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MEASURING SUSTAINABLE DEVELOPMENT

APPLICATION OF THE GENUINE PROGRESS INDEX TO ATLANTIC CANADA

THE PRINCE EDWARD ISLAND ECOLOGICAL FOOTPRINT

EXECUTIVE SUMMARY

Prepared for the Province of Prince Edward Island

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Small Province, Big Feet: Prince Edward Island's Ecological Footprint

Development that is "sustainable" requires that:

1) we do not consume more resources than the planet can provide, and that we do not produce more waste than the planet can assimilate;
2) we live in such a way that we meet the needs of the present without compromising the ability of future generations to meet their needs; and
3) we do not consume resources at the expense of others' basic survival and livelihood.

In other words, "sustainable development" requires that we live responsibly and with awareness, so as not to deplete our natural wealth and leave a poorer world for our children and others to inherit.

Measurements of sustainable development generally look at the "supply" side of the equation – whether we are harvesting our fish, logging our forests, and growing our food in sustainable ways. But such measurements put the whole onus for sustainable development on the producer. The "ecological footprint" looks at the "demand" side of the equation and places the responsibility for sustainable development equally on the consumer. The Nova Scotia Genuine Progress Index, a pilot project for Canada that includes 22 environmental, social and economic components, measures sustainable development in both these ways.

How we eat, shop, travel, use energy and build our houses directly affects the environment. Almost everything we do consumes natural resources and produces waste. Our ecological footprint is the amount of space we take up, or the amount of land and sea area it takes to meet our current levels of consumption. It tells us what impact our consumption patterns have on the environment and whether we are exceeding the capacity of the environment to satisfy our wants.

The world has a limited supply of productive land for growing food and timber, limited supplies of fish, finite quantities of oil, gas, metals and other non-renewable resources, and a limited capacity to absorb waste. If we overload the earth's capacities, or use up resources faster than they can replenish themselves, then the natural systems that support life on earth break down.

Living Beyond our Means

Scientists tell us that if we want to survive, we can't use all the world's productive land entirely for our own needs, and they suggest that at least 30% of land needs protection. World leaders have committed to set aside just 12% of our land to protect the millions of other species on the planet, on whom our survival ultimately depends. If we set aside that 12% to protect biodiversity, and divide the remaining 88% of biologically productive area by the current world population, then we have 1.7 hectares (ha) per person to supply all our human needs and assimilate all our waste.

Researchers at Redefining Progress have found that our global resource consumption and waste production required 2.28 hectares per person in 1999. That is the *average* "ecological footprint" of a human being in the world today. In other words, human beings are in a state of "overshoot," depleting resources faster than they can regenerate and producing more waste than the world can handle.

This is like living in debt, with a gradually accumulating ecological deficit. Just as the present generation is paying for over-spending in the 1970s and 1980s with reduced government services, so future generations will inherit the ecological debt of current ecological overshoot. We may have already begun to see its effects in the collapse of Atlantic ground-fish stocks, global climate change, higher child asthma rates, and new environmental illnesses.

But all ecological footprints are not the same size. Thirty-two percent of the world's population consumes 70% of the world's resources, and produces 70% of the world's waste. The average African ecological footprint was just 1.36 ha per person in 1999, and the average North American footprint was 9.61 ha per person in 1999. The richest one-fifth of the world's people consumes 45% of all meat and fish, 58% of all energy and 84% of all paper, and it owns 87% of all cars. The poorest one-fifth consumes just 5% of all meat and fish, less than 4% of energy, 1.1% of paper, and less than 1% of all cars.

This GPI*Atlantic* report has found that Prince Edward Island's average ecological footprint in 1999 was 8.98 ha per person, far in excess of the 1.7 ha per person globally available. If all the world's people were to consume at PEI levels, we would need almost five planets earth to provide the necessary resources and waste assimilation capacity. Ecological footprint analysis therefore makes it clear that global ecological sustainability depends on the affluent reducing their present share of consumption so that those in poverty can meet their basic human needs.

Of this 8.98 ha/capita, energy consumption accounts for 4.29 ha/capita, food for 3.49 ha/capita, and all other consumption for the remaining 1.2 ha/capita. Energy and food consumption together account for 7.78 hectares per person or 87% of the average Prince Edward Islander's ecological footprint. It is within these two areas that Prince Edward Islanders can make the greatest reductions in their personal footprint and help lead Prince Edward Island toward a healthy, sustainable future. These two areas should also be the primary focus of social and economic policy attention to guide Prince Edward Island toward sustainable transportation, land use and consumption patterns.

Just as global ecological footprints differ, not all PEI ecological footprints are the same size. Charlottetown-Summerside residents have an average footprint of 8.30 ha per person, and the wealthiest 20% of Prince Edward Islanders have a footprint of 11.4 ha per person (compared to 7.63 ha per person for the poorest 20%), because the wealthy consume more resources and produce more waste.

The PEI ecological footprint has grown by 65% in the last 20 years, and is projected to increase by another 20% to 10.8 ha per person in the next 20 years. PEI's transportation footprint is expected to increase by 24% in the next 20 years, as more cars log more kilometres. The increase

in fuel-inefficient SUVs, minivans and light trucks has expanded the transportation footprint sharply, with one SUV averaging three times the impact on the environment of a small car.

Conventionally, gross domestic product (GDP) *growth* is taken as the primary indicator of how "well off" we are as a society, with a higher per capita GDP denoting higher consumption levels and greater wellbeing. From the GPI perspective, on the other hand, a *smaller* ecological footprint denotes less impact on the environment and correspondingly greater long-term wellbeing and sustainability. The GDP and the ecological footprint, however, are not simply *separate* indicator sets pointing towards contrasting assessment and measurement systems. Economic growth is the primary driver of ecological footprint growth, because it generally denotes higher consumption levels.

Not surprisingly, the Canadian and Prince Edward Island per capita ecological footprints have largely followed per capita GDP growth since the late 1980s, with both inclining upwards through the 1990s. In conventional terms it is almost heresy to suggest that this growth is not inherently a "good" thing. Ecological footprint analysis, however, suggests that the more complex relationship between economic growth, increased consumption, environmental degradation, waste production, and the rate of resource depletion must at least be considered if as much value is placed on the wellbeing of future generations as is placed on the current generation.

Reducing Prince Edward Island's Ecological Footprint: A Quarter Million Hectare Target for 2005

This report, Canada's third provincial ecological footprint analysis, concludes that Prince Edward Islanders could quickly and easily reduce their collective ecological footprint by almost one quarter of a million hectares from 8.98 ha per person to 7 ha per person without compromising their quality of life. Consuming fewer of some items, shifting certain consumption choices, and changing public policy priorities can actually improve wellbeing and quality of life while reducing our impact on the environment.

There are a number of practical choices available to households that could significantly reduce the province's residential energy footprint. Indeed, household energy consumption choices are one of the simplest ways that ordinary citizens can reduce their ecological footprint *and* save money. A few intelligent energy choices can reduce household energy consumption by 50% and save significantly on household energy costs:

- Switch to a time based-programmable thermostat and turn down the thermostat at night to 17 degrees
- Switch to halogen bulbs or compact fluorescent bulbs
- Install a low flow shower head
- Switch to energy efficient appliances
- Add an insulating blanket to hot water heater
- Clean furnace filter regularly

Changes to driving style and driver education can significantly reduce the footprint of transportation, as well as bringing overall fuel economy savings. Strategies to greener driving include:

- Service vehicles regularly
- Avoid idling
- Accelerate and brake smoothly
- Use the correct gears for the speed
- Do not carry unnecessary weight
- Check tire pressure regularly
- Use air conditioning less frequently
- Use a timer that will turn on the block heater just before driving

Commuting to work is a major contributor to transportation footprint. **Commuting alone by car contributes 12 times more than cycling and over 4 times more than taking the bus to ecological footprint**. Commuting footprint can be reduced by car-pooling, taking the bus, or cycling – one, three, or five days per week. Rethinking how we travel to and from work can dramatically reduce our commuting footprint. For example, a small change like car-pooling with one other person results in a 50% reduction in our commuting footprint. Cycling to work and back every day instead of driving alone corresponds to a 92% reduction in the impact of our commuting habits on the environment.

Intelligent choices can be made that will substantially reduce food footprint and the impact of food consumption patterns on the environment. In particular, Islanders can:

- Maintain a healthy weight, reduce the tendency to overeat, and not waste food
- Eat the amount of daily calories that are appropriate for one's age and level of activity
- Eat locally produced foods and support local farmers, thus reducing high transportation and energy inputs into the food system
- Eat organically grown and sustainably farmed foods, thus reducing footprint-intensive energy and synthetic, petroleum-based inputs into agriculture.

Beyond such individual choices, this report also points to the social and political decisions that are necessary to reduce the province's ecological footprint to *less* than 7 ha per person, and to become a model of responsible and sustainable living. These social choices include:

- Investments in public transportation and bicycle lanes
- Integrated land use/transportation planning to counter suburban sprawl
- Tax incentives to support environmentally friendly Danish-style co-housing developments
- Support for local agriculture, sustainable farming methods, and nutritional education

Prince Edward Islanders have already dramatically reduced their solid waste footprint by 50%, and Prince Edward Island's world leadership in composting, recycling and solid waste diversion is a model of government-citizen cooperation that can show a sustainable way forward into the future. The Premiers' Conference and Tree Canada organized the first "carbon neutral"

conference in PEI in 2003. This innovative plan offset the carbon dioxide emissions created by the delegates attending the conference by calculating and planting the number of trees needed to absorb those emissions. Clearly, footprint reductions are not only possible but have already been successfully accomplished in PEI.

The average Prince Edward Islander's total ecological footprint (8.98 ha/person in 1999) was 7% smaller than the size of the average American's footprint (9.7 ha/person), but it was still 1.8 times the average West European's footprint (4.97 ha/person), indicating that we might more productively look to Europe and elsewhere for workable models of sustainable development rather than to the U.S. Denmark, for example, has become a world leader in wind energy; the Netherlands is actively promoting bicycle use and pesticide-free farming; BMW cars are now made with 35% recycled parts; and Curitiba, Brazil, has become a world leader in integrated land use/transportation planning and mass transit use.

In sum, for a PEI determined to reduce its ecological footprint, there is no shortage of outstanding examples of sustainable living and development, including powerful ones within its own borders. The purpose of this Ecological Footprint analysis is to encourage concrete public-private steps toward a more sustainable future that we are proud to leave to future generations.