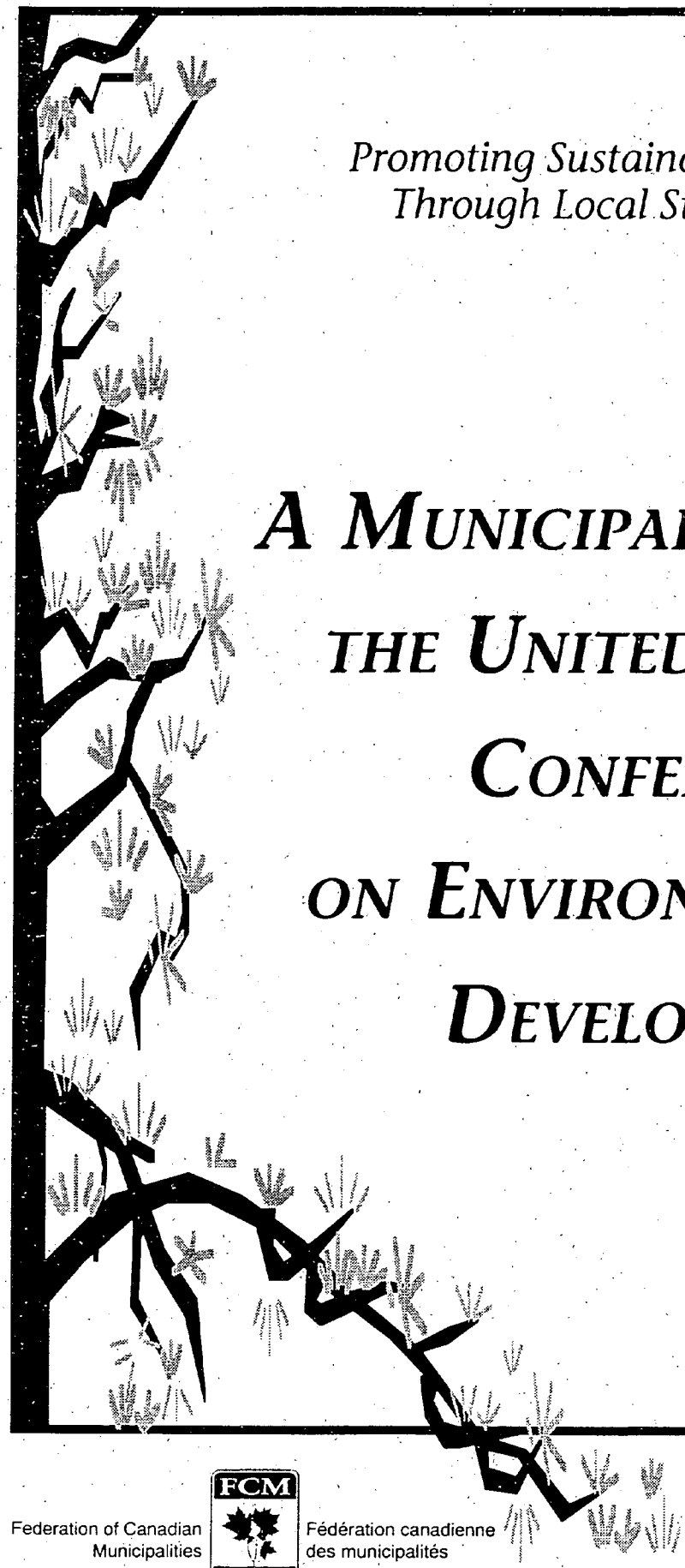
Promoting Sustainable Development Through Local Strategic Actions

A MUNICIPAL PRIMER ON THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT



Federation of Canadian Municipalities

FCM

Fédération canadienne des municipalités

CCME

Canadian Council of Ministers of the Environment

Le Conseil canadien des ministres de l'environnement

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CCME-SPC-UNCEDTG-80E

ISBN 1-895925-38-X

FCM 3500 E

Aussi disponible en français

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A Municipal Primer on the United Nations Conference on Environment and Development (UNCED)

Prepared for
Canadian Council of Ministers of the Environment (CCME)
and
Federation of Canadian Municipalities (FCM)

Prepared by
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and
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January 26, 1994

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1.0 INTRODUCTION

This document is designed to provide municipalities (and formal groupings of municipalities) with information and practical guidance on how they may contribute to the effective implementation in Canada of agreements reached at the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992.

Both the Canadian Council of Ministers of the Environment (CCME) and the Federation of Canadian Municipalities (FCM) were involved in the lead up to UNCED, helping to prepare the Canadian position as it relates to human settlements. Both organizations thought it would be useful and timely to move the UNCED agenda forward with local governments by preparing a Municipal Primer on the conference and its recommendations. The Primer explains the relevance of the UNCED conference (and its products such as *Agenda 21*) to Canadian municipalities and explores various strategic actions that may be taken to promote sustainable development at the community level.

The Primer is not intended to be prescriptive, but rather to demonstrate a range of options available to local governments to promote sustainable development practices. It recognizes that environmental, economic and social circumstances and jurisdictions vary between local governments. Strategic actions that may be imperative for one locale may be either unnecessary, inappropriate or unfeasible for another.

Furthermore, the Primer illustrates that certain environmental initiatives already under way in municipalities overlap with UNCED goals, while at the same time it demonstrates what more is required to ensure that local governments are addressing the broader concerns of sustainable development.

The remainder of the Primer is organized as follows:

- Section 2 provides a background to the UNCED conference and the international environmental initiatives that led to the convening of the conference.
- Section 3 describes the products of UNCED and highlights those aspects of each product that are most relevant to Canadian municipalities.
- Section 4 explores the range of municipal strategic actions which can be taken to implement the recommendations of UNCED and enumerates several municipal case studies to provide concrete examples of how these actions may be pursued in practice. A matrix is provided as a simple tool for a preliminary determination of what activities are already underway and to assist in determining the next steps to be undertaken.
- Section 5 is a brief conclusion.
- The appendix (Section 6) provides an outline of how to develop a local government strategy for sustainable development through the use of a strategic planning approach.

2.0 BACKGROUND

THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT: THE EARTH SUMMIT

In June 1992, heads of state from more than 100 countries attended the United Nations Conference on Environment and Development (UNCED), also known as *The Earth Summit*, in Rio de Janeiro. It was the first global environmental conference in twenty years. The last such conference was the United Nations Conference on Human Environment, held in Stockholm in 1972. To put *The Earth Summit* into perspective, it is useful to understand the events of the Stockholm conference and what has happened since.

At the Stockholm conference, developed countries focused on ways to coordinate environmental cleanup strategies across borders and between government and industry. The goal was to create a level playing field where all nations would agree to cleanup. Since Stockholm, the developed world has seen burgeoning growth in environmental regulation and many advances in environmental cleanup and pollution prevention methods. However, we have also seen a dramatic increase in a variety of environmentally damaging activities and in our understanding of the results of those activities. We are becoming much more aware that the impacts of our own daily polluting activities are global as well as local. The popular phrase *Think Globally, Act Locally* reflects this new awareness.

We have also come to realize that Third World poverty will have global environmental ramifications. The destruction of the Amazon rain forest is a prime example. Economic conditions have forced local peoples to level the rain forest to harvest wood for fuel or to make room for subsistence agriculture. Yet these forests play a significant role in maintaining our global atmospheric balance by absorbing carbon and releasing oxygen. We now know that the crucial first step to preserving this vital ecosystem is to address the plight of the poor.

The Earth Summit was inspired by the work of the World Commission on Environment and Development, popularly known as the Brundtland Commission, which reported on the progress in global environmental affairs ten years after Stockholm. It examined the links between economic development and environmental destruction on a worldwide scale. The Commission concluded that, if we proceed to consume natural resources at current rates, ignore poverty, and continue to pollute and waste, we will suffer a decline in the quality of life. The Brundtland Commission coined the term *sustainable development* to describe economic development which meets the needs of the current generation without consuming the resources necessary for future generations to meet their needs.

Achieving sustainable development will mean difficult changes. The peoples of developed nations will have to change their lifestyles and aggressively pursue policies that promote energy efficiency, resource conservation and cleanup of damaged environments. These countries will also have to change their international trade and finance policies to assist Third World nations in their struggle to overcome poverty and the environmental damage it causes.

The conclusions and concepts of the Brundtland Commission were vigorously promoted by its chair, Mrs. Gro Harlem Brundtland, Prime Minister of Norway. The efforts of Mrs. Brundtland, combined with other factors such as the discovery of the hole in the ozone layer, resulted in strong support for the Commissions' conclusions by some 50 national leaders. In 1989, the United Nations passed a resolution calling for a UN Conference on Environment and Development (UNCED).

In the two years leading up to the *Earth Summit* the UNCED Preparatory Committee (PrepComm) engaged in an extensive research and consultation process as well as four substantive meetings at which the documents to be discussed and agreed upon at the *Earth Summit* were prepared. The world's four largest local authorities associations coordinated their efforts in preparation for UNCED to assure that the perspectives of local authorities would be represented. Canadian municipalities participated in this process with strong leadership being shown by the City of Montreal. Mayor Jean Doré, of Montreal, addressed the conference not only on behalf of FCM, but also on behalf of municipal governments worldwide. It was a great honour that a Canadian municipal leader would present the joint declaration of local authorities.

3.0 THE PRODUCTS OF UNCED

Five significant documents were agreed upon by the nations at UNCED: the *Rio Declaration on Environment and Development*, *The Convention on Biological Diversity*, *The Convention on Climate Change*, a *Statement of Principles of Forest Management*, and *Agenda 21* (see Figure 1).

3.1 THE RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT

The Rio Declaration on Environment and Development is a proclamation of 27 principles recognizing the integrity of the global environmental and developmental system, the interdependent nature of the Earth, and the need for equitable partnerships and cooperation among all states and sectors of society. The principles most relevant to Canadian municipalities include the following:

- *To achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.*
- *States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.*
- *Environmental issues are best handled with the participation of all concerned citizens.*
- *The precautionary approach shall be widely applied and lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.*

- *National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments taking into account the approach that the polluter should...bear the cost of pollution.*

- *Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.*

- *The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development.*

- *Indigenous people...and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should...support their identity, culture and interest and enable their effective participation in the achievement of sustainable development.*

- *People shall cooperate in good faith and in a spirit of partnership in fulfillment of the principles embodied in this Declaration.*

3.2 THE CONVENTION ON CLIMATE CHANGE

The *Convention on Climate Change* acknowledges that "change in the Earth's climate and its adverse effects are a common concern," and that human activities have resulted in change in the global climate and are expected to do so in the future.

The climate change referred to in the Convention is known more commonly as global warming. Global warming is a result of human activities that release into the atmosphere "greenhouse gases" that trap heat near the surface of the globe. The major greenhouse gas is carbon dioxide, a by-product of fossil fuel combustion. The Convention calls for a reduction in the emissions of greenhouse gases.

Forests, plants and oceans are capable of removing carbon from the atmosphere and, as such, are called "carbon sinks." The Convention calls for the protection and enhancement of these sinks.

Expert consensus seems to be that atmospheric temperature increases of just a few degrees will cause catastrophic climate and ecosystem changes over the whole planet. A potentially uneven distribution of the impacts of global climate change raises the possibility of mass migrations of "environmental refugees." The Convention calls for systems to be put in place to help measure and cope with climate change and for rich nations to help poor ones deal with emerging problems.

Local governments are able to take guidance from the *Convention on Climate Change*. The objective of the Convention is the stabilization of greenhouse gas concentrations in the atmosphere at a level that would avert serious human-made alterations to the global climate system.

The Convention commits signatory nations to: 1) limiting emissions of greenhouse gases; and 2) protecting greenhouse gas sinks and reservoirs.

Among the Convention's 26 Articles, those most relevant for Canadian municipalities are Articles #4 and #6. Even though many actions are outside of municipal jurisdiction there is still a municipal role within a coordinated effort by all orders of government. Article #4 commits nations to:

- inventory the emissions for the activities of that nation;
- catalog measures and programs that address climate change;
- protect, conserve and enhance the sinks and reservoirs of greenhouse gases;
- consider the impact of decisions and actions on climate change; and
- encourage the widest possible participation in programs, and conduct education and public awareness efforts.

Article #6 addresses matters of education, training and public awareness. It states that the populations of all nations need to understand the issue of climatic change, and that policy makers need to understand that climate change stems from policy decisions.

3.3 THE CONVENTION ON BIOLOGICAL DIVERSITY

This Convention largely deals with land use and development practices. Consequently, it should be of great interest to local governments who are the primary regulators of land use in Canada.

The scope of the Convention is broad. It seeks to protect the "genetic resources" of all descriptions of plant and animal life. More specifically, it strives to maintain the variety and variability of genes, species, populations and ecosystems. The ongoing decline in the planet's biological diversity is a direct result of human activities and poses a significant danger to our future well-being. Maintaining biodiversity is important to human-kind because biological resources provide us with food, clothing, medicines, the materials to construct our homes, and so on.

The objectives of the *Convention on Bio-diversity* are: a) the **conservation** of biological diversity; b) the **sustainable use** of biological resources, and; c) **fair and equitable sharing** of the benefits of biological resources.

The most relevant articles for Canadian municipalities include:

- Nations will: develop national strategies, plans or programs for the conservation and sustainable use of biological diversity; and integrate the conservation and sustainable use of biological diversity into relevant plans, programs and policies.
- Nations are obliged to: identify components of biological diversity; monitor those components; and identify causes of adverse impacts.
- Biological resources must be conserved, as far as is possible, in their natural habitat.

- Care must be taken when utilizing biological resources so as to ensure that stocks and populations of all forms of plant and animal life are maintained.

3.4 STATEMENT OF PRINCIPLES ON FORESTS

The Statement of Principles on Forests is a non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests.

The principles most relevant for Canadian municipalities include:

- Governments should provide opportunities for local communities and indigenous people to participate in the development of forest policies.
- Policies should take into account the relationship between conservation, management and sustainable development of forests and all aspects related to the production, consumption, recycling and final disposal of forest products.
- Positive and transparent action should be taken towards reforestation and conservation.
- Local knowledge regarding the conservation and sustainable development of forests should be introduced in the implementation of forest programs.

3.5 AGENDA 21

The Secretary General of UNCED was a Canadian, Maurice Strong. He described *Agenda 21* as "a comprehensive blueprint for global actions to affect the transition to sustainable development." Given its enormous scope, *Agenda 21* is not intended to give detailed policy direction or set priorities among the many items that should be addressed, nor does it explicitly set hierarchies of actions for governments in moving toward sustainable development. The implicit hierarchy is expressed in the old adage that an ounce of prevention is worth a pound of cure. What the Agenda does is indicate the sorts of actions that can be included in sustainable development strategies.

Agenda 21 is a complex document that took two years to develop and produce. The chapter headings demonstrate that the subjects are dealt with systematically and independently of each other. Most chapters, however, overlap, reflecting how much environment and development issues are interrelated.

Agenda 21's focus on sustainable development brings together concerns, strategies and actions which relate to both environment and development. While the links between development and environment may seem more apparent for developing countries where inappropriate or insufficient development is accelerating environmental degradation, the concept of sustainable development is equally applicable to developed countries. Many of the program areas outlined in *Agenda 21* are clearly relevant to municipalities.

Figure 2 summarizes the major theme areas of *Agenda 21* and what components in each section are particularly relevant to Canadian municipalities.

The following chapters of *Agenda 21* are particularly relevant to the role of municipalities in promoting sustainable development.

Chapter 4 of *Agenda 21* addresses the need to change unsustainable consumption patterns and includes waste reduction via recycling and government purchasing policies as specific actions that municipalities can undertake. Wasteful consumption patterns, which have been supported by high levels of economic development, are a focal point for change when addressing environmental problems.

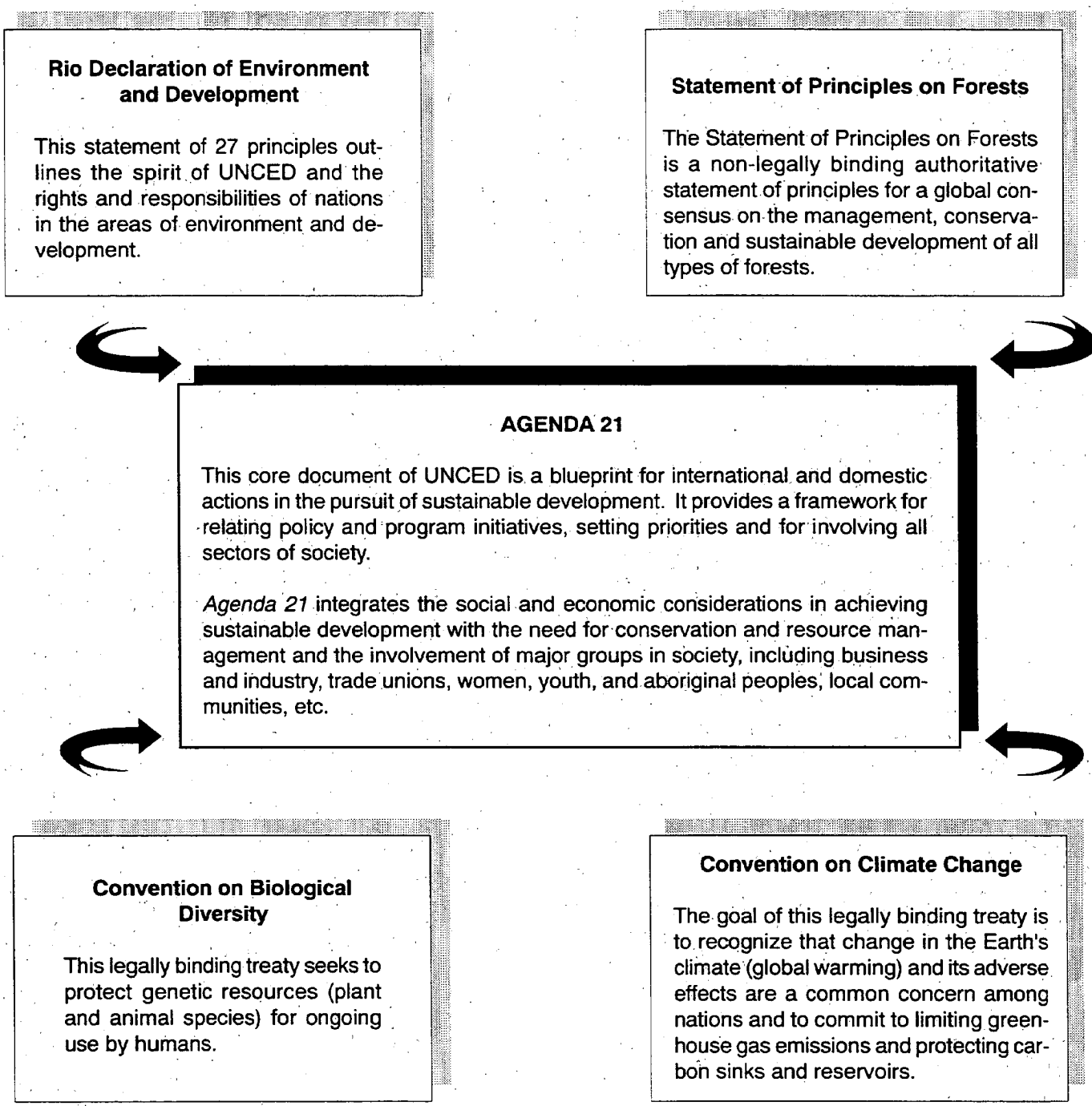
Promoting sustainable human settlement development is the subject of Chapter 7 of the Agenda. The actions recommended in this chapter include: improving the urban environment by promoting social organization and environmental awareness through the participation of local communities in the identification of public service needs and the provision of urban infrastructure; and adopting infrastructure policies that minimize or altogether avoid environmental damage.

Chapter 8 addresses the challenge of integrating environment and development in decision-making. This formidable task is being undertaken currently by many Canadian municipalities. *Agenda 21* actions include: adopting comprehensive analytical procedures for prior and simultaneous assessment of the impacts of decisions among the economic, social and environmental spheres; and delegating planning and management responsibilities to the appropriate level of public authority consistent with effective action.

Chapter 28 (discussed in more detail in The Appendix) specifically calls on local authorities to prepare their own Local Agenda 21 by 1996.

Although not addressed in this report, municipalities may find elements of chapters 5, 7, 13, 32, and 36 relevant to their mandates.

FIGURE 1
PRODUCTS OF UNCED
(United Nations Conference on Environment and Development)



Note: While each of these documents was drafted to stand on its own, they are clearly linked thematically.

FIGURE 2

AGENDA 21 - STRUCTURE AND RELEVANCY FOR CANADIAN MUNICIPALITIES

PURPOSE OF *AGENDA 21*

To be a blueprint for achieving sustainable development which:

- *recognizes that growth should take place without impoverishing future generations or the resources which will be available to them;*
- *promotes actions locally, nationally, and internationally; and*
- *fosters the involvement of all sectors of society.*

4 MAJOR THEMES OF *AGENDA 21*

SOCIAL AND ECONOMIC DIMENSIONS	CONSERVATION AND MANAGEMENT OF RESOURCES	STRENGTHENING THE ROLE OF MAJOR GROUPS	MEANS OF IMPLEMENTATION

AGENDA 21 AREAS RELEVANT TO CANADIAN MUNICIPALITIES

SOCIAL AND ECONOMIC DIMENSIONS	CONSERVATION AND MANAGEMENT OF RESOURCES	STRENGTHENING THE ROLE OF MAJOR GROUPS	MEANS OF IMPLEMENTATION
1 Changing consumption patterns. 2 Promoting sustainable human settlement development. 3 Integrating environment and development in decision-making. 4 Implementing integrated environment and development programs at the local level, taking into account demographic trends and factors. 5 Protecting and promoting human health. 6 Combating poverty.	1 Protection of the atmosphere. 2 Integrated approach to the planning and management of land resources. 3 Environmentally sound management of solid waste and sewage. 4 Environmentally sound management of toxic chemicals. 5 Environmentally sound management of hazardous waste. 6 Protection of freshwater. 7 Biodiversity. 8 Combating deforestation. 9 Promoting sustainable agriculture and rural development. 10 Protection of oceans.	1 Local authorities' initiatives. 2 Strengthening the role of NGOs. 3 Women in sustainable development. 4 Children and youth in sustainable development. 5 Recognizing the role of indigenous people. 6 Strengthening the role of workers and trade unions. 7 Strengthening the role of business and industry.	1 Promoting education, public awareness and training. 2 Information for decision-making. 3 Transfer of environmentally sound technology.

4.0 MUNICIPAL STRATEGIC ACTIONS

This section explores the range of municipal strategic actions which can be taken to help implement the recommendations of UNCED and *Agenda 21*. The strategic actions are organized under the headings Protecting the Atmosphere, Protecting Land, Water and Biological Diversity, Poverty Health and Social Equity, and Public Awareness and Information Exchange. Under each heading the relevant objectives of *Agenda 21* are presented and followed by a general description of the types of actions municipalities can engage in. The municipal strategic actions are then presented under the categories of Municipal Operations, Policy and Planning, and Education and Community Programs and are supported by Canadian municipal case studies to provide concrete examples of how these actions may be pursued in practice.

The strategic actions outlined below are summarized in the Municipal Sustainable Practices Matrix contained in Figure 3 (located at the end of this section). The matrix is designed to facilitate the preparation of an inventory and assessment of your municipality's sustainable development activities and assist in determining next steps. Recognizing that municipalities are at different stages in their transition towards sustainable development, the Primer offers a range of actions which may be appropriate, in part or in whole, for municipalities.

The appendix that follows the Matrix outlines a strategic planning process municipalities may wish to engage in to prepare a strategic action and implementation plan for local sustainable development.

4.1 PROTECTING THE ATMOSPHERE

Agenda 21 objectives for protecting the atmosphere include:

- Improving the understanding of the processes that influence the atmosphere on a global, regional and local scale, and improving the understanding of the economic and social consequences of atmospheric changes.

- Reducing adverse effects from the energy sector by promoting environmentally safe, sound and cost-effective energy systems through more efficient energy production, transmission, distribution, and use.

- Promoting land and marine resource utilization and appropriate land use practices that contribute to:

    - reducing atmospheric pollution;

    - the conservation, sustainable management and enhancement of all sinks for greenhouse gases; and

    - ensuring that potential atmospheric changes and their socio-economic and ecological consequences are fully considered in planning and implementing land use practices.

While it is generally the role of other orders of government to regulate emissions of pollutants into the air, local governments can act in many ways to reduce the damage to the atmosphere. Air quality and related issues are the subject of Chapter 9 of *Agenda 21* and of the *Convention on Climate Change* signed during UNCED. These documents ask that municipalities first limit emissions of carbon and other atmospheric pollutants and second preserve trees, which act as carbon sinks and which can capture dust and help to reduce energy consumption.

Agenda 21 recognizes that unsustainable development includes suburban sprawl, continued dependence on the private automobile, and residential development which favors single detached homes.

Many of the decisions and actions of municipal governments can contribute to the amelioration of local, regional or global atmospheric problems by:

- promoting more intensified development within urban boundaries;
- promoting more mixed-use development within urbanized areas;
- focusing more attention on environmentally friendly initiatives in transportation planning;
- making municipal buildings and infrastructure more energy efficient, thereby saving money as well as reducing air pollution; and
- designating forested areas for special protection in official plans.

Municipal action strategies can include:

A Municipal Operations

- Ensuring that municipal operations, particularly buildings and vehicles, are as energy efficient as possible, resulting in significant cost savings to the municipality.
- Assessing opportunities and barriers to sustainable development oriented decision making presented by internal organizational structures.

B Policy and Planning

- Establishing targets for local air quality. (For most urban municipalities this data can be obtained from the provincial authorities responsible for measuring air quality.)
- Adopting energy conservation targets. Remember that the major cause of air pollution is the burning of fossil fuels in industrial operations, space heating, transportation and in the production of electricity.

- Promoting the development of district energy systems. This can greatly improve energy efficiency in space heating and cooling, and it can reduce local spending on the importation of fossil fuels.

- Using official plans to further goals around sustainable development. Consider the following:

  - delineating a hard edge limit to define the limits of urban growth within a specified time period;

  - more mixed-use development, integrating residential uses with office, commercial, and light industrial uses (e.g., in designated nodes or corridors linked by public transit and cycling and walking paths);

  - promoting public transit, walking and bicycling over the private automobile;

  - moving towards municipal environmental impact assessment processes; and

  - fast tracking certain types of developments which are deemed to be environmentally friendly (e.g., public transit initiatives).

- Implementing auto use reduction programs such as van pools, car-free lanes and districts, and restricted parking for single occupancy vehicles.

- Designating carbon sink areas such as forests for special protection and undertaking efforts to plant trees in and around the municipality.

- Protecting abandoned rail-lines and planning for their potential use for transportation, recreation, cultural, and utility purposes.

C Education and Community Programs

- Informing residents on how to achieve energy savings in their homes, thereby saving them money, conserving resources, and reducing air pollution. There is a wealth of free information available to Canadians from provincial and federal governments, energy utilities, energy companies and several non-governmental organizations with an environmental orientation. A municipality need only access and make available these materials for residents.

Case Studies

Many Canadian municipalities have acted to limit emissions of air pollutants and to protect sinks for carbon.

1 The City of Sherbrooke (Québec) has an Ecoénergie program that encourages municipal employees to conserve electricity in the workplace. This is complemented with a computerized climate control system for municipal buildings. These programs result in considerable energy and money saving. Contact: City of Sherbrooke, Purchasing and Supply, (819) 821-5500.

2 Oujé-Bougoumou (Québec) has recently installed a state of the art district heating system that uses regional biomass fuel sources to provide heat to buildings in the community from a central source which greatly increases the efficiency of space heating for the community. Contact the Grand Council of Cree of Québec, (613) 761-1655.

3 The City of Vancouver (British Columbia) has produced a report called *Clouds of Change*, which made 35 recommendations that attempt to deal with local, regional and global air pollution issues. City council adopted 33 of these recommendations. This report promotes energy conservation, transportation alternatives, action from senior levels of government, and the requirement that development plans make provisions for energy efficiency. Contact: the Deputy City Manager's office, City of Vancouver, (604) 873-7628.

4 The City of Charlottetown (Prince Edward Island) has developed a district heating system that burns wood chips from regional sources instead of imported oil. Contact: PEI Department of Energy and Minerals, (902) 368-5010.

5 The City of Burnaby (British Columbia) has passed a by-law to regulate the emissions of CFCs during the repair, maintenance and disposal of appliances and systems that contain CFCs and halons. Many other municipalities have enacted by-laws or policies that deal with CFCs (Toronto, Winnipeg, Montreal and others). Contacts: Environmental Health Division, City of Burnaby, (604) 294-7390; Environmental Protection Office, Department of Public Health, City of Toronto, (416) 392-6788; Energy Management Coordinator, City of Winnipeg, (204) 986-2339.

6 Many cities have adopted CO_2 reduction targets. Typically, these aim for a 20% reduction in emissions during a given time period, measured against a base year (usually 1988 or '89 or '90). These cities include: Vancouver, Regina, Toronto, and Ottawa. Contact: Urban Development Department, City of Regina, (306) 777-7514.

7 The City of Calgary (Alberta) has implemented a program to encourage residents to use alternative modes of transportation. Contact: Engineering and Environmental Services Department, City of Calgary, (403) 268-4699.

8 The City of Halifax (Nova Scotia) has long maintained an energy office to help local homes and municipally owned buildings become more energy efficient. Aside from the environmental benefits, this office saves the City and residents money. Contact: Engineering and Works Department, City of Halifax, (902) 421-6416.

9 The City of Cornwall (Ontario) is working with the Province of Ontario and has implemented a home energy efficiency program that sends trained personnel into the homes of Cornwall residents to install energy conservation devices. These measures include low-flow shower heads, pipe wrap insulation, hot water tank wrap and others which are generally very cost effective. Contact: Cornwall Electric, (613) 932-0123.

10 The City of Fredericton (New Brunswick) is developing an integrated linear open space system that will provide a continuous pedestrian and bicycle system throughout the City. Contact: Planning and Development Department, City of Fredericton, (506) 452-9493.

11 The District of Saanich (British Columbia) has created an environmental and social impact review process. Contact: Planning Department, Corporation of the District of Saanich, (604) 386-2241.

12 The City of St. John's (Newfoundland) requires an environmental analysis report for new developments. Contact: Planning Department, City of St. John's, (709) 576-8781.

13 The City of Charlottetown (Prince Edward Island) is requiring further setbacks for waterfront development because of the potential for rise in tides due to global warming. Contact: Planning and Development Controls Department, City of Charlottetown, (902) 566-5548.

4.2 PROTECTING LAND, WATER AND BIOLOGICAL DIVERSITY

Agenda 21 objectives related to land, water, and biological diversity include:

- Promoting patterns of consumption and production that reduce environmental stress.
- Establishing integrated programs for tackling pollution at the source and at the disposal site, with a focus on abatement.
- Ensuring sustainable management of all urban settlements in order to enhance their ability to improve the living conditions of residents.
- Providing for the land requirements of human settlement development through environmentally sound physical planning and land use.
- Ensuring the provision of adequate environmental infrastructure facilities in all settlements by the year 2025.

- Restructuring the decision-making process so that consideration of socio-economic and environmental issues are fully integrated and a broader range of public participation is ensured.

Agenda 21 and the *Convention on Biological Diversity* commit signatories to protect and enhance biological diversity and biological resources. These documents set out a hierarchy of measures as follows: protection of important land areas (according to a set of criteria); restoration of land to support greater biological diversity; and protection of genetic resources in seed banks, zoos and other facilities.

This means much more than the simple protection of rare or endangered species. It also calls for the protection of important habitat areas (places of importance for plants and animals) and for the protection of as many varieties and breeds of plants and animals as possible.

Municipalities have a wide range of powers that can affect, positively or negatively, biological diversity. Clearly municipalities have great power and influence over land use. The environmental slogan *Think Globally - Act Locally* has particular relevance in the case of biological diversity.

It is vital to protect the quality of surface and ground water for both human and non-human populations. In fact many of the earliest examples of civil engineering dealt with providing clean water to urban populations or removing polluted water from these settlements.

Agenda 21 also recognizes the wastefulness of many countries and promotes changing consumption patterns and environmentally sound management of solid waste and sewage.

The following are examples of how local decisions impact upon biological and water resources:

- Development decisions can drastically affect land areas that are of importance to wildlife and/or have other special attributes (such as a wide variety of plants, home to particular varieties or sub-species, or close proximity to ponds, lakes and wetlands, etc.)

- Park management and municipal "greening" programs, depending on their nature, can either add to or reduce the variety of plants and animals that exist in a municipality.

- Decisions about zoning, densities, transportation and other municipal infrastructure and even building guidelines can have an effect on the biological diversity within a municipality.

- By-laws that regulate weeds may disallow homeowners from maintaining gardens that reflect the natural diversity of the region.

- Development of municipal infrastructure can affect both land and water resources.

- The design, implementation and maintenance of water treatment and disposal systems have obvious implications for the quality of biological and water resources.

There are many actions, consistent with *Agenda 21* and the *Convention on Biological Diversity*, that any municipality can undertake.

Municipal action strategies can include:

A Municipal Operations

- Setting an example for business and industry by undertaking a waste audit of local government operations.

- Establishing a management protocol for parks, open space and street trees that maintains the existing diversity of plants and animals. The protocol could allow "wild" areas in urban parks, plant only native species of trees and other plants and undertake naturalizing (a process that re-establishes native local communities of plants and animals).

- Reviewing "pest management" procedures. Most municipal governments must deal with various sorts of unwanted animals, insects and plants. Decide first whether the target organisms pose real problems and, if so, then ensure that the control method does not affect other non-target species. Using fewer pesticides more carefully also acts to protect and maintain the health of local water resources.

- Reviewing urban stormwater management techniques and/or upgrading stormwater sewers to permit stormwater to be treated in wastewater treatment plants.

- Working towards increasing the capacity of combined sewer systems (e.g., with the addition of stormwater retention areas) to prevent overflows from entering the waterway untreated.

- Modifying purchasing policies to avoid discrimination against recycled products, and favoring purchasing services and products that reflect waste reduction, reuse and recycling.

- Establishing tipping fees at landfill sites to provide revenue throughout the existence of the landfill site to cover costs of closure, maintenance, and replacement of the site.

- Establishing full cost pricing of waste management activities. For example, waste collection user fees or itemized costs on the municipal tax bill.

- Cooperating with manufacturers and distributors of products, and other orders of government in establishing household hazardous waste collection systems.

B Policy and Planning

- Identifying and protecting environmentally significant areas. To do this, a municipality first needs to identify land areas that have attributes important to biological diversity such as habitat for rare plants or animals, the presence of rivers, lakes, ponds and/or wetlands, or a rare or especially diverse ecosystem. Then measures to protect that area need to be implemented. This may be through zoning, development controls or other means. Collaboration with other orders of government for special designations for land areas (parks or conservation areas) in your municipality is another strategy and may help in securing additional support and financing.

  Protecting land areas may have important benefits aside from the protection of biological diversity. Wetlands can help to protect the municipality from flooding while working to clean various forms of pollution out of the water. Surface water quality may be enhanced while helping to recharge underground aquifers by having more soft surfaces. Forest areas will secure atmospheric carbon in the wood of the trees, helping to address the issue of climate change. Protected areas become important recreational facilities for a wide range of outdoor sports and activities and may become a draw for tourism.

- Establishing a municipal environmental impact assessment process. To best protect environmentally significant areas, while not unduly restricting economic activity, it may be useful to put into place a method to assess the environmental impact of proposed developments before approvals are extended. This need not be a time-consuming or expensive process and in many cases can be accomplished using available pools of local talent. Virtually every municipality can access knowledgeable people from within their own community (teachers of biology and science, amateur naturalists, foresters and other professionals) to form a volunteer Environmental Assessment Committee that will review proposals looking for undo impacts upon local biological resources and making recommendations. Such a committee may be ad-hoc or ongoing depending upon local circumstances and it would be the responsibility of the proponent to provide required information and explanations.

- Reviewing and revising bylaws governing private land (gardens, backyards etc.) to encourage rather than discourage biological diversity. Similarly by-laws that do not discourage or even actively encourage loss of natural habitat and diversity should be reviewed. Examples include losses of shoreline to water walls and sand beaches; cutting individual or small stands of trees; and draining and/or filling small wetlands.

- Establishing "hard" boundaries for urban type development. This involves delineating an area within which **all** urban development will take place. There are a number of good reasons to do this including better use of infrastructure and better energy efficiency which would help lower carbon emissions. This concept also protects the natural biological diversity and agricultural land that surrounds urban development.

- Reviewing building code/standards with a view to reducing waste and the use of non-renewable and toxic materials.

- Maintaining an inventory of potentially contaminated land, based on historic and current uses. These inventories can then lead to a coordinated approach to soil testing, development control, and informing the public, and may also trace sources of ground water pollution.

- Exploring the financial, legal, technical, and planning implications of using communal servicing systems in unserviced settlements and discouraging substantial development from occurring where communal systems are not feasible.

- Establishing sewer use by-laws restricting chemical discharges into sewers.

- Developing waste management plans which demonstrate a commitment to reducing waste, promoting reusing and recycling waste, and disposing of remaining waste using environmentally acceptable means. In adopting the hierarchy of waste management practices of "reduce, re-use and recycle," municipalities can prioritize the promotion and funding of waste management programs accordingly.

C Education and Community Programs

- Encouraging industry to treat, recycle, reuse and dispose of wastes at or near the source of generation.

- Including in waste reduction programs opportunities for sharing information and advice about how to alter waste generating behaviour and reduce the amount of waste requiring treatment or disposal.

- Promoting training opportunities for public and private sector workers who handle the waste.

- Promoting stewardship and recognition that those that benefit from the production and consumption of materials have a financial and/or operational responsibility for their final treatment and disposal.

Case Studies

Many Canadian municipalities have already taken actions that are consistent with the *Convention on Biological Diversity* and *Agenda 21*.

1 The Regional Municipality of Mékinac County and several area municipalities including the cities of Shawinigan and Grande-Mère (Québec) have a fine paper recycling depot for the region of Mékinac. The organization employs handicapped people or those experiencing difficulty entering the work force. Contact: Les Récupérateurs de Normandie, (418) 365-3269.

2 The City of Baie-Comeau (Québec) has a project to clean-up, rehabilitate and stabilize the shore along the Manicouagan River and to establish trails to the conservation area. Contact: Société d'aménagement et d'exploitation des parcs de Baie-Comeau, (418) 296-4931.

3 The Town of Middleton (Nova Scotia) has initiated a water conservation program involving public education and distribution of water conservation kits. Contact: Environment Department, Town of Middleton, (902) 825-2123.

4 The City of Vancouver (British Columbia) has enacted a by-law to reduce the loss of mature trees during new construction and renovations. Contact: Planning Department, City of Vancouver, (604) 873-7826.

5 The City of Burnaby (British Columbia) has adopted a set of environmental design guidelines for new developments that require proponents to, among other things, protect existing habitat while avoiding the creation of nesting sites for certain pest bird species such as pigeons. Contact: Planning and Building Inspection, City of Burnaby, (604) 294-7297.

6 The City of Edmonton (Alberta) requires that proponents of new suburban development and development in the North Saskatchewan River Valley complete an environmental assessment process prior to proceeding with their plans. Contact: Planning and Development Department, City of Edmonton, (403) 428-4665.

7 The City of Red Deer (Alberta) has undertaken a biological method of mosquito control that targets only the pest insects. Contact: Parks Manager, City of Red Deer, (403) 342-8159.

8 The City of Kitchener (Ontario) has recommended that the City incorporate natural landscapes into all areas of the City's open space system. Contact: Parks and Recreation Department, City of Kitchener, (519) 741-2390.

9 The Cities of Gananoque, Smith's Falls and Peterborough (Ontario) are considering or implementing household user pay systems for domestic garbage. Contacts: Public Works Department, Town of Gananoque, (613) 382-2149; Public Works Department, Town of Smith's Falls, (613) 283-4124; Utility Service Department, City of Peterborough, (705) 748-8890.

10 The City of Brossard (Québec) is the location of a firm that recycles rubber tires. The product is used for gym floors, mats for hockey arenas and by many cities as protective covering for city trees. Contact: Parking Circulation Concept Inc., (514) 659-7733.

11 The City of Richmond (British Columbia) has a reuse of city materials program that refurbishes or reuses items such as steel water mains and water valves, dresser couplings for joining concrete pipes, and more. Contact: Public Works Department, City of Richmond, (604) 270-8721.

12 The Town of Lunenburg (Nova Scotia) has engaged in a municipal leaf composting program. The Town had been trucking leaves to an incinerator and paying a fee for burning the leaves. Contact: Town of Lunenburg, (902) 634-4410.

13 The Township of Machar (Ontario) operates a landfill site where materials are recovered for sale including cardboard, organic compost, vegetables grown from compost, and firewood. Contact: Clerk-Treasurer, Township of Machar, (705) 386-7741.

14 The City of Peterborough (Ontario) has begun to introduce measures to reduce run-off and remove contaminants including on-site detention ponds and permeable surfaces on parking lots. Contact: Utility Services Department, City of Peterborough, (705) 742-7771.

15 The Town of Canmore (Alberta) has an Environmental Advisory Review Committee to provide advice for the application of environmental provisions in the municipal plan and to increase public awareness of environmental issues. Contact: Planning Branch, Town of Canmore, (403) 688-5333.

4.3 POVERTY, HEALTH AND SOCIAL EQUITY

Agenda 21 objectives related to poverty, health, and social equity include:

- Providing all persons with the opportunity to earn a sustainable livelihood.
- Implementing policies and strategies that promote adequate levels of funding and focus on integrated human development policies, increased local control of resources, local institution-strengthening and capacity building, and greater involvement of non-governmental organizations and local levels of government as delivery mechanisms.
- Creating a focus in development plans and budgets on investment in human capital, with special policies and programs directed at the poor, women and children.
- Minimizing hazards and maintaining the environment to a degree that human health is not impaired or endangered, and yet encouraging development to proceed.

Agenda 21 calls for initiatives to combat poverty and empower communities, and for increased options for resourcing poor communities. Directives concerning health

issues are focused in part on the protection of vulnerable groups through preventive health programs and community services, increased opportunities for community input and self management, and strategies for reducing health risks from environmental pollution and hazards. All orders of government have the responsibility to assist in providing for the needs of all segments of their population, but special attention needs to be focused on the most vulnerable groups.

The success of local environmental initiatives and attempts to achieve sustainability are to a great extent dependent on widespread community support. *Agenda 21* reinforces the importance of strengthening the role of social groups who are often overlooked in decision-making and development initiatives. Women, youth and children, and Aboriginal peoples are identified as key players in the movement towards sustainable development. To strengthen the role of women in sustainable development, *Agenda 21* calls for improvement in the status of women and initiatives aimed at breaking down gender-based stereotypes. Children, youth, and families are identified as a critical focus for environmental education initiatives.

Governments need to recognize the ways in which some groups experience marginalization and face barriers to full participation in community life and municipal decision-making processes. Particular groups may face disadvantages as a result of race, income level, age, employment status, physical or mental ability, family status, gender, immigration status, literacy level, or proficiency in English and French.

Municipalities can respond to the challenges raised in *Agenda 21* with respect to social equity by promoting equal access among all citizens to housing, services, information, and employment.

4.3.1 Housing

Inadequate shelter and poverty are inter-related concerns in the Canadian context. Municipalities can work towards ensuring an adequate supply of good quality and affordable housing, as well as a range of housing types, to reflect the different needs of different types of households.

Municipal action strategies can include:

Municipal Operations

- Using publicly owned land to achieve goals around affordable housing. Consider making use of surplus properties for residential purposes.

Policy and Planning

- Using official plans to promote and facilitate the development of affordable housing.

- Identifying housing needs in the community.
- Using regulatory powers like linkage requirements, inclusionary and bonus zoning, and land assembly for housing to further the production of affordable housing and development that is environmentally sensitive.
- Using housing policies to ensure that a range of housing options is available, including emergency shelters, transitional or second stage housing, and permanent housing types.
- Using bylaws to ensure that housing opportunities within the existing housing stock are being maximized. This would include:
    - ensuring adequate provisions for accessory apartments;
    - reviewing bylaws regarding the number of unrelated persons who can occupy a dwelling (i.e., allow homesharing to take place);
    - reviewing bylaws pertaining to home occupations (what income generating activities can take place using the home as a workplace); and
    - enforcing bylaws requiring landlords to do needed repairs on rental buildings.
- Allowing other uses to be converted to residential uses through zoning provisions (for example, allowing a warehouse to be converted into housing units).
- Promoting the integration of special and social housing projects into all neighbourhoods.

Education and Community Programs

- Promoting increased communication around issues such as denser residential development, social housing, and special needs housing.
- Encouraging public-private partnerships and the involvement of community organizations in the provision of affordable and special needs housing by:
    - offering technical assistance;
    - subsidies and incentives;
    - information about programs;
    - arranging partnerships; and
    - leasing land.

Case Studies

1 The Village of Lakeshore, Etobicoke (Ontario) is the location of a private sector development initiative which is a mixed-use development on an old industrial site (tire factory). The de-contamination standards set during the clean up of this site have influenced the standards being used elsewhere in Ontario. Social housing will be built alongside market units and a range of commercial facilities. Contact: Daniels Community Housing Group, (416) 598-2129.

2 The City of Ottawa (Ontario) has included a sustainable development component in its Official Plan, signaling a commitment to:

- more physically compact settlement patterns and energy efficient land use patterns;
- human-scale, pedestrian-oriented development; and
- decreased reliance on automobiles.

Contact: Policy Planning and Research, Department of Planning and Development, City of Ottawa, (613) 564-3532.

3 In Winnipeg (Manitoba) activism spearheaded by local residents saved the downtown Logan community from demolition. Residents lobbied to save their homes and to have the community infrastructure upgraded. New facilities such as a recreation centre were also secured in the renewal process and local community economic development initiatives sprung up (e.g., a composter building and selling project). Contact: Winnipeg Social Planning Council, City of Winnipeg, (204) 943 2561.

4 In Montreal (Québec) the McGill School of Architecture Graduate Program in Affordable Housing created the "Grow Home", an affordable prefabricated townhouse costing about $40,000 to build. One thousand Grow Home variations have been built in Montreal, priced from $69,000 to $95,000, depending on land costs and design. With municipal and provincial subsidies in effect, the homes would be affordable to households earning from $24,000 to $27,000, just above the poverty line. The average price of a home in Montreal was $114,000. Contact: McGill School of Architecture, City of Montreal, (514) 398-6700.

4.3.2 Access to Services and Information

In keeping with the goals of *Agenda 21*, the challenge for municipalities is to focus on meeting the needs of traditionally under-serviced and under-represented groups (e.g., women, Aboriginal peoples, visible minority communities, seniors, people with disabilities). Time, budgetary, or mobility constraints can make it difficult for many people to readily access the services they need. Women, for example, often have the responsibility for caring for young children or aging parents and managing a

household, while engaged in paid employment. To help cope with these often conflicting roles, women can benefit from residential neighbourhoods which include a wide range of community and retail services, a variety of transportation options, and easy access to workplaces. Similarly, seniors or low income families who may have mobility constraints need a range of shopping and social services and recreational opportunities located close to their dwellings.

Municipalities play a pivotal role in facilitating the development of well-serviced neighbourhoods and providing access to information across diverse communities. Ensuring adequate access to services and information for all members of a community is a step towards achieving sustainability.

Municipal action strategies can include:

Policy and Planning

- Promoting more mixed-use developments which include residential uses and a full range of services.
- Reviewing policies and programs with a view to integrating measures aimed at preventing abuse and sexual assault of women, children, the elderly, visible minorities and other vulnerable groups in private and public environments.
- Integrating policies aimed at promoting safety from crime into official plans, and urban design and renewal plans.

Education and Community Programs

- Making greater use of non-print media for public outreach and information campaigns to more effectively reach people with lower literacy levels or who do not read English and/or French.
- Using plain language in public communications (e.g., forms, applications for service, information packages, community consultation, etc.) and formatting documents for maximum clarity.
- Ensuring access to education and prevention programs offered by social agencies, provincial government, etc., for youth dealing with substance abuse, urban safety, sexual abuse, etc.
- Whenever possible, involve youth in developing education and prevention programs.
- Increasing local awareness of the needs of Aboriginal peoples and developing collaborative approaches accordingly and pro-actively seeking opportunities for ongoing communication with Aboriginal leaders.

Case Studies

1 The cities of Edmonton (Alberta), Ottawa (Ontario), Vancouver (British Columbia), Calgary (Alberta), and Toronto (Ontario), among others, have "Safe City Committees" or municipally sponsored initiatives to work towards ending violence against women and children in public and private environments. Contacts: Safer City Initiative, City of Edmonton, (403) 496-5831; Women's Action Centre on Violence, (613) 230-4413; Safer City Task Force, City of Vancouver, (604) 874-7233; Calgary Police Department, (403) 268-8427; Safe City Committee, City of Toronto, (416) 392-0403.

2 Healthy Communities programs exist in numerous municipalities across Canada. They usually take a broad definition of community health (personal physical and mental, environmental, social etc.) and involve development of community based organizations and information dissemination. The City of Sherbrooke (Québec), a member of the Québec Healthy Communities Network, established a multi-sectoral Healthy City Committee with nine work groups: promotion, identification and prevention of high risk situations, housing for the elderly, smoke-free environments, the urban forest, downtown action, a pollution-free future, pesticide and herbicide use, and prevention of vandalism. Contact: Réseau Québecois Des Villages en Santé, (418) 682-7990.

4.3.3 Access to Employment

Without access to full employment, the cycle of poverty is impossible to break. Agenda 21 recognizes the barriers to full employment which exist for women, members of visible minority groups, persons with disabilities, and Aboriginal peoples. While creating the conditions for full employment is largely beyond the municipal realm, some initiatives can be undertaken at the local level.

Municipal strategies can include:

Municipal Operations

- Promoting employment equity hiring within municipal government.

Case Studies

1 In Outremont (Québec), Récuperation-Energie R.P. helps young adults integrate into the job market through activities that promote recycling and waste reduction. It performs research on waste reduction, facilitates school activities, conducts and promotes recycling, and organizes public exhibits. Contact: Récuperation-Energie R.P. (514) 279-2901.

2 The City of Toronto (Ontario) requires all firms who supply goods and services to the city to adopt and to post a non-discrimination policy. Contact: Equal Opportunity Division, City of Toronto, (416) 392-7855.

4.4 PUBLIC AWARENESS AND INFORMATION EXCHANGE

Agenda 21 objectives related to public awareness and information exchange include:

- Establishing processes to promote dialogue between youth and government and establishing mechanisms that permit youth access to information and provide them with the opportunity to present their perspectives on government decisions, including the implementation of *Agenda 21*.

- Promoting the participation of non-governmental organizations in the conception, establishment of mechanisms and procedures designed to review the implementation of *Agenda 21*.

- Promoting broad public awareness as an essential part of a global education effort to strengthen attitudes, values and actions which are compatible with sustainable development.

Central to the philosophy behind *Agenda 21* initiatives is the concept of thinking globally and acting locally. This approach implies community involvement in environmental initiatives, in resource conservation and management, and in decision-making about the environment. Public participation and support, however, will be limited and superficial unless the population has access to reliable information about environmental problems and proposals. Further, a sense of ownership of a process or project also needs to be fostered if individuals are to feel that their input is valued.

Municipalities can lay the groundwork for information sharing about environmental issues and create opportunities for increased public involvement and consultation. Community-based groups and local residents are often in the best position to identify environmental problems and propose creative solutions. Other key players, when developing partnerships around environmental initiatives, include the business and industrial sectors, trade unions, workers, service providers, and educators.

A specific goal of municipal public awareness campaigns can be to bring about changes in consumption patterns. Such campaigns would be targeted not only at households, but also at the public and private sectors.

Municipal strategic actions can include:

Municipal Operations

- Promoting the participation of workers in environmental audits and environmental impact assessments.
- Reviewing the amount of public resources (financial, staff, and space) which are allocated in support of the work of community organizations and setting new goals where appropriate.
- Being proactive about encouraging representatives from different walks of life and different communities to participate on municipal boards, task forces and round tables.
- Cooperating in facilitating the exchange of information and ideas between communities through organizations such as FCM, CHI, CCME, and IULA.

Policy and Planning

- Promoting voluntary initiatives which urge business and industry to adopt cleaner modes of operation and production.
- Promoting collaboration between governments, employers, and workers in developing agreements around health and safety issues.

Education and Community Programs

- Promoting the use of neighbourhood environmental audits as a way to involve the community in identifying and working out solutions.
- Assisting individuals, households, and the private sector in making environmentally sound purchasing decisions and exercising leadership through government purchasing practices.

Case Studies

1 *Kids Adopt a Stream* in Alberta is managed by the Friends of Environmental Education Society of Alberta. Operating in several communities, the program has kids adopting a stream to learn about its ecosystem and work on resolving problems related to it. Contact: Friends of Environment Education Society, (403) 421-1497.

2 The Environmental Coalition of P.E.I. educates the public through workshops, presentations and a resource centre. Contact: Environmental Coalition of PEI, (902) 566-4696.

3 In the Regional Municipality of Waterloo (Ontario), the *School Contact Program* is part of the official plan review. Planning staff provide programs to school teachers and obtain responses from students on waste management, water conservation and other regional policies. Contact: Planning and Development Department, Regional Municipality of Waterloo, (519) 885-9448.

4 In the City of Halifax (Nova Scotia), *Earthlings* is an environmental club for kids run by the City Regional Library where fun is mixed with learning about environmental issues. Contact: Halifax and City Regional Library, (902) 421-6986.

5 In the City of Edmonton (Alberta), the Environmental Resource Centre provides public information on residential energy conservation, retrofit techniques and conducts school conservation programs. Contact: Environmental Resource Centre, (403) 433-4808.

6 The City of Burlington (Ontario) has a Sustainable Development Committee with volunteer citizens who comment on development applications and other policy matters. Contact: Corporation of the City of Burlington, (905) 335-7608.

7 The City of Repentigny (Québec) has established a fund with a contribution of $13 per year from each property holder and $400,000 from the City Council to be used for new sustainable development programs and educating citizens on environmental issues and attitudes. Contact: Ville de Repentigny, (514) 654-2323.

8 The Town of Varennes (Québec) has established a seven-member committee appointed from the community by Council to prepare recommendations for the municipality concerning preservation and improvement of the environment. Contact: Town of Varennes, (514) 652-9888.

9 The City of Kelowna (British Columbia), in formulating its long-term strategic plan entitled "Choosing our Future!", held a Community Forum designed to provide the opportunity for the public to learn about environmental issues and to participate in creating a community vision. Over 300 people attended. Contact: City of Kelowna, (604) 763-6011.

10 In Howick (Québec) a community group has been active in educating the public about pollution of rivers and has promoted the clean-up of the Châteauguay River. They disseminate information on the various sources of noxious inputs to the river including problems associated with manure storage facilities on nearby farms, cow grazing and insecticides and herbicides. Contact: Comité pour la Réhabilitation de la Rivière Châteauguay, (514) 829-3625.

FIGURE 3: MUNICIPAL SUSTAINABLE PRACTICES MATRIX

The Municipal Sustainable Practices Matrix lists, in an abridged form, the strategic actions set forth in the text of the Primer. The matrix is not a comprehensive listing of sustainable practices, but has been designed to allow you to prepare an "inventory" and assessment of your municipality's sustainable development activities and an action plan.

STRATEGIC ACTIONS	PROGRAM/POLICY, ETC.			Identify Partners
	in place	planning stage	consul-tation process	
4.1 PROTECTING THE ATMOSPHERE				
A Municipal Operations				
Assess internal decision-making organization.				
Ensure energy efficiency in municipal buildings and vehicles.				
B Policy and Planning				
Establish targets for local air quality.				
Adopt energy conservation targets.				
Promote the development of district energy systems.				
Use official plans to further goals around sustainable development by including provisions for:				
• defining the limits of urban growth				
• more mixed-use development				
• promoting public transit, walking and bicycling				
• moving towards municipal environmental impact assessment processes				
• fast tracking environmentally friendly developments.				
Implement auto use reduction programs.				
Designate carbon sink areas and plant trees.				
Protect abandoned rail corridors.				
C Education and Community Programs				
Provide residents with information on energy conservation.				

STRATEGIC ACTIONS	PROGRAM/POLICY, ETC.			Identify Partners
	in place	planning stage	consul-tation process	
4.2 PROTECTING LAND, WATER AND BIOLOGICAL DIVERSITY				
A Municipal Operations				
Undertake waste audit of local government operations.				
Establish management protocol that maintains diversity of plants and animals.				
Review "pest management" procedures.				
Review stormwater management techniques and/or upgrade facilities.				
Work towards increasing capacity of combined sewer systems to prevent overflows.				
Formulate an environmentally friendly purchasing policy.				
Establish a full cost landfill tipping fee system.				
Introduce waste collection user fees.				
Establish household hazardous waste collection systems, cooperating with other partners where applicable.				
B Policy and Planning				
Identify and protect Environmentally Significant Areas.				
Establish a municipal environmental impact assessment process.				
Revise bylaws governing private land to encourage biological diversity.				
Establish "hard" boundaries for urban development.				
Review building code/standards to reduce waste.				
Maintain inventory of potentially contaminated land.				
Explore communal servicing schemes in unserviced settlements.				
Enact sewer use by-laws restricting chemical discharges.				
Develop a waste management hierarchy of reduce, re-use and recycle.				
C Education and Community Programs				
Encourage industry to treat, recycle, reuse and dispose of wastes at or near the source of generation.				
Provide information and advice on waste reduction.				
Promote training opportunities for workers who handle hazardous waste.				
Promote "stewardship"				

STRATEGIC ACTIONS	PROGRAM/POLICY, ETC.			Identify Partners
	in place	planning stage	consul-tation process	
Municipal Operations				
Use publicly owned land for affordable housing.				
Policy and Planning				
Amend official plans to promote affordable housing.				
Identify housing needs.				
Use regulatory powers (zoning, etc.) to further the production of affordable housing.				
Promote a range of housing options.				
Use bylaws to ensure existing housing stock maximizes opportunities:				
• enact provisions for accessory apartments				
• review bylaws that prohibit homesharing				
• change by-laws to permit home occupations				
• enforce by-laws requiring building maintenance and repair.				
Enact zoning to allow conversion of other uses to residential.				
Promote integration of special needs and social housing into all neighbourhoods.				
Education and Community Programs				
Promote communication around issues such as denser residential development, social housing, and special needs housing.				
Encourage public/private partnerships and community organizations in the provision of affordable and special needs. Consider:				
• offering technical assistance				
• providing subsidies and incentives				
• offering information about programs				
• arranging partnerships				
• leasing land.				
4.3.2. Access to Services and Information				
Policy and Planning				
Promote mixed-use developments which include residential uses and a full range of services.				
Review municipal policies and programs with a view to integrating measures aimed at preventing abuse of women, etc., in private and public environments.				

STRATEGIC ACTIONS	PROGRAM/POLICY, ETC.			Identify Partners
	in place	planning stage	consul-tation process	
Integrate safety from crime policies into official plans, etc.				
Education and Community Programs				
Use non-print media for public information.				
Use plain language in public communications.				
Ensure access to education programs offered by social agencies/provincial governments, etc., for youth dealing with substance abuse, urban safety, sexual abuse, etc.				
Whenever possible, involve youth in developing programs.				
Develop collaborative approaches with Aboriginal peoples.				
4.3.3 Access to Employment				
Municipal Operations				
Promote employment equity hiring within municipal government.				
4.4 PUBLIC AWARENESS AND INFORMATION EXCHANGE				
Municipal Operations				
Promote worker participation in environmental audits, etc.				
Allocate public resources in support of community organizations.				
Encourage representatives from different communities to participate in city boards, etc.				
Facilitate the exchange of information with the help of the FCM, CHI, CCME and IULA.				
Policy and Planning				
Promote worker participation in environmental audits, etc.				
Encourage business and industry to adopt cleaner modes of operation and production.				
Promote collaboration between governments, employers, and workers around health and safety issues.				
Education and Community Programs				
Use neighbourhood environmental audits to involve the community.				
Encourage/assist individuals and the private sector to make environmentally sound purchasing decisions.				
Establish environmentally focused municipal purchasing practices.				

5.0 CONCLUSIONS

It is clear that achieving sustainable development for the Earth will require actions by all orders of government and sectors of society. Strong local actions, though, are absolutely imperative to achieving sustainability. Sustainable development practices must be contextualized according to local circumstances and community needs. Familiarity with their communities will allow municipalities to better understand the challenges to the daily way of life that achieving sustainable development will mean. Municipalities are also the unit of government with primary responsibility for regulating the use of land. This responsibility grants municipalities the opportunity to ensure that future growth and development of their communities is undertaken in a manner that supports environmental health and does not jeopardize future generations.

Thinking globally, acting locally is not just a slogan. Sustainability cannot be achieved if each community assumes that others will act. Action is required by all and each must participate.

APPENDIX

6.0 DEVELOPING MUNICIPAL STRATEGIES FOR SUSTAINABLE DEVELOPMENT

This section is designed to provide guidance for municipalities who wish to undertake their own Local Agenda 21.

Chapter 28 of *Agenda 21*, entitled *Local authorities' initiatives in support of Agenda 21*, is a significant product of the Earth Summit for Canadian municipalities. Chapter 28 recognizes the essential role of local authorities in constructing, operating and maintaining economic, social, and environmental infrastructure, in overseeing planning processes, establishing local environmental policies and regulations, and in assisting with the implementation of national and sub-national environmental policies. Chapter 28 also acknowledges that local authorities are the order of government closest to the people and have a vital role in educating, mobilizing and responding to the public to promote sustainable development. Chapter 28 has four objectives:

1 By 1996, most local authorities should have undertaken a consultative process with their populations and achieved a consensus on a "local agenda 21" for the community.

2 By 1993, the international community should have initiated a consultative process aimed at increasing cooperation between local authorities.

3 By 1994, representatives of associations of cities and other local authorities should have increased levels of cooperation and coordination with the goal of enhancing the exchange of information and experience among local authorities.

4 All local authorities...should be encouraged to implement and monitor programs aimed at ensuring that women and youth are represented in decision-making, planning and implementation processes.

6.1 INTEGRATED AND STRATEGIC PLANNING - THE KEY TO DEVELOPING A LOCAL AGENDA 21

One of the most significant themes for municipalities in *Agenda 21* is integration. To illustrate, Chapter 5 includes a section on "implementing integrated environment and development programs at the local level"; Chapter 7 discusses "promoting the integrated provision of environmental infrastructure"; Chapter 8 is entitled "Integrating environment and development in decision-making"; Chapter 10 is called "Integrated approach to the planning and management of land resources"; Chapter 12 examines "integrated development programs for the eradication of poverty"; and on it goes throughout *Agenda 21*.

An integrated approach to sustainable development requires municipalities to engage in interactive and iterative strategic planning.

6.2 ELEMENTS OF STRATEGIC PLANNING FOR SUSTAINABLE DEVELOPMENT

The precise nature of the strategic planning process implemented by any municipality will depend upon the specific structure of the municipality and the resources it has at hand. However, certain characteristics of strategic planning should be common across municipalities.

6.2.1 Municipal Leadership

To start the process, the municipality will usually have to take the lead, forming a planning group among the staff and councillors. This group should inform itself about UNCED, *Agenda 21*, and strategic planning. This initial group should, however, see its role as coordinator and facilitator, rather than as owner and controller of the process. For a Local Agenda 21 to work, a sense of community ownership of the plan will need to be developed.

6.2.2 Stakeholders and Public Consultation

Strategic planning is an interactive and consultative process. Stakeholders from a cross section of sectors and disciplines, and particularly those who will have significant responsibilities for implementing the strategies, should be identified early and be closely involved in the planning and implementation process. This may even take the form of a sustainable development council or local round table.

It may be difficult, if not impossible, to impose sustainable development practices on the public because it involves certain changes in people's expectations and behaviour. It requires not passive acceptance but active participation by the public. For example, recycling systems do not work unless residents segregate their wastes – a small but essential act of participation that makes the whole system work.

6.2.3 Preliminary Vision of a Sustainable Community

In consultation with stakeholders, a preliminary vision of the municipality as a sustainable community should be developed. This preliminary vision will reflect the values of the community and their interpretation of what sustainability means. It should be remembered that sustainable development is not a precise scientific term. What it means to have progress which meets the needs of current generations without compromising the ability of future generations to meet their needs will change over time.

The Regional Municipality of Waterloo Vision outlined below provides an example of how one municipality has defined "sustainable community".

VISION OF A SUSTAINABLE COMMUNITY

The following excerpt from the Regional Municipality of Waterloo's document *Vision Principles for a New Regional Plan* provides a framework for understanding the range of elements which contribute to sustainability in communities.

"In the context of the Region of Waterloo, Sustainable Community is defined by six elements:

Environmental Integrity: to maintain, preserve, and enhance our ecological or natural systems and to protect and enhance native biotic diversity;

Growth Management: to proactively manage, plan, co-ordinate and stage growth and the provision of soft services (e.g., daycare, libraries) and hard services (e.g., water supply) to achieve a balance of economic, social, cultural and environmental interests;

Economic Competitiveness and Vitality: to maintain and enhance the economic competitiveness and vitality of the region in order to maintain and increase the employment base (jobs) and income generated in the Region;

Government, Private Sector and Community Partnerships: to encourage partnerships and co-ordination between the Region and other government agencies, the private sector, and the community;

Public Participation: to encourage the active and meaningful participation of a broad cross-section of the Regional community in every stage of the development and monitoring of public policy; and

Safe and Healthy Communities: to promote healthy and safe communities, and recognize that all planning is about people at the individual, neighbourhood and community level.

The vision of Sustainable Community is achieved by balancing these elements when making planning decisions today which will impact future generations."

Not having a precise definition or perfectly clear understanding of what sustainable development will mean to a community is not a reason to delay action. By engaging in the process the understanding will be developed and the vision amended over time.

A community-based definition of sustainable development for each municipality is likely to have more meaning for the various stakeholders and thus result in action. The strategic planning process is organic and iterative, it will provide opportunities to redefine or refine the vision of the community as a sustainable community.

6.2.4 Environmental Audit/Scan

The preliminary vision provides a sense of where the community wants to go. The environmental audit/scan provides a picture of where the community is currently.

The term environmental audit is commonly used to refer to an analysis of an organization's operations aimed at minimizing environmental impacts. An environmental audit should do more than just measure symptoms. For example, an audit that shows water pollution beyond the capacity of the sewage treatment plant should examine the sustainability of the water resources and delivery systems, including water costing and stormwater run-off systems.

The term environmental scan is used by strategic planners to describe an analysis of a community's internal strengths and weaknesses, and opportunities and threats in its external environment.

The term environmental audit/scan is used here because the nature of sustainable development requires some work on both aspects. Information may be needed about the community's population, housing, income, solid waste, energy consumption, land-use patterns, and also about municipal jurisdiction, financial resources, organizational structure, and so on.

This information collection should be disciplined by the practical realities of what data is readily available and what is necessary to enable decisions about priorities. Once the focus has been established, resources can be directed towards obtaining further information within each area of focus.

6.2.5 Priorities and Goals

The environmental audit/scan enables strategic issues to be identified. These are matters of central concern in achieving the vision and requiring urgent attention. To avoid paralysis, the operating principle in identifying strategic issues is focus rather than comprehensiveness, with a bias towards action. The strengths and weaknesses, and opportunities and threats assessment which identified the community's strengths and opportunities should have provided a sense of the community's capacity to act on those key issues. The priorities and goals can be used to refine the vision statement.

The decisions regarding focus are value laden and so should be made within the consultation framework to reflect the community's priorities. Issues selected as priorities should be used to refine the vision and to establish goals within a defined timeframe with interim targets toward achieving those goals. In gathering information about the environment, the environmental audit/scan will have revealed potential instruments that can be used to measure progress towards achieving targets.

6.2.6 Evaluation and Monitoring Instruments

In gathering information about the environment, the environmental audit/scan will have revealed potential instruments that can be used to measure progress towards achieving targets. Conventional instruments for evaluating local environmental quality may not be difficult to determine but it must be remembered that short-term local environmental quality does not necessarily reflect sustainability. For example, a municipality may receive electrical energy from a coal or gas fired generating station located at a distance from the municipality with no directly measurable impact on the local air quality. Yet the municipality's energy consumption will impact the need for electric generation and therefore the total CO_2 emission of the generating station. CO_2 is, of course, one of the leading culprits in the global warming phenomenon, a major long-term threat to the sustainability of human society. It may then be advisable for a municipality to have an energy consumption monitoring instrument.

It is important that municipalities do not delay action because sophisticated evaluation instruments are too expensive or unavailable. An appropriate instrument may be as simple as going fishing. If certain local fish species have been identified as being particularly sensitive to pollution, then a regular count of that species may be a good indicator of overall water quality. Bird counts performed by local bird watchers may indicate the variety of species in the area and this provides an indication of the variety of available natural habitat and the quality of the natural landscape.

What is important about the instrument chosen is that it is simple and available enough to use now. It can be refined later. Whatever instruments are chosen they should have the following characteristics:

USEFUL. The instrument must tell us about the state of that aspect of the environment we wish to measure. Both that aspect of the environment and the chosen instrument must be relevant. It should be useful to provide a warning of an irreversibly negative situation.

UNDERSTANDABLE. The instrument must be accessible to a general audience, i.e., comprehensible.

ACQUIRABLE. The instrument must be measurable at a reasonable cost with reasonable ease.

CREDITABLE. The collection methodology for the instrument must be repeatable and scientifically defensible as far as possible.

LOCAL. The instrument must reflect the **local** state of the environment, including global impacts of local activities.

COMPARABLE. The instrument should aid municipalities in comparing their progress with that of other municipalities.

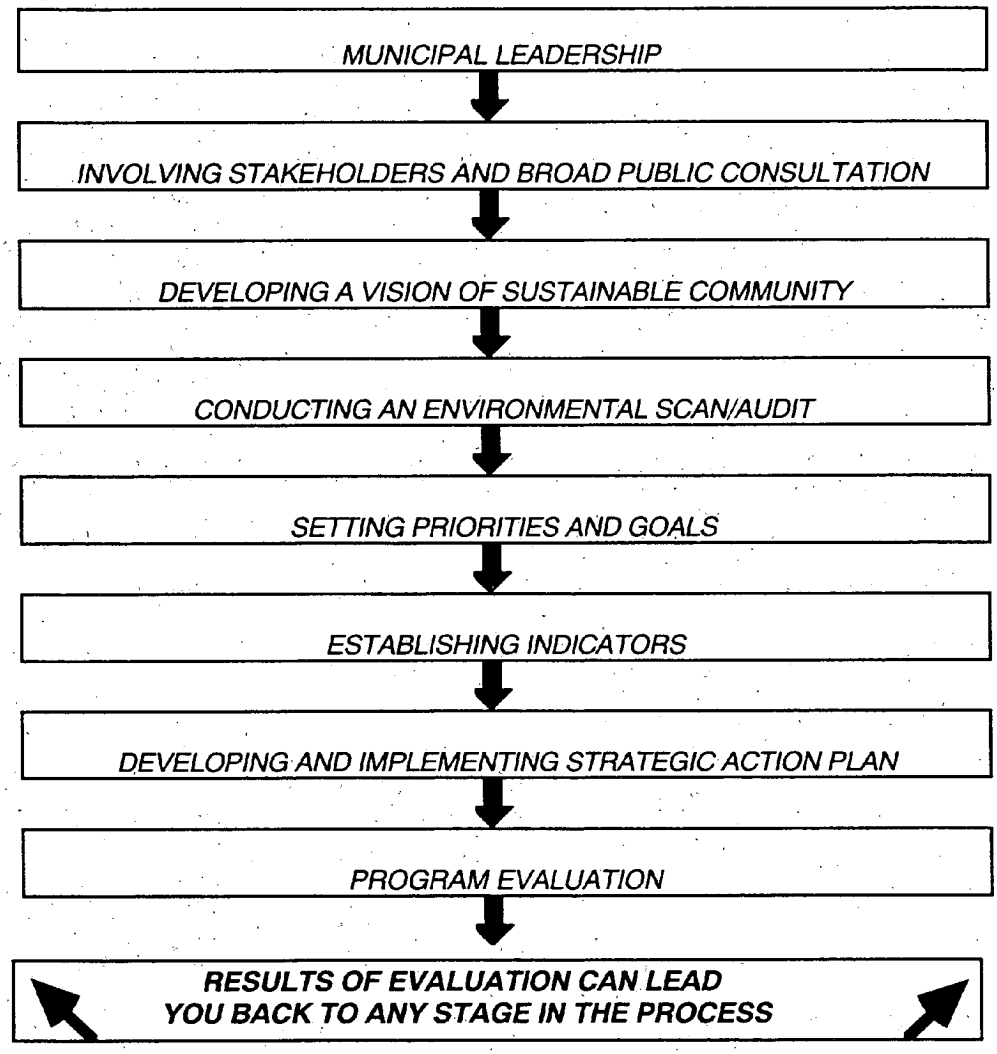
ORIENTED TOWARDS DECISION-MAKING. The instrument must be of a nature that will aid decision-makers and ensure the use of the instruments in decision-making.

6.2.7 Strategic Action and Implementation Plan

This may be perhaps the most difficult aspect of the process. Decisions have already been made regarding the priorities as to where the municipality wants to go (priorities and goals) and even how to measure progress (evaluation and monitoring instruments). At this stage the work is focused on action programs aimed at achieving goals. Examples of action programs and case studies are briefly described in the main text of this Primer. Each municipality's situation and priority decisions will dictate the types of action programs undertaken. The implementation plan should include an evaluation schedule for the program complementary to the interim targets, including further consultation with stakeholders.

Although the strategic planning process has a clear starting point and specified outcomes, it is a somewhat circular or iterative process. The various components of strategic planning reinforce each other and are re-visited on an ongoing basis. Figure 4 summarizes the components of strategic planning for sustainable development and their inter-relationships.

FIGURE 4
STRATEGIC PLANNING FOR SUSTAINABLE DEVELOPMENT



With municipal leadership and consultation with stakeholders and the public, the process of strategic planning for a sustainable community can begin. The process is an ongoing one, with the various components complementing and reinforcing each other.