

Presentation to the Joint Review Panel for the Whites Point Quarry and Marine Terminal Project, Public Hearings

**Digby, Nova Scotia
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Good afternoon

I'm Linda Panno, senior researcher with Genuine Progress Index Atlantic, a non-profit research group founded in 1997. We are currently constructing an index to measure sustainability, wellbeing, and quality of life for Nova Scotia.

Since the Second World War, economic growth statistics based on the Gross Domestic Product (GDP) have been widely used as a proxy for societal wellbeing and prosperity. This was not the intention of those who created the GDP. Simon Kuznets, its principal architect, warned 40 years ago:

“The welfare of a nation can scarcely be inferred from a measurement of national income... Goals for “more” growth should specify of what and for what.”

The case of the White's Point Quarry and Marine Terminal is no exception. According to Bilcon of Nova Scotia's Environmental Impact Statement, the GDP associated with annual operations is estimated to total \$6.3 million in NS and over the 50-yr life of the quarry, a total GDP of over \$315.5 million. Somehow these figures are supposed to tell us that Bilcon of Nova Scotia's quarry is going to add to societal wellbeing and prosperity for the surrounding communities.

However, GDP-based measures were never meant to be used as a measure of progress, but only as a measure of market activity. Indeed, they can send highly misleading messages to policy-makers by counting detriments to wellbeing as economic gains. Activities that degrade our quality of life, like crime, pollution, environmental degradation, all make the economy grow. The more fish we sell and the more trees we cut down, the more the economy grows. The more we consume, the more the economy grows. Working longer hours makes the economy grow. The economy can grow even if poverty increases, as habitat destruction increases, as we fish to the point of stock collapses, or remove trees unsustainably, or mine the earth of non-renewable resources. What's more, the faster we deplete our natural resources and the more fossil fuels we burn, the faster the economy grows. Because we assign no value to our natural world, sometimes called natural capital, we actually count its depreciation as gain. GDP counts only what we extract from our natural resource base, but not what we leave behind – it fails to value our natural wealth.

By contrast, the Genuine Progress Index assigns explicit value to our natural wealth – our forests, soils, marine environment, air and water quality, to the health of our population, to their educational attainment, and to the strength of our communities. Unlike the GDP, which gives no value to unpaid work, the GPI also gives explicit value to the economic contributions of household and

volunteer work, and it counts factors like crime, pollution, sickness, and greenhouse gas emissions as costs not gains to society and to the economy. In short, economic activities that diminish social and environmental health and wellbeing and that undermine our essential life support system are counted as costs in the GPI.

In the case of the White's Point Quarry and Marine Terminal, there are many costs that have been externalized. This means that the true costs of the company's activities are not being paid today, by the company, but rather will be assumed by future generations. For instance, the costs associated with greenhouse gas emissions do not register anywhere as an actual cost, and GHG emissions, while produced locally, have impacts on a global scale. I will talk more on that later.

Natural Capital

The fundamental approach used in the GPI is to value all ecosystems and resources as natural capital that perform a wide range of interconnected ecological, social, and economic functions and provide both direct and indirect services to human society. However, unlike manufactured capital, lost ecosystem services are largely irreplaceable. For example, when a species becomes extinct, it is impossible to attach a dollar value to the magnitude of that loss. But, as I already mentioned, natural resources only register in our current accounting system when they are used. But they are continually providing us with functions and services for free. These functions and services include: climate regulation, habitat provision, soil formation, food production, biological diversity, erosion control, nutrient cycling, and aesthetic beauty and recreation.

In 1997 an international team of scientists and economists at the Maryland Institute of Ecological Economics attempted to place a monetary value on 17 categories of ecosystem functions and services, including those just mentioned, and they estimated the average annual value of all ecosystem services to be US\$33 trillion. This number is almost twice the GDP of all the countries on earth combined. Even so, the scientists who made this calculation said the figure was conservative because many ecosystem services are "literally irreplaceable." The authors said that while coastal environments only account for 6.3% of the world's surface, they are responsible for 43% of the value of the world's ecosystem services or US\$14 trillion/year. How will the Quarry and Marine Terminal affect ecosystem functions and services on the Bay of Fundy coast and at what cost? Whatever value one may choose to assign ecosystem functions and services, zero is surely the wrong answer, and yet the economic value of the ecosystem services that will be affected by the proposed quarry has not been properly assessed.

For example, fishing and tourism, both important to the Digby Neck economy, both rely heavily on natural capital, and the goods and services provided by this natural capital. Fishing depends upon the services provided by complex ecosystems, and of course it depends upon the health of the goods nourished within these ecosystems: namely fish. Tourism also relies heavily on natural capital. One of its mainstays is aesthetics – something that doesn't show up anywhere in our conventional accounting systems as a big contributor to the GDP. So any depreciation of natural capital will also have ripple effects on these other major industries, that have long been a mainstay of the Digby community.

Social Capital/Community

It's at the level of community that the rubber hits the road in terms of quality of life. Communities know if their quality of life is improving or not. They also know that conventional economic growth measures do not tell the whole story. The proponent of this project described the local community as a "community in decline." But this is being defined in very narrow conventional terms. Has the value of unpaid voluntary work, for example, been factored into the estimation of community vitality? Our conventional economic accounts do not value or measure voluntary work or its contribution to our wellbeing, standard of living, or quality of life. In 2003, GPI released the third update of its original 1998 study on the Economic Value of Civic and Voluntary work in Atlantic Canada and found that when both formal and informal voluntary work are both considered, volunteers contribute the equivalent of nearly \$2 billion / year in Nova Scotia. As I said, this massive contribution is not counted and therefore remains invisible in our conventional measures of progress. Any assessment of a community's strength or vitality must consider the value of unpaid voluntary work instead of simply describing the community as "in decline."

The proponent says that a number of jobs (I believe they say 34) will be provided. But the quantity of jobs isn't the only measure of employment considered in the Genuine Progress Index, which also puts a value on the *quality* of those jobs: are they safe, well paying, providing benefits and security? Are the jobs sustainable, or are they dependent on yet another boom and bust industry? Do the jobs contribute to positive human development and quality of life? Are the jobs socially and environmentally benign or are they damaging to communities and natural environments? Can they be filled with those in the community who are looking for work or will workers be brought into the community? Will the quarry jobs be at the expense of other jobs in the community?

Human Impacts on the Environment

In 2001 GPI Atlantic released its Greenhouse Gas Accounts for Nova Scotia and in 2006 released its Transportation Accounts, both of which – among other indicators – looked at GHG emissions in Nova Scotia. In Atlantic Canada the chief impacts of climate change are predicted by Environment Canada to include sea level rise, drought, extreme weather events and changes in rainfall, all of which can have an adverse impact on our social infrastructure, tourism, fisheries, forestry, agriculture, ecosystems, and water resources. The mid-range marginal damage cost estimate used in the GPI Transportation Report was \$159 per tonne of CO₂ (in 2002 dollars). This cost figure represents the mean of 103 cost estimates reviewed in a well-known 2004 study by a leading German climate change economist, Richard Tol. Again, I need to reiterate that it is a mid-range figure, and that in the scientific literature on this subject there are much higher estimates of the costs associated with climate change – based on more catastrophic predicted impacts. If we were to apply this more conservative mid-range cost to the carbon dioxide production during various stages of quarry operations at White's Point— which the proponent estimates will be 81,766 tonnes per year—then the mid-range cost would be \$13 million per year, which alone exceeds the quarry's annual contribution to GDP for NS by \$7 million. Have the economic costs of the quarry's greenhouse gas emissions been properly considered by the proponent?

Full-cost Accounting

A full-cost accounting analysis of this proposed quarry and marine terminal would involve three related processes:

1. the valuation of non-market goods and services – that is, attaching an economic value to the rich biological diversity, clean water, healthy societies, and other economic, social, and environment factors that would be affected by the proposed quarry. We touched on this earlier. As crass as putting a dollar value on these vital services seems, it is a necessary step so that these intrinsically valuable, and often priceless, values register in our accounting system. Up to now they have been invisible.
2. the internalization of external costs, so that the proponent pays for these environmental and social costs of production, rather than transferring the burden to future generations.
3. and the replacement of fixed costs with variable costs, so that actual usage or impact on the environment is considered and so that conservation is rewarded and waste is penalized.

What is the value of the coastal ecosystem based on the goods and services it provides? A full-cost accounting would also have to consider the value of all the interrelated life that exists in the marine and coastal ecosystems, not just the value of those species that are currently of commercial value.

Precautionary Principle

The Genuine Progress Index is also firmly committed to the use of the precautionary principle, which flows directly from the underlying principle of sustainability. It has also been widely accepted provincially, nationally, and internationally as the correct way to deal with scientific uncertainty. The precautionary principle is enshrined in Nova Scotia's Environment Act and holds that scientific uncertainty must not be a cause for inaction when there is a potential for serious environmental damage. In the case of this proposed quarry, there are many effects we simply do not know and cannot predict. For example, currently there isn't very much scientific data available to accurately predetermine the underwater acoustic impact from any anthropogenic source on whales – in this case the blasting. In other words, we don't know enough about how underwater noises will affect a right whale's physiology or its behaviour. Therefore, it is not possible to mitigate against impacts in the absence of reliable data on safe thresholds. Clearly the precautionary principle must be employed in this case so that this highly endangered species is properly protected.

Of course, there are bound to be some local benefits from any development. But these benefits need to be weighed against their costs and their impact on a full range of economic, social, and environmental values. Therefore, we recommend that this proposed quarry and marine terminal undergo a full-cost accounting analysis in order to address its full impacts on the natural and the human environments.

Thank you very much for taking these comments into account.