elements of the NWT Heritage Fund Act
- put in place a new mining-specific statute that requires regulators to address mining reclamation in a comprehensive way for all facilities and activities of the mineral industry
- follow recommendations from the NWT Environmental Audits and co-management board reports on how the regulatory system should be improved
- conduct a review of alternatives to the free entry system
- support the completion of the Protected Areas Strategy

[1] MDS Engagement Panel, *Pathways to Mineral Development: Report of the Stakeholders Engagement Panel for*

[2] Ibid, 6.

Table 1: Summary of case studies profiled in this report

Mine	Operating period	Mine closures / bankruptcies	Cost to taxpayers of clean-up	Total security held by government	Environmental problems
Giant gold mine (Yellowknife)	1948-2004	1999 (received $47 million in federal subsidies between 1948 and 1971 to prevent bankruptcy)	**$1 billion +** Perpetual care required	$400,000	237,000 tonnes of highly toxic arsenic trioxide at risk of contaminating groundwater, surface water and harming human health
Colomac gold mine (Tlicho territory)	1990-1997	1992, 1997	**$70 million +**	$1.5 million	Contaminated area covers 3 lakes and 76 ha; Acid mine drainage; High levels of cyanide and ammonia; Illegal cyanide dumping
Faro lead-zinc mine (Yukon)	1968-1997	1982, 1992, 1997 (tens of millions of $ in subsidies allowed mine to keep restarting)	**$250 - 800 million +** Perpetual care required	$14 million	Water contamination from acid mine drainage; Ongoing risk of tailings dam failure
Ptarmigan and Tom gold mines (Ingraham Trail)	1941-42; 1986-1997	1942, 1997	**$350,000**	$30,000 ($245,000 was held and then lost by feds)	Waste and mine water continues to flow into nearby lake; Abandoned buildings and garbage
Jericho diamond mine (Nunavut)	2006-present	2008, 2012	unknown; **$3.4 million** in security required	less than $1.4 million	Hazardous waste not stored properly; Fuel spills not cleaned up
Cantung tungsten mine (western NWT)	1962-1986; 2000-2003; 2005-present	1986, 2003	**up to $49 million** required for full clean-up	$7 million	Upstream of Nahanni National Park; Fuel spills have occurred; Reopened without inspection

2. Areas of agreement

2.1 Settlement of land claims (recommendation #11)

The GNWT should work together with federal and Aboriginal government partners to reach fair and timely settlement of outstanding land claims, especially given that there is currently strong interest in mineral exploration and extraction from Akaitcho Territory and Dehcho First Nations lands. The Panel rightly acknowledges that most land use conflicts occur in areas of unsettled land claims, and these issues tend to take up the most time and resources within the regulatory system.

See section 3.7 for areas of disagreement between the Pembina Institute and the Panel on regulatory reform.

2.2 Completion and implementation of land use plans (recommendation #21)

The Pembina Institute appreciates the Panel's acknowledgement of the importance of land use plans, which create more certainty for both industry and communities as to where the 'no-go zones' are for mineral exploration and development. The Panel also recognizes the Protected Areas Strategy (PAS) as a component of land use planning. The PAS has involved industry as a partner from the beginning, and mineral potential is taken into account during decision-making about whether protected areas should be established and what the boundaries should be.

To clear up potential confusion resulting from the Panel's report, the GNWT's Land Use and Sustainability Framework does not serve the same function as a land use plan and cannot be substituted for a legally-binding land use plan pursuant to the Mackenzie Valley Resource Management Act (MVRMA).

2.3 Legally-enforceable progressive mine reclamation and security policy, with associated regulations (recommendation #23)

The importance of a progressive reclamation regime cannot be overstated. Further discussion about historical and ongoing problems with reclamation and security are found below under section 3.6. The Pembina Institute's recommendations for an improved reclamation and security regime are found in the conclusion.

2.4 Timely and fully transparent inspections and monitoring of mineral development and mine operations (recommendation #24)

While the Panel report does not mention any existing problems with inspections and monitoring, the 2012 Fall Report of the Commissioner for Environment and Sustainable Development provided some statistics that are cause for concern. The Commissioner found that in 2011, Aboriginal Affairs and Northern Development Canada (AANDC) inspectors failed to conduct over 70% of their required site visits of all resource development projects (including mines) in the Northwest Territories.[3] Unfortunately, the GNWT will soon be inheriting this severely under-staffed and under-resourced regime. If the GNWT is to follow the Panel's recommendation, it will need to allocate considerably more resources than AANDC currently does to inspection and monitoring.

2.5 Heritage Fund (recommendation #28)

While the Panel fails to mention that an NWT Heritage Fund has already been established, more work remains to be done to ensure the Fund achieves its goals. Pembina agrees with the Panel's argument that the Heritage Fund should be set aside for the benefit of future generations rather than used to support ongoing government programs. Mining means a permanent loss of non-renewable resources available to local communities, so it should be offset by long-term compensation.[4] Currently, the NWT Heritage Fund contains only about $250,000 and there is no legislated requirement for the GNWT to set aside a portion of resource revenues in the Fund.[5]

The GNWT should be ready to resist the strong temptation after devolution to spend those funds today on programs, services, and infrastructure, since decreased federal transfer payments will put pressure on already tight GNWT budgets. To eliminate this temptation, the Heritage Fund Act should be amended to clearly stipulate:

- the source of funds
- the amount or percentage of revenues to be transferred annually into the Fund
- a system to protect Fund capital from premature withdrawal
- an arms-length agency to manage the Fund, charged with protecting the long-term public interest[6]

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[3] Auditor General of Canada, "Chapter 2—Financial Assurances for Environmental Risks," *Fall Report of the Commissioner of the Environment and Sustainable Development* (2012). http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201212_02_e_37711.html

[4] Amy Taylor, Jennifer Grant, Peggy Holroyd, Mike Kennedy and Katherine Mackenzie, *At a Crossroads: Achieving a Win-Win from Oil and Gas Developments in the Northwest Territories* (Pembina Institute and Alternatives North, January 2010), 34. http://www.pembina.org/pub/1959

[5] Kevin O'Reilly, Alternatives North, personal communication, August 19, 2013.

[6] Alternatives North, *Submission to Standing Committee on Bill 10 – Northwest Territories Heritage Fund Act* (May 2011). http://www.alternativesnorth.ca/Portals/0/Documents/GNWT%20Finances/2011%2005%2001%20Bill10%20Heritage%20Fund%20Act%20Presentation.pdf

3. Analysis of assumptions

3.1 Public Subsidies, jobs and net government revenues

While the MDS Panel report never uses the term 'subsidy,' many of its recommendations are, in fact, subsidies. According to the World Trade Organization,[7] a subsidy can include:

- direct transfers of funds or liabilities (eg., grants, loans, loan guarantees)
- government revenue that is not collected (eg., tax credits)
- goods or services (eg., mining-specific infrastructure, advertising/promotion)

The following types of public subsidies for the mineral industry are proposed by the MDS Panel:

- increased funding to the public geoscience office in order to produce additional surveys and geological maps aiding the mineral exploration industry (recommendation #1)
- Mining Incentive Program with grants to prospectors/junior companies and mineral exploration tax credits (recommendation #3)
- publicly funded campaign to market and promote mining investment (recommendations #4 and #5)
- publicly funded infrastructure serving existing mines or areas with high mineral potential (eg.,energy infrastructure, roads, airstrips) (recommendations #7 and #10)
- hire at least four full-time senior and junior level staff positions exclusively dedicated to helping mineral industry "clients" navigate the regulatory system (recommendation #13)
- hire contractors and "loan" them on a dedicated basis to mineral industry "clients" to shepherd them through the regulatory process (recommendation #13, p.32)
- launch a sustained public awareness campaign about the benefits of mining (recommendation #38)

The Panel does not provide any estimate of what its recommended subsidies would cost, but they could represent a significant portion of the GNWT's mining revenue stream. As a point of comparison, diamond mines paid $61 million in taxes in 2011.[8]

From a purely economic perspective, subsidies to the mineral industry are inefficient because they encourage an excess of capital investment to flow into an industry that may not have the best return on investment, undermining the potential for advances in economy-wide productivity. In 1998, the federal Department of Finance's Technical Committee on Business Taxation noted that the effective tax rates on mining and oil and gas in Canada were already significantly lower

[7] World Trade Organization, *Agreement on Subsidies and Countervailing Measures*, 229. http://www.wto.org/english/docs_e/legal_e/24-scm.pdf

[8] Government of the Northwest Territories, *Communities and Diamonds: Socio-economic Impacts in the Communities of Behchokò, Detah, Gamètì, Łutselk'e, N'dilo, Wekweètì, Whatì and Yellowknife; 2012 Annual Report of the Government of the Northwest Territories under the BHP Billiton, Diavik and De Beers Socio-economic Agreements* (2013), 38. This estimate does not include personal income taxes of mine employees, indirect employment, or taxes paid by contractors and their employees.

than other sectors and recommended they be brought in line with other industries in order to reduce economic distortions.[9]

Respected economist Jack Mintz of the University of Calgary's School of Public Policy has argued more recently for the elimination of preferential tax breaks and subsidies to the mining industry, saying: "Provincial [and territorial] treasuries certainly cannot afford these breaks, and neither can the Canadian economy as a whole."[10]

Of course, governments do not make decisions for purely economic reasons; they are also concerned about the broader public good. From a sustainability perspective, subsidies for primary resource extraction have been identified by the Organization for Economic Cooperation and Development (OECD) as one of the biggest barriers to progress on sustainable resource use and waste management. Subsidies for mineral extraction reduce the cost of new materials, making companies and individuals more likely to create and buy disposable items, as opposed to recycling or re-using previously mined materials.[11]

On the other hand, there is a common argument by the mineral industry (outlined on page 9 of the MDS Panel report) that since mining is a risky business, and exploration has a slim chance of success (reportedly 1 in 1000), the industry needs up-front subsidies in order to be viable. Examining this argument more closely, the government is being asked to put taxpayer dollars into very high-risk investments. This is like investing public pension funds in volatile junior mining stocks. Responsible managers of public finances should not take such a risky approach; instead, they should seek a portfolio of investments with more certain rewards.

The Faro Mine in the Yukon is an example of an operation that consumed tens of millions of dollars in public subsidies over the years. The economic benefits provided by the mine are far overshadowed by the costs to the public of cleaning up and caring for this abandoned mine, estimated between $250 million and $800 million. See Case Study 1 below.

[9] Technical Committee on Business Taxation, *Report*, (Ottawa: Department of Finance, 1998), 5.30–5.32. http://www.fin.gc.ca/toc/1998/brie_-eng.asp

[10] Duanjie Chen and Jack Mintz, "Repairing Canada's Mining-Tax System to be Less Distorting and Complex," *SPP Research Papers* (University of Calgary School of Public Policy), Vol. 6, Issue 18, May 2013, 1. http://policyschool.ucalgary.ca/sites/default/files/research/chen-mintz-mining.pdf

[11] Environment Directorate, Strategic Waste Prevention: OECD Reference Manual ENV/EPOC/PPC (2000)5/FINAL, (Paris: OECD, August 2000), Chapter 5.

Case Study 1: The Faro Mine[12]

The Faro Mine was a lead-zinc mine in the Yukon that opened in 1968 by Cyprus Anvil and later changed hands three times. When the mine closed in 1982 due to low metal prices, the federal government funded an overburdened stripping program in 1983-84 to make the property more valuable to potential buyers. In 1985, Curragh Resources purchased the mine at an effective price of zero, since the federal and territorial governments contributed the following subsidies as part of a tripartite deal made with Curragh:

- millions of dollars in direct grants
- tens-of-millions of dollars in loan guarantees, second mortgages, road building and other incentives
- subsidized electricity through the Northern Canada Power Commission (approximately 80% of the generated cost)

When in full operation, the mine consumed 30-40% of Yukon's total electricity. When the mine eventually went bankrupt, the utility was left as a major creditor.

Curragh declared bankruptcy in 1992. A receiver sold the mine in 1994 to a company that later declared bankruptcy in 1998. The mine and mill were shut down for good in 1997.

The public is now on the hook for environmental liabilities estimated to be between **$250 million and $800 million** for clean-up and long-term care at the Faro site. Nearby water sources —contaminated with acid and heavy metals from the mine — require continuous treatment. There is also the potential for a tailings dam failure.

Curragh was required to make a security deposit of only $500,000. In addition, the company was supposed to make contributions into a reclamation fund of $0.25 per wet tonne of mineral concentrate shipped until the fund reached $7.5 million. By 1993 the fund had only reached $868,000.

In total, **the federal government collected $14 million in securities from Faro Mine operators, but this amounts to only 1.8% to 5.6% of the total clean-up and long-term care costs**.

[12] Sources: Northwatch and MiningWatch Canada, *The Boreal Below: Mining Issues and Activities in Canada's Boreal Forest* (May 2008). http://www.miningwatch.ca/sites/www.miningwatch.ca/files/Boreal_Below_2008_web.pdf Mark Winfield, Catherine Coumans, Joan Newman Kuyek, François Meloche, and Amy Taylor, *Looking Beneath the Surface: An Assessment of the Value of Public Support for the Metal Mining Industry in Canada* (MiningWatch Canada and Pembina Institute, October 2002). http://www.pembina.org/pub/145

Could the pay-offs from successful mines, in terms of jobs and government revenues, be so great that it is worth the risk? The benefits and costs to the public of mines in the NWT are considered below.

3.1.1 Employment of northerners

The mineral industry may not employ as many people as is sometimes assumed. While the MDS Panel claims that the mineral industry is the "largest private sector employer in the territory" (p.9), this is actually incorrect. 2011 data from the NWT Bureau of Statistics show that the mining industry (with 1280 employees) is the *fourth* largest private sector employer, falling behind retail trade (1965), transportation and warehousing (1635), and construction (1550).

In 2012, the GNWT's Department of Industry, Tourism and Investment (ITI)-ITI reported on trends in employment and unemployment rates in Yellowknife and "small local communities" near the diamond mines, from pre-1996 (when construction on the first diamond mine began) to 2009.[13] In both Yellowknife and the small local Dene communities, employment rates have not changed significantly since 1996, defying predictions by each of the diamond mine operators that these would increase.[14]

Undeniably, the mineral industry does employ a significant number of people, but how many jobs does the industry create given the amount of money invested by public and private sources? Would a similar level of investment in a different industry or sector create even *more* jobs?

In 2012, the NWT Bureau of Statistics addressed that very question with a report on economic multipliers.[15] The report found that mining (along with oil and gas extraction) creates only 1.3 person-years of employment per million dollars of output — the lowest employment rate across all of the sectors studied. Similarly, labour income generated per million dollars of mineral industry output is also the lowest of all the industries studied, with $150,000 in labour income created per million dollars of investment. Diamond mining, which is even more capital-intensive than metal mining, scored even lower with only 1.1 person-years and $130,000 in labour income created per million dollars of output.

As a point of comparison**,** across Canada the renewable energy and energy efficiency sector creates 13 to 16.4 person-years of employment per million dollars of investment.[16] In the NWT, fishing, hunting, and trapping creates 15.9 person-years of employment per million dollars of output (see Table 1 below). **This means that if the GNWT wants to create the highest**

[13] The three existing diamond mines are Ekati (formerly operated by BHP Billiton, taken over by Dominion Diamond Corporation in April 2013), Diavik (operated by Rio Tinto), and Snap Lake (operated by De Beers Canada). A fourth diamond mine, Gahcho Kué (De Beers Canada), was approved in 2013.

[14] *Communities and Diamonds,* 33-34.

[15] Northwest Territories Bureau of Statistics, *NWT Economic Multipliers – Overview and Results*, (Government of the Northwest Territories, July 2012), 5. http://www.statsNWT.ca/economy/multipliers/Multiplier%20Report-2012.pdf

[16] Bluegreen Canada, *More Bang for our Buck: How Canada Can Create More Energy Jobs and Less Pollution* (2012), 13-14. http://bluegreencanada.ca/sites/default/files/resources/More%20Bang%20for%20Buck%20Nov%202012%20FINAL%20WEB.pdf

number of jobs, it would be wise to promote more labour-intensive industries such as the traditional economy, renewable energy, arts/entertainment/recreation, and agriculture.

Table 2: NWT Economic Multipliers

Sector	Jobs per million dollars of output	Labour Income per million dollars of output
Mining and oil & gas extraction	1.3	$150,000
Diamond mining	1.1	$130,000
Support activities for mining and oil & Gas (this includes exploration)	5.5	$570,000
Crop and animal production	8.5	$530,000
Arts, entertainment and recreation	13.3	$390,000
Fishing, hunting and trapping	15.9	$390,000

Source: Adapted from NWT Bureau of Statistics[17]

Over the years, the mining industry has become increasingly capital-intensive and less labour-intensive, displacing more and more workers with technological improvements and increased automation. In other words, the number of workers needed to produce a given quantity of metal/material from a mine has gone down dramatically. Even if overall mining production in the NWT keeps increasing, this does not mean that overall employment in the mining sector will increase as well. Table 2 shows the dramatic changes in metal mine employment per tonnes of ore from 1961 to 199

[17] *NWT Economic Multipliers*.

Table 3: Mining employment per ore volume per year

Year	Metal ore mined per employee
1961	1538 tonnes per employee
1992	8894 tonnes per employee
1997	9872 tonnes per employee
1998	11,270 tonnes per employee

Source: 1998 Canada Minerals Yearbook, referenced in Winfield et al[18]

In the NWT, perhaps a bigger consideration than overall employment is the number of northerners and northern Aboriginal people employed. In section 3.3 below, we tackle the question of whether there is reasonable hope of significantly boosting the percentage of northern and Aboriginal workers at mines in the NWT. Here, we look at the costs of training northerners for mining jobs and the benefits achieved so far.

According to annual reports published by the Mine Training Society (MTS) from 2008 to 2012, public and private investment in MTS programs over that period totaled over $22 million.[19] About 650 people had completed an MTS program over this time period.[20] While it is unclear what percentage of participants over that time have successfully found jobs, in 2007/08 and 2008/09 the graduation/job placement rate was only 46.2%. The approximate total public and private investment per MTS graduate has been $32,000 for programs offered between 2008 and 2012.

According to the MDS Panel Report, there is a proposed Pan-Territorial Northern Mineral Workforce Development Strategy that would cost $200 million over five years ($130 million from public sources). This would dwarf the existing MTS budget. The Panel states — without citing any evidence — that "the return on investment through increased employment in the communities far exceeds training program costs."[21]

While MTS programs have clearly trained significant numbers of people (equaling approximately half of the 2011 northern workforce in the mining industry), $32,000 spent per graduate is also a significant cost. Further analysis needs to be done before mine training budgets

[18] Mark Winfield, Catherine Coumans, Joan Newman Kuyek, François Meloche, and Amy Taylor, *Looking Beneath the Surface: An Assessment of the Value of Public Support for the Metal Mining Industry in Canada* (MiningWatch Canada and Pembina Institute, October 2002), 6. http://www.pembina.org/pub/145

[19] Total public investment in MTS programs is not reported and is impossible to calculate from the annual reports, since the Mine Training Society itself is partly funded by private sources. Approximately 50% of MTS funding is from Human Resources and Skills Development Canada (HRSDC); the remainder is from the GNWT as well as industry (eg.,Diavik Diamond Mine Inc., BHP Billiton, De Beers Canada, Dominion Diamond Corporation, Procon Mining and Tunneling). Meanwhile, MTS partners (which co-fund programs) include both private industry and federal and territorial government agencies or publicly funded organizations like Aurora College.

[20] This is a lower-bound estimate since data from the 2008 annual report is for job placements only.

[21] *Pathways to Mineral Development*, 59.

are dramatically increased using mostly taxpayer dollars. In particular, the following questions need to be answered:

- What percentage of MTS graduates successfully found jobs in their area of training?
- How long did those jobs last?
- What percentage of MTS graduates have continued to live and work within the NWT, and what percentage have pursued opportunities elsewhere?
- Are there other types of professions and skills that unemployed NWT residents would rather be trained for, or would be better suited for?
- Could the same amount of investment be used to prepare northerners for more stable, long-lasting jobs, or jobs closer to people's home communities?

3.1.2 Net government revenues

In 2011, the three diamond mines paid about $61 million in NWT taxes (corporate, fuel, property and payroll).[22] At the same time, the diamond mines have put increasing pressures on GNWT programs and services. GNWT expenditures rose at an average annual rate of 5.7% between 1999/2000 and 2011/2012[23] (construction began at the three diamond mines in 1996, 2001 and 2005). While some of these costs were offset by federal payments under the Territorial Formula Financing (TFF) formula, the net revenues from mining were only $33 million for 2011 once costs are factored in.[24]

Between fiscal year 2003/04 and 2009/10, the federal government collected an average of about $90 million per year in total royalties from all mines operating on Crown lands in the Northwest Territories and Nunavut ($631 million in total).[25] Each of the land claims agreements entitles Aboriginal governments to receive a small portion of the royalties from resource extraction on their lands. The Tłı̨chǫ Agreement, which covers lands where the diamond mines have been built, entitles the Tłı̨chǫ Government to receive annually about 2% of resource revenues over $2 million.[26] Between 2003 and 2011, the Tłı̨chǫ Government received an average of about $1.4 million per year in mining royalties (about $12.8 million in total).[27]

From 1966 to 2002, the federal government collected a total of $150 million in royalties from mining companies operating in the North.[28] Thus, a rough estimate of the total mining royalties

[22] *Communities and Diamonds*, 38. This estimate does not include personal income taxes of mine employees, indirect employment or taxes paid by contractors and their employees.

[23] Ibid, 38.

[24] Ibid, 38.

[25] Aboriginal Affairs and Northern Development Canada, "FAQ about Mining Royalty in the Northwest Territories and Nunavut", http://www.aadnc-aandc.gc.ca/eng/1331039455218/1331039516621 (accessed August 12, 2013).

[26] More precisely, the Tlicho Agreement entitles the Tlicho Government to receive: 10.429% of the first $2 million of resource revenues collected, or $208,580, and 2.086% of any additional resource revenues collected.

[27] NWT and Nunavut Chamber of Mines, *Northern Mining News*, Vol. 5 No. 4 (April 2012). http://www.miningnorth.com/wp-content/uploads/2012/05/Chamber-of-Mines-April-2012-Newsletter-PQ.pdf

[28] Auditor General of Canada, "Chapter 3—Abandoned Mines in the North," *Report of the Commissioner of the Environment and Sustainable Development* (2002),.5. http://www.oag-bvg.gc.ca/internet/docs/c20021003ce.pdf

received by the federal and Aboriginal governments from mines in the north between 1966 and 2011 is $884 million.

3.1.3 Cost of public liabilities

The total revenues from federal royalties collected on northern mines from 1966-2011 ($884 million) is considerably smaller than the current estimated public liability for northern contaminated sites ($1.5 billion as of 2010), plus the amount the federal government has already spent to assess and clean up contaminated sites (over $474 million from 2005-2010). The Federal Contaminated Sites Action Plan has a budget of **$3.5 billion** over 15 years, and this is expected to cover fully only the largest and most complex contaminated sites.[29]

The largest and most costly sites in the federal contaminated site inventory are mines—particularly Giant Mine and Colomac Mine in the NWT and Faro Mine in the Yukon. The biggest portion of spending by the Northern Contaminated Sites Program is dedicated to contaminated sites in the NWT.[30]

While it is sometimes assumed that these liabilities were created during a long-past era when environmental regulations were not in place, "[t]he scale and complexity of INAC's liabilities grew exponentially in the late 1990s, when falling mineral prices led to a sudden increase in private sector bankruptcies."[31]

After devolution, existing contaminated sites will remain federal liabilities. However, the GNWT will assume responsibility for any new contaminated sites, which are reasonably likely to be created given continuing problems with the mine reclamation regime (see section 3.6 below).

[29]INAC Northern Contaminated Sites Program, *2005-2010 Progress Report* (Indian and Northern Affairs Canada, 2010), 6. http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/nth_ct_ncsp_csrep0510_1318949021276_eng.pdf

[30] Ibid, 6.

[31] Ibid, 6.

Case Study 2: The "Giant" gold mine[32]

The "Giant" gold mine reclamation process is estimated to carry a price tag of over **1 billion dollars,** and ongoing maintenance costs at the site are expected to carry on forever. During its operation immediately beside the city of Yellowknife, the mine generated 237,000 tonnes of highly toxic arsenic trioxide dust "that has begun seeping from its underground storage into adjacent groundwater and threatening the environment and human health." As recently as the late 1990s, about 10-13 tonnes of this arsenic trioxide were still being created each year.

Royal Oak Mines, Ltd. operated the mine from 1990-1999 until it went into receivership. The company was allowed to operate the mine without an approved plan for dealing with the toxic waste. The water license required a bond of only $400,000, and the surface lease required no security at all for cleanup and reclamation. Before it went bankrupt, Royal Oak never reported a liability for the mine contamination in its financial disclosures to investors.

How much money was made at Giant Mine?

- Seven million ounces of gold produced at Giant Mine between 1948 and 1999
- A government study estimated the value of production at $2.7 billion (all figures 2002 $)
- Profits for the mine estimated at $867 million
- Direct government revenues estimated at $94 million (corporate taxes $78 million, royalties $16 million)

Direct federal and territorial government revenues from Giant Mine amount to less than 9.4% of the taxpayer dollars required to clean up and care for the abandoned site.

[32] Sources: Michael Wenig and Kevin O'Reilly, *The Mining Reclamation Regime in the Northwest Territories: A Comparison with Selected Canadian and U.S. Jurisdictions* (Canadian Institute of Resources Law and Canadian Arctic Resources Committee, January 2005), 3.

Alternatives North, letter to Mackenzie Valley Environmental Impact Review Board, March 24, 2013, Appendix 1, 5-6. http://www.reviewboard.ca/upload/project_document/EA0809-001_Letter_from_Alternatives_North_on_2013_IR_on_Water_Treatment.PDF

Warwick Bullen and Malcolm Robb, *Socio-Economic Impacts of Gold Mining in the Yellowknife Mining District* (Canadian Institute of Mining, Metallurgy and Petroleum, May 2004). http://www.miningnorth.com/docs/Socio-Economic%20Impacts%20of%20Gold%20Mining%20in%20Yellowknife%202002.pdf

3.2 Ensuring northerners benefit from mineral development

The public owns mineral resources on Crown land in the NWT While mining companies spend money to extract the resource, they still do not own it. The government's job is to capture a fair share of economic rent from mineral companies to ensure the public is appropriately compensated for liquidating the resource owned by the public, while allowing companies fair returns for their investments.

Economic rent is the amount of revenue left over once a mineral is sold on the market, and the producing company has been reimbursed for development costs plus a normal rate of return on investment. It represents the revenue that is available for the owners of a resource (the public). Governments have a responsibility to capture a significant portion of the economic rent, since it rightfully belongs to the public. Rent is captured mainly through royalties and resource taxes. Rent that is not captured is called excess profits. This is illustrated in Figure 1 below.

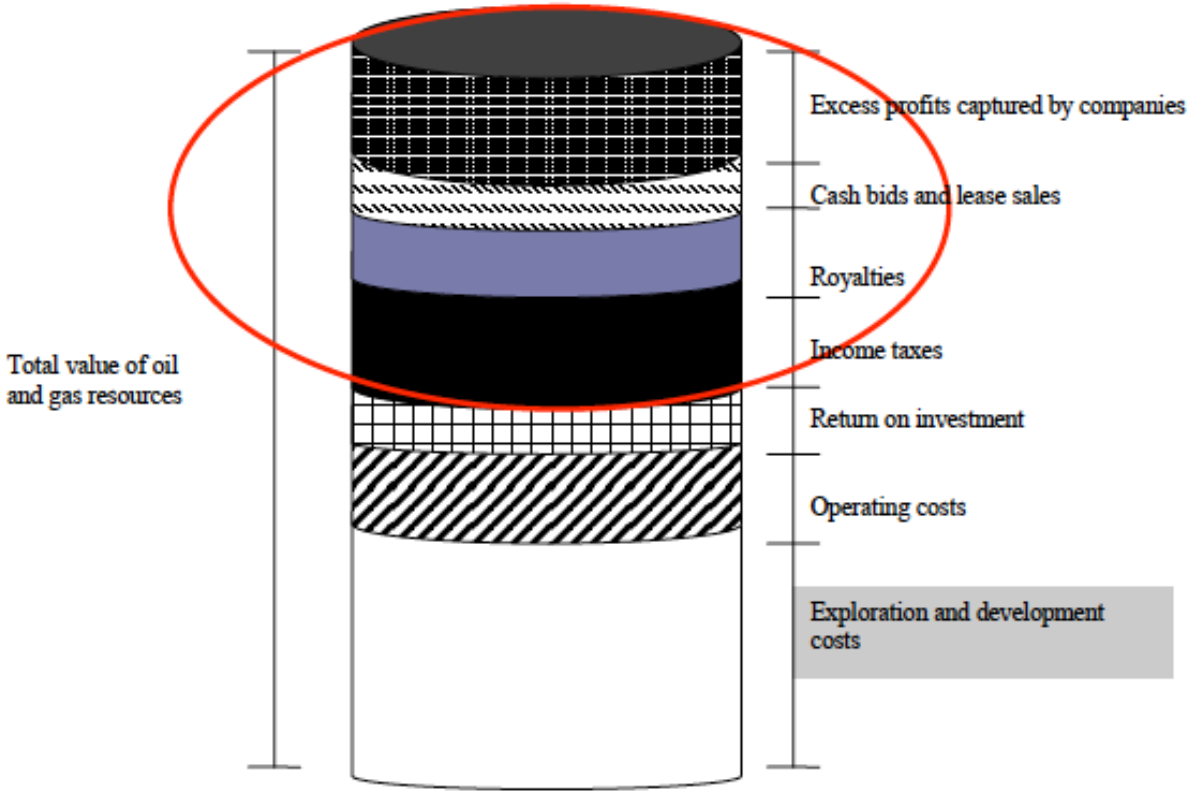

Figure 1: Economic rent (shown by the oval at the top of the figure) is the difference between the value of a resource and the cost of producing it, including a return on investment.

Source: Pembina Institute[33]

[33] *At a Crossroads*, 10.

Diamond mining has been an unusually profitable enterprise in the NWT. The first two major diamond mines were able to pay off their capital construction costs in as little as two to three years, which is a very short period for a mining project.[34] In 2011, over $2 billion in total mineral shipments were produced in the NWT.[35] In 2011, BHP Billiton, the owner of Ekati mine, announced a net *profit* of $22.5 billion for 2010-2011, the biggest profit in Australian corporate history.[36] In the same year, Rio Tinto, then owner of Diavik mine, announced an annual net profit of $14.2 billion.[37]

In 2011, the same year that BHP Billiton and Rio Tinto were making tens of billions of dollars in net profit, the GNWT collected about $61 million in combined taxes from the three diamond mines.

Does the GNWT have an opportunity to increase its share of the economic rent and reduce the excess profits claimed by mining companies? The potential for increased taxes or increased royalties are considered below.

Currently, the GNWT collects corporate tax, fuel tax, property tax and payroll tax from mining companies. While most provinces levy a mining tax in addition to a basic royalty rate in order to collect excess profits from mining companies, the NWT does not have any mining tax.[38] The option of a resource tax was discussed during 2009 roundtable sessions led by the NWT Department of Finance, where there was broad but not unanimous support for such a tax. However, in its report, the Department of Finance concluded that:

- such a tax may be viewed as "double taxation" of resource development
- it may be a disincentive to new resource development
- it would likely impede the pursuit of resource revenue sharing with the federal government[39]

Given that a mining tax is standard practice in other jurisdictions, there is no reason to believe that such a tax would cause the mineral industry to stop exploring profitable opportunities in the

[34] Shelagh Montgomery, Alternatives North, letter to Dennis Bevington, MP for Western Arctic, March 27, 2008. http://alternativesnorth-ca.web33.winsvr.net/Portals/0/Documents/Mining%20Oil%20and%20Gas/Mining/2008%2003%2027%20Diamonds%20Are%20Forever%20Comments.pdf

[35] Energy and Mines Ministers' Conference, "Natural Resources." http://www.emmc2013NWT.ca/natural-resources (accessed August 22, 2013).

[36] ABC News (Australia), "BHP posts biggest profit in corporate history," August 25, 2011. http://www.abc.net.au/news/2011-08-24/bhp-unveils-record-profit/2854114

[37] Sue Lannin and Alicia Barry, "Rio Tinto posts $14.2b profit, announces buyback," *ABC News (Australia)*, February 11, 2011. http://www.abc.net.au/news/2011-02-10/rio-tinto-posts-142b-profit-announces-buyback/1938496 .

[38] Two Ducks Resources, *Comparative Review of the Rate of Royalty in the Canada Mining Regulation, as Relates to National and International Competitiveness*, prepared for the Mining Association of Canada and Department of Indian Affairs and Northern Development, June 12, 2008, xi. http://www.mining.ca/www/media_lib/MAC_Documents/Diamond_Affairs/2008/CMRRoyaltyComparativeReviewFinalReport.pdf

[39] Northwest Territories Finance, *Examining the Mix: Options for Changing the NWT Tax System* (Government of the Northwest Territories, September 2009), 13. http://www.fin.gov.nt.ca/documents/press-releases/revenue-options/Revenue%20Options%202009%20Final.pdf

NWT in favour of other areas. Furthermore, resource revenue sharing with the federal government is already laid out in the devolution deal. Thus, the Department of Finance's arguments against the tax do not appear to be valid at this time.

A capital tax is another example of a tax that most provinces and territories levy, while the NWT does not. A capital tax is applied on a corporation's "paid up" capital. One of the advantages of a capital tax compared to income taxes is that it provides a stable revenue stream over time, whereas revenue from income taxes tends to fluctuate from year to year. According to analysis done by the GNWT Department of Finance, a tiny 0.3% tax on the paid up capital of large corporations (not just mining) would net $12 million in annual revenue.[40]

Within the past 10 years, federal corporate income taxes have been reduced from 22% to 15%, and the federal large corporations tax has been eliminated. This gap leaves a significant revenue-raising opportunity for the GNWT.

If the GNWT increased taxes on the mining industry, would these revenues be clawed back by the federal government? After devolution becomes official in April 2014, federal clawbacks will be much less of an issue. However, even before devolution, the Territorial Funding Formula provides incentives for the GNWT to raise as much revenues as possible on its own. Any new revenues from new taxes are exempt from clawbacks for at least one year.[41] In addition, 30% of the GNWT's ongoing revenue-raising ability is exempt from clawbacks.

After devolution, the GNWT will also have the opportunity to raise royalty rates, which are relatively low compared to many other jurisdictions in Canada. In 1996, just before the opening of the Ekati diamond mine, the Department of Indian Affairs (DIAND) conducted a review of mine royalty rates for federal Crown Land. The review found that the effective royalty rate in the Canada Mining Regulations is one of the lowest in Canada and among foreign mining jurisdictions.[42] The major change that was proposed and implemented at that time was to get rid of the three-year royalty holiday at the beginning of a mine's operation.

Even after that change to the royalty regime, the 1996 DIAND analysis noted that the new effective royalty rate in the NWT (combined with income tax rates) would still be below the rates in five major mining provinces: British Columbia, Manitoba, Ontario, Quebec and Newfoundland, as shown in Table 3 below. Thus, there is likely still room for the NWT to raise royalty rates and remain competitive.[43] If there is any doubt, the GNWT should conduct a public review of economic rent from non-renewable resources to ensure that there is a fair system in place for capturing public revenues from these one-time public resources.

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[40] Northwest Territories Finance, *Revenue Options* (Government of the Northwest Territories, September 2008), 22. http://www.fin.gov.nt.ca/documents/press-releases/revenue-options/Revenue%20Options%20Final.pdf

[41] Kevin O'Reilly, Alternatives North, personal communication, August 9, 2013.

[42] Indian and Northern Affairs Canada, *Proposed Amendments to The Northwest Territories Mining Royalty Regime in the Canada Mining Regulations* (1996). http://www.aadnc-aandc.gc.ca/eng/1100100036012/1100100036014

[43] While a more recent comparative analysis of royalty rates in the NWT vs. other provincial and international jurisdictions was conducted in 2008 by the Mining Association of Canada and DIAND, this analysis did not consider tax rates, making it difficult to assess the share of economic rent captured.

Table 4: Combined effective mining royalty and income tax rates (New NWT regime and selected provinces, 1996)

	Base metal: high profit	Base metal: low profit	Gold: high profit	Gold: low profit
British Columbia	29.1%	34.6%	23.1%	25.4%
Manitoba	29.4%	31.6%	24.9%	28.8%
Ontario	31.3%	36.7%	24.4%	26.0%
Quebec	26.1%	30.8%	19.1%	21.4%
Newfoundland	23.9%	30.9%	20.6%	25.6%
Provincial average	28.0%	33.0%	22.4%	25.5%
Northwest Territories	25.3%	27.7%	18.9%	19.4%

Source: Indian and Northern Affairs Canada[44]

3.3 The northern workforce and labour demands from the mineral industry

The MDS Panel argues that the current level of mineral extraction in the NWT is appropriate and should be maintained.[45] However, only about half of the workers currently employed by the diamond mines are NWT residents, so a major portion of the benefits from these mines are leaking out of the north.

What if mining resources in the NWT were developed at a slower pace (fewer mines at any given time), but those mines employed a higher percentage of NWT residents? In that case, fewer resources would leak out of the NWT, NWT employment levels would be maintained, and the benefits to the NWT from mining would be stretched out over a longer period of time.

Or is it possible, as the Panel argues, that NWT residents could capture more of the jobs currently held by non-NWT residents?

The Panel makes several recommendations as to how northerners could claim more of the available mining jobs; however, most of these suggestions involve continuing the same sorts of training and recruitment efforts that have been intensively pursued for the past five to 15 years by the diamond mining companies, government agencies and other training partners. The Panel has not provided any evidence showing why these efforts will be more successful in the future.

[44] *Proposed Amendments to The Northwest Territories Mining Royalty Regime in the Canada Mining Regulations*.

[45] *Pathways to Mineral Development*, 9.

All three diamond mines have continually failed to meet the Aboriginal or northern hiring targets that they signed onto in the Socio-Economic Agreements.[46] Analysis of the 2012 reports published by Diavik[47] and Snap Lake,[48] and the 2009 report published by Ekati[49] (the latest available online), reveals the following:

- At Diavik and Snap Lake, Northern employees make up less than half of the workforce (47% and 36% respectively). Northern employees at Ekati in 2009 made up just over half the workforce (53% when counting contractors).
- The most recent diamond mine to come online, Snap Lake, has had the most difficulty in hiring northerners. In 2012, 71.5% of applicants for new positions were non-Northerners.
- At all three mines, skilled positions (the largest category of jobs) are being filled primarily by non-Northerners. The highest percentage of northerners in skilled positions is found at Ekati (45%), followed by Diavik (33%), followed by Snap Lake (25%).
- There are very few Aboriginal people in professional or management roles at any of the mines.

While the Panel urges mining companies to expand their recruiting efforts to more NWT communities, the Snap Lake mine already appears to have made one of the greatest efforts to expand its recruitment, with little success:

> "In an effort to increase the number of NWT resident employees, we have expanded the number of NWT community pick-up points to include Fort Smith, Fort Simpson, Norman Wells, and Inuvik. In addition, we provide a travel allowance to employees living in any other NWT community to assist them with travel costs to our pick-up points. Despite these efforts, attracting and retaining labour from outside the North and South Slave regions of the NWT has been a challenge. Residents of the Sahtu, Gwich'in, and Inuvialuit regions combined to register a total of 10 person-years of employment in 2012."[50]

Given the disappointing trends so far, it is important to dig a little deeper into why the diamond mines are having such trouble hiring northerners. According to a 2004 community survey conducted by the NWT Bureau of Statistics, the available labour supply in the NWT was 4035 (those who are either unemployed or not in the labour force but wanting a job). This included 2306 people in the North Slave, South Slave, and Tłı̨chǫ regions. **Why aren't mining companies hiring these people?**

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[46] CBC News North, "NWT mines fall short on northern workforce targets," December 18, 2012. http://www.cbc.ca/news/canada/north/story/2012/12/18/north-mines-workforce-targets-NWT.html

[47] Diavik Diamond Mine, *2012 Socio-economic Monitoring Agreement Report* (April 17, 2013). http://www.diavik.ca/documents/2012_Socio_Economic_Monitoring_Report.pdf

[48] De Beers, *2012 Snap Lake Mine Socio-Economic Report*. http://www.canada.debeersgroup.com/pdf/Snap%20Lake%20Mine%20Socio-Economic%20Report%202012.pdf

[49] BHP Billiton, *Ekati Diamond Mine: 2009 Year in Review*. http://www.miningnorth.com/docs/SocioEconomicReport2009.pdf

[50] *2012 Snap Lake Mine Socio-Economic Report*, 9.

One reason that is commonly cited is low education. It is true that the high school completion rate in small communities near the diamond mines was only 33.6% in 2009.[51] However, it is worth noting that a 2009 survey of 1705 mine workers revealed that 25.1% of NWT residents employed at the mines do not in fact have a high school diploma, so this is not an insurmountable barrier.[52]

Another important reason that was mentioned in passing by the Panel is the unpopularity of a rotational schedule. The Panel cites an employee survey that revealed rotation was the principal complaint.[53] The GNWT's 2009 survey of 1705 mine workers revealed that most work a two-weeks-in/two-weeks-out schedule.[54] The Panel received clear indication that there are numerous concerns around the negative aspects of the fly-in/fly-over (FIFO) model and rotational work schedule arrangements, including impacts on families, 'fly-over' effects, population decline in Aboriginal communities and other community costs.[55] This is consistent with the extensive literature that exists around both the positive and negative effects of the FIFO model for community sustainability.[56] The Panel could offer no recommendations on how to solve this problem.

It is not likely the rotational schedule will go away anytime soon, yet it appears to be a major barrier to employment at the mines for many people, especially women—and particularly those with child care responsibilities. In 2011, while women made up 48% of the total labour force in the NWT, they made up only 22% of the workers in the mining and oil and gas industries in the NWT.[57] In all regions except the Dehcho, the female component of the available labour supply has a higher level of educational attainment than males who are looking for work,[58] so they are potentially quite qualified for mining jobs. However, in a 2004 community survey by the NWT Bureau of Statistics, 90% of the available female labour supply stated that they could not find work because they were caring for children.[59]

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[51] Community and Diamonds, data graphs, 45.

[52] NWT Bureau of Stats, *2009 NWT Survey of Mining Employees* (Government of the Northwest Territories, August 2009). http://www.iti.gov.nt.ca/publications/2010/Diamonds/MESReportGNWT.pdf

[53] *Pathways to Mineral Development*, 47.

[54] Ibid, 11.

[55] http://www.iti.gov.nt.ca/publications/2013/mineralsoilgas/FINAL_MDS_PanelReport_29May13.pdf, p.47.

[56] See: Susan Clifford, *Fly-in/Fly-out Commute Arrangements and Extended Working Hours on the Stress, Lifestyle, Relationship and Health Characteristics of Western Australian Mining Employees and Their Partners: Report of Research Findings* (Perth: The University of Western Australia, 2009). http://www.uwa.edu.au/__data/assets/pdf_file/0003/405426/FIFO_Report.pdf

Keith Storey, "Fly-in/Fly-out: Implications for Community Sustainability," *Sustainability* 2, no. 5 (April 29, 2010): 1161–1181.

Jill Taylor, Clover, and Janette Graetz Simmonds, "Family Stress and Coping in the Fly-In Fly-Out Workforce," *The Australian Community Psychologist* 21, no. 2 (2009): 23–36.

[57] NWT Bureau of Statistics, "Labour Force by National Occupation Code (NOC) and Gender, Northwest Territories, 2011 Census." http://www.statsNWT.ca/labour-income/labour-force-activity/

[58] NWT Bureau of Statistics, "NWT Labour Supply" (July 5, 2006). http://www.statsNWT.ca/labour-income/labour-supply/index.html

[59] Ibid.

In conclusion, it seems that mining jobs with a rotational schedule are unsuitable for a significant portion of the NWT labour supply, so it is unlikely that further training and recruitment efforts will succeed in significantly enlarging the mining industry's northern workforce. Other options should be pursued for decreasing the leakage of benefits to the south, such as slowing down the pace of mineral development.

3.4 Resource-based industries and the economy of the Northwest Territories

Mining is an activity with a relatively short-term life. Most new mines in Canada now last less than 15 or 20 years before the ore is depleted or the operation becomes uneconomic.[60] While the Panel argues that "global resource depletion will not be an issue in the foreseeable future,"[61] the more important issue is that *local* resource depletion and boom/bust cycles can have devastating economic and social impacts on communities.

Resource booms are not cheap, for governments nor citizens. They cause the cost of living to rise dramatically; an influx of workers puts pressure on infrastructure and social services; housing prices and rent become more expensive; and housing is more difficult to find. These changes are particularly difficult for people on fixed incomes or those who work in low-wage jobs outside the mining sector. According to economist Diana Gibson:

> A Leger marketing poll at the height of the boom in Alberta asked Albertans, "Are Albertans benefiting from the boom?" The majority said "Yes."
>
> Then the poll asked, "Are **you** benefiting from the boom?" The majority said "No." And 17% said they were worse off. [62]

Resource booms cause the gap between the rich and the poor to widen, which is not a sustainable economic trend. As Diana Gibson puts it: "average incomes mask differences – if Bill Gates walks into a bar, the average wage would be in the millions and no one better off."[63] Since the diamond mines came into operation, wage disparities have gotten wider both in Yellowknife and in small local communities near the mines.[64]

Commodity prices are notorious for swinging dramatically up and down. If a government is dependent on revenues from the mining industry, revenue streams can similarly go up and down dramatically within a short time period, making it difficult to set budgets and ensure consistent

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[60] *Looking Beneath the Surface*, 4.

[61] *Pathways to Mineral Development*, 39.

[62] Diana Gibson, "Resource Wealth: Opportunities and Challenges", speech, Pathways to Prosperity conference in Yellowknife, October 10-12, 2012. Available at: http://alternativesnorth-ca.web33.winsvr.net/Portals/0/Documents/GNWT%20Finances/2012%2010%2012%20Resource%20Wealth%20Opportunities%20and%20Challenges--Diana%20Gibson%20Speech.pdf

[63] Ibid.

[64] Communities and Diamonds, 31.

delivery of programs and services.[65] There is the temptation for governments to raise their spending during the good times, but it is hard to make sudden spending cuts when revenues drop, so resource-dependent governments can quickly go into debt.

Likewise, it is easy for workers who are dependent on mining jobs to spend beyond their means and go into debt, especially when they may frequently lose their jobs due to downsizing or early mine closures. For example, at Snap Lake, the 2008 global economic recession caused the mine to let go of 297 employees, or 41% of its workforce, between 2008 and 2009.[66]

Case Study 3: The Cantung Mine[67]

The Cantung mine, located on the western edge of the NWT, has been another story of constant boom and bust. The mine has been operating on-again-off-again since the 1960s as commodity prices have gone up and down. A recent story by the Yukon News illustrates the effect of this boom/bust cycle on workers and local communities:

> "When I started here in 2008, they told me it could be five months or five years," says Chris LaForge, one of the mine's mill workers. "They're still telling that to new guys who come on board."…
>
> [Cantung] was first opened in the 1960s …and was a bustling town of almost 600 people. [it] now houses only about 140 people per shift. …Turnover among the staff is high, especially among the underground workers…Liard First Nation Chief Liard McMillan said that while there have been some jobs for Liard First Nation citizens, there have also been a lot of issues with the mine and the company refusing to include the First Nation in negotiations.
>
> "In the 15 years that I've been involved on that file, they kept saying when they reopened the mine that it was going to be a two- to three-year mine life," said McMillan. "Well, it's gone like five times beyond that and we haven't seen any benefit from it."

The Cantung mine's history of frequent shut-downs and re-openings is a common story for northern mines (eg., Faro, Colomac, Jericho), given that major shifts in global commodity prices can make the difference between a mine making considerable profits one year and filing for bankruptcy protection the next. While the largest multinational companies may be able to

[65] See, for example, T.M. Power, *The Role of Metal Mining in the Alaskan Economy*, prepared for Southeast Alaska Conservation Council and Northern Alaska Environmental Center, February 2002, 16–18.

[66] *2012 Snap Lake Mine Socio-Economic Report*.

[67] Source: Jesse Winter, "Inside Cantung, the mine that keeps on giving," *Yukon News*, March 8, 2013. http://yukon-news.com/business/inside-cantung-the-mine-that-keeps-on-giving/

weather these frequent storms by reducing their workforce and slowing operations,[68] smaller mining companies are more likely to go bankrupt or shutter their operations. This has often meant the public ends up bearing the costs and the damage, by:

- governments offering subsidies to help prevent mining operations from shutting down (costs which are not necessarily recovered during the boom times when profits recover)
- workers having little job security, and governments paying income supports during periods when mines shut down
- governments and citizens being left with abandoned contaminated sites with large price-tags to clean up and lasting environmental damage

Very little has been done to understand or address the social and economic impacts of mine closure on local communities. Socio-economic considerations should be included within mine closure and reclamation guidelines used by the regulatory boards in issuing permits and licences, and mine closure issues should be addressed within the Socio-Economic Agreements negotiated by the GNWT.[69] These could include requirements for early closure planning, social impact assessment at closure, fostering of conditions for local community economic diversification and security bonds connected to the achievement of social outcomes at closure.

Overall, the Pembina Institute believes that it is not economically or socially sustainable for the GNWT to be dependent on mineral industry revenues, and would urge economic diversification instead.

3.5 Mining and the environment

On page 44, the Panel cites the broad conclusion of the 2010 environmental audit, that "[o]verall, environmental quality in the NWT was found to be favourable for most components," arguing that this "tends to suggest that the impact of current mining activities on the physical environment is minimal." This was by no means the conclusion of the environmental audit, and the Panel's assumption is dangerously misleading.

While mining operations do not dominate the entire NWT landscape, they can have significant local impacts. Mining may in fact be a contributing factor to one of the major deteriorating environmental trends noted in the audit—declining caribou populations.

The Panel also states: "The impact of climate change was not raised by stakeholders, presumably because mining activities in the NWT are not a significant contributor to atmospheric CO_2." This presumption is false; industrial activities, including mining, are the NWT's largest source of greenhouse gas (GHG) emissions, accounting for 44% of emissions in 2010. Moreover, this

[68] For example, in 2008 Rio Tinto had a massive $40 billion debt as commodity prices hit the floor with the global financial crisis. Three years later, copper and iron ore prices were booming and Rio Tinto recorded an annual net profit of $14.2 billion. See: "Rio Tinto posts $14.2b profit, announces buyback," *ABC News (Australia*), February 11, 2011.

[69] The Socio-Economic Agreement for De Beers Canada's (DBCMI) Snap Lake diamond project contains one clause (4.11) called "Transitioning Upon Closure," but it simply states that "GNWT and DBCMI agree to collaborate to ease employees' transition to new jobs upon Closure."
http://www.iti.gov.nt.ca/Publications/2007/Diamonds/debeers_agreement.pdf

figure does not include GHG emissions from the large number of vehicles travelling to and from the mines.[70]

Mining generates an enormous amount of waste, much of which contains massive amounts of heavy metals such as lead, arsenic and other harmful substances such as sulphuric acid, which pose threats to environmental and human health.[71] It has been estimated that the Canadian mineral industry generates one million tonnes of waste rock and 950,000 tonnes of tailings per day, which amounts to 650 million tonnes of waste per year. This is more than 20 times the amount of municipal solid waste generated each year by all communities in Canada combined.[72]

Until 2006, mining operations in Canada were not required to report pollutants released by mines to tailings ponds and waste rock dumps. Partial data reported to Canada's National Pollutant Release Inventory shows that between 2006 and 2009 about two million tonnes of polluting substances were contained in mine waste.[73] It is estimated that mining in Canada generates more toxic waste than any other industry in the country. [74]

Case Study 4: The Colomac Mine[75]

The Colomac Mine was an open pit gold mine located 220 km northwest of Yellowknife in the Northwest Territories, which operated between 1990–1992 (Neptune Resources), and 1994–1997 (Royal Oak Mines). When Royal Oak Mines declared bankruptcy and abandoned the site, the federal government was stuck with an environmental liability estimated at **$70 million**. Under its water licence, Royal Oak Mines had posted only $1.5 million in security. Environmental problems at the site include acid mine drainage and high levels of cyanide and ammonia. The contaminated area covers three lakes over 76 hectares. In 1999, Royal Oak Mines was charged with cyanide dumping under the *Fisheries Act* and the *NWT Waters Act*, but it was too late because the company was already in receivership.

[70] Northwest Territories Environment and Natural Resources, *A Greenhouse Gas Strategy for the Northwest Territories, 2011-2015* (Government of the Northwest Territories), 20. http://www.enr.gov.nt.ca/_live/documents/content/GHG_Strategy_2011-15.pdf

[71] MiningWatch Canada, Great Lakes United and Ecojustice, "Incomplete Reporting Still Reveals Mining Companies' Toxic Threat: Environmental groups worry some of Canada's mines are dragging feet on federal order to report toxic mining waste," news release, August 10, 2010. http://www.miningwatch.ca/incomplete-reporting-still-reveals-mining-companies-toxic-threat-environmental-groups-worry-some-can

[72] *Looking Beneath the Surface,* 2-3.

[73] MiningWatch Canada et al., "Incomplete Reporting Still Reveals Mining Companies' Toxic Threat."

[74] MiningWatch Canada, *Two Million Tonnes a Day:A Mine Waste Primer* (December 2009). http://www.miningwatch.ca/publications/two-million-tonnes-day-mine-waste-primer

[75] Source: Wikipedia, "Colomac Mine." http://en.wikipedia.org/wiki/Colomac_Mine (accessed August 22, 2013).

3.6 Mining and environmental sustainability, including reclamation

While mining can have quite a short life-span, it often has long-term consequences on the local environment. On page 40, the Panel reproduces a set of sustainability principles, but does not show any evidence that these principles are being successfully followed in the NWT by the mining industry.

According to the Panel, "a comprehensive regulatory regime, … ensures that mining operates within ecological limits."[76] In fact, neither the GNWT nor any regulatory board or agency in the NWT has formally recognized or created any policies containing specific ecological limits. None of the land use plans so far have set cumulative impact targets or thresholds. While there is a Cumulative Impact Monitoring Program (CIMP), there is no formal way for lessons learned through CIMP monitoring to translate into management decisions or regulatory actions.

The Panel contends: "Substantial financial security deposits and progressive reclamation, whereby remediation proceeds during the producing life of the mine, are now the norm."[77]

While this may be a goal stated more often now by some in government and industry, it is still difficult to find examples of mine reclamation that has been completed successfully in the north.[78]

Case Study 5: The Ptarmigan and Tom gold mines[79]

The Ptarmigan and Tom gold mines, just 20 km northeast of Yellowknife along the Ingraham Trail, provide an example of the kinds of regulatory mishaps that can happen due to lack of a proper reclamation regime.

Treminco Resources Ltd., later Elkhorn Mining Corp., walked away from the site in 1997, leaving abandoned buildings, waste and mine water that continues to flow into a nearby lake. Elkhorn was belatedly required to submit an abandonment and reclamation plan by 2000, but never provided the plan. About $275,000 in security bonds were posted. Regulators spent $30,000 to begin clean-up; however, the rest was lost because it was in the form of irrevocable letters of credit which expired in 2001 before they were renewed. The government-led cleanup has stalled due to a long-running dispute between the territorial and federal governments over which is responsible for the site.

[76] *Pathways to Mineral Development,* 39.

[77] *Pathways to Mineral Development*, 45.

[78] As of 2002, "[t]o date, there has not been a closure plan successfully implemented in the Yukon." *Looking Beneath the Surface*, 85.

[79] Source: O'Reilly and Wenig (2005), *The Mining Reclamation Regime in the Northwest Territories*, p. 2.

A detailed analysis completed in 2005 found that the NWT mine reclamation regime lacks almost all of the basic core features that are found in the reclamation regimes of ten other Canadian and U.S. jurisdictions.[80] One fundamental problem is that there are no legally-binding reclamation requirements or standards in the NWT that are applied to all mine operations.

The 2012 Fall Report of the Commissioner for the Environment and Sustainable Development found there are still significant weaknesses in AANDC's current management of environmental financial assurances. The Commissioner found, for example, that three of the 11 mines in Nunavut had security shortfalls totaling almost $11 million.[81] A security shortfall is the difference between the amount of security held by AANDC and how much security would actually be required for the proponent to continue to meet the terms and conditions of the licences for these mines. In another example, AANDC accepted $17.6 million in promissory notes for reclamation costs, but these notes were not guaranteed by a bank in Canada, which violates AANDC's legal responsibilities.

Even mineral exploration activities can result in significant public liabilities. For example, Indian Affairs has estimated that abandoned mineral exploration camps in the Yukon (which can contain exploratory shafts) generally cost between $250,000 and $1.5 million per site to remediate.[82]

The failures of mining companies to properly reclaim sites are by no means a problem of the past, and neither are the federal government's failures to collect adequate security bonds. In July 2004, one of the key regulatory officials for BHP Billiton's "Ekati" diamond mine stated that the security posted for this mine was "woefully inadequate." [83] Under the Environmental Agreement signed in 1997 between BHP and the federal and territorial governments, the financial security was set at $43 million. In June 2013, the Wek'ezhii Land and Water Board (WLWB) decided that the total financial security amount for the Ekati diamond mine should be about $264 million.[84] However, in July 2013 the federal government set the financial security for the renewed water license at only about $87 million, leaving a shortfall of $134 million.[85] In August 2013, the WLWB amended the water licence to require security of $263 million, so now it is up

[80] Michael Wenig and Kevin O'Reilly, *The Mining Reclamation Regime in the Northwest Territories: A Comparison with Selected Canadian and U.S. Jurisdictions* (Canadian Institute of Resources Law and Canadian Arctic Resources Committee, January 2005), vi.

[81] Auditor General of Canada, "Chapter 2—Financial Assurances for Environmental Risks."

[82] *Looking Beneath the Surface*, 83.

[83] Statement to Mackenzie Valley Land and Water Board, Public Hearing, Class 'A' Water Licence Renewal Application, MV2003L2-0013 (BHP Billiton Diamonds Inc.) at 108 (line 11), July 7, 2004.

[84] Violet Camsell-Blondin, Chair of Wek'ezhii Land and Water Board, letter to Mr. Robert Overvold of Dominion Diamond Ekati Corporation, June 28, 2013. http://www.mvlwb.ca/Boards/WLWB/Registry/2012/W2012L2-0001/W2012L2-0001%20-%20Ekati%20-%20Security%20Review%20-%20Notification%20of%20Board%20Decision%20-%20Jun%2028_13.pdf

[85] Wek'ezhii Land and Water Board, Water Licence granted to Dominion Diamond Ekati Corporation W2012L2-0001 (Renewal of W2009L2-0001), July 30, 2013, 27 (Schedule 2). http://www.mvlwb.ca/Boards/WLWB/Registry/2012/W2012L2-0001/W2012L2-0001%20-%20Ekati%20-%20Water%20Licence%20Approved%20by%20Minister%20-%20Jul%2030_13.pdf

to AANDC to ensure this full security is collected.[86] This sequence of events underlines the problem of having no legal requirement for the federal government to collect full security bonds.

Case Study 6: The Jericho diamond mine[87]

The Jericho diamond mine in Nunavut is a very recent case of an abandoned mine site with a botched security deposit. The mine project was opened in 2006 by Tahera Diamond and shut down in 2008 when the company went bankrupt. The mine was sold to Shear Diamonds in 2010. In September 2012, due to low world diamond prices, Shear Diamonds quietly packed up its workers and abandoned the site.

A federal inspector found hazardous waste on the site that was not stored properly and fuel spills that had not been cleaned up. However, the company failed to return and clean it up. Federal officials said in March 2013 they had not been able to get in contact with Shear Diamonds since October 2012 since the company had disconnected its phones and shut down its website.

Under the terms of its water licence, Shear Diamonds should have posted a security bond of $3.4 million. Somehow, the federal department of AANDC failed to collect more than $2 million of this bond.

According to a July/August 2013 article in *Up Here* magazine, the federal government may be negotiating a financing deal to get Shear Diamonds back on its feet. This may mean taxpayer dollars will be spent on public subsidies for this project.

3.7 The Regulatory Reform Action Plan

The Regulatory Reform Action Plan has been highly controversial in the NWT. The Panel glosses over concerns raised about federally-imposed amendments to the MVRMA, without

[86] Violet Camsell-Blondin, Chair of Wek'ezhii Land and Water Board, letter to Mr. Robert Overvold of Dominion Diamond Ekati Corporation, August 20, 2013. http://www.mvlwb.ca/Boards/WLWB/Registry/2012/W2012L2-0001/W2012L2-0001%20-%20Ekati%20-%20Security%20Review%20-%20Amendment%20of%20Water%20Licence%20Schedule%202%20-%20Cover%20Letter%20to%20DDEC%20-%20Aug%2020_13.pdf

[87] Sources: CBC North, "Nunavut diamond mine in care of federal clean-up program," July 10, 2013. http://www.cbc.ca/news/canada/north/story/2013/07/10/north-jericho-mine-federal-cleanup.html

CBC North, "Nunavut diamond mine owners owe $2M for cleanup costs,"April 16, 2013. http://www.cbc.ca/news/canada/north/story/2013/04/16/north-nunavut-jericho-mine-contact.html

CBC North, "Owners of Nunavut's first diamond mine deserted site," February 4, 2013. http://www.cbc.ca/news/canada/north/story/2013/02/04/north-shear-diamonds-deserted.html

"The case of the missing miners," *Up Here,* July/August 2013, 14.

considering how the amendments contradict several values promoted by the Panel, including decentralization of decision-making power and strong environmental regulations. In particular, the proposal to amalgamate the regional land and water boards has been criticized not only by Aboriginal governments but by the GNWT Executive, MLAs, industry representatives, Board Chairs and staff, and a wide variety of northern civil society organizations.

A publication released in 2012 by the Office of Dennis Bevington, Member of Parliament for the Western Arctic, details objections made to the Regulatory Reform Action Plan by various parties.[88] According to that report:

"Northern organizations—including Aboriginal governments and local leaders, industry associations and developers, the GNWT Executive and MLAs, Board Chairs and staff, and northern NGOs—have voiced common objections to the current MVRMA overhaul process:

- This process does not respect spirit and intent of land claims agreements/interim agreements or the devolution AIP.
- The process has undermined and stalled ongoing land claim negotiations – which are already a key source of uncertainty that prevents responsible resource development from proceeding.

Common objections to the Board amalgamation/elimination proposal:

- The existing system is new and has never been fully implemented; a lot of collaborative effort went into designing it; the regional Boards deserve to be given a chance.
- Board amalgamation/elimination will reduce community influence over resource development and violate the spirit and intent of land claims (existing and future).
- There is no evidence that Board amalgamation/elimination will achieve greater certainty or efficiency in resource development. In fact, it will likely create greater uncertainty and conflict with local communities and regional governments.
- Boards are being unfairly scapegoated for problems with the Mackenzie Gas Project review, which was not even conducted under the MVRMA and did not involve the Boards.

Agreement about what is working in the current regulatory system:

- The Boards have developed effective systems of collaboration and are making good progress on developing consistent processes, policies, and procedures. The Boards are working with industry to address proponents' concerns.
- In areas where land claims are settled, the system generally works well.

Agreement about what is not working:

- The Boards have never been adequately funded to do their jobs, and communities and other public groups have never been adequately funded to participate in the process.

[88] Office of Dennis Bevington, Member of Parliament for the Western Arctic, "A Northern Consensus on Completing (not Dismantling) the NWT Regulatory Regime" (2012). http://www.scribd.com/doc/88044492/NWT-Consensus-on-Regulatory-Regimes

- Political uncertainty around unsettled land claims and unfinished land use plans mean that ground rules are not in place for Boards to base their decisions on. This can lead to conflict and frustrating paralysis for both industry and communities.
- There are jurisdictional gaps and overlaps amongst a tangle of federal and territorial agencies, related in part to problems with the devolution process. One key gap relates to social, economic, and cultural impacts, which have few regulatory instruments associated with them.
- The federal government's failure to implement CIMP has meant that a key piece of the environmental assessment puzzle has been missing. Efficient assessment requires a robust collection of baseline and cumulative effects data.
- The federal government is the most significant source of delays within the system (both appointments and approvals).

Consensus around key components of a new process:

- Completion of Land Claim / Self-Government negotiations;
- Completion and implementation of Land Use Plans;
- Adequate and stable funding of MVRMA Boards; and
- Adequate and stable participant funding."

3.8 The free entry system and northern communities

The free-entry system has been challenged in several courts across the country, as an alleged violation of Aboriginal rights under section 35 of the Constitution.[89] In December 2012, the Yukon Court of Appeal, in *Ross River Dena Council v. Government of the Yukon*, held that the free-entry system is inconsistent with the Crown's duty to consult First Nations.[90]

Both Ontario and Québec have recent or proposed amendments to their Mining Acts that explicitly recognize the need for the mining industry to respect Aboriginal and treaty rights.[91]

The Panel dismisses criticisms of the free-entry system on page 33 by saying that free entry "promotes the involvement of prospectors and small companies in exploration" and "encourages innovation." Unfortunately, the flip side is that the free-entry system can allow renegade companies to proceed to the exploration stage when they do not have either the inclination or the resources to follow environmental or social best practices, or to ensure that local communities receive maximum benefits accrue from the project.

Much has been written about alternatives to the free-entry regime,[92] which include concession style arrangements or a nomination and bid process as is currently used for oil and gas rights in

[89] Ramsey Hart and Dawn Hoogeveen, *Introduction to the Legal Framework for Mining in Canada* (MiningWatch Canada, July 2012), 4. http://www.miningwatch.ca/publications/introduction-legal-framework-mining-canada

[90] Andrew Gage and Jessica Clogg, "Yukon court decision could force BC to overhaul its antiquated mining laws," (West Coast Environmental Law, January 10, 2013). http://wcel.org/node/1649

[91] Ibid and Jan-Martin LeBlanc and Pierre Langlois, *New Mining Act—A Detailed Review* (Heenan Blaikie LLP, August 2013), 17. http://www.heenanblaikie.com/en/Publications/2013/New-Mining-Act-A-Detailed-Review.pdf

the NWT. Recently tabled amendments to Québec's Mining Act would allow that province's Minister to use an auction method of allocating mineral claims.[93]

3.9 The Protected Areas Strategy

The Panel recommends that "[t]he GNWT should review the Protected Areas Strategy with a view to defining the ultimate extent of the network," (recommendation #22). The Panel apparently misunderstands how the Protected Areas Strategy (PAS) process works. It was set up in 1999 as a community-based process involving a wide array of partners, including industry representatives and the GNWT. Each community has had the opportunity to put forward a specific area within their traditional territory for either federal or territorial protection. The proposed area is subject to numerous assessments, including a minerals assessment, to help all partners make the best joint decision possible about the protected area and the most appropriate boundaries.

It is neither appropriate nor possible for the GNWT to unilaterally define the boundaries of the PAS process or any particular proposed protected area. It has been a community-driven process from the beginning and has served as an extension of regional land use planning. Further clarity can be achieved by the GNWT helping to ensure the existing collaborative process is concluded to the satisfaction of all participants.

[92] See: Barry Barton, *Reforming the Mining Law of the Northwest Territories* (Canadian Arctic Resources Committee, Northern Minerals Program, Working Paper No. 3, 1998). http://carc.org/pdfs/NMPWorkingPaper3BartonPaper.pdf

Malcolm Taggart, *The Free Entry Mineral Allocation System in Canada's North: Economics, Sustainability, And Alternatives* (Canadian Arctic Resources Committee, Northern Minerals Program, Working Paper No. 6, August 1998). http://carc.org/pdfs/NMPWorkingPaper6Taggart.pdf

Nigel Bankes and Cheryl Sharvit, Aboriginal Title and Free Entry Mining Regimes in Northern Canada (Canadian Arctic Resources Committee, Northern Minerals Program, Working Paper No. 2, July 1998). http://carc.org/pdfs/NMPWorkingPaper2BankesandSharvit.pdf

[93] Leblanc and Langlois, *New Mining Act—A Detailed Review,* 6.

4. Conclusion and Recommendations

This analysis of the NWT MDS Panel report concludes that:

- Total revenues from royalties collected on northern mines from 1966-2011 (approximately $884 million) are considerably less than the $3.5 billion currently being spent on northern contaminated sites.
- Mining jobs with a rotational schedule are unsuitable for a significant portion of the NWT labour supply, so it is unlikely that further training and recruitment efforts will succeed in significantly enlarging the mining industry's northern workforce.
- It is not economically or socially sustainable for the GNWT to be dependent on mineral industry revenues. Economic diversification is recommended.
- Mining has significant environmental impacts on local ecosystems across the NWT, particularly with regard to toxic waste and habitat disturbance. The industry also has significantly broad environmental impacts related to climate change.
- Neither the GNWT nor any regulatory board or agency in the NWT has formally recognized or created any policies that would ensure mining respects principles of environmental sustainability by staying within specific ecological limits.

The Pembina Institute recommends that the GNWT undertake a more balanced and open public consultation process as it drafts its response to the Panel's recommendations.

The following are the Pembina Institute's recommendations for the GNWT regarding the NWT Mineral Development Strategy:

- Cease all forms of subsidies to resource-extraction industries, given that these are socially and economically inefficient and wasteful. Further analysis needs to be done before mine training budgets are increased using mostly taxpayer dollars.
- Seek to optimize the share of economic rent by introducing new taxes on industry (such as a mining tax and a capital tax), and by increasing royalties. At a minimum, there should be a public review of economic rent from subsurface resources in anticipation of devolution.
- Work with communities to identify the appropriate scale and pace of resource development (given community goals and the inherent limits of local community and environmental capacity). For example, using NRTEE indicators of sustainability, the GNWT could work with communities to identify minimum standards for water quantity and quality, wetland extent, forest cover (habitat disturbance), human capital (education/training levels). These may be best implemented through legally-binding land use plans.
- Work with co-management boards and the Cumulative Impacts Monitoring Program to put mechanisms in place to enforce and monitor appropriate scale and pace of resource development.

- Allocate considerably more resources to inspection and monitoring than AANDC currently does, if it is to achieve full and timely inspections and monitoring of mineral operations. According to a recent audit, AANDC currently only completes 30% of its required site visits for resource development projects in the NWT.
- The NWT Heritage Fund Act should clearly lay out: the source of funds; the amount or percentage of revenues to be transferred annually into the Fund; a system to protect Fund capital from premature withdrawal; and an arms-length agency to manage the Fund, charged with protecting the long-term public interest.
- Put in place a new mining-specific statute that requires regulators to address mining reclamation in a comprehensive way for all facilities and activities of the mineral industry.
- Follow recommendations from the NWT environmental audits and co-management board reports on how the regulatory system should be improved, rather than supporting the federal Regulatory Reform Action Plan.
- Conduct a review of alternatives to the free entry system in order to ensure that the granting of mineral rights is more aligned with Aboriginal rights and maximum capture of economic rent by public governments.
- Support the completion of the Protected Areas Strategy as an important extension of land use planning and a way to increase certainty for industry and avoid future land-use conflicts