

Acknowledgements

GPIAtlantic gratefully acknowledges funding for this project provided by a number of partners. The release of the Primer was made possible through support from Halifax Regional Municipality, Bell Aliant, Just Us! Coffee Roasters, and the Town of Stratford (PEI). All of these organizations are also founding partners and full charter members in the Atlantic Canada Sustainability Initiative, and are committed to moving sustainability forward in Atlantic Canada.

The launch of the Atlantic Canada Sustainability Initiative and the initial workshop is funded in part by Canada Rural Partnerships' Networking Initiative, a Government of Canada initiative designed to support rural community capacity building through learning events, partnerships and networks, and by the Resource Recovery Fund Board.

GPIAtlantic also wishes to express its gratitude to the staff at The Natural Step Canada, including Chad Park, Kelly Hawke Baxter, Saralyn Hodgkin, Mike Purcell, John Purkis, and Anouk Bertner, to Tamara Lorincz from the Nova Scotia Environmental Network, and to all the members of Sustainability Education in Nova Scotia for Everyone (SENSE – Nova Scotia's provincial working group on education for sustainable development), without whose ongoing support, encouragement, and enthusiasm this project could not have happened.

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What Users Say about The Natural Step Framework:

The hospital received top marks from the Building Research Establishment as one of the UK's most sustainable buildings, where more sustainable methods have generated identifiable savings of 1.8 million pounds, including 20% less energy consumption and 35% less carbon dioxide emissions.

- Carillon Chief Executive

The Natural Step adds a refreshing, invigorating and needed set of tools, thinking and passion to our team at McDonald's. The Natural Step has become an integral part of McDonald's sustainability work because we desire to engage with the best, independent, science-based leaders in sustainability—and that's the natural step.

- Bob Langert, senior director, social responsibility McDonald's corporation

The key benefits to Nike of TNS framework for sustainability are: it provides a shared language and set of guiding principles both within the company and between ourselves and other organizations with whom we do work on sustainability; it is scientifically robust; it uses a systems perspective—thinking about cause and effect and linkages throughout the whole system rather than just analyzing discrete units of the systems; it is non-judgmental; the principles work across different cultures.

- Sarah Severn, Director of the Nike Environmental Action Team

The Natural Step was a real ah-ha. We could see how far we were from meeting the System Conditions. Everywhere we looked, we could see things we were doing that weren't sustainable. This really pushed us to look at everything we did through the lens of sustainability.

- Susan Sokol Blosser, owner and founder of Sokol Blosser Winery

The [Whistler Environmental] strategy was a complicated plan that was difficult to communicate. The Natural Step framework really provided something we could communicate. It's not prescriptive, it's not judgmental, and it doesn't in any way tell the business community that everything they've built is wrong. It does suggest that we need to and can do things differently and better. ... You don't very often see an initiative that gets the kind of support that this one has.

- Mayor Hugh O'Reilly, Rural Municipality of Whistler

Canmore's commitment to The Natural Step community sustainability initiative is an "absolute critical step". The town has been looking for over 20 years for sustainability ideas and The Natural Step framework is a natural fit which will "very clearly articulate what the sustainable model will look like.

- Mayor Ron Casey, Canmore

With 2600 employees, any new program is a big challenge to implement. One pleasant surprise is how enthusiastic the maintenance supervisors have been in support of this program. They are seeing things more broadly and coming up with a greater variety of suggestions than anticipated. Applying TNS principles has caused employees to look more deeply at the environmental impact of the maintenance operations. As an example, decisions to use new chemicals used to be fairly loose. Now potential users must first research the toxicity and environmental impact of a chemical before it is purchased. Using Material Safety Data Sheets (MSDS), employees need to answer such questions as, "Does this chemical cause cancer? If it does, what other alternatives are there and why can't they be used?" Vendors are not allowed to leave samples until a sufficient case has been made to justify their usage.

- Kevin Considine, Official responsible for TNS implementation, TriMet, Public Transit Agency for the Portland metropolitan area

The Natural Step is a clear voice in the commotion.

- Leif Johansson, CEO, Volvo

When we were introduced to the Natural Step, we realized we had found our framework.

- Tachi Kiuchi, CEO, Mitsubishi Electric America

The great challenge of this era is to bring human activities everywhere into alignment with the rest of the natural world...The Natural Step provides an elegant framework, a compass, to guide us on the road ahead and is a powerful tool for all seeking a new mental model to move their businesses into a sustainable future.

- Maurice F. Strong, Secretary General UN Earth Summit 1992

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Executive Summary

The four Atlantic Provinces, while distinct from each other, together have many unique features which make the Atlantic Canadian region particularly suitable for piloting a proven method of advancing sustainable development. The Natural Step framework offers a unique and practical approach to sustainability, helping communities and businesses become more environmentally and socially responsible one step at a time. This primer examines the particular challenges and strengths of Atlantic Canada, and proposes that the region pilot the adoption of The Natural Step (TNS) framework as a systemic and overarching model to guide communities, governments, businesses, educational institutions, and other organizations in becoming more sustainable.

The primer is organized into four main sections. The first section examines the concept of sustainable development and the particular sustainability challenges Atlantic Canada faces. Sustainable development means meeting the needs of the present without compromising the ability of future generations to meet their own needs.¹ Although the idea seems simple, it encompasses many intricate social, economic, and environmental issues. In the Atlantic region these challenges include resource depletion, air and soil quality, climate change, community sustainability, unemployment, and health, among others. In order to understand these issues, to examine them from a systemic point of view, and to begin to address the sustainability challenges facing Atlantic Canadians, cooperation and input from individuals and organizations at all levels is needed.

Governments, communities, and businesses in Atlantic Canada are already thinking about sustainability. The federal government requires Sustainable Development Strategies to be developed by all federal government departments. Provincial governments have similarly begun to incorporate sustainable development concepts, as demonstrated in coastal zone planning, waste management, wildlife protection, and other areas. Communities in the Atlantic region, such as Wolfville, Nova Scotia, have begun to implement their own sustainability initiatives. The business sector is also beginning to embrace the concept of sustainable development, and some Atlantic Canadian businesses have taken significant steps down the road to sustainability. There is growing interest in sustainability from all sectors, and recognition of the need to take action in order to ensure long-term prosperity.

But while there is broad agreement on the concept and need for sustainability, there has thus far been no systemic, practical path or method for how to achieve the goal. The second section of the primer therefore describes The Natural Step framework, which is precisely such a practical, working model that can be used to build on this interest and advance the region toward a sustainable future. Based on accepted scientific principles, The Natural Step framework has been successfully adopted by many businesses, communities and municipalities, particularly in Europe, and has developed a proven track record. In the words of Maurice F. Strong, Secretary General, UN Earth Summit, 1992, “The Natural Step provides an elegant framework, a compass, to guide us on the road ahead and is a powerful tool for all seeking a new mental model to move their businesses into a sustainable future.”²

Perhaps most significantly, the power of The Natural Step stems from the fact that it is based on scientific consensus, on what can be agreed on rather than on what is disagreed, and on its capacity to provide an overarching framework that incorporates existing sustainable development initiatives. In contrast to current efforts, which frequently see economic, social, and environmental initiatives working at cross-purposes, The Natural Step framework has demonstrated its capacity to harmonize such initiatives in a coherent and integrated way so that the economic, social, and environmental objectives of development reinforce and strengthen rather than undermine each other. These assets have led to the increasingly widespread adoption of The Natural Step by businesses, municipalities, and communities in Canada, the United States, and many other countries around the world.

The Natural Step framework is based on four System Conditions, developed through a process of scientific consensus. The System Conditions state that in a sustainable society:

1. nature is not subject to systematically increasing concentrations of substances from the earth's crust;
2. nature is not subject to systematically increasing concentrations of substances produced by society;
3. nature is not subject to systematically increasing degradation by physical means; and
4. people are not subject to conditions that systematically undermine their capacity to meet their needs.

Scientists agree that communities, businesses and societies that meet these conditions can be considered “sustainable” and are acting in such a way as to protect the future for their children and to ensure long-term prosperity. Organizations therefore use these system conditions to help them develop a future vision of sustainability and to identify strategically the steps they will take to get there. It is important to note that adoption of The Natural Step does not contradict any other method designed to advance sustainability. Instead, it provides an integrated framework and set of guiding principles and actions that can incorporate and in fact strengthen existing sustainability initiatives.

The third section of the primer examines some of the communities and businesses that are currently using The Natural Step (TNS). Over 70 Swedish municipalities have adopted TNS, and it is being used very successfully by several Canadian communities as well. In Atlantic Canada the communities of Wolfville and the Halifax Regional Municipality are already using TNS in different ways, and Whistler, British Columbia, and Canmore, Alberta, are well-advanced in their journey towards sustainability using TNS. Many businesses have also adopted TNS, from large, multi-national corporations like Ikea and Interface (the world's largest commercial-flooring company), to smaller businesses like the Sokol Blosser winery in Oregon. The case studies examined in this primer represent only a small sample of the organizations using TNS, but provide some concrete examples of how The Natural Step framework can be applied in practice.

The fourth main section of the primer reviews some of the strengths and resources that already exist in the Atlantic region for moving towards sustainability. It also examines

some of the challenges in becoming a more environmentally and socially responsible region, and potential ways of addressing those challenges. The section concludes with an outline of recommended activities and options for moving toward a sustainable future using TNS as a guide. Proposed activities include a workshop series on The Natural Step framework to develop the capacity of those interested in working on sustainability issues; the establishment of a working group and/or a formal coordination task force for sustainability in the region; working with one or two specific communities to encourage the community-wide adoption of a sustainability plan; holding a conference on sustainability and TNS; and undertaking an educational campaign on sustainability in the region. GPI Atlantic is working with a number of partners, including The Natural Step Canada, the Nova Scotia Environmental Network, and other Atlantic communities and organizations to develop these ideas for action into a more formal proposal.

Based on the experience of those who have adopted The Natural Step to date, there are many direct benefits for organizations taking steps towards sustainability, including more efficient operations, reduced expenditures for inputs and waste disposal, enhanced innovation, and improved morale and motivation. However, this proposal will also be extraordinarily beneficial for the Atlantic Canadian region as a whole, as it becomes known nationally and internationally as an exemplary case of regional movement towards sustainability. The systematic application of The Natural Step framework in Atlantic Canada could attract enormous interest, generate remarkable export opportunities, and provide a competitive advantage for the region as sustainable practices of necessity become the norm. Visitors from around the world would come to the region to learn from its sustainable development practices, just as they already come to Nova Scotia to study its leading-edge solid waste management system.

The special features of Atlantic Canada, such as local community economies, a relatively small population, extraordinary natural beauty, and small, manageable provincial entities, are particular advantages in sustainable systems, and indicate that the region already has many of the assets required to become a model of socially, environmentally, and economically responsible development. What is needed now is the right tool to help the region move forward, and this primer demonstrates that The Natural Step can provide the practical, proven, and science-based framework and method required.

1. Introduction

Atlantic Canadians live in a beautiful and unique part of the world. The natural resources of the Atlantic region, from coastal areas to minerals to forests, have historically formed the basis for communities, employment, and enjoyment. With a larger rural population than urban, Atlantic Canadian communities tend to be well-connected to each other and to their surroundings, resulting in a strong emphasis on community development. Combined with a strong institutional learning base in Atlantic Canada, communities here are well-equipped to embrace the challenges of balancing economic viability with environmental and social sustainability.

Resource-based activities, including fishing and aquaculture, agriculture, forestry, and mining remain important to the economy of all four Atlantic Provinces.³ Atlantic Canadians experienced first-hand the deep dislocation that results from the destruction of a natural resource when the cod fishery collapsed in 1992. The good stewardship of the natural resources on which the region's prosperity in part depends is essential to ensuring that they provide a sustainable livelihood for Atlantic Canadians into the future.

Supporting social sustainability is also important. Many rural communities face the issue of declining population as community members leave to pursue opportunities elsewhere.⁴ Adequate access to services such as affordable housing and education is also highly relevant, since the Atlantic Provinces have a higher proportion of workers living below the low-income cutoff than in the rest of Canada.⁵

The concept of sustainable development encompasses all of these economic, environmental and social aspects. Broadly defined, sustainable development for this region means development that meets the needs of Atlantic Canadians today, without adversely affecting the ability of their children to meet their own needs. Sustainable development is already a priority for Atlantic Canadians at all levels, from the federal government to individual citizens. Many federal government departments have begun consultations for the renewal of their Sustainable Development Strategies for 2007-09.⁶ Provincial governments are also moving to incorporate sustainability into their development strategies.⁷ Local non-governmental organizations and community groups from across the region are also working on issues of sustainable development. What is needed is a coherent and integrated approach that can excite and unite stakeholders across all constituencies to come together, develop shared images of a sustainable future, and take action to secure it.

The idea for this primer originated from thoughtful discussions and action plans, generated at two events that took place in Nova Scotia in 2005. In cooperation with other partners, Genuine Progress Index (GPI) Atlantic, a non-profit organization, hosted a major international conference in Antigonish, Nova Scotia, called *Rethinking Development: Local Pathways to Global Wellbeing*, in June 2005. Four hundred and fifty delegates from 33 countries, including from Canada and the Atlantic Provinces, examined successful initiatives worldwide that attempt to integrate sustainable and

equitable economic development with environmental conservation, social and cultural cohesion, and good governance.⁸

Many of the Atlantic Canadian participants who attended the June conference were inspired by the exemplary global models of development presented there and were eager to apply what they had learned to their own region. As a follow-up, a workshop called *Building Sustainable Development* was held in Nova Scotia in November 2005 attended by a group of over 80 business leaders, federal, provincial and municipal government officials, non-governmental organization (NGO) representatives, scientists, academics, members of the general public and youth from the four Atlantic Provinces. Participants gathered to discuss the broad topic of transforming Atlantic Canada into a model of socially and environmentally sustainable development. The objective of the workshop was to build momentum to position the Atlantic region as a global leader in sustainable development.⁹



Figure 1. Workshop Participants, Building Sustainable Development Workshop.

During focus-group discussions at the workshop, a collective view arose among participants that The Natural Step (TNS) should be explored as a potentially useful integrating framework and method of implementing sustainability in Atlantic Canada. This view emerged because of the relevance of The Natural Step framework to communities, businesses, and governments, and because of its systemic thinking, design principles, science base, and proven successes. TNS was identified as having good potential as an integrating and overarching mechanism for strategically guiding and supporting the adoption of a sustainable development ethos and practice in Atlantic Canada. It can provide a practical framework that can work with and enhance all the other sustainable development initiatives currently planned and under way in the region, and it can suggest important new initiatives that have the potential to propel this region into a leadership role in this field.

In order to effectively pilot the use of The Natural Step framework in Atlantic Canada, it is important to have a shared understanding of the concept of sustainable development, and so the primer begins with a brief overview of this concept. Next, the primer describes The Natural Step framework, in order to provide background for those who are

unfamiliar with TNS. Then, in order to demonstrate its practical application, the primer profiles a few of the adopters and users of The Natural Step framework from different parts of the world, and from different sectors, including large and small businesses, municipal governments, and the broader communities in which they operate. The primer concludes with an overview of the existing strengths and resources in the Atlantic region that make it an excellent candidate for a sustainability initiative, and some concrete and practical recommendations on actions that will help the region move forward as a model of sustainable development.

2. Sustainable Development: What Does it Mean?

The concept of sustainable development is both simple and complex. The idea of meeting today's needs without affecting the ability of future generations to meet their own needs is a relatively basic concept. Few people would disagree that they want a world for their children that is just as good, if not better, than the one that exists today. However, in practice, sustainable development deals with a range of multifaceted issues. These include environmental concerns such as climate change, the destruction of wildlife habitat, and the pollution of air and water; social concerns such as access to basic services such as health care, food, shelter, and education; and economic concerns such as ensuring decent living standards for all, high levels of good employment, and encouraging research and innovation. This section of the primer outlines some of the definitions of sustainable development, including those elements most relevant for Atlantic Canada, and it looks more deeply at why issues of sustainability are important to Atlantic Canadians.

2.1 The Canadian and Atlantic Context: What is Sustainable Development?

The most widely cited and popular definition of sustainable development is the one used in the report of the 1987 World Commission on Environment and Development, entitled *Our Common Future*, commonly known as the Brundtland Report: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."¹⁰

The Brundtland report recommended urgent action on eight key issues to ensure that development was sustainable: population and human resources, industry, food security, species and ecosystems, the urban challenge, managing the commons, energy, conflict, and environmental degradation. See Appendix 1 for a sustainable development timeline, with more information on the evolution of this concept over the last thirty years.

One of the most important follow-up meetings to the Brundtland Commission was the 1992 Rio Earth Summit, which stressed the urgency of both environmental protection and social and economic development, while adopting major agreements on climate change, biological diversity, forest principles, and Agenda 21 (a plan for sustainable development in the 21st century). Canada, along with many other countries, attended and participated actively in the Summit, and a Canadian – Maurice Strong – was its Secretary-General. As a direct result of the Summit, the Canadian federal government chose to make selected departments and agencies responsible for producing and following recurring three-year sustainable development plans as part of its international commitment to sustainability under Agenda 21.

Currently the Government of Canada refers to the Brundtland sustainable development definition on its websites and elaborates on it as follows:

Sustainable development is ultimately about improving quality of life for more of the world's people in a way that maintains the capacity of the planet over the long term. Sustainable development recognizes that development - essential to satisfying human needs and improving quality of life - must be based on the efficient and environmentally responsible use of natural, human, and economic resources. Building a truly sustainable way of life requires integrated action in three general areas, known as the economic, environmental and social pillars of sustainable development.¹¹

The federal government is currently in the process of renewing its three-year Sustainable Development Strategies for 2007 – 2009 for twenty-eight government departments, including Environment Canada, Parks Canada, the Atlantic Canada Opportunities Agency (ACOA), the Department of Finance, and Industry Canada. ACOA's Sustainable Development Strategy is particularly relevant to the federal perspective on the Atlantic region. ACOA's 2004-2006 Sustainable Development Strategy states:

...[M]any areas of Atlantic Canada face social challenges in enabling communities to simultaneously enhance or maintain the well-being of their people, with due regard for ecosystem, health and employment objectives. Confronting these challenges must occur in ways that do not place unbearable environmental, economic or social burdens on this and future generations. Atlantic Canada's communities, therefore, require innovative thinking to develop the approaches, partnerships and tools that can effectively address their social issues, while respecting the need to assure clean air and water, energy, employment opportunities, adequate health care, affordable transportation and housing....At ACOA, we believe that a healthy environment is essential to the development of a strong, growing and sustainable economy.¹²

In keeping with this commitment and mandate, ACOA was a major funder of the *ReThinking Development* conference held in Antigonish in June 2005, and the primary funder of the follow-up *Building Sustainable Development* workshop held in November 2005. It was at this workshop that the recommendation to explore The Natural Step as a potential sustainability framework for Atlantic Canada emerged, and where the idea of this primer as a first step in this direction was suggested. Environment Canada also contributed funding to both the conference and workshop.

Provincial governments in Atlantic Canada are also beginning to recognize the importance of sustainable development. For example, the Nova Scotia government's 2006 economic development strategy emphasizes the need for Nova Scotia to build a competitive economic and cultural model that is sustainable into future generations. The strategy recognizes a need to protect and enhance the distinct quality of life that Nova Scotians cherish, while at the same time "meet the needs of the present without compromising the ability of future generations to meet their own needs".¹³

These definitions illustrate the environmental, economic, and social dimensions of sustainable development, and the need for their effective and practical integration. The many complex issues involved in ensuring sustainability are connected in a systemic way. Relating to and analysing problems using systems thinking can help to look at the challenges society faces in becoming sustainable in a new way. For more on systems thinking, please see Appendix 2.

2.2 Why is Sustainable Development so Important in Atlantic Canada?

Over the years, a multitude of reports assessing the state of the world's ecosystems and human development have chronicled the sustainable development challenges society faces on a global scale. Atlantic Canadians have experienced locally some of the serious environmental threats facing the planet at a global level – including perhaps most dramatically, the 1992 collapse of the Atlantic groundfish stocks. It is this kind of personal experience of the negative effects of unsustainable activities that has encouraged Atlantic Canadians to be particularly concerned about sustainable development.

As an example of some of these global trends, a joint report published in 2000 by the United Nations Environment Programme, the World Wildlife Fund International, and the Centre for Sustainability Studies in Mexico, reported that over the last 30 years the state of the Earth's natural ecosystems had declined by about 33% while the ecological pressure of humanity on the Earth increased by about 50% over the same period.¹⁴ Other studies provide abundant evidence of the depletion and degradation of ecological resources in North America, including pollution of marine and fresh water ecosystems, loss of old growth forests, and loss and alteration of habitat that has become the primary threat to biodiversity. As well, social and income inequality, which has grown sharply in North America since the early 1990s, combined with environmental and other pressures, have undermined the sustainability of key social structures. Those on the lowest social and economic rungs also tend to be disproportionately affected by environmental problems.¹⁵

Here in Atlantic Canada some of these global problems are visible on a more local scale. Resource depletion and degradation is a major concern, as many Atlantic Canadians are dependent on the long-term sustainability of resources such as fisheries and the forestry sector for their livelihoods. The collapse of the cod fishery in 1992 illustrated to Atlantic Canadians the serious economic impacts of natural resource mismanagement. Mining and oil and gas projects are also important to the Atlantic Canadian economy, but can have serious environmental consequences.¹⁶ Farming remains important throughout the Atlantic region; and soil quality, soil erosion, and the economic viability of small farming are ongoing concerns for Atlantic farmers.¹⁷

Atlantic Canadians are affected by other environmental issues as well. For example, Nova Scotia's Annapolis Valley experiences some of the highest concentrations of ground-level ozone in Canada.¹⁸ Climate change also has direct impacts for Atlantic Canada. According to the National Centre for Atmospheric Research in the U.S. "Warm

water is the crucial fuel for hurricane formation.”¹⁹ A report prepared for Halifax Regional Municipality noted that

with global warming, sea water temperature is rising, and may be causing a northward shift in cyclonic activity . . . Thus, Atlantic Canada is at greater risk from tropical storms and hurricanes. In fact, some studies have suggested that intense storms in the northern hemisphere, including hurricanes, may actually increase in number with global warming. If so, Atlantic Canada would be extremely vulnerable to an increase in category 4 and 5 hurricanes.²⁰

Fuelled by unusually warm Atlantic waters, Hurricane Juan ripped through Halifax and Nova Scotia on September 29, 2003 with such devastating force that the Canadian Hurricane Centre labelled it “the most damaging storm in modern history for Halifax, N.S.”²¹ Although extreme weather events such as Hurricane Juan cannot be definitively or directly attributed to climate change, science has shown that increased weather variability and incidence of extreme weather, like drought and storms, can be linked to changes in global temperature.²² A rise in sea-level due to polar ice melt could also pose a threat to coastal communities in the region.

Maintaining and enhancing social structures and services is another key aspect of sustainability. Issues such as accessible and affordable transportation, education, and housing are relevant across the region. Atlantic Canadians, on average, have poorer health status than other Canadians.²³ In part because of the rural nature of the region, Atlantic Canadians also experience particular challenges, such as high unemployment in some areas, and the out-migration of youth from rural communities.²⁴

Addressing and effectively managing these diverse and complex issues in a coherent and integrated way is essential to the long-term social and economic wellbeing of the Atlantic region. Piecemeal actions in which social, economic, and environmental objectives are not systematically integrated run the very real risk that actions in one area (like enhancing employment or protecting the environment) may undermine actions in other areas. A framework is required that ensures that social, economic, and environmental interventions strengthen, support, and enhance one another rather than work at cross-purposes. The Natural Step framework provides a set of principles based on the best scientific knowledge, and an understanding of how the ethical and equitable behaviour of human societies can help to shape a sustainable future. These principles provide an overarching framework in which it is possible to move towards sustainability one step at a time.

3. What is The Natural Step?

3.1 Overview of TNS

This section provides an overview of The Natural Step (TNS) organization, and of The Natural Step framework, a unique learning and planning framework for reaching a sustainable future. The mission of TNS is to act as a catalyst to bring about systemic change by making the fundamental principles of sustainability explicit and easier to understand and effective sustainability initiatives easier to implement.

TNS is an international non-profit organization, founded in Sweden in 1989 by Dr. Karl-Henrik Robèrt. A renowned oncologist and pediatrician, with dozens of publications in scientific journals, Dr. Robèrt was deeply troubled by the rising cancer rates he observed among children. He noted that parents' view-points shifted dramatically when their children developed cancer, and from this experience he came to recognize that there must be a way to engage people in sustainability by focusing on what people could agree on, rather than on disagreement.

Dr. Robèrt led a consensus process among scientists across Sweden aimed at identifying the fundamental principles of sustainability. After 21 iterations, this group of scientists agreed on 4 principles, resulting in a unique and elegant framework and model that could assist citizens in understanding the major sustainability issues. Using metaphors, systems thinking, science-based principles and conditions, and a detailed planning process, The Natural Step framework serves as a compass to help decision-makers and business leaders develop a strategy and identify actions for moving organizations, businesses, and communities towards sustainability.

Soon after its initial development, The Natural Step began to gain momentum in Sweden, as business and political leaders, including the King of Sweden, learned about, endorsed, and lent their strong support to the project. A booklet and audio cassette describing The Natural Step was mailed to every home and school in Sweden as part of the launch of TNS. Today more than 70 Swedish municipalities and dozens of Swedish corporations, including IKEA and McDonald's Sweden are actively using The Natural Step's principles and approach to sustainability. In their book *The Natural Step for Communities: How Cities and Towns can Change to Sustainable Practices*, Sarah James and Torbjörn Lahti note that Swedish communities "have made radical across the board changes toward the 'true north' of sustainability and used the Natural Step framework as the compass."²⁵

As use of the framework becomes more widespread, TNS has continued to evolve through scientific consensus-building, research, and practical application of learning in organizations and communities. The increasing number of people involved in the process is helping to spread the word about the usefulness and practical applications of TNS.²⁶ TNS now has active offices in twelve countries including Canada, and is widely regarded as the most practical and effective framework and method available globally for moving towards genuine sustainability.

The Natural Step framework is now promoted and supported through both international and national organizations. TNS Canada provides research, educational, and advisory services to a growing network of individuals, municipalities, businesses and other organizations now using TNS, and to others interested in learning how TNS can help to guide their transition to sustainable development.

3.2 The Natural Step Framework – What is it?

The Natural Step framework provides a methodology for planning that combines a rigorous, science-based understanding of sustainability with a tested planning approach to translate that understanding into practice. By focusing planners and decision-makers on that which can be agreed upon, the framework helps create a common perspective and language that can be shared by businesses, governments, communities, and non-governmental organizations. It defines sustainability at the level of principle, which then enables organizations to create optimal strategies for dealing with their unique present-day situation, and to move forward strategically in accordance with their particular realities. In this way, TNS effectively joins a shared and common framework with attention to the particular and unique needs and circumstances of each participating business, community, and organization. The framework is distinctive in being able to bring disparate stakeholders and individuals together as intellectual and working partners to discuss the path forward in a mutual exploration.

The Natural Step framework has the following main components:

- The Funnel as a Metaphor
- The System Conditions for a Sustainable Society
- Backcasting from Principles
- A Four-stage “ABCD” strategic planning process²⁷

3.2.1 The Funnel as a Metaphor

Section 2, above, examined some of the sustainability issues that contemporary society is facing. As noted above, abundant evidence now indicates that many of the ecosystems that provide essential life-supporting resources for society, such as clean air and a stable climate, clean water, healthy forests and marine resources, and good quality soil, are in decline. At the same time, the demand for these resources is increasing through growing population and increasing global levels of consumption. This situation can be understood through the metaphor of the *funnel* (see Figure 2 below). Where exactly society is located in the funnel could be a matter of debate. However, the narrowing walls of the funnel demonstrate that as resources grow scarcer and as the planet’s waste absorption capacity is strained, there is less and less room to manoeuvre in order to avoid “hitting the wall.” The funnel is by no means a “gloom and doom” scenario from which there is no escape, but a simple depiction of actual trends in current ecological realities as evidenced in the scientific literature.

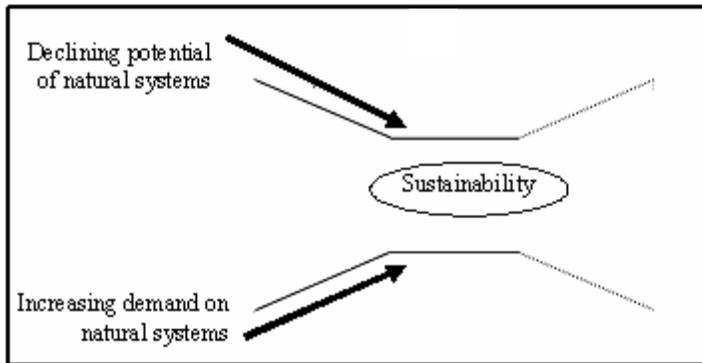


Figure 2. The Funnel

Hitting the walls of the funnel for any society, community, business, or organization may manifest as:

- A decline in resource availability, biodiversity, and social stability
- An increase in costs of pollution, waste management, or taxes
- Ever stricter legislation and higher insurance premiums
- Lost investments
- A loss of good reputation

These effects may become apparent as financial costs to communities, businesses and governments, through increased energy, production, resource, transportation, waste disposal, or pollution clean-up costs. In this sense, the funnel is a metaphor that can help businesses, communities and society to understand the bigger picture of which they are a part, and the major issues facing humanity and the planet, which in turn have consequences for their own operations. Using this metaphor, an organization can think creatively and effectively both about its own particular constraints as well as the larger global issues that affect it. Identifying ways in which the narrowing walls of the funnel might prevent the organization from reaching its own goals is often the first important step in dealing with these constraints. This method helps organizations and individuals to think in a smarter, more strategic way when making choices and long-term plans, and to act effectively to prevent the funnel walls narrowing further.

3.2.2 The Natural Step's Four System Conditions

The earth in balance is a sustainable system. In other words, it naturally regenerates renewable resources, filters and absorbs wastes, maintains a fundamental balance among different species, regulates the climate, and provides life-support services – potentially indefinitely. However, scientists consulted during the development of The Natural Step framework agreed that human society is capable of disrupting this balance by damaging nature and altering life-supporting ecological structures and functions. Based on this understanding and the analysis of the scientists on the key causes of this disruption, TNS has defined three basic System Conditions for maintaining essential ecological processes.

In addition, TNS recognizes that social and economic dynamics fundamentally drive the actions that lead to ecosystem changes, and that imbalances within and among human societies and economies can also disrupt an ecological system that naturally inclines towards balance. Therefore, a fourth System Condition focuses on socio-economic dynamics, and affirms that meeting basic human needs worldwide is an integral and essential part of sustainability.

The four System Conditions of The Natural Step framework – all based on and derived from careful scientific analysis – are depicted and described in detail below (the numbers in Figure 3 correspond to the four Conditions).

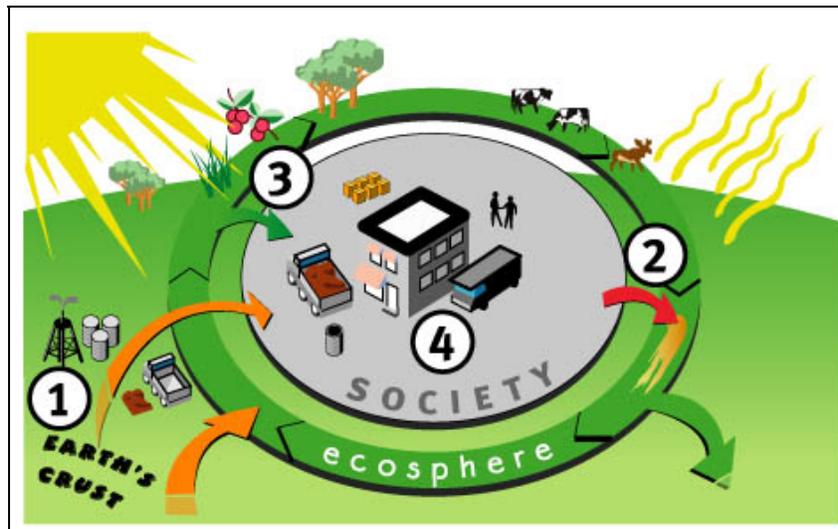


Figure 3. The Four Systems Conditions²⁸

Condition 1: In a sustainable society, nature is not subject to systematically increasing concentrations of substances from the earth's crust.

Society is currently so designed that we depend on an increasing flow of minerals, fossil fuels, and other substances that are taken from the earth's crust to be used in manufacturing products, heating homes, powering cars, fertilizing agricultural lands, and driving the economy in many ways. These substances and their by-products are then often discarded into the environment and accumulate there faster than they can be absorbed back into the earth.

Mined materials such as mercury, zinc, copper, uranium, various petroleum products, nitrates, sulphates, and other related breakdown products from mines, garbage dumps and waste sites are accumulating in the air, water and soils, overloading and in some cases poisoning those systems, and upsetting delicate and sensitive ecological balances. These materials extracted from the earth's crust, are being absorbed into living systems (including human tissue and organs) where increasing levels of concentration frequently results in toxicity. Large quantities of carbon dioxide and other greenhouse gasses are also generated from fossil fuel combustion, potentially producing climatic changes that threaten life on earth.

Putting the first system condition into practice therefore involves (1) substituting minerals that are scarce in nature with others that are more abundant, (2) using all materials extracted from the earth's crust efficiently and in tight technical cycles, and (3) systematically reducing dependence on fossil fuels.

Condition 2: In a sustainable society, nature is not subject to systematically increasing concentrations of substances produced by society.

Humans have the ability to create new substances and materials in response to the needs and wants of society. These include many compounds which do not occur naturally in nature, such as PCBs, pharmaceutical products, and pesticides. Some of these chemicals are persistent organic pollutants which are slow to break down in the environment and therefore have a tendency to bio-accumulate, with often unpredictable and negative effects. Such chemicals have been linked with cancers, other illnesses, and reproductive problems in humans, and with abnormalities (and even extinctions) in other animals, plants, and microbes. Any human-made compound that increases in concentration can eventually reach a level of toxicity.

Putting the second condition into practice therefore means (1) systematically substituting persistent and unnatural compounds with ones that are normally abundant and naturally occurring, or that at least break down more easily in nature, and (2) using all substances produced by society efficiently and in tight technical cycles.

Condition 3: In a sustainable society, nature is not subject to systematically increasing degradation by physical means.

The degradation of the physical integrity of the planet has an impact on the planet and on its ability to restore and regenerate itself. Examples of this degradation include the destruction of natural resources (such as forests and fisheries) through over-harvesting, the depletion of soil quality through industrial agriculture, extensive flooding from the building of large dams, and the increasing levels of built-up area from developments such as urban sprawl and road construction.

Putting the third sustainability condition into practice therefore means drawing resources only from well-managed ecosystems; systematically pursuing the most productive and efficient use of those resources and lands; and exercising caution in any activities which result in modification of nature.

Condition 4: In a sustainable society, people are not subject to conditions that systematically undermine their capacity to meet their needs.

While absolute levels of poverty (the proportion of people living on less than \$1 per day) around the world have declined since 1990, progress has been uneven, and the distribution of income and wealth both within and between nations remains inequitable.²⁹ For example, the developed world (the global north), has 20% of the world's population, but consumes 80% of the world's resources while the poorest 20% of people consume only 1.3% of the world's resources.³⁰ Over one billion people still live in extreme poverty, 845 million are chronically hungry, and 50,000 die every day of poverty-related causes. Clearly many people are currently not meeting their needs.

The circumstances that contribute to inequity are complex and there is no simple solution. However, it is universally acknowledged that sustainability has socio-economic dimensions as well as environmental ones, so the fourth Natural Step system condition acknowledges that sustainability has as much to do with actually meeting basic human needs as with maintaining the capacity of the planet to do so.

It is noteworthy that both the social and the environmental criteria for sustainability are embedded in the very definition of sustainability. According to the Brundtland Commission, “Even the narrow notion of physical sustainability implies a concern for social equity between generations, a concern that must logically be extended to equity within each generation.”³¹

Putting this fourth sustainability condition into practice therefore means examining how decisions taken today might affect the ability of other people to meet their own needs, now and in the future.

3.2.3 Backcasting from Principles

The Natural Step framework uses a planning approach called “Backcasting from Principles”. Backcasting is a methodology for planning that involves starting from a description of a successful outcome, and then linking the actual circumstances of today with that successful future outcome in a strategic way by asking “What shall we do today to get there?”

The Natural Step framework uses the scientifically rigorous System Conditions described above as the basis for the definition of success from which to backcast. It translates the conditions for a sustainable society into *sustainability objectives* for an organization, business, society, or community, namely to:

- eliminate our contribution to systematic increases in concentrations of substances extracted from the Earth's crust;
- eliminate our contribution to systematic increases in concentrations of substances produced by society;
- eliminate our contribution to systematic physical degradation of nature through over-harvesting, introductions, and other forms of modification; and
- eliminate our contribution to conditions that undermine people’s capacity to meet their needs.

Based on the particular current conditions and circumstances of each organization or community, a strategic plan is then drawn up to move gradually and systematically towards the achievement of these four objectives in a way that maintains and strengthens the viability of the organization or community. Typical business and organizational advantages of this approach and strategy include:

- reducing operating costs and environmental risk
- getting ahead of regulatory frameworks
- enhancing the organization's standing among stakeholders
- incorporating environmental concerns into the workplace

- differentiating its products and services and building a positive brand image.³²

3.2.4 The ABCD Planning Process - Operationalizing the System Conditions

The System Conditions describe the basic requirements that must be met in a sustainable society. The ABCD Planning Process shows how these conditions can be applied to an organization's everyday operations. When The Natural Step framework is applied, today's problems are viewed from a future sustainability perspective (a vision), and the practical question then becomes how to move strategically toward that vision.

In this way, TNS frames its approach and actions in a highly positive way. Each business, community, or municipality draws its own conclusions from these basic principles to set its own goals and define its own challenges and solutions in ways that correspond to its particular conditions and circumstances. Thus, the ABCD process provides a systematic way of guiding thinking and action that links a shared vision based on common science-based principles with very specific and practical actions that are appropriate to each participating business, community, and organization.³³ This four-step ABCD process is outlined below:

The Four-Step Approach to Implementing TNS:

Awareness

The starting point of a TNS implementation strategy is awareness of the big picture within which strategies will be developed. Organizations develop a shared and common understanding of the broad system in which they operate, and of their own relation to the current economic, social, and ecological trends of society. They begin to see the specific ways in which present unsustainable conditions limit their own range of opportunities and create unnecessary and burdensome costs for society and their own organization.

Based on this understanding, they then develop a shared vision or mental model of where they themselves would like to be. The key learning concept in this initial Awareness phase is that people will willingly sign on to an initiative if they understand the reasons why it is necessary and beneficial rather than simply being told they "ought" to do it, or being compelled by regulation to do it. By building shared awareness of the fundamental process of sustainable development and its potential advantages, efficiencies, and cost savings, organizations will be able to make genuine and practical progress towards these defined objectives and to strengthen their own business and organizational practices in the process. The Funnel and the four System Conditions assist in developing those shared mental models.

Baseline Mapping

This step helps the organization, business, or community assess where it is 'today' in terms of the four System Conditions. Such an assessment is conducted by listing all the current flows and practices that are problematic from a sustainability perspective, as well as considering all the existing organizational and community assets that are in place to deal with the challenges effectively.

Once an organization is aware of the underlying principles for a sustainable society - the System Conditions - it can evaluate its own performance honestly, straightforwardly, and very specifically and practically according to these standards, including every activity in the organization. Without that understanding, the evaluation would have no anchor.

To give one example, if a farming business is presently highly dependent on fossil-fuel based fertilizer and energy inputs, its baseline mapping process would note exactly how such inputs are presently used, where the flows are most intense, how their growing intensity over time undermines the first system condition of sustainability, and how rising prices for these inputs have resulted in increased business costs over time that have impacted the company's bottom line. At the same time, the business may have unused assets – such as manure from livestock that could potentially be used as an alternative fertilizer source to strengthen the first system condition and reduce input costs. Such assets would also be identified as part of the baseline mapping process.

Clear Vision

The third step is to imagine what the operations or organization will actually look like in a future sustainable society based upon the four System Conditions. As part of this process, possible solutions and innovations for the future are generated and listed by allowing consideration of present constraints that impede realization of the vision to trigger creativity in suggesting solutions and alternative ways forward. In this way, a specific vision is gradually developed, along with more concrete goals and objectives. The vision includes the development of measures that will help to take the organization from where it is now in terms of sustainable practices (meeting the System Conditions) to where its leaders and members imagine the organization can be in the future.

Organizational planners are encouraged to think in long timelines. In fact, initially at least, it does not matter whether or not the objectives and measures outlined as part of this visioning process are realistic in the short-term. The key question for every particular sustainable development strategy in this third planning phase is: What would this organization, this product, or this policy, look like in a sustainable society? The ***“Backcasting”*** process described above helps to produce these answers. The more clearly the vision is described in this planning phase, the more practical and effective the last “action” phase will be.

Down to Action

The last planning step is to prioritize, plan, and cost out concrete measures to achieve this future vision, in order to move the organization in highly practical and flexible ways toward sustainability. Changes identified in step C are therefore carefully prioritized and ordered, and smart early moves and concrete programs for change are launched. At this final planning phase, short, medium and long-term objectives and measures are distinguished, so that each step can build on concrete results from earlier steps.

Innovative actions are screened through the following three questions:

- 1) Does it move us in the right direction with regard to the four System Conditions?
- 2) Is it a flexible platform, a stepping stone toward future improvements?

3) Does it provide an adequate return on investment to seed future investments?

Needless to say, not every outcome and result is entirely predictable, so this fourth planning process becomes an ongoing organizational learning step in which progress, obstacles, and challenges are constantly evaluated, and in which priorities may be adjusted according to circumstances. For example, input and commodity prices may change, requiring a re-evaluation of actions in light of the third screening question – adequate return on investment. However, no matter how flexible the plan may be, it always retains underlying coherence and a shared sense of common purpose, because it is firmly rooted in a clear vision and agreed principles. In this way, the previous planning steps are crucial in laying a strong foundation for a highly practical, flexible, specific, and concrete set of actions and measures.

3.3 How Does TNS relate to other Sustainable Development Concepts and Tools?

Many organizations may already be engaged in planning for sustainability through the use of one of the many concepts or tools currently available. These include programs such as ISO 14000 environmental management systems, recycling practices, or measurement methods like the Ecological Footprint, the Genuine Progress Index, and others. The benefit of TNS is that it provides a coherent, integrated, and overarching framework that works with and encompasses the wide range of sustainable development tools currently available, and that acknowledges the unique value and contribution of each of those tools. In this way, it does not contradict any existing sustainability tool, but can help an organization assess which of these tools is most appropriate to its particular needs, which can produce the greatest benefits, and which are the most cost-effective investments.³⁴

The Five-Level Model for Planning in Complex Systems (shown in Figure 4 below) shows how TNS integrates the use of other sustainability tools and concepts, particularly in levels 4 and 5 that deal with actions and tools. This model provides a clear understanding of how organizations can determine which tools are most appropriate to their particular needs, and where they fit in this model in relation to the overall TNS framework.

Further, the new interactive online TNS e-learning course has an explicit exercise which allows the user to drag one of the varied kinds of sustainability tools, such as those mentioned above, into one of the five levels of the five-stage TNS model to see how it fits. Many adopters of The Natural Step framework have commented on how TNS was important as an overall structure that allowed them to continue employing other tools they were already using in a more effective, coherent, and organized way (see the quotes from adopters of TNS included at the beginning of this primer).

When faced with complex topics like sustainability, misunderstanding can often arise from talking at cross purposes without a common mental model or framework. For example, conflicting definitions of sustainability, including debates on “strong” versus

“weak” sustainability and consequent disputes over the substitutability of human and produced capital for natural capital, have often led to confusion and even paralysis.

David Cook, author of several TNS books, notes that there is therefore an immediate benefit in all participants in decision-making being part of a common and agreed framework, and being able to identify the specific *level* of activity they are discussing.³⁵ Even within the same organization dedicated to a common sustainability vision, confusion and mis-communication can arise if one participant, for example, is talking at the level of concrete and flexible actions while another is discussing broader strategic guidelines. One of the ways to improve the quality of discussion and systems thinking, therefore, is to use the Five Level Model set out below. This is another practical guide that TNS offers businesses, organizations, and communities to assist in developing both the thinking and concrete actions necessary to achieve a sustainable future.

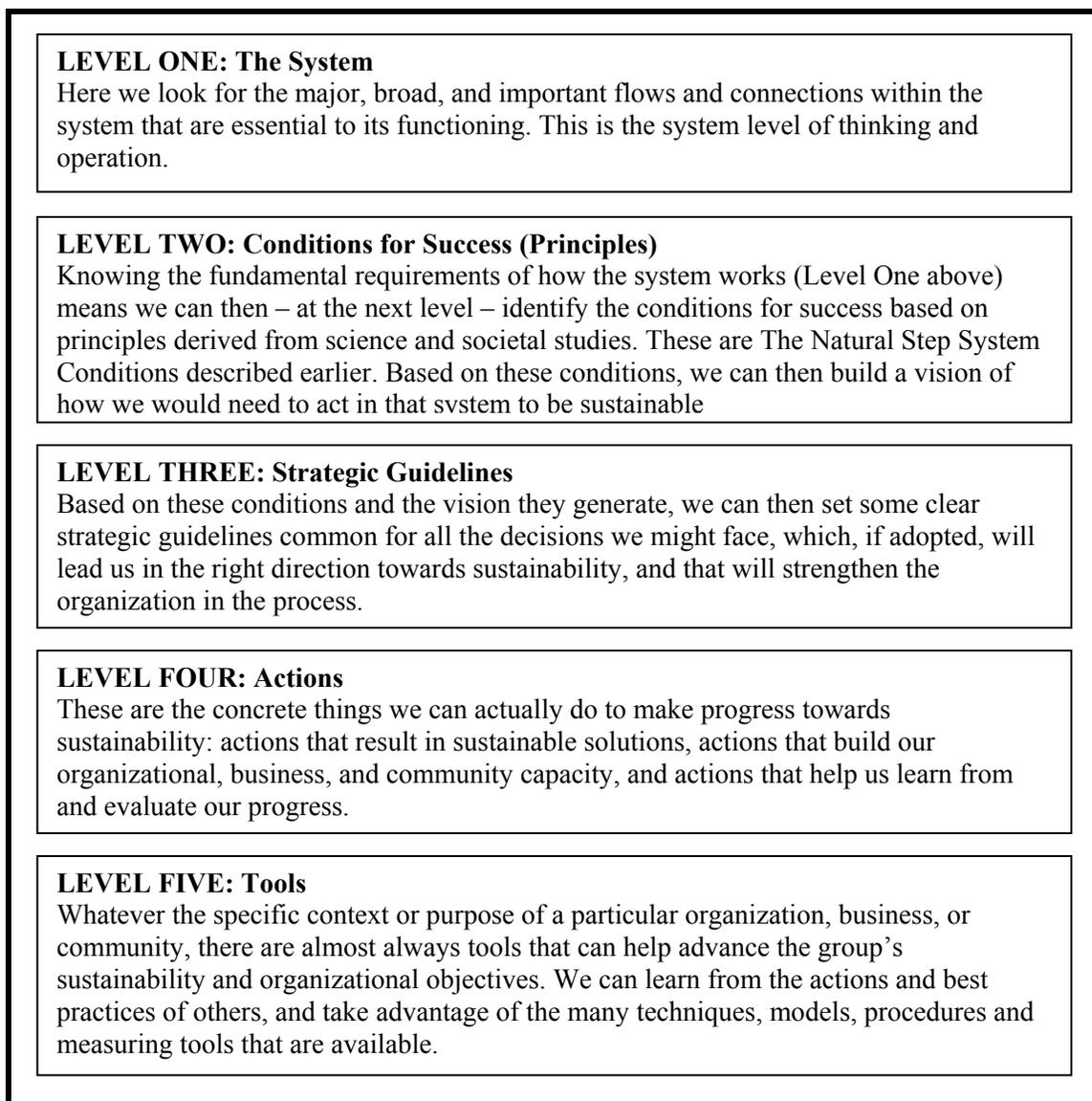


Figure 4. Five-Level Model for Planning in Complex Systems.

4. TNS Case Studies

This section examines the extent and nature of the adoption of TNS by communities and businesses of all sizes, and provides some specific examples of jurisdictions and businesses that are using TNS. The development of an Atlantic Canadian initiative that uses The Natural Step framework will benefit from an understanding of the experience and expertise of those companies and municipalities that are already using the framework.

There is excellent documentation of how TNS has been applied among a diverse group of communities and businesses. There are a number of books that examine groups of case studies, and individual case studies can also be found on the websites of TNS International (<http://www.naturalstep.org/>) and the national organizations in New Zealand (<http://www.naturalstep.org.nz/>), Canada (<http://www.naturalstep.ca/>), and the United States (<http://www.ortns.org/>), among others. In addition, staff from TNS Canada have provided recent updates on resources related to the various adoptions of TNS occurring in Canada. The opening pages of the primer include quotes from adopters of TNS.

Along with the case studies, there are also a number background papers discussing how TNS can be used within specific industries, such as the construction sector, the PVC industry, the automotive sector, and the hospitality and service sector.³⁶ These papers and case studies provide an excellent and detailed account of the varying rationales for the adoption of TNS, proven practices used by adopters, and the potential usefulness of TNS to other users. Please see Appendix 3 for a comprehensive list of TNS resources for more information.

4.1 Municipalities Using TNS

Across Canada, several municipalities have already adopted TNS as a framework for achieving sustainability. The communities of Whistler, British Columbia, and Canmore, Alberta, have worked to redefine their vision of sustainability using The Natural Step framework. Right here in Atlantic Canada, the Town of Wolfville, Nova Scotia, and the Environmental Management Department of the Halifax Regional Municipality are also using TNS. At the national level, TNS Canada has worked with the Federation of Canadian Municipalities (FCM) to train FCM staff and profile The Natural Step framework at FCM national conferences.

Both Whistler and Canmore can be considered “early adopters” of The Natural Step framework. In the case of TNS, early adopters are leaders who facilitate the transition between unsustainable and sustainable practices, and act as demonstration models for other organizations. Early adopters of TNS include businesses, NGOs, and communities. As examples and local champions of TNS, these leaders are instrumental in helping others to see and understand what TNS is all about, and how they themselves might become involved with sustainable development using The Natural Step framework. Early adopters help to build capacity in the march toward sustainability by demonstrating its

viability, benefits, and cost-effectiveness.³⁷ Drawing on the experience of Whistler, Canmore, and other municipalities using TNS, Atlantic Canada now has the opportunity to take this model one step further and become the first *regional* adopter of TNS in Canada.

Space here does not permit a detailed exploration of each of the following case studies, so they are cited very briefly in this chapter. Further and more detailed information is available from each of these jurisdictions.

Wolfville, Nova Scotia

The Town of Wolfville, in partnership with the Centre for Rural Sustainability (CRS), successfully acquired funds from the Federation of Canadian Municipalities' Green Municipal Fund and the Province of Nova Scotia to explore sustainability initiatives for the community. One of the main projects enabled by these grants is the total revision of the town's Municipal Planning Strategy and Land Use By-laws from a sustainability perspective.

The Centre for Rural Sustainability conducted capacity-building workshops with town staff and council based on The Natural Step framework. These provided a sound base from which to launch the first phase of a community engagement process that involved citizens and diverse community groups in discussing sustainability and land use planning issues. CRS is currently conducting a series of community circles in the town. The format of these circles is based in part on The Natural Step study guide, a guide based on the experience of Swedish communities that have successfully used study circles as a tool for beginning education and community conversation around sustainability.³⁸

The sustainability journey for Wolfville continues and is currently at the public engagement stage. The information acquired through the present consultations will help to inform further public involvement and lay the groundwork for the revision of planning policies. The Town of Wolfville also partnered with The Natural Step Canada in the roll-out of the new TNS e-learning module and has made this educational tool available to those working on this project.³⁹

Halifax Regional Municipality, Nova Scotia

The Halifax Regional Municipality's (HRM) Environmental Management Department is part of The Natural Step Sustainable Communities Program. With the assistance of TNS Canada, the Department has developed a high level analysis of its operations using The Natural Step framework. This has provided a baseline analysis of sustainability performance and will be used to help the municipality better understand how it can contribute to a healthy and sustainable HRM. A series of educational workshops on The Natural Step framework were conducted as part of this project, and TNS Canada also consulted with 13 functional areas of HRM's city government.⁴⁰

Whistler, British Columbia

The Natural Step framework has helped the Resort Municipality of Whistler develop practical tools and capacity within the municipal government and the community to support its journey to sustainability. Led by the municipal government, Whistler developed a comprehensive plan - a sixteen-year strategy – to move the town towards a sustainable future. Called *Whistler 2020*, this community planning process included extensive community engagement, and incorporates The Natural Step framework throughout. It includes strategies in 16 key areas of community life and development. The final product assesses the sustainability of new developments including housing, infrastructure, businesses, land use, and even preparations for the Winter Olympics in 2010. *Whistler 2020* has won national awards for sustainable community planning from the Federation of Canadian Municipalities and the Canadian Association of Municipal Administrators.

Whistler has also developed a draft Green Purchasing Policy for the municipality based on The Natural Step framework. This will help in applying sustainability principles to purchasing decisions. Such procurement policies illustrate the way that organizations can influence wider societal transformation by demonstrating leadership and by creating increased demand for sustainably produced products. Household sustainability toolkits were developed as part of Whistler's community education effort and distributed to all households in the Municipality. These toolkits used The Natural Step framework to explain what sustainability is all about, and helped citizens understand the impacts of their decisions according to the four TNS System Conditions. Small business and school toolkits were also produced, and community workshops were organized to support their use. For more information about Whistler's journey towards sustainability, please see www.whistler.ca/Sustainability/.

Canmore, Alberta

In November 2004, the Town of Canmore, Alberta, in partnership with organizations in the community, launched *The Natural Step to a Sustainable Canmore*. This endeavour was an ambitious education and planning process to help Canmore move strategically towards sustainability. The program involves a number of organizations in the community as Early Adopters, including the local seniors' association, the public library, a major land developer, the municipality, a local environmental NGO, the Canmore Economic Development Authority, and a number of small businesses. Canmore is the second Canadian community to implement The Natural Step's community-wide engagement program, after Whistler.⁴¹ For more information about Canmore's use of TNS, please see <http://www.canmore.ca/living/our-environment/natural-step-2.html>.

The Natural Step for Communities

The Natural Step for Communities: How Cities and Towns can Change to Sustainable Practices, written by Sarah James and Torbjörn Lahti, outlines how municipalities can use The Natural Step framework in practical ways to formulate clear and meaningful objectives and actions. Examples are shown in the chart below.

| Four Objectives and Actions Derived from The Natural Step System Conditions | |
|--|--|
| Guiding Objective | Types of Practice |
| 1. Eliminate our community's contribution to fossil fuel dependence and to wasteful use of scarce metals and minerals. | Transit & pedestrian-oriented development; development heated & powered by renewable energy; mixed-use development; public transit; alternatively fuelled municipal fleets; incentives for organic agriculture that minimize phosphorus & petrochemical fertilizers and herbicides. |
| 2. Eliminate our community's contribution to dependence upon persistent chemicals and wasteful use of synthetic substances. | Healthy building design & construction that reduces or eliminates use of toxic building materials; landscape design & park maintenance that uses alternatives to chemical pesticides and herbicides; municipal purchasing guidelines that encourage low or non-chemical product use. |
| 3. Eliminate our community's contribution to encroachment upon nature (e.g. land, water, wildlife, forests, soil, ecosystems). | Redevelopment of existing sites and buildings before building new ones; building 'from the inside out' development and infrastructure policies; open space, forest, and habitat preservation; reduced water use; recycling of wash water; sewage treatment by plants. |
| 4. Eliminate our community's contribution to barriers that undermine people's capacity to meet their needs. | Affordable housing for a diversity of residents; locally based business and food production; using waste as a resource; eco-industrial development; participatory community planning and decision-making. |

4.2 Businesses Using TNS

Businesses form an integral part of any community, so community planning for sustainable development must also address and integrate business needs and concerns. Businesses also have a unique opportunity to be leaders in their community. One way of doing this is to become an early adopter, as described in the sections above on Whistler and Canmore. This section examines some specific businesses that have used TNS to enhance the way they do business, to help them become more sustainable, to build their capacity, and to increase returns on investment.

4.2.1 Large Companies

Many large companies from around the world are currently using TNS to guide their progress towards sustainability. Sixty corporations in Sweden, including IKEA, Electrolux, McDonald's Sweden, JM Construction, The Hammarby Sjostad Project, and Stena Metall AB, are currently using TNS.⁴² In Japan, where the economy has faltered and resources are of the highest premium, TNS is collaborating with six of the country's most powerful corporations, including Suntory, the leading beverage producer and distributor, and electronics giant Matsushita, to build sustainability into their visions of success. Companies in Canada, the United States, the United Kingdom, New Zealand, and other countries are also using TNS successfully and effectively. On the Oregon Natural Step Network website there are many case studies of the positive steps that companies in Oregon and around the world are taking to move toward genuine

sustainability in a way that enhances business success.⁴³ See Appendix 3 for a list of TNS resources that provide more information on businesses using TNS.

The case studies below not only illustrate the steps different companies have taken as they move towards sustainability, but they also show the potential business benefits of doing so. In a June 2005 presentation in New York, Terry Gips, President of Alliance for Sustainability, a US organization that works on sustainability issues, concluded that “the power of the TNS framework is that anyone can really use it and can actually see how they can save money. It’s sort of a whole new way of thinking.”⁴⁴ Again, space does not allow detailed analysis of these case studies, but a few examples are very briefly presented for illustrative purposes.

The Collins Companies (United States)

This 143-year-old Northwest forest products firm was the first Oregon company to adopt The Natural Step framework. With a long history of sound stewardship, Collins Pine has discovered that TNS provides a logical framework for all of its operations. Its first accomplishment was to train the 600 employees in its Klamath Falls composite-panel plant in TNS principles. Collins has also established methods for evaluating capital expenditures based on the four System Conditions, and is working on more decision-making and measurement methods in accord with TNS principles. Collins estimated that it saved over a million dollars in its first year using TNS.⁴⁵

IKEA (Sweden)

This Swedish furniture company, the largest in the world, adopted The Natural Step framework in 1991 in response to consumer pressure opposing the use of wood from virgin rainforests. Ikea’s four-year environmental plan called for implementing The Natural Step framework throughout the organization. IKEA began its TNS journey by redesigning one furniture line to eliminate metals, persistent glues, and toxic dyes, reducing energy consumption, and increasing material efficiency. By applying this experience company-wide, IKEA is becoming more profitable.

Interface (United States)

Georgia-based Interface, the world's largest commercial-flooring company, became the first US company to adopt The Natural Step framework. After learning more about TNS, CEO Ray Anderson initiated an assessment of TNS with senior staff at Interface, after which Interface integrated The Natural Step framework with the other sustainability tools and concepts it was already using. Interface has undertaken over 400 sustainable development initiatives, developed the first solar powered carpet plant in the world in Los Angeles, and produced the first recyclable carpet tile. In its journey towards sustainability, and with the help of TNS, Interface has saved over \$200 million. Interface is listed as one of Fortune Magazine’s 100 top companies to work for, showing that it has enhanced social as well as environmental and economic conditions for the company.

Industry Groups: The European Polyvinyl Chloride (PVC) Industry

TNS organizations have also assisted industry groups in assessing how TNS could be useful to their industries. For example, in the UK, TNS assisted the PVC Co-ordination Group, comprised of representatives of major UK retailers and the two UK PVC manufacturers. These companies supported research using The Natural Step framework to explore the sustainability issues in the PVC life-cycle. This research was integrated with a 2020 Vision Seminar to build consensus within a group of invited experts about what would be necessary for PVC to be part of a sustainable future. The Stepping Stones TNS International Newsletter shows how the four System Conditions were effectively used to identify major issues in the PVC industry.⁴⁶

4.2.2 Small Businesses

Smaller and medium-sized businesses have also found The Natural Step framework helpful in guiding their progress towards sustainability. The examples below are perhaps more applicable to Atlantic Canada, as companies headquartered in this region tend to be of a smaller size. Case studies from the hospitality and service industries, the manufacturing sector, and the construction industry, are especially relevant for Atlantic Canada.

Sokol Blosser Winery (Oregon, US)

After being introduced to The Natural Step framework in 1999, Susan Sokol Blosser began by educating her organization's board of directors about TNS and sustainability issues, and then with their support, all the winery staff. Sustainability is now part of the winery's mission and has become embedded into its regular operations. The winery has achieved many impressive, positive changes, including incorporating sustainability into its mission statement, moving to completely organic farming, using no synthetic chemicals or fertilizers, using only unbleached paper products, and having a paper recycling container in every room.

Sokol Blosser Winery learned many practical lessons as it conceived and implemented all of these changes. One lesson is that switching from traditional farming practices to organic farming takes time. Winery owner Sokol Blosser says that "it's like trying to move a patient who is on life-support (in this case, plants being force-fed fertilizer), to one that can live and eat on its own. If you try to do it all at once, the system can't handle it, and you'll have problems."⁴⁷ As well, Sokol Blosser emphasizes the importance of balancing the cost of choices, saying: "Some things may save you money; some sustainable options will cost more. Try to balance these choices so that you are at least no worse off economically."⁴⁸

Hot Lips Pizza (Oregon, US)

This case study documents the experience of a small, three-store restaurant operation with 50 employees and \$2 million in sales. The owner, David Yudkin, used The Natural Step framework to develop an approach to his business that saved him money while attracting more committed employees and loyal customers. Learning about TNS helped

him see an opportunity to use a commitment to sustainability to differentiate his company from other pizza companies.

This case study illustrates the importance of developing suppliers as allies through education, so that they can support the changes the company is making. As well, Yudkin found that getting advice and learning from others who have gone through a similar process was also very helpful.⁴⁹

Rocky Mountain Flatbread Company (Canmore, Alberta)

The Rocky Mountain Flatbread Company is an excellent example of both an early adopter and a Canadian business in the food industry using The Natural Step's four System Conditions. For each System Condition, the company identified existing practices that could be targeted for change. Selected existing practices included reliance on fossil fuels for transport, heating, and fertilisers; using chemical cleaners and plastics for packaging; destroying forests through the use of firewood and paper; buying packaging or shirts produced with sweatshop labour; and not sharing wealth with the local community.⁵⁰ Major changes were implemented in each of these areas to enable the company to move towards more sustainable practices.

The case studies described above help to illustrate how communities and businesses have begun their journey towards sustainability, and the different practical steps they are taking along their paths. For those who are unfamiliar with TNS, case studies such as these can help to build an understanding of how The Natural Step framework has been effectively and practically used by others. However, one of the major benefits of TNS is that it is flexible and adaptable to the particular needs of each community or business. While TNS presents a coherent and unifying framework, there is no single way to work towards meeting the four System Conditions. Instead each organization uses The Natural Step framework as a compass to guide its decision-making so that it is consistently moving towards a more sustainable future in its own unique ways that suit its particular conditions and circumstances.

5. The Potential for Sustainability in Atlantic Canada

5.1 Atlantic Canada as a Model of Sustainability

There are many unique factors and natural assets that combine to make Atlantic Canada an excellent candidate to become a regional model of sustainable practices. Many federal, provincial, and municipal government departments and agencies in this region are already working to incorporate sustainability into their long-term planning and development processes. More importantly, the attitude and culture of the people of this region, the nature of the small local community economies that still exist, the region's natural beauty and proximity to valuable environmental resources, and the existence of small, manageable provincial entities, make the Atlantic region a prime location to pilot an integrated and far-reaching sustainability initiative. Given local experience of environmental degradation and resource collapse such as that described in Section 2, the strong institutional learning base of the region, a good community economic development background, and motivation and support from governments, Atlantic Canada has all that it takes to make this region a model of socially and environmentally responsible development practices. Such an initiative holds the promise of making an enormous contribution to the region's long-term prosperity.

Federal government departments such as the Atlantic Canada Opportunities Agency (ACOA), Environment Canada, Natural Resources Canada, and Parks Canada, are currently in the process of developing the third round of their Sustainable Development Strategies for 2007 - 2009. ACOA's new Strategy will have particular relevance to this region, and could help to support projects related to sustainable development.

There are also many admirable actions and commitments at the provincial level in Atlantic Canada. The Sustainable Development Strategy developed in the early 1990s by the Nova Scotia Round Table on the Environment and the Economy provided an excellent framework for sustainability in Nova Scotia. Both Nova Scotia and Prince Edward Island have very effective leading-edge solid waste management strategies with the highest waste diversion rates in the country, and both governments have the experience of working closely and effectively with citizens and communities on this issue to encourage full participation. The Prince Edward Island government has also committed to generating 100% of its electricity from renewable sources by 2015, a remarkable and ambitious goal unmatched by any other province. The Newfoundland and Labrador Government is now preparing a new Sustainable Development Act for the province. Other provincial government initiatives in the Atlantic region address issues such as coastal zone planning, wildlife management, sustainable forest harvesting, and more.

A commitment to sustainable development is also visible at the community level. In Atlantic Canada there is a pervasive community-based social and economic tradition, and a strong sense of community still exists in the region. Because a greater proportion of the population in the region, compared with the rest of Canada, lives in rural areas, people tend to be well-connected with their surrounding environment and its resources, and to

understand the importance of the environment in any sustainability model. Fishing, forestry, agriculture, and tourism - some of the region's important economic sectors – are completely dependent upon being sustainable for their own survival. Two communities in Nova Scotia, Halifax Regional Municipality and Wolfville, have already embraced The Natural Step as part of their model in thinking about and planning for sustainability. These and other communities in the region already have sustainable practices in place or are poised to adopt a more sustainable approach to their activities. HRM, for example, has the largest waste diversion rate of any municipality in the country.

There are many socially and environmentally responsible businesses in Atlantic Canada. These include organizations that use sustainable forestry, fishing and farming techniques, that support fair trade, that produce environmentally friendly products and environmental technologies, that are developing wind energy, that make contributions back to the communities in which they operate, and more. Minas Basin Pulp and Paper (<http://www.minas.ns.ca/>), Just Us Coffee (<http://www.justuscoffee.com/>), P'lovers Environmental Store (<http://www.plovers.net/>) and Windhorse Farm (<http://www.windhorsefarm.org/>) are just a few examples of the many businesses committed to sustainability in the region.

Universities in the region also have a strong interest in sustainable development, teach courses in the subject area, and implement sustainable practices on campus. For example, Acadia University (Wolfville, NS) and University of Prince Edward Island (Charlottetown, PEI) have both expressed interest specifically in playing a role in a regional initiative using The Natural Step framework. Universities are interested in using TNS both to work directly with communities and to apply TNS concepts in their business schools, environmental programs, and other areas. They are prepared to take a leadership role in sustainability education and related research in the region.⁵¹

As outlined in Section 2, Atlantic Canadians recognize that there are important sustainability challenges in the region. Resources such as forests and fisheries have been degraded or lost, affecting the livelihood of many residents. Air and water pollution, strip mining, the use of bio-solids on fields, continued reliance on coal for energy production, and many other environmental issues are of concern to Atlantic Canadians. Unemployment is generally higher in Atlantic Canada than in the rest of the country, and out-migration due to lack of opportunities, particularly from rural communities, is an important issue. Access to affordable education, housing and transportation are also ongoing concerns for many Atlantic Canadians. Using TNS to frame a new approach to addressing these issues could help to involve all stakeholders in developing real, practical, and comprehensive solutions to some of these challenges in ways that effectively harmonize and integrate social, economic, and environmental objectives.

The elements described above demonstrate growing interest in sustainable development, a wide range of natural assets and advantages supporting such development, and recognition of the need for action. What has been missing in the disparate sustainability movements around the region is a systemic framework that can help develop an integrated vision, and facilitate cooperation and communication. Too often, well-

intentioned initiatives work at cross-purposes and undermine rather than enhance one another. The Natural Step framework could provide the coherent approach that is required, and effectively move the region toward sustainability on all fronts – economic, social, and environmental – in a pervasive, systemic, and holistic way. Planning processes such as those offered by TNS can help individuals, businesses, communities, and organizations to become more sustainable, and to make long-term decisions and plans that will contribute to sustaining life on the planet and in this region, ensuring continued economic prosperity.

Considering the existing momentum with sustainable development thinking and action in the region, there is a good opportunity to introduce TNS at a local level in the form of a pilot program, and to evaluate its potential to work on a regional scale in Atlantic Canada. Such an effort could be highly valuable to communities and businesses in the region, and could positively influence the region's competitiveness, its leadership profile in the rest of the country and abroad, and its ability to prosper in a sustainable way over the long-term.

The Natural Step framework and training are easily accessible through TNS Canada, which has already been working actively with businesses and communities in this region, and has been developing and strengthening links with a number of communities and organizations interested in this approach to sustainability. Genuine Progress Index (GPI) Atlantic, a Nova Scotia non-governmental research and education organization, recently hosted the founder of The Natural Step, Dr. Karl-Henrik Robèrt, from Sweden, who addressed a number of Atlantic region mayors, government, business and NGO leaders, and HRM staff and councillors, in three separate presentations in Nova Scotia.

There is now every opportunity for communities, governments, and businesses to learn more about The Natural Step framework and methodology. Organizations at all levels could use it to start their shift towards sustainability, or as a way to advance and strengthen their already-defined strategies for sustainable development. The concept of sustainable development has become very widely, indeed universally, accepted. What has been missing till now is a coherent and systemic way of effectively putting the concept into practice. After studying a wide range of alternative methods, and after measuring and examining the evidence on sustainable development in the region over a period of ten years, GPI Atlantic has found The Natural Step to be the best available framework and methodology for moving practically and effectively towards genuine sustainability.

5.2 Potential Challenges in Moving Towards Sustainability in Atlantic Canada

The section above outlines the many factors that make Atlantic Canada an excellent and highly suitable place to explore the use of The Natural Step framework to enhance, strengthen, and integrate the movement towards sustainability already occurring in the region. However, it must also be acknowledged that there will be challenges in becoming a more environmentally and socially responsible region. This section provides a brief

review of some of these potential challenges, and some potential ways of addressing them.

Resistance to change can be a huge roadblock in any attempt to launch a venture such as the one proposed here. This is true especially when proposed changes challenge some long-standing practices and beliefs about the way society should function. Immobility or resistance to change comes from a comfort in the status quo or adherence to old ways. Gradually developing understanding, trust, and cooperation, as well as starting with common goals, will help dispel the fear of change, and create openness around the idea of sustainable development. An initial awareness-building/education activity aimed at a broad general audience might help to inform more people about sustainable development and stimulate out-of-the-box thinking and action.

Fear of unknown costs might prevent some from embracing a movement toward sustainability. To counter this concern, it is important to clarify that more sustainable options can also have financial rewards. Businesses that follow a sustainable development route generally reduce their expenditures in areas such as resource and energy use and waste disposal. Savings in one area can then be used to support initiatives in another area where becoming more sustainable might have a greater initial associated cost. Many businesses have also shown increased profits as they become more sustainable by taking advantage of new opportunities, unlocking new markets, appealing to consumer concerns, and improving their competitiveness.

A serious roadblock in the movement towards sustainability is often the lack of incentive or reward to those who want to practice sustainable development, and the corresponding lack of penalty to those that are unsustainable in their practices and create costs that are later borne by taxpayers (for example, cleaning up pollution or providing health care). Part of the movement toward sustainable development, and a direct role for governments, can be to create incentives such as tax relief for sustainable practices or polluter-pay penalties for unsustainable practices, as well as special rewards and incentives for investments in environmental technologies, renewable energy use and similar actions.

For example, the Nova Scotia government already offers higher silviculture credits to woodlot owners who practice selection harvesting, thereby creating a financial incentive for sustainable harvest practices. The provincial government also supports homeowners who reduce their energy use through various means (e.g. improving insulation). With growing government and public attention on sustainability, such government action on incentives that reward sustainable practices is becoming more feasible and acceptable.

While such challenges as resistance to change, costs, and lack of financial incentives are real, so is the fact a sustainable approach to development has been demonstrated to enhance and strengthen long-term prosperity. As well, most Atlantic Canadians are deeply concerned about the sustainability of their communities, and the environment and resources that support them, so public support for sustainable development initiatives in the region is very strong. There has never been a more opportune time to move effectively and practically in the direction of genuine sustainable development. Abundant

evidence indicates that there are major benefits to be achieved, profits to be made, innovation to be encouraged, and leadership to be gained from moving to a more sustainable way of life. The Natural Step framework is proposed here as a sustainability model that can engage all sectors including communities, governments, businesses, non-governmental organizations, and the general public. The available evidence demonstrates that sustainability is indeed the way of the future, perhaps our only future, and that there is a tremendous opportunity here for Atlantic Canada to lead the way.

5.3 Resources for Sustainability in Atlantic Canada

There is already a significant amount of support for and action on issues of sustainable development in Atlantic Canada, from the federal level down to individual activities. Any new initiative for sustainability in the region should build on, strengthen, and work cooperatively with what is already happening here. This section outlines some of the existing resources and organizations that have made significant commitments to sustainability in the region, but the following list is by no means exhaustive. Many of the Atlantic resources listed here are specific to Nova Scotia because that is where this project was developed. The websites listed below are also rich in information themselves, providing additional links and resources not mentioned here.

National

Canadian Industry Program for Energy Conservation

The Canadian Industry Program for Energy Conservation (CIPEC) is a partnership between the federal government and industry to improve Canada's industrial energy efficiency. The partnership has several programs to help companies with energy efficiency, which in turn can result in decreased costs and higher profits.

<http://oee.nrcan.gc.ca/industrial/cipec.cfm?attr=0>

Canadian Rural Partnership

The Canadian Rural Partnership supports federal rural policy efforts. Resources include:

- Canadian Rural Information Service (CRIS), which provides information on a number of sustainability issues relevant to rural Canada (http://www.rural.gc.ca/cris/about_e.phtml).
- Rural Teams for each province that work on different rural issues (http://www.rural.gc.ca/ruralteam_e.phtml).
- The Networking Initiative, which funds different rural community projects (http://www.rural.gc.ca/programs/networking_e.phtml).

The Federation of Canadian Municipalities (FCM)

The FCM provides a national voice to municipal governments. The primary resource for sustainable development is the Green Municipal Funds Program, which funds infrastructure improvements and sustainable community planning.

<http://www.sustainablecommunities.ca/Home/>

Infrastructure Canada

Infrastructure Canada has a number of funding programs to help communities and provinces develop green infrastructure. <http://www.infrastructure.gc.ca/>

- The Municipal Rural Infrastructure Fund (MRIF) provides funding for smaller-scale, local community infrastructure projects. http://www.infrastructure.gc.ca/mrif-fimr/index_e.shtml?menu35
- The Infrastructure Canada Program (ICP) funds green municipal infrastructure to improve air and water quality. http://www.infrastructure.gc.ca/icp/index_e.shtml?menu3
- The Federal Gas Tax Fund supports sustainable municipal infrastructure that meets objectives on clean water, clean air, and reduced greenhouse gas emissions, as well as supporting integrated community sustainability planning (ICSP – see below).

Integrated Community Sustainability Plans (ICSPs)

Three of the Atlantic Provinces have signed agreements with the federal government on use of gas tax revenues. These agreements have a requirement that municipalities develop an Integrated Community Sustainability Plan in order to receive this funding. These plans “will support the development of sustainable healthy and vibrant communities”.

Agreements for Nova Scotia, PEI and New Brunswick can be found at

http://www.infrastructure.gc.ca/ndcc/agreements/index_e.shtml.

McConnell Foundation

The McConnell Foundation is the second largest private foundation in Canada. The foundation has supported The Natural Step Canada in providing training, guidance and tools to individuals wishing to improve the sustainability of their communities.

<http://www.mcconnellfoundation.ca/>

Atlantic region

Atlantic Canada Opportunities Agency (ACOA)

The Atlantic Canada Opportunities Agency is the federal government department responsible for helping to build economic capacity in the Atlantic Provinces. Programs are focused on entrepreneurship, trade, investment in the region, and innovation, particularly for small- and medium-sized businesses. Sustainable development is also an increasingly important element of ACOA’s programming. ACOA advises regional businesses and produces materials on issues like “*Eco Efficiency - Becoming an Eco-Efficient Business.*”

<http://www.acoa.ca/e/en/index.asp>; <http://www.acoa.ca/e/sustain/index.shtml>;

http://www.acoa.ca/e/sustain/2004/sustain_en.pdf;

<http://www.acoa.ca/e/library/reports/eco.shtml>.

Atlantic Coastal Action Program

The Atlantic Coastal Action Program (ACAP) is a unique community-based program that helps communities to define common objectives for environmentally appropriate use of their resources and to develop plans and strategies that will help achieve them. There are ACAP sites in all four Atlantic Provinces.

<http://atlantic-web1.ns.ec.gc.ca/community/acap/default.asp?lang=En&n=085FF7FC-1>

Atlantic Health Promotion Research Centre

The Atlantic Health Promotion Research Centre conducts and facilitates health promotion research that informs policies and practices in the region, and contributes to the health and wellbeing of Atlantic Canadians. <http://www.ahprc.dal.ca/welcome/default.asp>

Canadian and Provincial Environmental Networks

The Environmental Networks are non-profit networks of groups working on environmental issues. They are non-partisan and do not take positions on particular environmental issues. Instead, they support members through information-sharing, coordination of activities and action plans, and administrative and technical support.

Nova Scotia Environmental Network: <http://www.web.ca/~nсен/>

Prince Edward Island Eco-Net: <http://www.isn.net/~network/>

Newfoundland & Labrador Environmental Network: <http://www.cornet.nf.ca/web/nlen/>

New Brunswick Environmental Network: http://www.nben.ca/nben_index.htm

A wide range of environmental non-governmental organizations committed to conservation, stewardship, and sustainable development belong to the provincial networks, and so they are excellent resources for finding out more about the work these groups are doing in each province.

Centre for Rural Sustainability (CRS) - Nova Scotia

A non-profit organization that facilitates learning, planning, and strategic decision making around issues of long-term and short-term sustainability for rural Nova Scotia communities. Services include consultation, facilitation, fundraising and education. The CRS also conducts workshops on The Natural Step.

<http://www.ruralsustainability.org/index2.htm>

Coastal Communities Network – Nova Scotia

The Coastal Communities Network is a volunteer association of organizations. The network provides a forum for dialogue, information sharing, and creation of strategies and actions that promote the survival and development of Nova Scotia's coastal and rural communities. <http://www.coastalcommunities.ns.ca/main.php>

Community Accounts - Newfoundland and Labrador; Community Counts - Nova Scotia

These provincial data sharing programs in Newfoundland and Labrador and in Nova Scotia empower communities by providing easily accessible web-based information on local conditions. Data are available in areas such as demographics, employment, migration, health status, and income, to name just a few.

Newfoundland and Labrador:

<http://www.communityaccounts.ca/CommunityAccounts/OnlineData/default.asp>

Nova Scotia: <http://www.gov.ns.ca/finance/communitycounts/>

Conservation Council of New Brunswick (CCNB)

CCNB is a membership-based organization that acts to safeguard the quality of air, land and water in New Brunswick, and to develop and promote solutions to reduce resource destruction through research and education. <http://www.conservationcouncil.ca/>

Eco-Efficiency Centre – Nova Scotia

The Eco-Efficiency Centre is a non-profit agency that helps small and medium sized businesses see the ecological and economic advantages in making the right environmental choices. The Centre provides information on eco-efficiency, pollution prevention, resource conservation, and economic efficiency. <http://eco-efficiency.management.dal.ca/index.htm>

Falls Brook Centre – New Brunswick

The Falls Brook Centre is a community education and demonstration centre that works on organic agriculture, appropriate technology, community development, and forest stewardship. <http://www.fallsbrookcentre.ca>

Nova Scotia Education for Sustainable Development Working Group (NSES DWG)

The NSES DWG is a newly-formed group dedicated to supporting systemic change within the formal, non-formal and informal education systems by bringing together individuals, organizations, and networks. The NSES DWG is an initiative related to the United Nations Decade of Education for Sustainable Development (2005-2014). Contact the NSES DWG Coordinator, esd_novascotia@magma.ca, for more information.

Nova Scotia Sustainable Communities Initiative

The Nova Scotia Sustainable Communities Initiative (SCI) is a partnership of more than 40 federal, provincial, municipal and First Nations governments dedicated to working with communities towards improved social, economic, environmental and cultural wellbeing. The initiative currently has pilot projects in the Bras d'Or Lakes and Annapolis-Fundy regions. <http://www.nssci.net/public/>

Provincial Departments of Environment

Provincial Environment Departments in each province have a number of important resources that will be helpful in making the Atlantic region a leader in sustainable development, including possible funding opportunities, environmental strategies, and existing laws and regulations. For example, the Newfoundland and Labrador Department of Environment and Conservation recently conducted province-wide consultations on a proposed new Sustainable Development Act for the province.

Nova Scotia, Department of Environment and Labour: <http://gov.ns.ca/enla/>

Prince Edward Island, Department of Environment, Energy and Forestry:

<http://www.gov.pe.ca/enveng/index.php3>

New Brunswick, Department of Environment: <http://www.gnb.ca/0009/index-e.asp>

Newfoundland and Labrador, Department of Environment and Conservation:

<http://www.env.gov.nl.ca/env/>

Universities

Several Atlantic Canadian universities have programs and/or facilities that are highly relevant to sustainability issues. Dalhousie University's Marine Environmental Law Program and School for Resource and Environmental Studies, Acadia University's K.C. Irving Environmental Science Centre, University of New Brunswick's Environment and Sustainable Development Research Centre, and University of Prince Edward Island's course offerings on The Natural Step are just a few examples of this.

5.4 Recommended Next Steps for Piloting the Use of The Natural Step Framework in Atlantic Canada

The overarching vision that led to the development of this Primer is that the people of Atlantic Canada including governments, businesses, institutions, communities, and organizations, pilot on a regional and local basis, The Natural Step framework as a systemic and overarching strategy to move toward sustainability in a fully integrated way. One of the chief aims of this Primer is to recommend some concrete next steps to explore the use of The Natural Step as a practical and workable methodology for advancing the region toward sustainable development in an integrated and coherent way that can quickly establish Atlantic Canada as a sustainability leader and a model and laboratory of best practices.

This project could be extraordinarily beneficial for the region as it becomes known internationally as an exemplary case study of regional movement towards sustainability. Visitors from around the world already come to Nova Scotia to study its leading edge solid waste management system. In the same way, the systemic and dedicated application of The Natural Step framework in Atlantic Canada could attract enormous interest and become a remarkable export opportunity and competitive advantage for the region.

The action items outlined below represent the recommended next steps in encouraging sustainability in Atlantic Canada using The Natural Step Framework. The list is not intended to be a formal proposal, but rather provide a starting point that can be used to stimulate discussion and generate interest in taking some first steps toward a sustainable Atlantic Canada. Eventually, with input from different stakeholders, the action items below can be developed further into a concrete proposal that will identify short and long term goals and outcomes and provide a detailed timeline and budget for this project. GPI Atlantic plans to develop such a proposal, in partnership with other interested organizations and communities.

Recommended Action Items:

1. A workshop series on The Natural Step

The Natural Step provides considerable flexibility to design a process suited to the resources, circumstances, and culture of a given region, community, or business group. The process typically involves approximately five 2-day workshops over a period of three to ten months. This 10-day TNS series would include subsidized participation for NGOs and individual community members. Individuals from participating organizations would attend the workshops together so that a variety of

government, community, and business stakeholders are represented and experience peer-to-peer learning throughout the process. Arrangements can be made to have these workshops presented centrally within the region or partly in each province.

2. Establish a TNS/sustainable development inter-disciplinary working group or steering committee.

Early in the process of studying The Natural Step and in engaging decision-makers it will be important to establish a strategic working group comprised of government, business, community and NGO representatives to introduce and promote the idea more broadly, to track its progress, and to help in the initial application of The Natural Step framework. To date, an informal group of participants from GPI Atlantic's *Building Sustainable Development* workshop and others who have since expressed an interest have filled this role, but it will be beneficial to formalize needs, roles, and responsibilities of all interested members.

This working group will have as one of its key missions, and as a core part of its mandate, effective coordination with existing sustainable development initiatives in the region. Again it is crucial to emphasize that one of the unique features of The Natural Step is its capacity to strengthen and integrate existing sustainability actions and tools – and even to help identify and eliminate duplications and inefficiencies.

3. Secure a coordination responsibility centre for the region.

This would require that some group or organization be engaged to coordinate the interface between TNS Canada and local interest for workshops, training sessions, information exchange, and promotion of the regional effort. Because The Natural Step initiative stemmed from a conference and workshop organized by GPI Atlantic, it is GPI Atlantic that has taken on this coordination function thus far. As well, the science base of The Natural Step framework has made it a natural fit with the research and evidence base of GPI Atlantic's work over the last ten years. After a decade of collecting data on and measuring sustainable development in the region, GPI Atlantic has now accumulated the necessary evidence to turn to effective implementation and to assess progress in this endeavour. While GPI Atlantic is willing to continue this coordinating function as long as necessary, that role will either need to be formalized or passed on to another entity.

4. Work with a small number of communities to pilot the launch of The Natural Step initiative on a local level.

This action requires identifying and engaging potential early adopters (businesses, non-governmental organizations, governments) in a small number of pilot communities, following a model similar to that used in Canmore, Alberta. These early adopters would take the first steps towards adopting TNS as a model for sustainable development and would act as models and champions to demonstrate the benefits of The Natural Step framework to others. As noted, the Town of Wolfville, Nova Scotia, has already committed to using The Natural Step, as has Halifax Regional Municipality's Environmental Management Department. One or two additional

communities would be identified as suitable candidates and models, probably based on the presence of willing early adopters.

5. Establish an information/education campaign to raise awareness about sustainable development and to introduce The Natural Step framework as a tool for moving towards sustainability.

Much of the success in Sweden of establishing The Natural Step as a means of advancing the country as a whole toward sustainability was due to the concerted effort to bring the general population of the country on board. With the support and endorsement of the King of Sweden, free packages were distributed to every household in the country so that the idea of sustainable development would become familiar to all, and so that responsibility would be shared by all citizens. A similar approach was also used in Whistler, British Columbia.

A very simple household package carefully crafted and appropriately supported by federal and provincial government agencies could play a very important role in advancing the Atlantic region toward sustainability. Such a household-level initiative can be supported by the development of appropriate educational materials for schools, and by other methods of raising awareness about sustainable development. Again, such an integrated educational initiative can first be piloted in a small number of model communities before being expanded to the entire Atlantic area.

6. Convene an Atlantic Regional conference to discuss strategies for moving towards sustainability.

After generating initial interest in TNS more broadly across the region, a conference could be held to further educate those already involved in using TNS, to attract others to The Natural Step framework, and to discuss concrete implementation strategies and actions. The conference would also serve to celebrate what is already happening in the region around sustainability, and help initiate new actions and commitments among government, business, community and NGO participants.

The actions listed above are all concrete and practical steps that can build on the many excellent sustainability initiatives already happening here in Atlantic Canada, and to move the region towards a more sustainable future, using TNS as a guide. Some of these initiatives are already underway. For example, as part of an education campaign, GPI Atlantic and the Nova Scotia Environmental Network hosted a visit by Dr. Karl-Henrik Robèrt, founder of The Natural Step, in September 2006. Dr. Robèrt spoke to several audiences, including senior government representatives from all three levels, business people, academics and the general public. Several meetings and strategy sessions were also held in 2006 with key stakeholders from business, government, and Nova Scotia communities to get input and feedback on this approach to sustainability.

In May 2007, GPI Atlantic, The Natural Step Canada, the Nova Scotia Environmental Network, and 14 “Sustainability Partners” launched the Atlantic Canada Sustainability Initiative (ACSI) to better understand the challenges and opportunities of sustainability and to move the region toward sustainable solutions. The ACSI is a collaborative project

designed to build capacity and momentum around sustainability in Atlantic Canada using The Natural Step framework as a guide.

This is a year-long project with 3 key milestones. The project will open with a launch dinner on Monday, May 14, followed by a training and networking workshop, “Strategic Sustainability: Helping Atlantic Canada Move Toward Sustainable Development”, on May 15-16, 2007 at Oak Island Resort. This workshop will provide participants with awareness, understanding and a common language of sustainability, and the tools needed to begin addressing these issues at the both the organizational and regional levels.

The first workshop will be followed by some “homework” for participating organizations, as well as some individual coaching from The Natural Step Canada. In November 2007, participants will reconvene for a second workshop to discuss their progress, share success stories, and increase their knowledge in key areas. Participants will also begin developing a high level sustainability analysis of the Atlantic Region.

Homework and coaching will follow the November workshop, leading up to a regional sustainability summit planned for April 2008. This summit will showcase the achievements of sustainability partners, and will provide another opportunity for partners to share successes and lessons with each other. It will also engage new organizations in the network and follow up activities.

It is expected that although the training and education part of the project will end in April 2008, the regional network built over the year will continue to grow, and to help its members collaborate and support each other in progress towards sustainability in Atlantic Canada.

There are three ways to participate in the Atlantic Canada Sustainability Initiative:

1. As a **Sustainability Partner** your organization makes a commitment to fully participating in the year-long project, including the workshops and homework, to developing your own action plan around sustainability on an organizational or community level, and to working with other partners to help move sustainability forward at the regional level.
2. As a **member of the public** you can participate in the workshops (limited public space is available), and/or belong to the network, share ideas and resources on sustainability in Atlantic Canada, and participate in the regional summit in April 2008.
3. As a **sponsor** you can help to support this unprecedented regional initiative and participate in a way that meets your needs.

Partner organizations (Sustainability Partners) include municipalities, large and small businesses, academic institutions, and non-governmental organizations. If your organization is thinking about issues of environmental, social, and economic

sustainability and is interested in building capacity to work towards a more sustainable future, consider becoming a partner in this project.

For more information about the Atlantic Canada Sustainability Initiative, about the “Strategic Sustainability: Helping Atlantic Canada Move Toward Sustainable Development” workshop, or about sponsorship, please contact Clare Levin at clevin@gpiatlantic.org or 902-489-2524.

6. Conclusion

Atlantic Canada has all that it takes to become a model of environmentally and socially responsible development. As this primer describes, many Atlantic Canadians are already dedicated to and involved in sustainable development initiatives. Individuals and organizations at every level have recognized the importance of integrating social, economic, and environmental objectives, and of examining these issues from a holistic and systemic perspective. They understand that this is the best way of maintaining and improving the health, prosperity, and wellbeing of the region's citizens into the future.

The region has many strengths that would support a dedicated and coherent sustainability initiative. Indeed, incentives and opportunities for Atlantic Canadians to address some of the sustainable development challenges unique to this region already exist. By building on existing resources, an integrated sustainability initiative based on the use of The Natural Step framework has the capacity to unite stakeholders, strengthen existing initiatives, and engage individuals and organizations at all levels in responding to some of the environmental and social challenges in this region.

There are also many potential benefits in an integrated regional movement towards sustainability. Organizations across the region may experience reduced costs (through improved energy efficiency for example) and an enhanced reputation that can lead to marketing opportunities. Greater sustainability can also enhance citizen morale and motivation, and provide greater assurance about the legacy that we leave our children. A regional sustainable development initiative in Atlantic Canada can become a model from which others will want to learn, which in turn will help to create a competitive advantage for the region, attracting attention, investment, and innovation.

The Natural Step framework's four System Conditions outline a clearly-defined view of sustainability that is based in science. TNS tools, such as backcasting and the ABCD approach, create a highly positive, practical, and consensus-based process that stems from a collective vision of the future shared by all stakeholders. The Natural Step framework has been proven successful in helping communities, businesses, and governments become more sustainable and to strengthen their capacity. With support and commitment, this proven framework will have the same effect here in Atlantic Canada.

This primer has outlined some concrete steps that will help Atlantic Canada strengthen its move towards sustainability. By piloting the use of The Natural Step framework in a small number of communities in the region and building capacity among organizations and individuals through workshops, The Natural Step's e-learning modules, and a regional conference, Atlantic Canada will be taking important steps forward. This region has the potential to become a model of sustainable development from which others will be eager to learn. Careful exploration over time of sustainability issues in the region and of various sustainable development strategies indicates that The Natural Step framework can provide the right integrating strategy, methods, and tools to support the region's success in the ambitious and necessary project of becoming genuinely sustainable.

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Appendix 1. Sustainable Development Timeline:

Key international conferences and commissions: 1970 - 2005:

The **1972 UN Conference on the Human Environment in Stockholm** was the first major meeting to look at how human activity was affecting the environment, and is the origin of the concept of sustainable development.

The **1983 Brandt Commission** was an independent Commission on International Development Issues, and was the first major independent global panel to examine connections between the environment, international trade, international economics, and third world development. This report was fundamental to the deliberations of the succeeding Brundtland Commission.

The **1986 Brundtland World Commission on Environment and Development** was set up by the UN to re-examine the critical environmental and development problems on the planet and to formulate realistic proposals to solve them in such a way as to ensure that human progress would be sustained through development without depleting or bankrupting the resources available to future generations. The Commission recognised the need to take responsibility not just for environmental damage but also for policies that cause the damage. The Commission warned that some of these policies threatened the survival of the human race, but that these policies could be changed and the threats averted if governments and their people acted immediately.

The 1990s saw a remarkable series of world conferences, eight in all, convened by the United Nations, all addressing problems of a global magnitude, and all pointing to the need to consider the major issues as interrelated and demanding major systemic changes in the approaches to problem solving. All of the conferences focused on overarching issues of global wellbeing both for the present and future generations, and sought to identify ways to link the problems people face at the community level with policies and actions at the international and global level. The conferences were predicated on the recognition that the world is facing problems that cannot be resolved through action at the national level alone, but require international cooperation and forward movement on sustainable development issues. Among the most important UN conferences in the last 15 years with sustainable development themes have been the following:

- The **1992 Rio Earth Summit** stressed the urgency of both environmental protection and social and economic development, while adopting major agreements on Climate Change, Biological Diversity, Forest Principles, and Agenda 21 (a major plan for sustainable development in the 21st century).
- The **1997 United Nations Framework Convention on Climate Change** Conference of the Parties, in **Kyoto, Japan**, set binding targets for the industrialized nations to

reduce their greenhouse gas emissions by 2008-2101. The Agreement entered into force on 16 February 2005 after it was finally ratified by at least 55 Parties to the Convention, accounting for at least 55 per cent of the total carbon dioxide emissions for 1990 from industrialized countries (OECD members plus Russia and the Eastern European countries.)¹ The Agreement, to which Canada is a signatory, now has the force of international law.

- The **2002 United Nations World Summit on Sustainable Development Conference**, in Johannesburg, assessed progress in sustainable development since the 1992 Rio Summit and concluded with a declaration to “assume a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development — economic development, social development and environmental protection — at the local, national, regional and global levels.”²
- The **2005 United Nations Framework Convention on Climate Change**, held in Montreal, was the largest intergovernmental climate conference since the Kyoto Protocol was adopted in 1997. Some 10,000 participants attended. The conference attracted unprecedented business interest as a result of two trading systems: the pan-European emissions trading scheme and the Clean Development Mechanism, a tool to promote sustainable development and combat climate change.³ The conference closed with the adoption of more than forty decisions intended to strengthen global efforts to fight climate change.

¹ United Nations Framework Convention on Climate Change. Available at: <http://unfccc.int/2860.php>. Accessed 14 October, 2006.

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Appendix 2. Dominant Paradigms - Mechanistic versus Systemic

| DOMINANT PARADIGMS <i>(Scientific Mechanistic versus Systemic Integrated)</i> | |
|--|--|
| Scientific Mechanistic Paradigm | Systemic Integrated Paradigm |
| Metaphor of machine - clockworks | Metaphor of network |
| Whole is the sum of the parts | Whole is more than parts |
| Observer separate from observed Complete objectivity assumed | Observer connected to observed Role of subjectivity recognised |
| Rational knowledge and cerebral thinking separate from and superior to emotional, intuitive, spiritual | Rational, cerebral, emotional, intuitive and spiritual in balance, maximizing potential of human mind |
| Preference for analysis, reduction and convergent focus. | Synthesis and divergent focus complements analysis |
| Problems seen in linear problem / solution and cause / effect terms. A “technical fix” is possible. | Problems seen as systemic and therefore as multidimensional; no quick fixes; creative solutions |
| Bureaucratization of knowledge | Interdisciplinary, transdisciplinary |
| Humans are separate from natural world and natural systems; they can control and dominate both | Humans are part of the natural world and do not control or dominate either in nature or in human systems |

Prepared by Janet M Eaton, Institute for Global Creative Perspective, July 2001

Appendix 3. Resources on The Natural Step

Books

Ants, Galileo and Gandhi - designing the future of business through Nature, Genius and Compassion

Edited by Sissel Waage, published by Greenleaf Publishing 2003. Based around the proceedings of The Natural Step conference, San Francisco, 2002.

The Natural Step Towards a Sustainable Society

By David Cook, 2004 Schumacher Briefings, Green Books Ltd.

The Natural Step for Communities: How Cities and Towns can Change to Sustainable Practices

By Sara James and Torbjörn Lahti, 2004, New Society Publishers.

Dancing With the Tiger: Learning Sustainability Step by Natural Step

By Brian Nattrass and Mary Altomare, 2002, New Society Publishers.

The Natural Step for Business: Wealth, Ecology and the Evolutionary Corporation

By Brian Nattrass and Mary Altomare, 1999, New Society Publishers.

The Natural Step Story - seeding a quiet revolution

By Karl-Henrik Robèrt , 2002, New Society Publishers.

Websites

The Natural Step International <http://www.naturalstep.org>

TNS Canada <http://www.naturalstep.ca/>

TNS France www.tns-france.org

TNS Italy www.naturalstep.it

TNS New Zealand <http://www.naturalstep.org.nz/>

TNS Sweden www.detnaturligasteget.se

TNS UK www.naturalstep.org.uk

TNS US (Oregon) www.ortns.org

Stepping Stones, The Natural step International Newsletter

http://www.naturalstep.org.uk/steps_46.pdf

Whistler, Toward Sustainability <http://www.whistler.ca/Sustainability/>

Town of Canmore, Natural Step <http://www.canmore.ca/living/our-environment/natural-step-2.html>