

Welcome to GPI News #2: September, 2000

Dear Friend of GPI,

Welcome to the second newsletter of GPI Atlantic, a non-profit research group that is constructing an index of well-being and sustainable development. This Genuine Progress Index (GPI) consists of 20 social, economic and environmental components that can give a more accurate, comprehensive and humane picture of well-being than current measures based on economic growth statistics.

The GPI includes natural resource accounts, and measures of population health, livelihood security, educational attainment, unpaid work, and environmental quality; and it counts as "costs" some activities that contribute to economic growth -- like, crime, pollution, sickness, accidents and greenhouse gas emissions. For more details on the GPI and why we need a new index, please see *GPI News #1* on the GPI web site at www.gpiatlantic.org.

Our first two newsletters are complimentary and are available in PDF format on our web site. We hope they'll encourage you to become subscribers and to help fund the ongoing research required to develop the index, and to apply it to the policy arena. What we count and measure literally reflects our values as a society and determines what makes it onto the policy agenda. By supporting the development of new and better measures of progress, you are helping shape the policy priorities of the 21st century.

- Individual and non-profit organization - annual membership: \$95
- Corporate and government - annual membership: \$190
- Special student "back-to-school" membership offer: \$45 (until November 15 only)

Members receive 8 issues of the GPI newsletter, and are also entitled to a 25% discount on all GPI publications (see web site for publications list). You can subscribe on-line at: www.gpiatlantic.org, or by sending a cheque to GPI Atlantic, Box 489, RR#1, Tantallon, N.S. B0J 3J0, Canada. This newsletter will keep members posted on the latest GPI results, research findings and policy applications of the GPI.

As a non-profit group, we depend on member support for our work. We are delighted to send this newsletter your way, and we welcome your suggestions and opinions.

Yours sincerely,
 Ronald Colman, Ph.D,
 Director, GPI Atlantic

IN THIS ISSUE:

- Current GPI News, Activities, Latest Results, and Pending Releases..... 2
- The Value of Water: Canada's First Comprehensive Water Quality Account.....8
- Cleaning 200 Years of Pollution: Applying the GPI to Policy..... 12
- Measuring Population Health: Exposing a Hidden Epidemic..... 14
- "GPI Atlantic Offers Overdue Measures," reprinted from *Halifax Daily News*, July 30... 18

GPI NEWS Vol. 1, No. 2, September, 2000

Current GPI News, Activities, Latest Results, and Pending Releases

First GPI Natural Resource Account Released

On July 27, 2000, GPI Atlantic released the first ever assessment in Canada of the full value of a province's water resources. The 243-page study, by GPI researcher Sara Wilson, M.Sc, demonstrated that Nova Scotia's rivers, lakes, wetlands and coastal waters provide an estimated \$11.2 billion worth of benefits to Nova Scotians annually. The report also detailed the damage costs of water quality decline, and of defensive expenditures and restoration costs required to maintain and improve water quality.

The Walkerton, Ontario, tragedy is a timely reminder of the potentially disastrous and costly consequences of water quality decline, and of the necessity of tracking the health of our ecosystems and thus their ability to provide vital ecosystem services and natural resources. Current accounting methods give no value to our natural capital wealth, and actually count its depletion as gain. The more trees we cut down and the more fish we sell, the faster the economy and the gross domestic product (GDP) grow, which in turn is interpreted as a sign of prosperity.

The GPI water quality study received front-page news coverage in Nova Scotia, as well as extensive TV and radio coverage, and was featured in the Gallon Environmental Newsletter, September, 2000. It aroused particular interest among groups like the Atlantic Salmon Federation and the Sackville River Association, which can use the data in their own efforts to restore water quality.

The GPI water quality accounts provide a framework and template for any other province that wishes to track the health of its water resources, and are the first in a series of natural resource accounts to be released in the coming months. See the more detailed article following and order the full report on the GPI web site at www.gpiatlantic.org

Clean-up Pays: GPI Details Benefits of Cleaning Halifax Harbour

The GPI is not just a macro-measurement of societal well-being and sustainable development. It can also provide a practical guide to particular policies and investment decisions. The GPI "full-cost accounting" methods can help policy-makers identify policy options that will produce long-term social and environmental benefits, rather than costs that future generations will bear.

Canada's worst toxic waste site, the Sydney Tar Ponds, is a graphic example of the unaccounted environmental costs that were ignored in assessing the economic benefits of Sydney Steel. These costs were never included in the price of steel, and are now being borne in health and clean-up costs. By contrast, a 63-page GPI study demonstrated that a

\$315 million investment for a cleaner Halifax Harbour could yield \$1.4 billion in long-term benefits when impacts on tourism, property values, shellfish harvesting, labour income, taxes, environmental quality, marine ecosystem services and other factors are all included.

The GPI Halifax Harbour study, authored by Sara Wilson and released on July 5, 2000, can be ordered separately on the GPI web site at www.gpiatlantic.org and is also attached as a Case Study Appendix to the GPI Water Quality Accounts. The results received front-page newspaper coverage in Nova Scotia, and were featured on CBC's popular *Mainstreet* show. See also the more detailed article following.

Greenhouse Gas, Ecological Footprint, Forest, and Soils Releases Pending

Three more GPI natural resource and environmental accounts have been completed, and are currently going through final review and revision. Watch the GPI web site and the next newsletter for more information. Three Environment Canada experts are currently completing reviews of the GPI Greenhouse Gas Account (authored by Dr. Sally Walker), which is slated for public release in the second week of October. The Ecological Footprint analysis, the GPI Forest Accounts, and the first section of the Soils and Agriculture Accounts will also be released in October and November.

"Cost of Tobacco" at Cancer Care Nova Scotia Conference

On October 20, GPI Atlantic will release its third population health study at a Cancer Care Nova Scotia conference in Sydney, Cape Breton. The *Cost of Tobacco* study will not only detail costs to the health care system, society and the economy, but will also include cost-benefit analyses of specific interventions, including tobacco tax increases, school-based education programs, and counseling to pregnant women. Life-time benefits of smoking cessation will also be detailed, along with assessments of the costs of second-hand smoke. See next newsletter and the GPI web site for details.

Ongoing Work

GPI researchers are currently continuing their work on other GPI components: Income Distribution (Colin Dodds, MA), Air Quality (Anne Monette, MES), Sustainable Transportation (Dr. Larry Hughes and David Caulfield), Marine Environment/Fisheries (Dr. Tony Charles), and Soils and Agriculture (Jennifer Scott, MES). Earlier GPI reports on the economic value of voluntary work, the economic value of unpaid household work, the cost of crime, the cost of obesity, women's health, and other issues are all available on the GPI web site at www.gpiatlantic.org. Brief biographies of GPI researchers are included in the GPI Atlantic profile on the web site.

GPI Atlantic on National Round Table Indicators Committee

GPI Atlantic has been asked to join the new Sustainable Development Indicators Initiative steering committee of the National Round Table on the Environment and the Economy. The first meeting is in Ottawa on October 2. For the first time, the federal government has mandated the establishment of national indicators that integrate environmental and economic realities. The new committee will guide this important initiative.

GPI Atlantic at International Climate Change Workshop

GPI Atlantic Director, Ronald Colman, will present a paper on *Accounting for Climate Change in Measures of Progress* at an international workshop on Costing Climate Change Impacts, at the University of British Columbia in Vancouver, September 27 - 29, 2000. A presentation overview is available in the "articles" section of the GPI web site at www.gpiatlantic.org.

Other workshop presenters include Dr. Ferenc Toth, Potsdam Institute for Climate Impact Research; Dr. Clive Spash, Director, Cambridge Research for the Environment, University of Cambridge; Dr Christopher Green, Professor of Economics, McGill University; Dr. Tomasz Zylicz, Professor of Economics, University of Warsaw; Dr. Peter Bein, Adaptation and Impacts Research Group, Environment Canada; Dr. Richard Tol, Professor at Hamburg, Vrije and Carnegie Mellon Universities; and Dr. David Schindler, Professor of Ecology, University of Alberta.

For workshop outcomes, please contact: Tanuja Kulkarni (tanuja@sdri.ubc.ca), Adaptation and Impacts Research Group, Meteorological Service of Canada, Environment Canada, c/o Sustainable Development Research Institute, University of British Columbia, Vancouver, BC, Canada V6T 1Z4.

GPI Atlantic presents Ecological Footprint at International Coastal Zone Conference

GPI Atlantic researcher, Jeffrey Wilson, presented two *Ecological Footprint* workshops at the international Coastal Zone Youth Forum in Saint John, New Brunswick on September 16th and 17th, 2000. The GPI workshop led participants through a detailed hands-on exercise to demonstrate how individuals, households, communities and countries can calculate their ecological footprint and use the results to reduce their impact on the environment. Participants found their ecological footprints averaged 5.2 hectares a person, 34% less than the Canadian average, but nearly three times the global average.

GPI Atlantic researcher Anne Monette also presented her MES thesis work at the full Coastal Zone Canada 2000 conference, September 18-21, and displayed the GPI natural resource poster exhibit that had already aroused interest at the EcoSummit in Halifax on June 18-22.

Other GPI Presentations

Other recent and upcoming GPI Atlantic papers, presentations and workshops include:

- Canadian Mental Health Association annual national conference, St. Johns, Newfoundland, August 11, 2000, on *Measuring Well-being* (discussant: John McKnight).
- Health Promotion Learning Retreat, sponsored by Sharing Strengths and Western Region Heart Health Partnership, August 25, 2000, Digby, Nova Scotia, on *Valuing Voluntary Work in the GPI*.
- N.S. Government inter-departmental working group on the province's new economic growth strategy, World Trade and Convention Centre, Halifax, August 31, 2000. (This GPI presentation recommended the incorporation of criteria of sustainability, well-being and health into the new plan, and a name change for the strategy from "economic growth" to "economic development.")
- N.S. Government steering committee (inter-departmental) and advisory group (including NGOs) on next State of the Environment report, Halifax, September 14, 2000. Discussion on potential for incorporation of GPI results into the next NS State of the Environment report.

Upcoming:

- Canadian Environmental Network Annual General Assembly, Kespuwick, Nova Scotia, September 30, 2000, presentations to Forest and Ecological Economics caucuses.
- Atlantic Seniors Health Promotion Network, "Shifting Sands: The Changing Shape of Atlantic Canada: Economic and Demographic Trends and their Impacts on Seniors," regional conference, including Health Canada and Health Department officials from the four Atlantic provinces, Cambridge Suites, Halifax; GPI presentation 9am, October 6, 2000.
- East Cape Breton Community Health Board, Glace Bay, October 17, 7pm, on the Glace Bay Community GPI.
- Cancer Care Nova Scotia conference, Sydney, Cape Breton, October 20, 2000, on *The Cost of Tobacco in Nova Scotia*.
- Solar Energy Society of Canada (SESCI) annual conference, "Rise and Shine 2000", October 22, 2000, 8.30am, opening plenary address, Lord Nelson Hotel, Halifax, Nova Scotia.
- Health, Work and Wellbeing Conference, Westin Hotel, Toronto, opening plenary presentation on GPI: Monday October 23, 8.15-9.45am, *Economics as if People Mattered: Towards a Moral Economy Based on Human Values*; and workshop, Tuesday October 24, 10.15am - 11.45am, on *Work and Life: Balancing Paid Work, Unpaid Work and Free Time*. (Presentation briefs are in "Articles/Press Releases" section on the GPI web site at www.gpiatlantic.org.)
- Tourism Industry Association of Nova Scotia annual conference, "Ensuring the Future: the Business of Tourism," Halifax, N.S., November 6-7, 2000, presentation on *Tourism and the Environment*.

- Recreation Nova Scotia annual conference, Greenwood, Annapolis Valley, November 18, 2000, presentation on trends in physical exercise, healthy weights and voluntary work in Nova Scotia; and Awards Banquet keynote address.
- St. Mary's University and Atlantic CED Institute, Community Economic Development diploma course: Two-day GPI module, Halifax, December 7-9, 2000.

Other GPI Atlantic Contributions

GPI Atlantic has also recently served in an advisory capacity in the following initiatives:

- Heritage Canada national social cohesion indicators round-table, Ottawa, June 26-27, 2000.
- Evaluation of McGill-McConnell training program for leaders of the National Voluntary Sector, Montreal, July 20, 2000.
- Canadian Policy Research Networks Quality of Life Indicators Project, Ottawa, July, 2000.
- N.S. Voluntary Planning Agency: Development of Indicators of Life-Long Learning, September, 2000.

Upcoming:

- National Round Table on the Environment and the Economy, Sustainable Development Indicators Initiative steering committee, Ottawa, October 2, 2000.
- Health Canada indicators working group full day workshop, Ottawa, October 3, 2000.
- National Round Table on the Environment and the Economy, Ottawa, November 16-17, indicators workshop for stakeholders.

GPI Atlantic work is being featured in:

- Canadian Treasury Board's annual report to Parliament, *Managing for Results*.
- Environment Canada's State of the Environment Report on sewage treatment: full page text box on GPI Halifax Harbour study.
- Full page commentary by columnist Parker Barss Donham, on GPI in Halifax *Sunday Daily News*, 30 July, 2000, entitled: "GPI Atlantic Offers Overdue Measures."
- University of British Columbia MBA core course work (GPI Atlantic materials used).

Pembina Institute Launches Alberta GPI

The Pembina Institute for Sustainable Development has started work on an Alberta GPI to produce an accounting framework that will monitor long-term trends (1960 to 2000) in the overall well-being of Alberta's households and the environment. The Pembina approach will build on the original U.S. GPI work to construct a 'balance sheet' and an 'income statement' for human, social, environmental and economic capital, which can produce a single "bottom line" expressed in monetary terms. While this differs from the GPI Atlantic approach (which does not aim for a single monetary "bottom line"), it shares the same goal of incorporating social and environmental factors into the economic accounting mechanism. Two GPI Atlantic researchers, Sara Wilson and Jeff Wilson, will join the Pembina team in this effort, and we look forward to a fruitful cooperation.

GPI Atlantic to Host Newfoundland Community Indicator Presentation

Newfoundland's Director of Statistics, Alton Hollett, and Memorial University's Doug May will soon visit Nova Scotia to present their unique and outstanding community indicators framework, part of the province's "Social Audit" and "Strategic Social Plan." Newfoundland has gone further than any other province in developing indicators of well-being at the local and community level, and is now interested in incorporating some GPI indicators in this work. We look forward to this emerging and deepening cooperation.

The Value of Water: Canada's First Full Water Quality Account

Results show:

- **Water provides \$11.2 billion/year in benefits to Nova Scotia;**
- **Nova Scotia drinking water is improving; while**
- **Nova Scotia rivers, lakes, wetlands and coastal waters are in decline.**

GPI Atlantic's first natural resource account, authored by Sara Wilson, M.Sc and released on July 27, shows that more Nova Scotians have clean and healthy drinking water than they did 15 years ago, but the quality of the province's rivers, lakes and coastal waters has declined. The province's water resources provide a wealth of benefits to Nova Scotia worth more than \$11 billion a year, including drinking and industrial water supply, recreation, waste treatment, food production, nutrient cycling, erosion control, and other vital ecosystem services.

The 243-page study marks the first ever assessment in Canada of the ecological, social and economic value of a province's water resources, and pulls together vast quantities of published and unpublished information from a wide range of federal, provincial and municipal sources.¹ The GPI water quality study, one of 20 components of the Nova Scotia Genuine Progress Index, is the first in a series of natural resource accounts to be released in the coming months by GPI Atlantic.

According to report author, Sara Wilson, "the GDP and other market statistics send the wrong message to policy-makers and the public about the health of our environment, because they count the depletion of natural capital as economic gain. The more trees, water and fish we consume, the faster the economy grows. The more pollution we have and the more we spend on clean-up, the more the GDP will grow. By contrast, the GPI shows that our ecosystems or natural capital provide enormous value to society and the economy, and that we have to use them responsibly if we want to benefit the economy and future generations."

The study found a 3.2 percentage point improvement from 1987 to 1998 in municipal water samples that were free from coliform bacteria; a 29% improvement in the percentage of Nova Scotia's population with drinking water conforming to national health guidelines; and a 16.7% improvement in water complying with aesthetic objectives. Two municipal water supplies still have lead above the maximum acceptable concentration, and 3% of municipal water samples showed the presence of coliform bacteria that could cause health problems.

¹ Databases and information in GPI Water study are from: Environment Canada, Department of Fisheries and Oceans, Statistics Canada, Health Canada, NS Department of Environment, NS Department of Natural Resources, NS Department of Transportation and Public Works, NS Department of Municipal Affairs, Halifax Regional Municipality, Halifax Regional Water Commission, Soil and Conservation Society of Metro Halifax, North American Commission for Environmental Cooperation, and a variety of academic and independent research studies.

Bottled Water is "Better" for the Economy than Free Tap Water

Still, more than one third of Nova Scotians don't trust their drinking water and spend an estimated \$265 a year per household on bottled water and water filtration systems, injecting \$32.8 million a year into the provincial economy. "Unlike measures of progress based on the GDP, in which 'more' is always 'better,' this is a clear case where less spending is a better and more accurate indicator of progress," says Sara Wilson. "Bottled water sales contribute to the GDP and to economic growth statistics, and are therefore conventionally interpreted as a sign of 'prosperity' and 'progress.' But if everyone trusted their drinking water, people could save a lot of money." The GPI approach here parallels that in the earlier *Cost of Crime* report (see *GPI News #1*), in which spending on burglar alarms is similarly counted as a "regrettable" or "defensive" expenditure.

But while drinking water quality may have improved, the province's wetlands, rivers, lakes, and coastal waters are in decline, causing hidden damage to the economy, and threatening the well-being of future generations. Nova Scotia's rivers have suffered more from acid rain than any other province, and only 20% of the province's former salmon rivers still have healthy fish stocks. Atlantic salmon are extinct in 22% of Nova Scotia's rivers, 31% have only "remnant" populations, and another 25% have depleted stocks. In 1999, only 22 of Nova Scotia's 72 salmon rivers were still open to recreational salmon angling.

Since 1985, the number of brook trout caught in the province has dropped by half, likely because of previous over-fishing, acid rain, and sedimentation of stream beds due to logging, agriculture and development. The GPI report estimated a loss to Nova Scotia of \$22 million over 10 years due to the decline in recreational fishing. As well, the closing of the commercial salmon fishery has cost the federal government another \$1 million to buy back licenses.

Along the coast, the number of shellfish closures, due mostly to bacteriological contamination, has more than doubled in the last 15 years, at an annual estimated cost of \$8 million a year in lost revenues. In the last four years alone, the closed shellfish area has increased by 38%.

Halifax area lakes are faring no better, with nearly one-quarter "aging" rapidly due to high concentrations of phosphorus, nitrogen and other nutrients that come from fertilizer run-off, and from households, agriculture and forestry. Four Halifax area lakes are already classified as "eutrophic," meaning that nutrient levels are so high that dissolved oxygen levels have been significantly reduced, and another seven are "mesotrophic," with intermediate levels of nutrients and oxygen. When oxygen is depleted, species diversity declines, fish development and reproduction declines, and ecosystem productivity declines. As oxygen depletion levels increase, fish and other aquatic organisms die.

The Value of Wetlands -- Losses are Costly

But the highest costs are the most hidden ones, with wetland loss due to development costing Nova Scotia an estimated \$2.3 billion a year in lost ecological services.

"Wetlands are among the most productive ecosystems in the world," says Sara Wilson. "They perform a host of incredibly valuable functions, including waste and nutrient cycling; protection against erosion, floods and storms; water purification; food production; and are one of the richest known wildlife habitats and an essential link in the food chain."

"If we lose the benefits of natural, functioning ecosystems, not only do we lose habitat and species diversity, we also have to cope with the loss in ecosystem services by investing in expensive waste treatment and water purification plants, and engineering projects to control erosion and flood damage. Currently the loss of wetland services is invisible in our economic accounts, and we count the cost of expenditures to compensate for these lost services as a gain to the economy. This is bad accounting. We have to recognize, appreciate and *value* nature's vital and irreplaceable life-support services."

The GPI report notes that Nova Scotia has lost 62% of its saltwater wetlands and 17% of its freshwater wetlands since colonization, and it urges immediate conservation measures to prevent further loss.

The GPI report also estimates that Nova Scotia's uncut forested watersheds provide \$2,750 per hectare in services per year protecting water supply, -- filtering and intercepting water, controlling run-off, and removing air pollutants. The estimate is based on what it would cost to replace those services with man-made water filtration plants and storm-water retention systems if the forests were clear-cut.

One "good news" piece in the GPI report is a significant reduction in contaminants in pulp and paper mill effluent as a result of federal government regulations implemented in 1992, with all five major Nova Scotia mills now averaging 99% compliance with federal standards. The GPI report recommends further regulation including lowering acceptable carbon dioxide levels below 100 mg/litre using aeration or pH adjustment, in order to reduce contaminants that still cause stress to fish.

Investing in Natural Capital

The GPI study also details the value of Nova Scotia's water resources for recreation (\$150 million a year); investments needed for improvements in wastewater disposal (\$532 million) and municipal water supply upgrades (\$136 million); water pollution abatement and control expenditures (\$180 million); contaminated well claims (\$548,000 a year); and a range of other water resource values and pollution costs.

The GPI report has 15 recommendations to the province to protect and conserve the value of Nova Scotia's fresh water and coastal ecosystems, including greater source control to reduce toxic discharges to harbours, rivers and lakes; investments in wetland restoration, watershed protection, sewage and water supply upgrades, and salmon habitat restoration; and the explicit recognition of water resource values and pollution costs in the province's core economic accounts.

"At a time of budget cuts, we need to keep in mind the necessary investments to maintain our freshwater and coastal ecosystems upon which we rely for resources," says Sara Wilson. "If water ecosystem values are not protected, and if adequate investment in sewage treatment, pollution control and conservation are not made, then damage costs and water intake costs will definitely increase, and we'll have to pay much more in the future."

The GPI report notes that, following earlier cuts, the provincial Department of Environment has had its 2000-2001 slashed by 16% to \$13.1 million from \$15.6 million the previous year, making essential inspection, monitoring and enforcement more difficult. The GPI report contains a section entitled "The Lessons of Walkerton," detailing the costs of inadequate monitoring and enforcement of drinking water quality, and warning that "disinvestment in environmental protection produces major costs to society and the economy."

The GPI Water Quality Account is the first in a suite of GPI natural resource accounts to be released later this year, on which GPI Atlantic researchers have been working for more than two years. In the coming months, GPI Atlantic will release its greenhouse gas account for Nova Scotia; an ecological footprint analysis for the province; natural capital accounts for forests, marine environment and fisheries, and soils and agriculture; an air quality component, and a full-cost accounting analysis of different modes of transportation in Nova Scotia.

GPI reports to date have focused on social components of the Genuine Progress Index, including the value of voluntary work, the value of unpaid household work, the cost of crime in Nova Scotia, and several population health indicators. Work is also currently proceeding on other social and economic indicators in the GPI.

Funding for the GPI Water Quality Account was provided by Environment Canada, Halifax Regional Municipality, the Halifax Regional Water Commission, and through member contributions, with in-kind support from the Nova Scotia Department of Environment and the Clean Nova Scotia Foundation.

The full GPI Water Quality Account (243 pages) can be ordered on the GPI web site at www.gpiatlantic.org. Members and GPI News subscribers receive a 25% discount on all GPI publications. The study includes a case study demonstrating a micro-level application of the GPI approach (see next page).

Cleaning 200 Years of Pollution: Applying the GPI to Policy

GPI Halifax Harbour Study Demonstrates Policy Relevance of "Full-Cost Accounting" Approach

GPI Atlantic's case study of the proposed sewage treatment plants for Halifax Harbour (Sara Wilson, 63 pages, July 5, 2000), demonstrates the practical utility of the GPI full-cost accounting approach for policy makers evaluating specific investment options. Conventional cost-benefit analyses ignore long-term social and environmental benefits and costs, regarding these as "externalities." By contrast, the GPI analysis found that a cleaner harbour can produce net benefits worth up to \$1.4 billion over 60 years when impacts on tourism, property values, shellfish harvesting, labour income, taxes, environmental quality, marine ecosystem services, and other social, economic and environmental factors are considered.

An upcoming Environment Canada State of the Environment report contains a full-page text box summarizing results from the GPI Atlantic study. Thanks go to Kelly Macdonald, former GPI Atlantic researcher now with Environment Canada, who initiated the Halifax Harbour research and now plays a very helpful role in communicating GPI results to Environment Canada staff. Here are some results from the study:

Halifax Harbour, home to the largest urban population in the Atlantic region, has long been plagued by poor water quality and contaminated sediments from disposal of untreated municipal wastewater effluents. Every day, 187 million litres of untreated sewage are discharged into the Harbour, seriously impacting the harbour's ecosystem and aesthetic appeal, urban recreation and commercial value, and the quality of life of residents.

Fortunately, there are now plans for four wastewater treatment plants in the Harbour, that will cost \$315 million to build over ten years, followed by an operating cost of about \$8.8 million per year. If combined with source control, the ensuing improvements in water quality and aesthetics would result in:

- Reduced health risks from pathogenic micro-organisms;
- Enhanced habitat quality and increased likelihood that the harbour will support healthy wildlife populations, such as lobster, mussels and winter flounder;
- Protection of the current \$1 million a year lobster fishery and reopening of 30 to 50% of the clam and mussel fishery (\$0.23 to 0.38 million a year);
- Increased property value of 5 to 10% (or \$116 to 233 million);
- Increased tourism revenue of 2 to 3% (or \$478 to 717 million);
- Restoration of the harbour ecosystem's capacity for decomposing nutrients from wastewater effluents (\$58.1 million, based on engineering replacement cost value). Over 200 years of untreated waste discharges have now compromised the harbour's capacity to assimilate further wastes by depleting the biological oxygen in the water that naturally decomposes wastes.

- Aesthetic improvements in the downtown waterfront area, the re-opening of affected Halifax beaches, and projected increases in water-based recreational activity, including water tours and cruises, sailing, windsurfing, and canoe rentals. Beaches are currently closed periodically due to bacteriological contamination, and windsurfing competitions in Halifax Harbour have been discontinued due to the risk of water-borne illness.

"Cost" or "Investment?" -- Clean Water Pays

The GPI study based all cost estimates on actual results from previous harbour clean-up efforts in Hamilton, Boston, Rhode Island, Washington State, and San Francisco. It provides high, middle and low range estimates for all projected benefits and costs, with three alternative discount rates (0%, 4%, and 8%), to estimate the net present value of a cleaner harbour, and to assess whether the sewage treatment plants will "pay off" in the long run.

Conventional current income accounting mechanisms register the proposed \$315 million expenditure on sewage as a "cost." From the perspective of the Genuine Progress Index, it is an "investment" with a high rate of return. Cumulative benefits over the anticipated life-span of the sewage treatment plants exceed construction and operating costs by up to \$1.4 billion using a zero discount rate. Even with an 8% discount rate and the most conservative low-end benefit estimates, benefits will still exceed costs by more than \$38 million.

Although the proposed "advanced primary treatment plants" are not expected to remove all the contaminants from the municipal wastewater, significant reductions in suspended solids, oxygen consuming material, bacterial contaminants, and nutrients should result. In addition to this treatment plan, the GPI report recommends strong source control programs, including education, legislation and enforcement directed at households, industrial and commercial operations. These programs would limit or ban the discharge of many toxic contaminants in the sewer systems, thereby reducing water and wastewater treatment costs and potential future clean-up costs.

The full GPI Halifax Harbour study (63 pages) can be ordered on the GPI web site at www.gpiatlantic.org. Members receive a 25% discount. Though it can be ordered separately, please note that this case study is also appended to the GPI Water Quality Accounts.

Measuring Population Health: Exposing a Hidden Epidemic²

A Sicker Population Makes our Economy Healthier!

Misusing economic growth rates as a sign of prosperity and well-being distorts policy priorities, masks vital social trends, and keeps critical issues off the policy agenda entirely.

GPI News #1 (page 14), and the GPI reports on the value of voluntary work, noted that the 8.7% nationwide decline in voluntary work in the 1990s (costing Canadians \$4.7 billion in lost services) received no attention from either policy makers or the press. Because the work is unpaid, and therefore excluded from the economic growth statistics, its loss is a "non-issue" in the policy arena. The subtle decline in quality of life, with the old, the sick, the disabled, the abused, and youth in need getting less services and attention over time, is unmeasured, and therefore invisible in the public eye.

An even more grotesque and subtle distortion exists in measures of health and illness. Like crime, pollution, accidents, and greenhouse gas emissions, sickness is "good for the economy." In fact, it is far better for the economy than health, because it is more costly and because sick people spend far more money on doctors, drugs and hospitals. Clean air and water, peaceful communities, and health are much "cheaper" than bottled water, pollution clean-ups, prisons and hospitals, so they have no "value" in our economic growth statistics. Spending is what makes the Gross Domestic Product grow, and GDP growth rates are our primary signals of a "healthy," "prosperous" and "robust" economy, from which we infer that we are "better off" as individuals and as a society.

Given this extraordinary twist -- that a sicker population makes our economy "healthier" - - it is not surprising that our "health" budgets are actually sickness-treatment budgets. Less than 2% of our health budgets are spent on health promotion and disease prevention. Without core measures of well-being to guide policy, critical social trends with serious long-term implications for health and well-being remain invisible, and *obvious* policy measures to improve population health never see the light of day.

This article, adapted from GPI population health reports released this year, gives a graphic example. But an important caveat is necessary before we begin: The purpose of this and similar critiques is not to focus attention on "bad news," or simply to deflate the smug satisfaction that comes with a "boom" economy. Rather, once an actual (and previously hidden) trend is identified and given attention, policy options *naturally* present themselves, and the way forward becomes clear. From that perspective, genuine measures of well-being always and by definition are "good news." The only bad news is ignorance. Population health is a core component of the Genuine Progress Index and GPI reports use Health Canada's "determinants of health" to assess whether we are becoming healthier.

² For full references and citations, and to order the full *GPI Cost of Obesity* report, see the GPI web site at www.gpiatlantic.org

A Hidden Epidemic that Fuels the Economy

Across Canada, rates of overweight have doubled since 1985, from 13% to 29%. The highest obesity rates are in Atlantic Canada, with more than 40% of New Brunswickers overweight to the point of probable health risk. Measures are based on "Body Mass Index" (weight divided by height), with a BMI of 27 or greater conferring significantly higher risks of type 2 diabetes, hypertension, heart disease, stroke, pulmonary embolism, gallbladder disease, some cancers, arthritis, asthma, and a range of other illnesses.

Particularly troubling is the dramatic increase in obesity among teenagers across North America. Harvard University endocrinologist, Dr. JoAnn Manson, concludes:

The evidence is now compelling and irrefutable. Obesity is probably the second-leading preventable cause of death in the United States are cigarette smoking, so it is a very serious problem.

So serious, in fact, that the World Health Organization now refers to obesity as a "global epidemic." According to one estimate, obesity has increased by 400% in the western world in the last 50 years.

For the first time in human history, says the Worldwatch Institute in Washington D.C., the number of "overfed" people in the world now equals the number of "underfed" people, with 1.1 billion in each group. Both groups suffer from "malnutrition," defined as a deficiency or excess in the nutrient intake necessary for health:

The hungry and the overweight share high levels of sickness and disability, shortened life expectancies, and lower levels of productivity -- each of which is a drag on a country's development.

In the United States, one-fifth of U.S. children are now overweight at the same time that a 1998 U.S. Department of Agriculture study found one-fifth of American children to be "food insecure," -- either hungry, on the edge of hunger, or worried about being hungry.

Interestingly, overeating contributes to the economy many times over, beginning with all the excess food grown, transported, warehoused, marketed and sold. The food industry contributes \$US30 billion a year in advertising to the U.S. GDP, more than any other industry, much of promoting the very foods that cause obesity. The fast food industry alone accounts for one-third of food advertising expenditures, and the proportion rises to more than one-half when candy and sweetened breakfast cereals are included. Kelloggs spends \$40 million a year to promote Frosted Flakes alone.

Coca Cola and Macdonalds are two of the top advertising spenders in the world among all industries, and the five Macdonalds restaurants that open daily fuel GDP growth rates throughout the world. Nutritional education budgets pale by comparison; so students effectively get their nutritional education from food industry commercials. In conventional accounting systems, school nutritional educational programs register as "costs" to be cut in ever tighter government budgets. In Europe and North America, fat and sugar now account for more than half of total caloric intake, and calorie-rich junk foods increasingly squeeze healthy items from the diet.

"You've Got to be in Diabetes," say Drug Companies

But the contribution of overeating to the GDP does not stop with the marketing and sale of high-fat foods. Once people are overweight, the diet drug and weight loss industries contribute another \$33 billion a year to the U.S. economy; and if that doesn't work, the medical establishment takes over. Liposuction is today the leading form of cosmetic surgery in the United States, with 400,000 operations a year contributing mightily to that country's GDP. When all else fails, obesity-related illnesses add another \$55 billion annually to the U.S. economy. All that spending, of course, is interpreted as a sign of increasing prosperity and progress.

Here's just one example of how grotesque and perverse that distortion can become. Of all illnesses, adult-onset diabetes is the most closely associated with obesity, with more than 50% of cases attributable to overweight. Given the epidemic increase in obesity since 1985, it is not surprising that the global population with this illness has jumped nearly five-fold from 30 million in 1985 to 143 million in 1998. The average age of diabetics is getting younger, and the global incidence of the disease is expected to double to 300 million by the year 2025 (Worldwatch).

So if you're a drug company, "you've got to be in diabetes" to turn a profit, says James Kappel of Eli Lilly and Co., the \$75 billion pharmaceutical firm that is now building the largest factory dedicated to the production of a single drug in industry history (*Harpers Magazine*, March 2000). That drug is insulin, with Lilly insulin sales totaling \$357 million in the third quarter of 1999 alone, a 24% increase over the previous third quarter. In short, with rates of overweight at epidemic proportions, insulin is clearly a "growth market," and the diabetes "boom" is good for the economy, providing jobs and spurring economic growth.

The Genuine Progress Index, by contrast, counts obesity as a cost rather than a gain to the economy. The GPI *Cost of Obesity* study released this year used relative risk data and provincial obesity rates to determine the "population attributable fraction" due to obesity of ten diseases in Nova Scotia, using methods in the *Canadian Medical Association Journal*, (23 February, 1999: 160, 4). The study found that obesity costs the provincial health care system \$120 million per year in direct costs, mostly for doctors, drugs and hospitals. When indirect costs of productivity losses are included, the cost increases to more than \$250 million per year. It is estimated that 1,000 Nova Scotians die unnecessarily each year due to obesity, resulting in 4,000 potential years of life lost.

Turning Round the Epidemic

The first and most basic requirement to turn around the obesity epidemic and its serious health consequences, is quite simply to count and measure our progress in doing so. We will never focus on the right issues, establish appropriate goals and targets, and keep track of our success in reducing obesity if we keep relying on economic growth statistics as our core measures of progress. These measures will continue to send all the wrong

signals to policy makers, and continue to hide the issue. We have to include population health measures explicitly in our core measures of progress.

Once we count obesity explicitly as a cost, a wide range of policy options presents itself naturally. It becomes clear that junk food, physical inactivity, and rising stress rates are as toxic and costly as tobacco. Since the health impacts of obesity and high-fat junk food are comparable to those of tobacco, we might label food packages with health warnings the way that cigarettes are now labeled: "Warning - high saturated fat content: Consuming this food can lead to heart attack, cancer, diabetes and early death."

A society determined to improve population health and reverse the obesity epidemic will treat toxic food advertisements the way it now treats cigarette advertisements, and counter industry marketing with a determined nutritional education campaign no less resourceful than that devoted to anti-tobacco education. Yale University nutritionist Kelly Brownell proposes a tax on food inversely proportional to nutrient value per calorie. Fatty, sugary foods poor in nutrients and high in calories would be taxed at the highest rates, while fruits, vegetables and whole grains would be tax-exempt. Toxic food tax revenues could be dedicated to nutritional and physical education, just as tobacco taxes fund anti-smoking campaigns.

Worldwatch researchers Gary Gardner and Brian Halweil found a range of positive policy options. Finland has dramatically reduced its high heart disease death rate through a concerted nutrition media and education campaign, new dietary guidelines, and strict food labeling requirements. High salt processed foods carry clear warning labels -- "heavily salted." Singapore reduced child obesity rates by 33%-50% through a school nutritional and physical education program, the "Trim and Fit Scheme." Schools in Berkeley, California, have vegetable gardens to teach students about food and nutrition, and mandate the serving of organic lunches.

Without waiting for government to act, schools and hospitals can decide to restrict fast food franchises on their premises, and instead to base food service contracts on food quality and nutritional content. Only 23% of medical schools currently require a separate nutrition course. Instead of dealing only with disease consequences, health professionals could receive better diet and nutritional training. In short, once attention is brought to bear on this hidden issue, there is no shortage of potential remedies.

The GPI report also draws attention to deeper societal trends. For example, longer work hours and higher rates of time stress have led to higher rates of fast food consumption. Nova Scotians spent 30% less time in their kitchens in 1998 than in 1992, a decline of 30% in just six years. A Harvard University longitudinal study found that children who eat at home often have healthier outcomes into adulthood than children who eat out a lot. But the first and most basic step to reversing the obesity epidemic is simply to measure our efforts in doing so explicitly and regularly. The sooner we abandon the misuse of the GDP as a measure of well-being and count population health in our core measures of progress, the sooner a healthy weights campaign will get the policy attention it deserves.

The following full-page commentary by Parker Barss Donham appeared in the *Sunday Daily News*, Halifax, 30 July 2000:

GPI ATLANTIC OFFERS OVERDUE MEASURES:

Halifax Research Group Introduces Better Way to Assess our Resources, Well-Being

A Halifax research group reported last week that the quality of Nova Scotia's drinking water is improving even as our rivers, lakes, and wetlands are degrading.

Yawn. A mundane, unsurprising conclusion about a resource so commonplace we all take it for granted.

Except that the 230-page study by GPI Atlantic, first in a series of natural resource accounts the nonprofit group plans to release this year, poses a fundamental challenge to the way our society makes decisions.

GPI stands for Genuine Progress Index, a name intended to contrast with Gross Domestic Product or GDP, the index by which governments traditionally measure economic progress.

GDP -- the old measure -- represents the total of all goods and services produced in a given country, province, or region. Originally designed to track strategic production in wartime, it remains a familiar tool for gauging economic activity.

Because it is so simple and familiar, the GDP tends to get pressed into service as a broad measure of social progress and well-being, tasks for which it is not just ill-suited but misleading.

The GDP is valueless. It makes no distinction between a dollar spent on a Lennie Gallant CD or a dollar spent repairing a window smashed by vandals. It includes a variety of expenditures defending against, or mopping up after, events that could hardly be considered marks of progress or well-being -- things like crime, pollution, and disease.

Sydney Steel's notorious coke ovens boosted the GDP once while producing the pollution that created the tar ponds, and again when millions were spent in a failed attempt to clean up. If a second cleanup attempt ever gets off the ground, the GDP will register another boost, as it does every time a patient from Whitney Pier enters hospital with pollution-caused cancer.

The GDP places no value on natural resources except while they are being depleted. So it counts any activity that consumes natural resources as a plus, with no accounting for the depleted inventory of that resource.

The GDP has other failings. It counts money spent fighting off disease but places no value on good health. It takes no account of income disparities.

The Genuine Progress Index attempts to create a broader, more accurate measure of social progress and well-being. Nova Scotia is fortunate to have, in GPI Atlantic, the first attempt to create such an index in Canada. In fact, it's the first time discussion of such an index has moved from the realm of academic theory to real-world application.

That turns out to be an immensely complex task. Where the GDP tracks objective data on the production of goods and services, the GPI seeks to account for a series of value-laden concepts like health, environment, and personal security.

"Progress" and "well-being" are subjective terms encompassing many activities and resources that are hard to translate into dollar values. But if you only count things that are easy to count, many important things get left out.

Most of us know this intuitively. Struggling to explain why we choose to live in Nova Scotia, when we might make more money elsewhere, we lapse into fuzzy sounding terms like "quality of life."

The current GPI Atlantic report focuses on water, a perfect example of a resource that only registers on the GDP when it is depleted or degraded.

When the former Liberal government allowed a friend of Environment Minister Michel Samson to mine sand off an Isle Madame beach, the GDP ratcheted upwards. But the eventual loss of the valuable beach in question will not cause a flicker in the GDP.

From a variety of sources, the report inventoried the current state of drinking water supplies, rivers, lakes, and wetlands.

"Wetlands are among the most productive ecosystems in the world," said author Sara Wilson. "They perform a host of incredibly valuable functions, including waste and nutrient cycling; protection against erosion, floods and storms; water purification; food production; and are one of the richest known wildlife habitats and an essential link in the food chain."

The report notes that Nova Scotia has lost 62 percent of its saltwater wetlands, and 17 percent of its freshwater wetlands. Using a conservative estimate of the value of those services, it estimates that these lost wetlands cost Nova Scotia \$2.3 billion per year in lost ecological services.

Ironically, legislative changes over the last ten years have reduced the already meager protection afforded wetlands in Nova Scotia, by fobbing responsibility for them onto municipalities. If we had a Genuine Progress Index in place when those laws were passed, we might have made wiser decisions.

Forthcoming GPI Atlantic reports will include natural capital accounts for forests, fisheries, and soils, and agriculture; a greenhouse gas account; an ecological footprint analysis for the province; an air quality account, and a full-cost accounting analysis of different modes of transportation in Nova Scotia.

Copyright (c) 2000 by Parker Barss Donham. All rights reserved.
(pdonham@fox.nstn.ca) Reprinted with permission.

Closing Note to Friends of GPI: You Can Support What You Value

The way we measure progress can significantly shift the policy agenda from its present purely economic focus to a broader view of well-being and quality of life that reflects our shared aspirations as human beings. If we are to shift course from some of the destructive patterns we currently embrace and to plan a better future for our children, we can begin by counting and valuing what really matters.

As a non-profit group, GPI Atlantic depends entirely on donations and funding support. Most of the GPI research, data collection and analysis, and community development work is provided on a voluntary basis. Your financial support will enable our staff to devote more time and effort to their GPI work.

Donations to GPI Atlantic (Box 489, RR#1, Tantallon, N.S. B0J 3J0, Canada) will be gratefully acknowledged. Please share this first complimentary issue of GPI News with your friends and associates, and encourage subscriptions and memberships (\$95 individual and non-profit, \$190 corporate and government, \$45 student special offer). Members receive future issues of GPI News and a 25% discount on all GPI reports and publications.

Thank you for your support and your interest.

*Ronald Colman, Ph.D
Director, GPI Atlantic*

Visit our Web Site

Please visit our web site at www.gpiatlantic.org and stay in touch with our work. The web site provides:

- free on-line articles, press releases and media clippings on the GPI work;
- a summary of current activities and presentations;
- publication abstracts and ordering information;
- an update of progress on the community GPI;
- a list of our board of directors and researchers;
- membership information.