Executive Summary
Small Province, Big Feet: Nova Scotia'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 the next generation will not be worse off than we are;
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 impacts 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 as human beings, we can't use all the productive land that exists entirely for our own needs if we want to survive, 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 1.8 hectares per person to supply all our human needs and assimilate all our waste.

Researchers at the University of British Columbia have found that our *current* global resource consumption and waste production requires 2.8 hectares per person. 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 higher tuition and 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 warming, higher child asthma rates, and new environmental illnesses.

But all ecological footprints are not the same size. 30% 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 is just 1.3 ha. per person, and the average North American footprint is 11.8 ha. per person. 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 Nova Scotia's average ecological footprint is 8.1 ha. per person, far in excess of the 1.8 ha. per person globally available.

If all the world's people were to consume at Nova Scotian levels, we would need four additional planets earth to provide the necessary resources and waste assimilation capacity.

Of this 8.1 hectares, transportation accounts for 1.6 ha., food for 2.4 ha., residential energy use for 1 ha. and all other consumption for the remaining 3.1 ha. Just as global ecological footprints differ, not all Nova Scotian ecological footprints are the same size. The Halifax Regional Municipality has a footprint of 8.4 ha. per person, and the wealthiest 20% of Nova Scotians have a footprint of 10.7 ha. per person (compared to 6.2 ha. for the poorest 20%), because the wealthy consume more resources and produce more waste.

The Nova Scotia ecological footprint has grown by 40% in the last 40 years, and it is projected to increase by another 12% to 9.2 ha. per person in the next 20 years. Our transportation footprint is expected to increase by 25% as more cars log more kilometres. The rapid increase in fuel-inefficient SUV's, 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.

Reducing our Ecological Footprint: A Million Hectare Target for 2002

This report, Canada's first *provincial* ecological footprint analysis, concludes that Nova Scotians could quickly and easily reduce their collective ecological footprint by 1 million hectares from 8.1 ha. per person to 7 ha. per person without compromising their quality of life. Consuming less 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.

Suggested personal changes recommended in the GPI report include:

- Walking and riding a bicycle whenever possible.
- Carpooling or taking public transportation to work instead of driving alone.
- Driving smaller more fuel-efficient cars, and keeping them well-maintained.
- Buying more locally grown foods and locally produced goods to reduce transportation.
- Not overeating, but consuming the calories appropriate for our age and level of activity.
- Eating more grains, vegetables and natural foods.
- Reducing household energy use by turning off lights, turning down the temperature at night and when not home, hanging out the laundry to dry, and using energy efficient appliances.
- Reducing water consumption by using a water-efficient showerhead, turning off the tap when not in use, and collecting rainwater to water plants and lawns; and
- Reusing, recycling and composting trash, and reducing packaging.

Beyond such individual choices, the GPI 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.

Nova Scotians have already dramatically reduced their solid waste footprint by 50% in just five years, and Nova Scotia'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. Bear River's award-winning Solar Aquatic sewage and waste water treatment system has also become a model of sustainable water use. Clearly, footprint reductions are not only possible but have already been successfully accomplished in some areas.

In the early 1980s too, Nova Scotians substantially reduced their energy footprint through switching to smaller, fuel-efficient cars, insulating their homes and other conservation measures, though the provincial energy footprint has started to creep upwards again in the

1990s. Today our total energy footprint (4.5 ha./person) is still 25% smaller than it was in 1979, but it is also 40% larger than it was in 1961. Nova Scotia today is at a crucial point in its history in developing an energy policy for the future. The innovative work of the Western Valley Development Authority in exploring wind-powered electricity generation in the Annapolis Valley could produce a model for the future that would substantially reduce the province's energy footprint

The average Nova Scotian's total ecological footprint (8.1 ha./person) is just two-thirds the size of the average American's footprint (12.2 ha./person), but it is still 30% higher than the average West European's footprint (6.3 ha./person), indicating that we might more productively look to Europe and elsewhere for workable models of sustainable development rather than to the United States. 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 Nova Scotia 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 towards a more sustainable future that we are proud to leave to our children.

The GPI report was produced with funding from the Clean Nova Scotia Foundation, Halifax Regional Municipality, National Round Table on the Environment and the Economy, NS Department of Environment, NS Public Interest Research Group, and GPI member contributions. GPI Atlantic welcomes the initiative of Clean Nova Scotia to assist Nova Scotians in reducing their ecological footprint.