

Mining: Vision

Mineral resources, like fossil fuels, are both valuable and non-renewable. The government of Nova Scotia should consider the interests of future generations when planning for mineral exploitation. Mines that proceed should be designed so as to engender acceptance by affected property owners, the local community and the local municipal government. The impacts on the natural environment should be short-term and minimal. A healthy and prosperous Nova Scotia does not include uranium mining.

Values

Full Cost-Benefit Accounting

Governments, businesses and the wider society are taking an increasingly comprehensive approach to economic development by applying full cost-benefit accounting. This is true in Nova Scotia where the province's economic growth strategy *Opportunities for Sustainable Prosperity* recognizes natural capital as one of the five building blocks of a sustainable future.¹ A careful review of mining reveals that economic benefits are too often exaggerated, and environmental impacts are minimized. Government must consider the full costs and benefits of mines and mining.

People and Communities

Human capital, or put more simply, people and communities, is another of the five building blocks identified in the Province's *Opportunities for Sustainable Prosperity*. The negative impacts of mining are largely borne by nearby citizens and communities. Adjacent citizens and communities should have a say in whether mines proceed and, if they do, what mitigation measures and monitoring programs are implemented.

Summary

The theme of this section is that mines are not islands: they can have significant impacts on the surrounding environment and communities. Mitigation is often presented as the solution to the environmental impacts of a mine, but at best mitigation only reduces the environmental impact. Consequently, the decision whether to proceed with a mine must include a review of the full costs and benefits and the public must have a say in whether a project goes ahead. Minerals are a finite resource and the demand for them will only increase. A cautious approach to mineral exploitation is required, and includes considering alternatives, recycling and non-extractive uses. All mines contaminate the surrounding environment, but uranium mining presents an unacceptable level of risk and the Government of Nova Scotia should legislate a ban on uranium mining.

¹Economic Development. 2007-2008. *Opportunities for Sustainable Prosperity; 2nd Annual Progress Report*. Nova Scotia Department of Economic Development: pp. 29. Web accessed July 21, 2008: http://www.gov.ns.ca/econ/ofsp/docs/OfSP_2008_Progress_Report.pdf.

Issues and Recommendations

1. Full Cost-Benefit Accounting

The authors of *Minerals: A Policy for Nova Scotia* (1999) present the view that “in an increasingly competitive world, Nova Scotia will have to draw on its abundant natural and human resources and aggressively promote what the province has to offer.”² Policy 2 is:

*Provide a competitive business climate. Mining in Nova Scotia faces some important challenges. Primary among them is a loss of exploration and mining capital, much of which originates in Canada, to foreign countries who aggressively pursue these investment dollars. To increase the competitive position of Nova Scotia's mineral industry the province must create a positive business climate and promote the province's attributes and strengths.*³

However, public policy must distinguish between industry perspectives and what is in the public interest. This is particularly true in the minerals industry, where exploration and mining can have widespread impacts.

The Department's May 2008 *Economic Impact of the Mineral Industry in Nova Scotia 2006*⁴ focuses exclusively on the direct, indirect, and induced economic benefits of mining: mineral exploration and development, secondary processing, the provision of goods and services to the industry and mine site reclamation. The non-extractive values of geological resources are not covered, although recreational values are briefly described in the context of reclamation. As the report is restricted to economic benefits and does not include the economic, environmental and social costs to Nova Scotians of obtaining these benefits, it gives a one-sided view of the economic impact of the industry. A full cost analysis of economic, environmental and social impacts—the triple bottom line—would be required for an adequate foundation upon which to base public policy decisions about mineral resource management.

Direct employment in mineral exploration and extraction was 1,600 in 2006. Total Nova Scotia employment for 2006 was 441,800, thus direct mining employment was 0.36% of Nova Scotia employment. Direct GDP expenditures in exploration and extraction were \$161M in 2006. Total Nova Scotia GDP for 2006 was \$31,997M, so direct GDP expenditures were 0.5% of Nova Scotia GDP.

Total direct, indirect, and induced employment, including secondary processing, packaging, and distribution was 6,340, or 1.44% of Nova Scotia employment. (By comparison, direct and indirect employment in the tourism industry in 2006 was 33,100 or 7.5% of Nova Scotia employment.) Total direct, indirect, and induced GDP expenditures including secondary processing, packaging, and distribution were \$489M or 1.53% total Nova Scotia GDP.

² Nova Scotia Mineral Resources Branch, Department of Natural Resources. *Minerals: A Policy for Nova Scotia* 1996: 6. Web accessed July 21st, 2008: <http://www.gov.ns.ca/natr/meb/ONE/minpol.htm>

³ Nova Scotia Mineral Resources Branch, Department of Natural Resources. *Minerals: A Policy for Nova Scotia* 1996: 12. Web accessed July 21st, 2008: <http://www.gov.ns.ca/natr/meb/ONE/minpol.htm>

⁴ Nova Scotia Department of Natural Resources. 2006. “Economic Impact of the Mineral Industry in Nova Scotia 2006.” Web accessed July 21st, 2008: <http://www.gov.ns.ca/natr/meb/pdf/08ofr01/08ofr01.pdf>

Increased mineral prices are providing an unprecedented stimulus to mineral exploration and development in Nova Scotia. Licences have more than doubled over the last two years, with exploration occurring on over 900,000 hectares or 16% of Nova Scotia's land-base. Mineral exploration and mining have a big impact on the environment, yet for all this activity the province receives surprisingly little revenue. Total mineral activity direct revenue to government for 2005-2006 was \$2.4M or 0.04% of total estimated Nova Scotia Government revenue of \$6,097M.

According to the *Economic Impact* report, productivity in the mining industry has improved by 28% over the past twelve years: "output has been increasing at the same time employment has been decreasing".⁵ While rising productivity benefits industry by lowering the cost of production associated with paying wages and salaries, it is problematic from a public interest perspective.

In the section on gypsum mining, for example, "a mainstay of the industry with almost continuous growth,"⁶ we are told that production has increased from an output of less than 2 million tons in the early 1940s to the present output of over 8 million tons. However, most of the gypsum is mined and exported as an unrefined bulk commodity by United States-based multinationals (Georgia-Pacific in Georgia, National Gypsum in Charlotte, North Carolina, and United States Gypsum in Chicago, Illinois). There are no royalties on gypsum, and the provincial gypsum income tax rate is currently set at about \$0.16/tonne, or about \$1.3M for the 8 million tons produced yearly. The main public interest justification for gypsum mining in the province has been that it creates jobs. But employment in the industry is decreasing at the same time that the resource is being depleted and environmental impacts are increasing due to increased production.

For example, employment at the two United States Gypsum open pit mines near Windsor has declined from a high of about 500 in the early 1950s to about 145 in 2007. At the same time the open pits have expanded from a few hundred acres to an area of over 3,000 acres. In the process they have quarried away several well known bat hibernacula, extirpated the provincially protected Canadian Violet, and swallowed up forests, streams, homes, roads, farms, and some of the best agricultural land in the province. Thus, while from an industry point of view the gypsum industry in Nova Scotia is increasingly attractive because both productivity and production are rising, from a public interest point of view the industry is increasingly unattractive as employment decreases, the gypsum resource is depleted, and environmental and social costs rise.

GDP, productivity, and production statistics about mining do little to convey to Nova Scotians the hidden costs associated with these benefits. If producers had to pay the full amount of these hidden, or external, costs of production, then fewer minerals would be produced. Thus market failure to capture these costs results in an inefficient allocation of resources: mining occurs today where it would not if the mining company had to pay for impacts on the environment and communities.

⁵ Nova Scotia Department of Natural Resources. 2006. *Economic Impact of the Mineral Industry in Nova Scotia 2006*: 19

⁶ Nova Scotia Department of Natural Resources. 2006. *Economic Impact of the Mineral Industry in Nova Scotia 2006*: 29

One of these costs is the depletion of the resource itself, and the opportunity costs our children and future generations will pay to obtain minerals in a mineral-depleted world. Our mineral resources are finite and non-renewable, yet the GDP approach assumes they are infinite, because withdrawals from the mineral ‘bank’ are not subtracted from production figures. This is bad accounting. As with oil and gas production, we can expect production of minerals to follow a supply curve that rises, peaks, declines, and collapses.

<i>Department of Natural Resources total mineral activity revenue*</i>				
Exploration	<i>Number</i>	<i>Claims</i>	<i>Hectares</i>	Revenue
<i>New Licences</i>	521	19,372	313,578	\$96,860
<i>Renewals</i>	338	5,847	94,651	\$135,135
<i>Forfeits</i>				\$28,600
<i>Other Revenue</i>				
<i>Mineral Lease Rentals</i>				\$79,109
<i>Royalties</i>				\$654,268
<i>Taxes on non-mineral production</i>				\$1,425,108
Total Direct Revenue				\$2,419,080

<i>Direct and Indirect Benefits of the Mineral Industry In Nova Scotia 2006*</i>						
	<i>Employment (person years)</i>			<i>GDP (\$ Millions)</i>		
	<i>Direct</i>	<i>Spin-off</i>	<i>Total</i>	<i>Direct</i>	<i>Spin-off</i>	<i>Total</i>
<i>Primary Extraction (Exploration & Mining)</i>	1,600	1,750	3,350	\$160.7	\$109.6	\$270.3
<i>Processing, Packaging & Distribution</i>	1,475	1,515	2,990	\$122.7	\$95.6	\$218.3
Total	3,075	3,265	6,340	\$283.4	\$205.2	\$488.6

*Compiled from Gardner Pinfold Consulting and Conestoga Rovers and Associates, Economic Impact of the Mineral Industry in Nova Scotia 2006, pp 6-13.

A second hidden or external cost of mining is the impact on the environment. The challenge is to ensure that environmental assets are appropriately valued. The economic value of the goods and services that ecosystems provide may outweigh any gains from converting them to mineral extraction. A recent paper on this topic summarizes the issue: we must “invest in the science to measure, value, and monitor ecological goods and services” and “develop economic instruments that recognize and protect natural capital, rather than continue to reward its destruction.”⁷

When natural capital is destroyed, we must find substitutes for the services this capital provided, services in the form of water purification, waste assimilation, cleansing of the atmosphere,

⁷ Olewiler, N. (2004). *The Value of Natural Capital in Settled Areas of Canada*. Ducks Unlimited Canada and the Nature Conservancy of Canada. pp.36.

mitigation of greenhouse gas emissions, flood prevention, soil retention, fertility enhancement, alternative recreational services and much more. The substitutes for natural capital may be far more expensive to build and operate than those provided by nature. This is inefficient and costly for society today and for generations to come.

A third external cost of mining is the impact on human and social capital, and the viability of communities. These assets constitute part of our stock of capital. Like natural capital, they are subject to depreciation if they are not accounted for, protected, and nurtured. Human capital is human wellbeing or human health as embodied in individuals. Social capital, or social fabric, is the capacity of people to cooperate and achieve goals together, as embodied in social relationships. Community viability is the capacity of a community to adapt to stress and thrive over the long-term. Exploration and mining activity can catastrophically depreciate all three of these values if the affected individuals and communities are excluded from decisions about the allocation and use of community resources.

Recommendations

The Government of Nova Scotia should support an independent full cost-benefit accounting of mining in Nova Scotia.

1. Full cost accounting: DNR should collaborate with the Department of Economic Development, the Department of Environment, and GPI Atlantic to develop indicators of sustainability in the mineral industry and produce a full cost accounting of economic, environmental, and social impacts.

2. Fair return on mineral resources: DNR should review the royalty and tax structure, including the Gypsum Income Tax, for mineral activities to ensure that Nova Scotians are getting a fair return for our mineral resources.

2. Mineral Stewardship

According to the mineral section of Voluntary Planning's conversation starter, "every year in North America, more than 21 tonnes of new minerals are required for each person to maintain our standard of living."⁸ This dependence on minerals is often remarked as a justification for seeking the expansion of mining. However, from a sustainability point of view, our dependence on minerals is a better justification for conserving, rather than depleting, our dwindling mineral resources, and seeking alternatives to mining.

Rising energy costs will make extraction more costly and mineral commodities even more precious. Moreover the environmental and social costs of extracting minerals rise as higher grade and more easily assessable deposits are exhausted. Availability of minerals may be limited as

⁸ Voluntary Planning (2008). The Future of Nova Scotia's Natural Resources: Join in the Conversation. Viewed July 21, 2008, http://vp.gov.ns.ca/files/u4/conversation_starter.pdf.

much by the opportunity costs—the goods and services that have to be given up in order to obtain a given mineral commodity—as by their geological occurrence in the province. Thus mineral resource stewardship suggests that we transition from a cradle-to-grave (input/output) approach to a cradle-to-cradle (closed-loop) approach with respect to our use of materials. We need to shift our focus from mineral extraction to keeping as much of the extracted mineral resource in circulation as possible.

In a cradle-to-grave system, mining has a two-fold impact on the environment: first, at the input stage where minerals are extracted from the earth, and second, at the output stage when the products embodying the minerals are disposed of as waste. In a cradle-to-cradle system both of these costs are eliminated. As a world leader in waste recovery, through the efforts of agencies such as Environment Nova Scotia, Clean Nova Scotia and the Resource Recovery Fund Board, Nova Scotia has taken significant steps toward transitioning toward a cradle-to-cradle material handling system. As well, the *Environmental Goals and Sustainable Prosperity Act* commits the Province to reduce solid waste to 300 kilograms per person per year by 2015⁹. (Other jurisdictions are also transitioning to a cradle-to-cradle system, e.g., through the efforts of the Recycling Council of British Columbia, Vancouver is pursuing a goal of zero waste.)

Gypsum mining is a potential cradle-to-cradle model. Gypsum wallboard is 100% recyclable, and can also be produced synthetically by recovering the sulphur from the stack emissions of coal-fired generating plants. Nearly all wallboard plants constructed in the past two decades are designed to process synthetic gypsum. Yet Nova Scotia produces approximately 8 million tons of gypsum annually from six mines, the majority of which is exported as an unrefined bulk commodity.

The Department's approach to coal mining is another area that can be improved by the cradle-to-cradle model. Currently coal is extracted via surface mining on Boularderie Island in Cape Breton County, with 14 additional mines proposed. On the input side this comes at a considerable cost to the environment and the local community. On the output side, the mining company sells the high sulphur coal to Nova Scotia Power to be burned in its generating plant at Point Aconi, which then contributes to the province's emissions of greenhouse gases and other air pollutants. The *Environmental Goals and Sustainable Prosperity Act* sets targets for reducing these emissions, and also sets a target of obtaining 18.5% of the total electricity needs of the Province from renewable energy sources by the year 2013.¹⁰ The cradle-to-cradle approach suggests a mineral policy that would phase out support for coal mining.

A cradle-to-cradle approach would be helpful to inform the province's approach to uranium mining. At this point in time, every stage of the nuclear fuel cycle—from mining and processing of the uranium ore through its use in nuclear reactors to eventual disposal—is problematic. As the half-life of uranium is 245,000 years, there is as yet no method to permanently deal with the disposal problem, either with respect to uranium tailings at the mine site or spent fuel at the reactor site.

⁹ Office of the Legislative Council. 2007. *Environmental Goals and Sustainable Prosperity Act*. Viewed July 21, 2008, http://www.gov.ns.ca/legislature/legc/bills/60th_1st/1st_read/b146.html.

¹⁰ Office of the Legislative Council. 2007. *Environmental Goals and Sustainable Prosperity Act*. Viewed July 21, 2008, http://www.gov.ns.ca/legislature/legc/bills/60th_1st/1st_read/b146.html.

A third dimension of mineral stewardship is the significance of geological resources for non-extractive uses. Mineral occurrences are often associated with outstanding historical, ecological, or cultural values. For example, the Joggins Fossil Cliffs in Cumberland County have long been known for their exceptional 300 million-year-old fossil record of the coal age. A mineral stewardship approach would carefully consider whether it's worthwhile to sacrifice the non-extractive value of this significant provincial asset for the short-term benefit of gypsum mining.

Recommendations

The Department of Natural Resources should review and adopt a cradle-to-cradle approach whereby they consider the life-cycle of the mined products and alternatives to mining.

- 1. Cradle-to-cradle philosophy.** Adopt a cradle-to-cradle philosophy of mineral stewardship which considers alternatives, recycling, and non-extractive uses before expansion.
- 2. Focus on recycling.** Build on the Province's leadership in waste management by coordinating with other provincial efforts to reduce dependence on new minerals, e.g., promote the recycling of gypsum and the use of synthetic gypsum rather than opening new gypsum mines.
- 3. Less coal mining.** Build on the Province's commitment to reduce greenhouse gas emissions and other air pollutants and shifting to renewable energy by phasing out coal mining.
- 4. Geological set-asides.** Recognize that geological resources may be more valuable left in the ground for their non-extractive uses than mined for short-term benefit, e.g., Joggins Fossil Cliffs, Avon Peninsula Karst.

3. Integrated Environmental Management

Integrated Resource Management (IRM) is the department's main planning tool. It aims to achieve sustainability through a rational decision-making process that accounts for all resource and conservation values in a transparent and open public process. Thus:

*Policy 4.1 Encourage integrated land use planning and management with meaningful public and community involvement. The department supports an integrated approach to land and resource management, with flexible planning strategies that accommodate many different resource and conservation interests. Rational choices between multiple resource and conservation uses should be made with an integrated decision-making system, which includes high-quality data on mineral resources. Resolution of land use conflicts should be based on the need to integrate social, economic, and environmental commitments in a sustainable way. Integrated land and resource management decisions should be reached through an application of fair and effective processes that are open to all stakeholders.*¹¹

However, the Department's approach to IRM is not working well. It is based on an out-dated philosophy of multiple-use that by definition excludes protecting land from development. The process favours resource extraction—mining and logging—over all other land uses, such as conservation, recreation, fisheries, tourism and other watershed goods and services. The philosophy of multiple-use—that extractive land use is compatible with other values such as conservation and recreation—is problematic.

The Department's IRM process is limited to Crown land, which constitutes about one-quarter of the province. Crown land is highly fragmented and IRM decisions concerning the use of Crown land do not consider the use of adjacent lands. Consequently we have mines and clear cuts adjacent to candidate or protected natural areas.

Approximately 70% of the province is privately owned. DNR's Wildlife Division may comment on impacts if a project goes to a Class 1 EA screening, but the Department puts forth these comments in the context of multiple-use whereby the mine proposal is generally supported with a proviso that impacts on conservation values be mitigated by adjusting the mine footprint, incorporating a monitoring plan, using biodiversity offsets, etc.

IRM is also problematic because input from other planning processes and other provincial departments, local government, non-governmental groups and the public is shut out at the decision-making level. Departments such as Agriculture, Economic Development, Energy, Environment, Fisheries and Aquaculture, Tourism, and Culture and Heritage are under represented in IRM and have no decision-making authority. Tourism, for example, returns many times the value of mining to Nova Scotia, but the IRM process seems not to account for impacts on tourism values.

Excepting the protection of municipal water supply areas, local governments as well have no say in decisions about mineral exploration and mining within their planning area. Although the *Municipal Act* gives local government planning authority, including control over the removal of topsoil, this does not apply to the removal of topsoil for the purposes of mining. In the view of provincial authorities, mining activity seems to trump municipal zoning.

The Avon Peninsula near Windsor is a prime example. The Municipality of West Hants has made considerable progress in providing a framework for growth and development going back to 1970. The Municipality recognized the rural and agricultural character of the peninsula in 1991

¹¹ Nova Scotia Mineral Resources Branch, Department of Natural Resources. *Minerals: A Policy for Nova Scotia 1996*: 17. Viewed July 21st, 2008: <http://www.gov.ns.ca/natr/meb/ONE/minpol.htm>

by zoning the majority of the area as Agriculture Priority in its planning documents. An ongoing plan review affirms general development goals that include maintaining a “quiet, rural atmosphere” as desired by respondents to the 2002 Plan Review Survey, as well as recognizing the need to identify new sources of water, and to protect watercourses and environmentally sensitive areas.

Notwithstanding the agricultural priority designation for the Peninsula, the Minerals Branch granted a mining lease (Non-Mineral Registration 02) in 2002 to United States Gypsum for nearly all the western half of the peninsula, an area zoned for agricultural priority due to its excellent agricultural soils, a living heritage of mixed farming, and the local desire to conserve farm land and the investment in the farming economy. Subsequently, after assembling land in the area, in 2006 United States Gypsum brought forth a proposal for a 420-hectare open pit mine in the heart of the peninsula watershed. In its comments for the Class 1 EA screening on March 2006 the Department supported the proposal, commenting: “DNR supports the development of the Province’s resources when such development is conducted in an environmentally and socially responsible manner as outlined in this project description.”

The department’s promotion of mining does not stop at over-riding local planning authority. In the case of agricultural priority zoned land this exclusive focus on extractive use contradicts the “Statement of Provincial Interest Regarding Agricultural Land” and Sections 196 and 197 of the *Municipal Government Act*:

*Planning documents must identify agricultural lands within the planning area. Planning documents must address the protection of agricultural land. Measures that should be considered include: giving priority to uses such as agricultural, agricultural related and uses which do not eliminate the possibility of using the land for agricultural purposes in the future. Non-agricultural uses should be balanced against the need to preserve agricultural land. The activities of the Province shall be reasonably consistent with a statement of provincial interest.*¹²

*A department of the Province, before carrying out or authorizing any development in a municipality, shall consider the planning documents of the municipality.*¹³

For land-use planning with respect to mineral exploration and mining to have credibility in Nova Scotia, it must formally include inter-departmental, local government, non-governmental, and public representation in decision-making. The protected areas network should be completed, and a system put in place that will deliver new protected areas as new candidates arise in view of scientific information and government’s commitment to conserve the province’s natural, human, and social capital assets.

As the Department and the Mineral Resources Branch have limited capacity for integrated environmental planning, it will need to collaborate with other departments, local government, non-governmental groups and the public if it is to carry out its mandate to manage mineral resources in a manner compatible with sustainable development.

¹² *Municipal Government Act*. 1998. C18, S. 196

¹³ *Municipal Government Act*. 1998. C18, S. 197

Recommendations

The Department of Natural Resources should replace the Integrated Resource Management process with Integrated Environmental Management which would consider the value of all land uses, including non consumptive land uses.

- 1. Integrated environmental planning.** DNR should collaborate with local governments, non-governmental groups and the public to achieve integrated environmental planning.
- 2. Buffer zones.** The government of Nova Scotia should establish buffer zones between incompatible land uses.
- 3. Abide by the *Municipal Government Act*.** The government of Nova Scotia should abide by existing legislation with respect to the “Statement of Provincial Interest Regarding Agricultural Land” and *Sections 196 and 197 of the Municipal Government Act*.
- 4. Local planning for mining.** The government of Nova Scotia should amend the *Municipal Government Act* to enable control of local planning over mining.

4. Water, Biodiversity, and Greenhouse Gas Emissions

Water

Because water falls under the jurisdiction of the Department of Environment, water quality is not fully considered in IRM decisions within the Department of Natural Resources. Accordingly, major mining projects have been approved in or adjacent to sensitive water supply areas, such as the East Kemptville tin mine, the Black Bull White Rock quartz mine, the Gays River lead and zinc mine, the Bouladerie Island coal mines, the Moose River Gold Mine, and the proposed gypsum mine on the Avon Peninsula. Indeed the Gays River mine is an open pit operation in the middle of the bed of the Gays River, which was diverted to make way for the mine.

A sustainable mineral policy must ensure that watercourses—streams, rivers, lakes and groundwater—not be used to discharge mine effluent into, even at minimum levels of toxicity. Thus 100% self-contained mining systems should be the standard with respect to water use and discharge. If Nova Scotia is to be ‘clean and green’ then in operational terms this means first of all that our watercourses be pristine.

Biodiversity

There is a substantial literature devoted to best practices in mining and biodiversity, much of which originates from the mining industry or from multi-sectoral initiatives. For example, the Mining Association of Canada has issued a Mining and Biodiversity Policy Framework that commits association members to “integrate the importance of biodiversity conservation, including respect for critical habitat, into mining and land-use planning and management

strategies, including considering the option of not proceeding with a project”.¹⁴ The Mining, Minerals and Sustainable Development (MMSD) project is an international multi-stakeholder initiative that has developed criteria for a sustainable minerals industry, including biodiversity.¹⁵

Collaboration in the development of the province’s water strategy and the coastal management framework would be an opportunity to development interdepartmental coordination and cooperation with respect to the impact of mining on water and biodiversity.

Greenhouse Gases

Mining is a fossil fuel intensive, greenhouse gas producing activity, particularly with respect to the high volume production and long distance transportation of bulk gypsum. Producing, transporting and burning coal is also greenhouse gas intensive. Although air emissions are the formal responsibility of the Department of Environment, the Mineral Resources Branch has responsibility for sustainability in the mineral industry. A strategy to reduce the greenhouse gas emissions of the industry would be to phase out gypsum export and coal production.

Recommendations

The Department of Natural Resources should seek zero discharge of mining effluent into lakes, rivers and groundwater and a reduction in greenhouse gases from mining operations.

- 1. Water protection.** The province should require a 100% self-contained water use standard for all mining operations including liners for tailing ponds, buffer zones for watercourses and zero discharge of effluents into lakes, rivers and streams.
- 2. Collaboration with other departments.** DNR should collaborate in the development of the provincial water strategy and the coastal management framework.
- 3. Biodiversity and greenhouse gases.** The government should include biodiversity and greenhouse gas emissions in its integrated environmental planning and the regulation of mining.

The *Nova Scotia Mineral Resources Act* promotes mineral resource extraction over mineral stewardship, and tends to subordinate all other land uses, including the interests of private property owners, to the interests of resource extraction. Nova Scotians are uncomfortable with the notion that they do not have certain enjoyment of their property—it can at any time be subject to mineral exploration or be expropriated for mining. Although sustainable development is cited as the purpose of the *Act*, there are no provisions in the *Act* to encourage, promote, or develop sustainability.

¹⁴ Mining Association of Canada. 2007. *Towards Sustainable Mining Framework*. Viewed July 20, 2008, http://www.mining.ca/www/media_lib/Press_Release/2007/PR_071107BiodiversityE_revised.pdf

¹⁵ MMSD Website. Viewed June 20, 2008, <http://www.iied.org/mmsd/>.

Importantly, lands protected by means of nature preserves or conservation easements on private land deserve a special exemption from mining. The province of New Brunswick, for example, recognized this need, and recently introduced legislation that enables any protected natural area, on private or Crown land, to be exempted from mining. As values change from resource extraction to conservation and sustainability and our knowledge of Nova Scotia's special and sensitive areas increases, it is important to have the capacity to revoke mineral rights which may have been granted to these areas.

A level of certainty in mineral rights tenure and the ability to exercise those rights is a requirement for mineral resource development. However, mineral rights and development must be subject to the requirements for sustaining ecological integrity and the economic and social sustainability of local communities.

Recommendations

The government of Nova Scotia must allow for mineral rights to be revoked on lands protected by nature preserves or conservation easements.

- 1. The government of Nova Scotia should permit mineral rights to be revoked on private and Crown lands that are formally protected by nature preserves or conservation easements, and where the exercise of mineral rights would be in conflict with the protection of Nova Scotia's human and social capital assets.**
- 2. The government of Nova Scotia should provide landowners with the right to refuse mineral exploitation on their properties.**

6. *Aggregates*

There is no legislation to govern the mining or quarrying of aggregates—sand and gravel—in Nova Scotia, although aggregates are covered under the province's Pit and Quarry Guidelines. Given the proliferation of pits and quarries and their impact on the environment and communities there is a need for stronger governance in this area.

Recommendations

The Nova Scotia government should legislate a Mineral Aggregate Act to govern the mining or quarrying of aggregates in Nova Scotia, with respect to environmental assessments for quarries under 4 hectares, royalties, returns to the local community, and reclamation.

7. *Mineral Stewardship Certification*

Policy 5.1 of *Minerals: A Policy for Nova Scotia, 1996*, is

*to encourage the mineral industry to minimize environmental disturbance during mineral exploration and development. The department will advocate that all parties use management practices that are designed to anticipate and minimize environmental disturbances that are better than the minimum requirements where possible.*¹⁶

¹⁶ Nova Scotia Mineral Resources Branch, Department of Natural Resources. *Minerals: A Policy for Nova Scotia* 1996: 19. Web accessed July 21st, 2008: <http://www.gov.ns.ca/natr/meb/ONE/minpol.htm>

In the forest industry, suppliers of wood products are under increasing pressure from purchasers of wood products to adopt forest certification systems. Public and investor concern about the impacts of the mineral industry is also increasing. Examples of responses to these concerns are the Dow-Jones Sustainability Index, the Carbon Project Index, and the Mining Certification Evaluation Project (MCEP) by WWF-Australia. NS Mineral Stewardship Certified products could be a valuable 'brand' for industry and Nova Scotia.

Recommendations

The government should recognize the environmental and social values practiced by mineral companies that work in Nova Scotia by encouraging a third-party Mineral Stewardship Certification system for new mines in Nova Scotia.

8. Environmental Assessment

Policy 5.2 of *Minerals: A Policy for Nova Scotia 1996* is

to support an effective and timely environmental assessment process. The Department of Natural Resources will work closely with the Department of the Environment to seek opportunities to improve efficiency in the environmental assessment processes while maintaining the highest possible standards.¹⁷

The province's approach to environmental assessment is not working well. The process excludes communities from meaningful participation in decisions about the use and commitment of resources that impact individual well-being and community viability. Despite well-intentioned efforts on the part of administrators, the process tends to discourage participation, encourage conflict, and foster mistrust.

In the report 'Time for a new approach to public participation in EA: Promoting cooperation and consensus for sustainability', M. Doelle and A.J. Sinclair describe how the Nova Scotia environmental assessment process has gone astray by eliminating meaningful public participation.¹⁸ This may help explain the extraordinary high approval rate for mining proposals registered for environmental assessment. Of the 50 mine and quarry projects 4 hectares or greater in size registered for Class 1 Environmental Assessment with the Province between April 1992 and August 2007, 48 or 96% were eventually approved. As significant public participation (e.g., comment on the terms of reference) is required only for Reports, of the 50 proposals, the public was invited to comment on the terms of reference for two mining proposals, or 4%.

¹⁷ Nova Scotia Mineral Resources Branch, Department of Natural Resources. *Minerals: A Policy for Nova Scotia 1996*: 19. Web accessed July 21st, 2008: <http://www.gov.ns.ca/natr/meb/ONE/minpol.htm>

¹⁸ Doelle, M. and Sinclair, A.J. 2005. Time for a new approach to public participation in EA: Promoting cooperation and consensus for sustainability, *Environmental Impact Assessment Review*, 26:185-205.

Nova Scotia Extended Class 1 Environmental Assessments
Mines and Quarries (1992-2007)

<i>Nova Scotia Class 1 Environmental Assessments Mines and Quarries (1992-2007)</i>					
<i>Total</i>	<i>Approved</i>	<i>Rejected</i>	<i>Withdrawn</i>	<i>Reapplied</i>	
50	48	1	1	1	
<i>Proponent</i>	<i>Project</i>	<i>Year</i>	<i>Decision 1</i>	<i>Decision 2</i>	<i>Decision 3</i>
Pioneer Coal Ltd.	Stellarton Open Pit Coal Mine	1992	More Information	EA Report	Approved
Northumberland Rock	Georgeville Quarry	1996	Focus Report	Withdrawn	
Riverland Developments	Upper Sackville Rock Quarry	1997	Focus Report	Rejected	
Black Bull Resources	White Rock Quartz, Kaolin and Mica Mine	2001	More Information	EA Report	Approved *
Mark-Lyn Construction	South Bishop Soil/Peat and Aggregate Operation	2004	More Information	Approved	
Thomas Brogan & Sons Construction	Point Aconi Phase III - Surface Coal Mine	2004	More Information	Approved	
Pioneer Coal Ltd.	Surface Coal Mine and Reclamation Project-Prince Mine Site	2005	More Information	Approved	
DDV Gold Ltd	Moose River Gold Mines	2007	Focus Report	Approved	
*Black Bull Resources withdrew, reapplied as quartz only mine, and was approved.					

The Nova Scotia EA (1994) process offers a good illustration of the problems associated with a focus on process rather than outcomes of public participation. The Nova Scotia EA process is set up to require all undertakings to be registered with the provincial Department of the Environment. A notice of the registration is then made public and interested parties are given 30 days to comment on the registration. Following this, the Minister decides whether an EA is needed and at what level of assessment.¹⁹

These legislative steps have the potential to provide a good starting point for public participation. In practice, however, the public is expected to make substantive comments on the proposal within the 30-day notice period, which is too short of a time period to make substantive

¹⁹ Doelle, M. and Sinclair, A.J. 2005. Time for a new approach to public participation in EA: Promoting cooperation and consensus for sustainability, *Environmental Impact Assessment Review*, 26:185-205.

submissions about complex technical and scientific issues, especially considering that many members of the public will have to hire that expertise.

Further, the provincial administrator of the EA process encourages proponents to file draft registration documents for review by government officials, and to file a completed environmental impact statement (EIS) with the registration document. On the surface, this may seem to be a constructive approach, putting more and better information before the Minister, and encouraging early and open lines of communications. However, the effect of this practice is that the provincial administrator essentially encourages the proponent to complete the EA before there is any required public participation. Thus the EA process has become essentially a private matter between the proponent and the department. Not surprisingly, most registered undertakings in recent years have been approved at the registration stage without any public involvement beyond the 30-day notice of registration.²⁰

In light of this situation, it would be prudent to consider Doelle and Sinclair's²¹ recommendations on the role of environmental assessment in mineral policy, including (1) mandatory early notification of mining proposals and call for public comment and participation at the initial stage, (2) early consideration of alternative paths to community sustainability, and (3) a shift toward consensus-building.

Role of the Department of Natural Resources in Environmental Assessments

The Department of Environment has formal responsibility for administering environmental assessment of mining proposals. DNR staff, however, have a *de facto* decisive impact on the EA process in several ways.

First, the Mineral Resources Branch controls what land is accessible for exploration and extraction. Access to land is the first stage in the mining cycle, and making land available for exploration and extraction is a *de facto* environmental planning decision entirely under the authority of DNR. By giving access to land and granting an exploration permit or mineral lease to a mineral company, both the department and the lessee are already developing a shared expectation that mining will occur, with environmental assessment and permitting as just another step in the mining cycle.

Second, through the 'One Window' process, the Mineral Resources Branch coordinates interdepartmental reviews of mineral development projects. At the same time, however, the process serves as an ongoing *de facto* environmental assessment process that may precede formal registration by several years for environmental assessment by the proponent. During this time the project builds momentum and a shared understanding that mining will proceed, and government staff are dependent primarily on the proponent for detailed assessment of the project area, the predicted impacts of the proposed project, the efficacy of proposed mitigations, and the degree of acceptance of the local community.

Third, the Department's comments during the formal environmental assessment following registration are filtered through its multiple-use philosophy, its focus on the promotion of

²⁰ *ibid.*

²¹ *ibid.*

mining, and its commitment to the project as both the proponent and the department have by this time expended considerable effort and cost through the 'One Window' process. Thus, for example, biodiversity concerns raised by the department's Wildlife Division will be addressed by conditions to mitigate the worst of the effects of a project that is nonetheless endorsed by the department.

Finally, the Department's view carries weight at Executive Council where the Minister of the Environment must gain support from his cabinet colleagues, especially the Minister of Natural Resources, with respect to decisions on major projects.

For Nova Scotians to have faith in the environment assessment of mining proposals, local communities must have the right to choose their own development path. All proposed mines and quarries must be subject to environmental assessments. Where there is public concern and/or potential to harm the environment, the assessment must include a full public review with meaningful public participation, as required under Part IV of the *Environment Act*. Government will earn the trust of communities by ensuring that proposals are accepted only if they will produce a durable economic, environmental, and social net benefit to the local community and only if it is consistent with community values.

Recommendations

DNR should work with the Department of Environment to support an effective environmental assessment process, particularly with respect to ensuring meaningful public participation.

- 1. Criteria for automatic rejection of proposals:** Establish no-go zones and sustainability guidelines to reduce the number of inappropriate proposals that reach the EA stage.
- 2. EAs for quarries:** The Nova Scotia government should require environmental assessments of all quarries, not just those exceeding 3.9 hectares.
- 3. Public participation and consensus:** DNR should require mandatory early notification of mining proposals and call for public comment and participation at the initial stage of proposed projects. The department should shift from adherence to a formal process to a focus on consensus and a sustainable outcome.
- 4. Ease of participation:** DNR should design and implement a “one window” process to minimize the cost and effort for communities to respond to mining proposals, to identify alternative paths to community sustainability, and to participate in environmental assessments.
- 5. Scientific input:** DNR should ensure that the full scientific resources of the Department, including the geological services division, are brought to bear on environmental assessments of mining projects.
- 6. Third party administration of Community Liaison Committees:** DNR should work with the Department of Environment to bring Community Liaison Committees under administration of a third party rather than the mine operator.
- 7. Mine reclamation:** The province should shift administration of mine reclamation to the Department of Environment, which has ultimate responsibility for the reclaimed land.

9. Uranium Mining

Policy 6 of *Minerals: A Policy for Nova Scotia, 1996*, is to “protect health and safety in the mining industry and the general public.”²² Of all mineral activity, the greatest threat to health and safety in the mining industry and the general public is uranium mining. Fortunately, the Province put in place a moratorium on uranium exploration and mining in 1982. This ban should be made permanent, as the risks to miners, to communities, and to the environment are unacceptable.

Uranium mining is the first step in the nuclear cycle which involves profound and contentious issues such as nuclear weapons proliferation and storage of nuclear waste. The uranium decay products in tailings piles remain toxic for hundreds of thousands of years, in human terms, forever. Despite improvements in mining technology, we cannot ensure that our air, water, soil, and food can be protected from these toxic materials once they are dug up. For example, the JEB Uranium Tailings Facility at McClean Lake in

²² Nova Scotia Mineral Resources Branch, Department of Natural Resources. *Minerals: A Policy for Nova Scotia* 1996: 21. Viewed July 21st, 2008, <http://www.gov.ns.ca/natr/meb/ONE/minpol.htm>

Saskatchewan is a state-of-the-art facility, yet has been the subject of a major court challenge regarding its safety. A uranium hexafluoride plant in Port Hope using similar hydraulic containment technology has been found to be leaking uranium and other contaminants into Lake Ontario.

The mining industry in Nova Scotia, however, promotes nuclear energy as a solution to the climate crisis. Nuclear industry is not a viable option for Nova Scotia for multiple reasons including cost, the small size of our population, and the disruptive impact it would have on energy efficiency and renewable energy programs. The EAC is not in favour of nuclear energy in other Canadian jurisdictions, but regardless of the Centre's position, the Government of Nova Scotia should not and does not have the capacity to evaluate the energy choices for other provinces or other countries, and nor should it put its citizens and environment at risk for questionable benefits elsewhere.

On a global level, nuclear power will not solve the climate crisis. According to the Intergovernmental Panel on Climate Change, nuclear power accounted for 16 percent of the electricity supply in 2005 and could have an 18 percent share of the total electricity supply in 2030.²³ Carbon emission can be reduced much more cheaply and quickly by investing in conservation and renewable energy. These provide jobs and business development without the risks, expense, and greenhouse gases associated with uranium mining and processing and the construction and decommissioning of nuclear power plants. This approach is consistent with economic growth strategy articulated in *Opportunities for Sustainable Prosperity*.²⁴

While the nuclear industry promotes itself as emission free, the use of nuclear power causes about one-third of the emissions of gas-fired electricity production because of the GHG emissions associated with the mining, milling, construction, maintenance, storage, and dismantling in the nuclear cycle. In addition, as rich uranium reserves are exploited, and poorer ones are targeted, emissions from mining will increase, potentially negating the climate benefits of nuclear power.²⁵

Evidence for the statement that the moratorium has discouraged exploration for other minerals in the province usually relies on comparing mineral exploration in Nova Scotia with other provinces. However, comparing exploration dollars spent in one geographic/geologic area with another is like comparing apples and oranges. It would be similar (albeit more extreme) to comparing the amount of money spent for oil and gas exploration in Alberta to the money spent on oil and gas exploration in Nova Scotia and blaming the difference on the moratorium. Overall mineral activity in Nova Scotia has increased despite the moratorium and this appears to be true in other jurisdictions, such as British Columbia, where similar restrictions on uranium mining exist.

Finally, the province has a lack of capacity in environmental planning, environmental assessment, monitoring, and enforcement. The requirements for regulating uranium mining would overwhelm an existing capacity that is already strained.

Recommendations

The government of Nova Scotia should legislate a permanent moratorium on uranium mining.

10. Consultation and Cooperative Working Arrangements

Policy 7 of *Minerals: A Policy for Nova Scotia* 1996 is to “encourage consultation and cooperative working arrangements between stakeholders. The government, industry and other stakeholders are all dependent on each other, therefore they must communicate and work closely together to ensure that the industry continues to prosper and benefit the people of Nova Scotia”.²⁶

²³ Intergovernmental Panel on Climate Change. 2007. IPCC 4th: Assessment Report: Climate Change, 2007. Viewed www.ipcc.ch/ipccreports/assessments-reports.htm

²⁴ Economic Development. 2007-2008. *Opportunities for Sustainable Prosperity; 2nd Annual Progress Report*. Nova Scotia Department of Economic Development: pp. 29. Web accessed July 21, 2008: http://www.gov.ns.ca/econ/ofsp/docs/OfSP_2008_Progress_Report.pdf.

²⁵ van Leeuwen, J.W.S. and P. Smith. 2004. Can Nuclear Power Provide Energy for the Future: Would it Solve the CO₂-emission Problem? In H. Caldicott. 2004. Nuclear Power is not the Answer. The New Press: New York.

²⁶ Nova Scotia Mineral Resources Branch, Department of Natural Resources. *Minerals: A Policy for Nova Scotia* 1996: 22. Web accessed July 21st, 2008: <http://www.gov.ns.ca/natr/meb/ONE/minpol.htm>.

Currently, the annual Mining Matters conference hosted by the Mineral Resource Branch primarily serves industry representatives. Participation of other government departments, non-governmental organizations, community groups, and the public would provide a good opportunity for increased mutual understanding and collaboration.

Recommendations

DNR should expand the Mining Matters conference to include non-industry perspectives.

Parks: Vision

The Ecology Action Centre envisions a Provincial Parks system that maintains and enhances biodiversity, and provides opportunities for the public to appreciate and learn about nature.

Values

We value parks that provide opportunities to discover and learn about Nova Scotia's diversity of flora and fauna and their habitats through educational materials, interpretative programs, non-motorized trails, and partnerships with research institutions, museums, environmental and conservation organizations, and community groups.

We value a provincial parks system that complements other protected areas in the province, such as Nature Reserves and Wilderness Areas.

We value collaboration among government departments and stakeholders to achieve long-term sustainable management of parks through research, ecosystem-based management, and enforcement of laws and regulations.

Issues and Recommendations

1. Harmonization of Protected Area Planning Programs

Several provincial parks and park reserves contain habitat for rare species, old forests, offshore islands, and connectivity zones between other protected areas. When such properties are deemed to be "primarily dedicated to the protection of biodiversity and natural processes" they contribute to the 12% protected areas target cited in the *Environmental Goals and Sustainable Prosperity Act*. Yet these areas constitute a very tiny portion the protected areas network. Given the importance of efficient and integrated program delivery, and the fact that responsibility for protected areas planning, including meeting the 12% target, falls with the Department of Environment, it no longer makes sense for DNR to hold onto responsibility for protection-orientated parks. It is also confusing for the public, which is unlikely to distinguish between parks and protected areas.

EAC is also concerned that the value which DNR places on resource extraction over land conservation puts park properties intended for nature conservation continually at risk of being used resource extraction. The concern is underscored by the "C2" (multiple use) classification of several park reserves near Halifax, including Pace's Lake and the Eastern Shore Islands, as well as the backlog of park reserve properties awaiting designation. In matching responsibilities to areas of expertise and capacity, DNR should retain responsibility for maintaining park facilities and day-to-day management.

Recommendations

Responsibility for high-level systems planning of the provincial parks network should be moved to the protected areas branch of the Environment Department. This should include prioritizing park reserve properties for protection and determining the appropriate designation of provincial park properties.

2. Embracing Low-Impact Development

When provincial parks are developed to accommodate public uses, it is important that DNR lead by example by implementing low-impact design and management practices. This approach should guide recreation and trail development as well as the siting of buildings and roads. In the context of coastal parks and beaches, low-impact management requires working with natural shoreline processes and forces. This means letting beach systems migrate, allowing dunes and sand bars to breach and rebuild in responses to natural forces, and restricting beach-front structures that may destabilize beach systems, accelerate erosion, or interfere with beach sediment supply.

Recommendations

All provincial park management plans should be orientated to minimize damage to nature and interference with natural processes.

3. Coastal Protection and the Provincial Park System

Beach Parks are of particular importance to Nova Scotia residents and visitors. There are approximately 50 beaches within the Provincial Parks system. Ninety-two beaches are listed under the Beaches Act and the remainder of the province's beaches have no official protection. At the provincial level we still do not have a comprehensive coastal policy. Although a coastal management framework has recently been announced, we cannot wait until specific measures are in place to address gaps in protection for coastal areas. The threat to beaches from climate change, OHV abuse, "hardening" of the coastline and sand removal need immediate attention.

The EAC values a network of protected beaches that represents the full range of beach types, and regions of the province, and that maintains a full range of ecosystem functions and biodiversity – including wildlife habitat. Our provincial Parks are part of this network of protected beaches. The *Beaches Act* must be expanded and strengthened to recognize the inland boundaries and natural and landward migration of beach systems.

Recommendations

Further protection for coastal parks and beaches: a strong Provincial Park system is part of the solution for increased beach protection. Clear links between the provincial park system and a comprehensive coastal policy must be established.

4. Monitoring Change

Beaches are popular public resources. However, beach access and public use must not trump wildlife and habitat protection. We do not know how many visitors our Parks and protected beaches can take while preventing harm to fragile coastal ecosystems. We need to find out how many people visit our Parks and how and where they access the coast to determine appropriate access for different uses. We need regular collection of beach attendance records, mapping of traditional and current coastal access points, and identification of ecologically sensitive areas where access should be restricted.

At present Park and beach managers do not measure indicators of the health of parks and beaches. For example, water quality at beaches in provincial parks is not currently tested for human safety. Uniform monitoring that measures total coliform, fecal coliform, and enterococcus (bacteriological indicators) must, at a minimum, take place bi-weekly, with accurate and up-to-date postings at each beach.

Recommendations

The Department of Natural Resources should develop indicators to monitor ecosystem health and to track changes in provincial parks.

- 1. Establish conservation goals.** Nova Scotia needs to set clear goals for provincial parks that clearly state the significance of Parks for conservation and wildlife, and a commitment to ensure Nova Scotians continue to access and enjoy Parks and coastal areas.
- 2. Parks management.** Conduct an inventory of all provincial parks in the province with their main opportunities for biodiversity protection and recreation, as well as opportunities for enhancing these systems. Develop management plans for all parks and beaches based on principles of ecosystem-based management.
- 3. Collaborate with other agencies for biodiversity protection.** Provincial Parks are part of a provincial network of biodiversity. DNR should actively work with other departments to ensure the Parks system supports provincial biodiversity goals.
- 4. Test water quality.** Water quality testing should be required in all provincial parks with swimming beaches. Water should be tested to ensure it meets Canadian Recreational Water quality standards.

5. Protecting the Marine Environment

Nova Scotia's license plate says it all: Canada's Ocean Playground. We care about our oceans enough to advertise them on every car in the province. Yet, when it comes to protecting our marine environment particularly within the 12 mile zone, Nova Scotia's Provincial government seems to have all but forgotten about marine diversity.

While federal departments, including the Department of Fisheries and Oceans, Parks Canada and the Department of the Environment, have taken some measures to begin protection of the marine environment these measures, to date, are not sufficient to meet the commitment made by Canada to a network of marine protected areas by 2012.²⁷

Within Canada, there are examples of provincial leadership in marine and coastal protection. Specifically, the province of British Columbia has lead the way by protecting almost 6% of its the marine environment to the 200 mile limit and fully 21% of its shoreline²⁸.

Marine protection can include human use, but requires environmental assessments of that use to achieve the goals of conservation and sustainable development. While fisheries are

²⁷ Canada committed to a network of MPA's in 2002 at the Johannesburg World Summit on Sustainable Development.

²⁸ British Columbia has been the most active of Canadian provinces in the establishment of MPAs. The first marine waters were protected in 1911 as part of Strathcona Provincial Park. Rebecca Spit Provincial Park (1957) was the province's first park established for marine values. Since that time, over 100 other protected areas have been designated that include subtidal lands. B.C. currently has 130 provincial and 19 federal Marine Protected Areas. <http://www.env.gov.bc.ca/omfd/ocean-resources/mpa.html>

under federal jurisdiction, the province has jurisdiction over aquaculture leasing. A clear plan for siting of aquaculture sites, and designation of areas that are not suitable, would increase clarity for the industry. The provincial Department of Fisheries and Aquaculture currently does not have a strong sustainable development ethic. Fisheries are a significant part of Nova Scotia's natural resources, and the same values that are applied to forests, minerals, parks and biodiversity should be applied to fisheries, particularly as they are a potentially renewable resource.

Recommendations

Marine parks and protected areas should become part of the province's protected area mandate.

1. Coastal Framework. Marine parks and protected areas should be an integral part of Nova Scotia's Coastal Framework.

2. Consistency between coastal and offshore management. The province should work collaboratively with federal integrated ocean management efforts under Canada's *Oceans Act* to ensure that coastal integrated management follows the same model as the offshore.

6. Parks and Climate change

Beach Parks and Park infrastructure are increasingly vulnerable to climate change impacts. Barrier beaches and dunes are the first line of defence protecting inland areas and infrastructure against climate change impacts. The threat of climate change and the resulting rise in sea level mean that beaches are likely to experience rapid change over the next decades. As sea levels rise and storms events become more intense, storm surges and erosion will increase with disastrous localized impacts on both beach and dune systems. Changes to the natural structure, function, distribution and abundance of coastal and terrestrial species living in beach environments is likely.

We need a proactive strategy wherein the entire beach system, including its sediment sources, adjacent headlands that anchor the beach, tidal ponds and wetlands, is protected so that the beach system has room to migrate and rebuild itself in response to natural and human-induced pressures. We must also consider the type and location of Park infrastructure (trails, boardwalks, and signage) in the context of the changing climates and changing coasts.

Recommendations

The province must act to ensure coastal areas are well managed and adequately protected from inappropriate development and the effects of climate change.

- 1. Acquire coastal land.** In partnership with organizations like the Nature Trust, DNR should acquire land adjacent next to coastal provincial parks and protected beaches so as to maximize resiliency of coastal systems by allowing erosion, migration and coastal change to occur.
- 2. Strengthen *Beaches Act*.** The *Beaches Act* needs to be strengthened to include protection for entire beach systems, including sediment sources, offshore bars and all provincial beaches.
- 3. Restrict coastal development.** DNR should restrict further development of infrastructure on coastal properties vulnerable to climate change impacts.

7. Park Enforcement

The EAC expects full enforcement of existing regulations in all Provincial Parks, including provisions against OHV use on beaches and sand dunes, and requirements to keep pets on leashes at all time. We also expect Park staff and employees to play a leadership role in educating the public about habitat protection and Species-at-Risk, and to demonstrate best practices in waste management, low-impact recreation, respect for wildlife and habitat, and stewardship. Despite the value of Parks to Nova Scotians and visitors, the province only spends a few hundred thousand dollars on managing and protecting Parks. More resources are needed to support Park planning and Park management. Some of these funds should go to increasing the education and interpretation in provincial Parks.

Recommendations

Enforce all environmental regulations in provincial parks and protected beaches.

- 1. Low-impact recreation.** Develop signage to educate visitors about existing regulations and best practices for low-impact recreation.

8. Parks, Sustainable Transportation and Eco-Tourism

Nova Scotia's dependence on private vehicles does not help to grow our eco-tourism sector. European and Asian tourists, for example, are amazed to learn that there is little

or no public transportation service to rural communities and provincial parks. Nova Scotia has an untapped potential for coach, rail and bicycle tourism. Other provinces have tapped into this potential and are reaping the benefits. Québec, for example, is known as a world-class cycling destination thanks to investing in a 4,000 kilometre cycling route, known as La Route Verte. Cyclists visiting Québec spend an estimate \$95.4 million each year, which supports approximately 2,000 jobs, generates revenues of \$15.1 million for the Government of Québec and provides an annual return on investment of 108%.²⁹ Suffice to say that sustainable transportation networks enhance tourism and economic development.

Recommendations

The province should increase public and non-motorized transportation options to rural areas and provincial parks.

²⁹ Velo Quebec. 2006. *Bicycling in Quebec 2005*. Viewed, July 20, 2008, <http://www.veloquebec.info/documents/bicyclingquebec2005-en.pdf>

Biodiversity: Vision

A province where biodiversity is respected and protected, ecosystem based management is a reality, not a concept, and the status of species at risk steadily improves.

Values

Biodiversity should be respected and protected for its intrinsic value.

Biodiversity should be respected and protected for its utilitarian value including its economic, recreational and cultural value.

Summary

The size of this section is misleading. Biodiversity and its protection is the theme that runs through the EAC's submission. Biodiversity informs and connects our comments and recommendations on forestry, mining, parks and coasts. The Species-at-Risk Program is a major focus of the Department of Natural Resources' Biodiversity Program. This section recognizes that the implementation of the *Nova Scotia Endangered Species Act* has been ineffective and incomplete because of opposition from economic interests, and that recovery plans must be implemented and the necessary habitat protected. Nova Scotia's coast, always the focus of human activity, is under increasing development pressure and additional effort must be made to protect coastal biodiversity. Of course, conserving biodiversity involves more than the recovery of endangered species; it is about valuing biodiversity in its broadest definition.

Issues and Recommendations

1. Finding a Safe Place for Wildlife

Nova Scotians appreciate wildlife. We are reminded of this during public debates over protected areas, development proposals, ATVs, trapping, IRM, game sanctuaries, and most recently, Voluntary Planning's public consultations on natural resources.

Based on over two decades of involvement in wildlife conservation issues in Nova Scotia, the EAC suggests that housing responsibility for forestry promotion and the responsibility for forestry regulation within one Department is not working well: wildlife concerns tend to be subordinate to forestry objectives.

Wildlife programs, for example, are poorly funded, especially those dealing with non-game species. Regulations under the *Forests Act* designed to safeguard watercourses and wildlife are seen as ineffective. Some game sanctuaries designated under the *Wildlife Act* are devastated by clearcutting and logging roads. Recovery plans for species-at-risk languish for years in committee, in violation of deadlines detailed in the *Endangered*

Species Act. Non-compliance with the *Endangered Species Act* is further evident in recovery plans that fail to identify potential core habitat.

The bottom line is that wildlife conservation is often an afterthought in a Department geared towards resource exploitation. Despite some attempts to integrate DNR's programs, wildlife conservation appears to occur in starts and stops, and only when it does not interfere with the department's forestry priorities.

Separating responsibilities for promotion of forestry and regulation of wildlife should be viewed as simply making government work better, rather than being punitive. DNR promotes mining, for example, but other departments are responsible for upholding environmental and safety requirements of mining projects. It is difficult to see how the situation will change, or public confidence restored, without shifting responsibility for wildlife conservation to another department.

Recommendations

Responsibilities for wildlife and biodiversity conservation, including for the *Wildlife Act*, *Endangered Species Act*, and wildlife habitat and watercourse provisions of the *Forests Act*, should be transferred to the provincial Environment Department.

2. Biodiversity Strategy

The UN Global Ecosystem Assessment in 2005 concluded that humans have changed ecosystems more rapidly and extensively over the past 50 years than in any comparable time in human history, and that these changes have resulted in large and irreversible losses in biodiversity. The assessment also concluded that these losses will continue unless human priorities and practices change dramatically.³⁰ Nova Scotia is no exception to these conclusions. The application of industrial harvesting practice in this province both on land and sea has had disastrous consequences. Clearcutting and ocean dragging have had long-term negative consequences for ecosystems. We have lost, for instance, nearly all growth forests and many salt marshes, and at least seven species have gone extinct or have been extirpated in Nova Scotia during that period.³¹

Nova Scotia does not have a biodiversity strategy at present, and relies instead on the Canadian Biodiversity Strategy. We encourage the Government to develop a biodiversity strategy specific for Nova Scotia. DNR should follow the lead of provinces such as Quebec and ensure the strategy includes an action plan with biologically relevant targets. This biodiversity strategy should be premised on a 'land ethic', as articulated by Aldo

³⁰ Millenium Ecosystem Assessment, 2005, *Ecosystems and Well-being: Biodiversity Synthesis*, World Resources Insitute, Washington, D.C.

³¹ NS Endangered Species Act: Legally Listed Species as of 2007. Viewed www.gov.ns.ca/natr/wildlife/biodiv/specialist.htm#extinct

Leopold in *A Sand County Almanac*, wherein the land is viewed as a living entity, not simply an economic resource.

Recommendations

Conservation of biodiversity should be a priority for all branches and divisions of DNR, not just the Wildlife Division, and the Department should consider adopting a new ethic that explicitly values biodiversity.

1. DNR should develop a biodiversity strategy for Nova Scotia as part of the development of a new natural resources strategy. The strategy should include an action plan with biologically relevant targets.
2. DNR should adopt an ethic that values biodiversity.

3. Sable Island

Sable Island is home to a number of endemic species and subspecies. The Government of Nova Scotia has been supportive of protecting the Island and maintaining a human presence on it.

Recommendations

Sable Island holds a special place in the hearts of Nova Scotians and the Government of Nova Scotia should continue to invest in its protection.

1. The Government of Nova Scotia should continue to support the maintenance of a human presence on the Island and the operation of the Sable Island Station.

4. Birds

All major classes of species in Nova Scotia are suffering declines. However, new data indicate that birds are suffering greater declines than previously known.³² Some of the most recent species to be added to Nova Scotia's Species-at-Risk listings are birds. Nearly one in four landbird species in North America are in trouble due to habitat loss. Two-thirds of Canadian shorebird species show downward population trends. Some of our favourite birds, such as barn swallows, chimney swifts and kingbirds are experiencing serious declines. Chimney swifts are declining at a rate of 8% a year.³³

³² Butcher, Gregory and Daniel K. Niven, 2007. Combining Data from the Christmas Bird Count and the Breeding Bird Survey to Determine the Continental Status and Trends of North American Birds. National Audubon Society.

³³ McCracken, John. 2008. Are Aerial Insectivores Being 'Bugged Out'? Birdwatch Canada, Winter 2008, Number 42.

Today, loss and degradation of habitat is the single biggest reason for the decline in bird populations. Clearcutting forests and increasing human activity and development along coasts adversely affects birds that rely on these habitats to breed.

Recommendations

New data indicate that bird populations are under greater threat than previously thought. The Department needs to implement policies that protect the breeding habitat of birds.

1. DNR should continue and improve its protection of breeding bird habitat.

5. Coastal Biodiversity

As transition zones between land and sea, coasts contain a diversity of habitats: beaches, salt marshes, barachois, rocky headlands, eel grass beds, mudflats, coastal forests and estuarine habitats. Each of these habitats supports different and highly diverse assemblages of species. Many of Nova Scotia's endangered species are found along the coast, including the red knot and piping plover.

Coasts are also home to most of Nova Scotia's human population, and the level of human development along the coast will only increase. The longer we wait to protect our coasts and the species that live there, the greater the cost and obstacles. The good news is that there is strong public support for coastline protection. The Department of Natural Resources should seek ways to increase coastal protection through the *Endangered Species Act*, the *Parks Act*, and the *Beaches Act*, as well as under its responsibility under national and international agreements to protect biodiversity.

In tandem with implementing protective measures, the Department needs to improve its inventory of coastal habitats. Coastal habitats will be especially impacted by climate change, and conservation efforts must recognize the dynamic nature of these systems.

Recommendations

The Department of Natural Resources should move quickly to protect our coasts, as the obstacles, including cost, will only increase with increasing levels of coastal development.

6. Invasive Exotic Species

Invasive exotic species, such as the spruce longhorn beetle and the green crab, can have widespread and highly detrimental impacts on the economy and the environment. Once established, an invasive species is difficult to eradicate, particularly aquatic species, thus preventing the introduction of invasive exotic species must be a priority for the Province.

Recommendations

The Government of Nova Scotia should implement strategies and programs that have been developed at the national level, and abide by the terms of international agreements relating to invasive exotic species.

1. The Government of Nova Scotia should coordinate and strengthen its efforts to address problems associated with invasive exotic species.
2. The new biodiversity strategy and action plan should address invasive exotic species.

7. Protected Areas

A well designed network of protected areas across Nova Scotia's natural landscapes is critically important for biodiversity conservation. Protected areas provide a benchmark against which to judge our actions on the rest of the landscape, while providing a storehouse of natural biodiversity and special places where people can connect with the natural world that sustains us.

Canada signed the international *Convention on Biological Diversity* treaty at the famous Rio Earth Summit in 1992. Along with over 100 other nations, Canada committed to set aside at least 12% of its landmass for conservation purposes. Later that year the federal government and all the provinces and territories signed a similar agreement, the Tri-Council Statement of Commitment as part of Canada's international 12% commitment. Since then the government of Nova Scotia has reiterated variations of this commitment, most recently enshrining it in law under the *Environmental Goals and Sustainable Prosperity Act*. This law requires, among other things, that Nova Scotia protect 12% of the province by 2015.

Significant progress towards this goal has been made. 5.3% of the province is protected under the *Wilderness Areas Protection Act* as designated Wilderness Areas or under the *Special Places Act* as designated Nature Reserves. In addition just less than 3% of the land base is protected through our two National Parks. In 2008, the province put forward several new Wilderness Areas and Nature Reserves for protection. This will move us to just less than 8.7% protected. Nonetheless, we are still over 200,000 hectares short of the

12% target. More work needs to be done as high conservation value areas continue to be lost to industrial uses and recreational property developments.

The Department of Natural Resources and the Department of Environment has supported environmental groups and large forestry industry companies in finding solutions that can move the province towards a completed network of protected areas. Known as the Colin Stewart Forest Forum, this process was initiated by major forestry companies and environmental groups, including the EAC, and is focused on identifying high-priority conservation areas for protection while also mitigating associated wood-supply and cost impacts to the forestry industry. Progress is being made and work is ongoing.

At the same time several forestry companies are putting some or all of their land holdings on the open market for purchase. At least one of the companies involved in the Colin Stewart Forest Forum has indicated to government their willingness to sell high conservation lands identified through this process to the government for protection. With over 70% of our lands in private hands, the government must make acquisition of important and in some cases irreplaceable privately owned conservation lands a top priority.

It's important to note that the Department of Environment is the lead agency responsible for the protected areas program. However the Department of Natural Resources is the primary "land management" branch of government. DNR must therefore play a key and supportive role towards a completed network of protected areas.

Recommendations

The Department of Natural Resources needs to actively support the government's legislated goal of protecting 12% of the province for conservation and to treat this as a priority for action.

- 1. Support Colin Stewart Forest Forum.** DNR should continue to support the work of the Colin Stewart Forest Forum and to champion the results within government and with other stakeholders.
- 2. Acquire private lands.** DNR should assist the Environment Department in the acquisition and protection of private lands that are important for conservation.
- 3. Protect land with high conservation value.** The province should protect additional Crown lands with high conservation values

8. Protecting Marine Diversity

Nova Scotian's have long depended on the bounty of the sea for food, for trade and for livelihoods. We have taken for granted the natural biodiversity and done little to protect declining fish stocks, threatened marine mammal species or to protect and restore habitat. While under the jurisdiction of the federal Department of Fisheries and Oceans, there is a significant need for provincial support in protecting marine diversity. Our marine environment is one of the most important natural resources we know, providing invaluable ecosystem services as well as transportation routes, recreation opportunities and the basis for a renewable and sustainable economy. Currently, there is a significant lack of balance between the desire to exploit the marine environment and the need for conservation.

Together with the provincial Department of Fisheries and Aquaculture, the Nova Scotia government must determine sustainable prosperity goals for the marine environment and commit to biodiversity protection. We are relying on species such as lobster, crab and shrimp – species at the bottom of the food chain – to sustain our fisheries and coastal communities and have forsaken populations at higher trophic levels, not to mention fish habitat for short term economic gain. Aquaculture development and approval of leases rarely takes into account strategic planning of marine diversity protection.

Marine diversity must become part of an overall provincial biodiversity protection standard, and Nova Scotia needs to help the rest of Canada live up to it's commitments to the Convention on Biodiversity, which increasingly addresses marine protection at its annual Conference of Parties. Nova Scotia has a role in meeting the 2010 Biodiversity Targets.³⁴

Recommendations

Nova Scotia should include marine diversity in any diversity protection legislation.

1. Nova Scotia should act protectively in marine diversity protection, and seek to restore the marine environment and fish habitat in partnership with the federal Department of Fisheries and Oceans.
2. In keeping with a sustainable prosperity agenda, and protection of Nova Scotia's natural resources, the provincial Department of Fisheries and Oceans should proceed with fishing industry promotion and support only once there are clear goals for biodiversity protection.

³⁴ In April 2002, the Parties to the Convention committed themselves to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth.

Coastal: Vision

Our vision is that the ecological integrity of Nova Scotia's beautiful, diverse, productive, and threatened coastal areas is maintained and protected. Habitat should be restored in coastal areas that have significant and cumulative loss or degradation of habitat or ecological function. Our province should minimize its vulnerability to climate change by enhancing the natural resiliency of coastal systems and by restricting new commercial and residential development on beaches and wetland systems.

Nova Scotia needs a government and population ready to take far-sighted and extraordinary steps to protect the ecological integrity of our coasts and access to our shorelines for present and future generations.

Values

1. Ecologically Significant Coasts

The EAC values the diversity and ecological significance of Nova Scotia's coastal areas. Coastal ecosystems should be recognized, protected and managed as sources of biodiversity, habitat, ecological services, and recreational opportunities.

2. Government Commitment to Ecosystem-based Management

The EAC values a government that embraces the protection of beaches and coastal systems and recognizes that these complex, dynamic systems include interconnected components, such as sand dunes, tidal lagoons, mudflats, sandbars and salt marshes

3. Protection for all Nova Scotia's Beach

The EAC proposes that all of Nova Scotia's beach systems should be protected, and that our network of protected beaches should represent the full range of beach types and regions of the province, and maintain a full range of ecosystem functions and biodiversity – including wildlife habitat.

Summary

Nova Scotia's coasts harbour a rich diversity of habitats and species. At the same time, human activities, in particular accelerating residential and industrial development, negatively impacts our coasts. There is currently urgency and opportunity and the Department of Natural Resources, which plays a key role in coastal management, can make a difference by taking initiative. The Department needs to increase the level of protection for coastal areas by strengthening the management of existing protected beaches and coastal parks, designating new protected beaches, working with other departments to ensure that all beach systems are protected, developing a better inventory of coastal areas, and monitoring how these areas are changing both as a result of human and natural impacts. Looming over all coastal efforts is the threat of climate change and the urgent need for adaptation.

Issues and Recommendations

1. Coastal Protection

The Natural Resources Strategy must include a focus on coastal areas for many reasons. First, we have over 7000 km of coastline, very little of which is in public hands. Second, Nova Scotia's watersheds eventually drain to the sea and many experts consider the entire province as a coastal zone. Third, as was evident during the public consultation sessions, Nova Scotians have a deep affinity for the coast. Many people depend on the coast for their livelihoods and want stronger protections for sensitive coastal areas. Finally, Nova Scotia has a rich diversity of coastal ecosystems that provide recreational opportunities, ecological services, and significant habitat for numerous species.

Our coastal areas are extremely vulnerable. All the strategy areas (Parks, Mining, Biodiversity and Forestry) have the potential to impact coastal areas. Coastal areas have a limited carrying capacity and coastal ecosystems are very sensitive to human disturbance. Nova Scotia's coasts face increasing pressure from development and industrial activity, and they are directly and indirectly affected by activities elsewhere in their watersheds.

Perhaps due to their unique location between land and sea, coastal areas have fallen in the gap between marine and terrestrial management. The EAC sees the Voluntary Planning exercise as an opportunity to speak out about the lack of protection of Nova Scotia's coasts and express commitment to a provincial coastal management strategy that protects the ecological integrity of our coasts.

The EAC welcomes the recent provincial government announcement of a coastal framework. We see this as a wake-up call for all departments with a responsibility for the coasts, rather than as an excuse to delay action until a specific framework is in place.

DNR's Coastal Responsibilities

The Department of Natural Resources is a key agency in coastal protection and management in Nova Scotia.³⁵ It manages approximately 50 beaches within Provincial Parks. The Department is also responsible for the 92 beaches protected under the *Beaches Act*, as well as for our shorelines below the high water mark. Most protected beaches were designated to protect them from sand and gravel extraction or in recognition of their high ecological significance.

Coastal areas provide important ecological functions and habitats. Salt marshes, estuaries, beaches, dunes, mudflats, and the intertidal zone should be valued and conserved under DNR's mandate for wildlife protection, including the implementation of national and international conventions on migratory birds.

Finally, DNR is the lead agency for species-at-risk recovery efforts at the provincial level. This includes both coastal flora and fauna. So long as the Department has

³⁵ McKeane, S. and Gregory, A. 2008. Navigating the Maze. A Citizen's Guide to Coastal Management 2008 updated version. The Ecology Action Centre: Halifax. Viewed, July 20, 2008, http://www.ecologyaction.ca/coastal_issues/February2008_NGM.pdf.

responsibility for species-at-risk, it should work diligently to recover the piping plover, found in dwindling numbers on the province's beaches (including some provincial parks). Aggressive efforts to protect piping plover habitat and implement recovery plans are imperative. An ongoing threat to piping plovers is reckless use of off-highway vehicles (OHV) on Nova Scotia beaches³⁶. Enforcement of OHV regulations in all of the province's coastal areas needs to be stepped up.

In addition to these direct responsibilities, DNR's jurisdiction includes many activities with indirect and cumulative impacts on the coast. Activities in upstream areas, especially forestry practices, for example, significantly impact coastal areas. Clearcutting, with its ensuing changes in water temperature throughout the watershed, can lead to a loss or deterioration of fish habitat in estuaries and coastal waters.

The EAC hopes that the new natural resources strategies will ensure forestry and mining activities do not cause deterioration and loss of Nova Scotia's coastal assets.

Managing Complex Coastal Systems

The Province should embrace the protection of beaches and coastal systems and recognize that these complex, dynamic systems include sand dunes, tidal lagoons, mudflats, sandbars and salt marshes. Coastal areas provide habitat for numerous species of plants and animals, including many species of migratory shorebirds. The EAC recommends an integrated, ecosystem-based approach to coastal management that considers the entire coastal ecosystem and the full range of natural coastal functions.

Recommendations

The provincial government should embrace its responsibilities to conserve Nova Scotia's coasts, and expand protections of coastal areas and associated ecosystem functions.

- 1. Commitment to progressive coastal management.** DNR plays a key role in coastal management in Nova Scotia and should show commitment and leadership on coastal initiatives through the Voluntary Planning and other processes.
- 2. Manage forestry and mining activities to protect coastal watersheds.** DNR should manage mining and forestry activities to preserve the integrity of coastal watersheds.
- 3. Expand protection of coastal areas and ecosystem functions.** Nova Scotia's protected areas and protected beaches should protect coastal areas and the natural ecosystem functions of these areas.
- 4. Inventory.** Nova Scotia should complete an inventory of the status of coastal areas to identify priorities for land securement, and identify how provincial parks, protected beaches and other protected areas will help coastal protection.

³⁶ Mersey Tobeatic Research Institute (MTRI).2008. Species at Risk in Nova Scotia - Identification and Information Guide.

2. Climate Change

Nova Scotia's coastal areas are expected to be increasingly vulnerable to the impacts of climate change. Barrier beaches, dunes and wetlands are the first line of defence in protecting inland areas and infrastructure against climate change impacts. Climate change and sea-level rise will cause rapid change to coastal areas over the next decades. As sea level rises and storms become more intense, storm surges and erosion will increase with disastrous localized impacts on both beach and dune systems. Changes to the natural structure, function, distribution and abundance of coastal and terrestrial species living in coastal areas are likely.

DNR should act to minimize the impacts and vulnerabilities of coastal areas to climate change. A first step is to partner with other agencies to identify specific sensitivities of different coastlines to the impacts of climate change. This information is best captured in regional and local maps which identify flooding, storm surge and erosion hazards in coastal areas. Secondly, the province needs to support climate change adaptation efforts by restricting development and unnecessary infrastructure in coastal areas, by stopping shoreline alteration, and by protecting beach systems and coastal areas that can buffer and protect inland area from the sea. DNR should work with Transportation and Public Works as well as other relevant agencies to develop criteria to identify which coastal infrastructures (roads, boardwalks, parking areas, wharves) should be protected from rising seas, and which should be gradually abandoned. Replacing certain kinds of coastal infrastructure (roads across barrier beaches, for example) will maximize the resiliency of these systems to climate change.

Recommendations

The province should identify key climate change vulnerabilities and prioritize adaptation by preventing inappropriate coastal development and infrastructure.

3. Beaches

Beaches are often valued more for their beauty and recreational opportunities than for their ecological functions. Consequently, their sensitivity to human impacts is often overlooked. The EAC expects that DNR will embrace beach protection and recognize that beach systems include sand dunes, tidal lagoons, mudflats, sandbars and salt marshes, headlands, and other components of the coastal environment.

To promote better management of beach systems, Nova Scotia needs an inventory of the status of our beaches. A standard methodology for assessing beach ecological health is essential to ecosystem-based management. A standardized assessment process will also ensure that decision makers are well informed, and accountability in meeting management goals.

To implement ecosystem-based management, DNR needs to manage for a full range of natural beach functions. Under an ecosystem-based management approaches, beach systems would migrate and sand dunes and sand bars would be allowed to breach and rebuild in responses to natural forces.

DNR should also restrict beach-front structures that destabilize beach systems, accelerate erosion or interfere with beach sediment supply. The EAC recommends that all protected beaches and provincial parks have management plans with clear conservation goals and priorities.

The network of provincially protected beaches should represent the full range of beach types, and regions of the province, and maintain a full range of ecosystem functions and biodiversity – including wildlife habitat. All Nova Scotia beach systems should be protected beaches, and the *Beaches Act* must be expanded and strengthened to recognize the inland boundaries and natural and landward migration of beach systems. Beach systems with particularly high ecological significance should receive additional protection as Nature Reserves under the *Special Places Protection Act*.

Beaches not only provide habitat for numerous species of plants and animals, but they also provide important habitat for many species of migratory shorebirds. The promotion of beach access and public use must be balanced with wildlife and habitat protection. Increased access means more traffic, more noise and litter, and degradation of a fragile ecosystem.

The 2004 report on Development on Protected beaches in Nova Scotia commissioned by DNR proposed the following minimum guidelines for managing development near beaches:

- Clear definition of the various parts of the beach (*i.e.*, beach, primary dune, trough, *etc.*);
- An evaluation of the sensitivities and tolerances of the shoreline;
- Development control options (*i.e.*, setbacks, density, sewage treatment options, landscaping plans);
- Guidelines for construction in beach environments (*i.e.*, boardwalk design for crossing dunes from properties to the beach);
- Shoreline monitoring programs; and
- Stakeholder involvement.

Recommendations

The Department should revise and strengthen the *Beaches Act* and designate new beaches under the *Act*.

1. Strengthen *Beaches Act*. DNR should revise the *Beaches Act* to contain a clear definition of beach systems, and strengthen the *Act* to ensure protection of natural shoreline processes. New protected beaches should be added to the network to reflect a range of beach types and critical areas of coastal biodiversity. The Department should support the designation of particularly important beach ecosystems under the *Special Places Protection Act*.

2. Manage for habitat and function. DNR should ensure all beaches, including those in Parks, are managed to allow for natural processes to take place and to protect habitat. DNR should develop management plans for all provincial parks and protected beaches.

3. Work with community stakeholders and scientists. DNR should partner with community groups and scientists to leverage resources for developing management plans and monitoring shoreline change.

4. Monitor change. DNR must develop a comprehensive system for measuring the health of beach systems including coastal erosion rates, water quality, changes in land use and vegetation.

Appendix A: Relevant Municipal, Provincial and Federal Government Documents

There are many acts, policies and strategies that are relevant to the process of developing of a new natural resources strategy, including statutes such as the *Mineral Resources Act* and the *Endangered Species Act*. We have not provided a comprehensive list of these documents, but rather have identified some recent initiatives which we consider relevant.

Municipal

Integrated Community Sustainability Plans: Municipal Funding Agreement for Nova Scotia

http://www.gov.ns.ca/snsmr/muns/infr/pdf/ICSP_2007.pdf

Municipalities across Nova Scotia must develop ICSP by 2010 as a requirement of funding. The plan “recognizes the interconnected dimensions of environmental, social, cultural, and economic development within a community and/or at the regional level and focuses on integrating these considerations to achieve 20- to 30-year (and beyond) vision for the community.” The plans require public consultation.

Provincial

Environmental Goals and Sustainable Prosperity Act

http://www.gov.ns.ca/legislature/legc/bills/60th_1st/3rd_read/b146.htm

The *Act* has as one of its goals to “demonstrate international leadership by having one of the cleanest and most sustainable environments in the world by the year 2020.”

2020 Vision

<https://www.nsassessment.ca/nse/pollutionprevention/docs/2020FactSheet.pdf>

Coastal Management Framework

<http://www.gov.ns.ca/fish/marine/coastalzone/framework.shtml>

Released by the Provincial Ocean Network in June 2008, the Framework is intended to protect Nova Scotia’s coast while guiding its prosperity.

Water Management Strategy

<http://www.gov.ns.ca/nse/water/waterstrategy.asp>

In March 2008 the Government announced that it was beginning the process of developing a provincial water strategy, starting with public consultations. Development of a water strategy is one of the goals in the *EGSP Act*.

Energy Strategy

Climate Change Action Plan

<http://www.gov.ns.ca/energy/AbsPage.aspx?id=1235&siteid=1&lang=1>

The Nova Scotia Department of Energy conducted public consultations in the spring of 2008 and plans to release the Strategy and Action Plan in the fall of 2008.

Federal

Integrated Management and Marine Protected Areas

<http://www.mar.dfo-mpo.gc.ca/oceans/e/ocmd/ocmd-e.html>

The *Oceans Act* gives the Federal Government the ability to create marine protected areas and develop integrated management plans, both of which have implications for Nova Scotia’s coastal zone.

Appendix B—Mining Myths

*A presentation to Citizens Mining Advisory Group, August 7, 2004
Joan Kuyek, National Co-ordinator, MiningWatch Canada*

MiningWatch Canada is a coalition of seventeen different organizations that works to support communities affected by mining, to do research about issues pertaining to mining environment and health and to advocate for responsible mining practices. Our work deals with mining in Canada and with Canadian mining companies operating internationally.

In our five years of existence, we have learned a great deal about the industry and the governments that support it. I have come to believe that the power of the industry is propped up by eight myths, and I want to share that with you today.

First, the myth that mining is about the extraction of minerals. A great deal of mining is not about the extraction of minerals at all. Most junior mining companies are only interested in floating large share offerings to investors so that they can attract enough equity to pay themselves salaries in the \$200-300,000 range. For the stock brokers who underwrite and sell the shares, it is about brokerage fees and selling at the appropriate time. For investors, they are interested in speculating on the stocks, but the “flow through share provisions” of the Income Tax Acts – both federally and provincially – enable them to write off the company’s losses as their own. As a further incentive, companies can accumulate their exploration and development expenses in tax pools that can be transferred and sold. When the owner of the Giant Mine was going belly up, the Canadian Exploration and Development tax pool that the company had accumulated was such a large “tax asset” that the receivers opted to sell the company for the pool, rather than institute bankruptcy proceedings.

So, you can see, that companies may not be intending to bring a mine to development at all: they may only be interested in hyping the prospective find, building up their exploration and development claims and paying themselves handsomely for doing it.

Second, the myth that mining has a small footprint. It does not; it is not just a small hole or tunnel in the ground that is easily cleaned up afterward. In addition to the mine, there is usually a mill, tailings (the rock that is ground up to extract the ore, usually mixed with chemical reagents), overburden and waste rock, roads and or railroads and power lines. Most of its waste rock and tailings are toxic, leaching heavy metals and sulphuric acid into water, air and soil. Over 1 billion tonnes of waste rock and 950,000 tonnes of tailings are produced annually by the industry, more than 20 times the amount of municipal solid waste generated annually. One gold wedding band leaves behind between 6-20 tonnes of waste rock and tailings, depending on the grade of the ore.

Mining is a major user of water. Water is pumped from open pits and underground to “dewater” them to allow mining to proceed. Water is used to wash the ore, and in milling and refining processes. Water is used to slurry tailings from the mill to tailings management areas, and is frequently used as a water cover for acid-generating tailings.

Clean water goes in, and a lesser amount of contaminated water is discharged, often to a different water system. The Agrium phosphate mine expansion on the Constance Lake traditional territory intends to remove an entire lake and create a new one. In a survey of water taking permits in one district in north eastern Ontario, 77% of the permits issued within one year were for mining purposes. Not all the permits included limits for the amount of water used, but, of those that did, average water taking was 6.4 million litres per day. North American Palladium has a permit to take water at a rate of 30 million litres per day, for a period of five years. At a national level, the mining and metal sector consumes over 2 billion cubic metres of water annually, most of this free of charge.

Mining companies are also major contributors to climate change, because of their extensive use of energy for extraction and refining. ³⁷ For example, a tonne of aluminum produces four tonnes of Green House Gases and a tonne of steel produces 0.8 tonnes of GHG's. At least 8% of all energy used in Canada is for mining, milling and smelting.

Third, the myth that communities are eager to have mining. Everyone does NOT welcome mining into their communities. The mining industry calls this "its social licence to operate". The mining industry and their supporting departments in government are fond of "stakeholder consultations", bringing all the parties together to come to consensus. But one has to ask how a company that wants to dig a hole on your land for their private profit, gets to be a stakeholder, when even the owner – who may have lived there for generations- is not? I have heard this described as having a drunk wander into your house, trash the furniture and insult your daughters, and then say "Okay, lets negotiate the basis on which I get to stay."

The catch is, that once you have agreed to a consultation, it becomes almost impossible to say "no". You are reduced to negotiating the terms on which the mine will proceed.

Mining companies spend enormous amounts on gaining access to the minerals under our feet. They hire public relations people and government relations experts. They lobby for changes to law and regulations. They undermine enforcement and cultivate insiders. In communities, they hire leaders for small contracts and jobs; they spread rumours about their critics; they make offers of future riches. They create divisions within communities. Internationally, they hire firms like Burson Marsteller to promote their image. At one time, I added up all the paid lobbyists for the mining industry: the Mining Association of Canada, the Prospectors and Developers Association, the provincial associations, the Chambers of Mines, the individual company community relations people, and realized they had about 120 people doing nothing but promoting their interests full time. We have four.

Fourth, the myth that government will protect us, and that there are laws and regulations in place to do this. Although some legislation looks like it will, in fact, the devil is in the details and it can't or won't. Mining is not even included in the National Pollutant Release Inventory. The Metal Mining Effluent Regulations under the Fisheries Act provide a licence to pollute even though the Act says that thou "shall not put any

³⁷ Action plan on Climate Change 2000 annual report.

deleterious substances water frequented by fish”. The Planning Policy in Ontario sterilizes land with significant mineral potential from other kinds of development. Environmental Assessment always lets mines proceed with appropriate “mitigation measures”, but no one knows if the mitigation measures are actually implemented. Communities trying to get clean-ups from the toxics left behind after a mine closes, find themselves unable to do so. In the past ten years, while subsidies for mining exploration have increased in Ontario, environmental inspection budgets have been severely curtailed.

Sixth, the myth that the economic benefits from mining justify the disruption. This is less and less true. When I worked for the United Church, I learned about the “hermeneutics of suspicion” : to ask “Who Benefits?”

- At present in Canada, less than 23,400 people are actually employed in mining and milling.
- Most mines only last 10-15 years, and the communities that have come to depend on them then seek to enlarge the mines footprint by finding new ore bodies. Many of them become ghost towns
- The effective rate of mining taxation federally in Canada is only 6% - the lowest of any sector. In 1997, the last year for which disaggregated statistics were available, mining companies only paid \$251 million in federal taxes and \$147 million in taxes to all the provinces. How did they do this? They made sure that their books showed a loss.
- Subsidies to the mining industry are over \$510 million annually, not including the cost of remediating the over 10,000 abandoned mines they have left behind.
- Even in balance of trade, we import as much mineral products – mostly the manufactured products - as we export.

Seventh, the myth that we need more raw minerals. Many of our mineral needs could be taken care of with conservation, recycling and re-use. The properties of metal provide a unique advantage for its reuse. Unlike other recycled materials, such as plastic and paper, metals are eminently and repeatedly recyclable without degradation of their properties. Metal from secondary sources is just as good as metal from primary sources.

Also, the environmental benefits of recycling are immense. As one example, the following are energy savings in metal production as a result of using secondary materials: Zn – 60%, Steel – 74%, Cu – 85%, Al – 95%. For steel, one sees a 90% virgin materials savings, an 86% emission reduction, a 40% effluent reduction, a 76% water pollution reduction and a 97% mining waste reduction through recycling.³⁸ Of course, many of these benefits also convert into substantial economic savings for producers.

The increasing cost of landfilling and the decreasing grade of mineral reserves provide further incentives for increasing our rates of metals recycling. Recycling creates many more jobs than does landfilling and waste disposal.

³⁸ U.S. Institute of Scrap Recycling Industries

A 1999 study by the Institute for Fiscal Studies concluded that our tax system “significantly favours the use of virgin materials rather than recycled materials in the case of metal and glass products”.³⁹ This was further to a 1995 report prepared for the Canadian Council of Ministers of Environment (CCME) that found tax expenditures provided by the federal and provincial governments provided a bias against recycling.

This is not to mention the deaths and injuries that accompany mining everywhere.

If the subsidies that now went to exploration went to cleanup and recycling, the industry would change.

Eighth, the myth that mining is okay somewhere else but not here.

- Mining is not okay in the Boreal Forest. It is the lungs of the earth, and mining in wilderness areas contributes to climate change, pollution and the growth of cities.
- It is not okay to have mining sacrifice zones in places like Sudbury, Timmins and Kirkland Lake. If we were to show the proper respect for the enormous costs the minerals we take for granted have imposed on the miners and residents in those cities, we would work to get the soil and water there cleaned up, to create alternative economic development and appropriate industrial adjustment packages, and to find ways to mine safely and cleanly.

These last are stories that divide us and weaken our ability to work for real change. If we work together to expose these myths, we can prevent mining from destroying our local economies and we will be able to work together for real social change.

It has been a real honour to share these thoughts with you today. Thank you.

³⁹ K. Scharf, “Tax Incentives for Extraction and Recycling of Basic Materials in Canada”, Fiscal Studies, 20(4), pp.451-477, 1999.