

# **Part 1**

## **Environmental Monitoring**

### **1.1 Background**

The Niagara Escarpment Plan is an ecologically-based land management plan aimed at maintaining functioning ecosystems as a “continuous natural environment” in the Plan area. When land use changes occur, in other words development for social and economic reasons, the Purpose of the Plan requires that they be compatible with the natural environment. Furthermore, that compatibility applies not just to individual development projects but also to the cumulative impact of development as a whole, over time.

Ensuring that “only such development occurs as is compatible with that natural environment” clearly means that the area of the Niagara Escarpment Plan is special: it is a thin ribbon of land in which environmental values take precedence over economic forces; where the environment is not to be diminished or traded away.

Environmental monitoring projects have been underway on the Niagara Escarpment since the late 1960s. Most of the early projects only involved making an inventory of species found in the neighbourhood of the escarpment. Many were carried out on a voluntary basis by individuals and groups concerned about conservation, but the Ministry of Natural Resources was also very active. These surveys and research studies played an important role in defining the land use designations of the Niagara Escarpment Plan, especially the Escarpment Natural Area.

The Implementation Proposals prepared by the Ministry of Municipal Affairs in 1985, at the time the Niagara Escarpment Plan was approved, stated that a monitoring system should be established, although its focus was anticipated to be more administrative than environmental.

The Hearing Officers in the 1991-93 five-year Plan Review recommended that a “comprehensive monitoring system” be used as a basis for better decision-making and that such a system be an element in preparing for the next Plan Review (NEPR.91 Rec. 3.5.6.3c):

Planning for the Plan Review should include:

- c) consideration of the data needs of a Plan Review. Establishment of an effective, comprehensive monitoring system that will generate the data needed to evaluate the Plan's effectiveness is essential. Such a monitoring system will be increasingly important in succeeding Reviews.

In the final section of the 1991 Plan Review concerning "Implementation Issues", the Hearing Officers recommended (NEPR.91 Rec.16.5.2.1):

That the proposed monitoring program include, among other things: the development of an environmental inventory which takes into account inventories already developed by MNR, the Conservation Authorities and others; monitoring of environmental and socio-economic effects of Plan policies and implementation and to provide the basis for research and education in accordance with the Biosphere Reserve designation; and monitoring of the implementation program for the Plan.

The Hearing Officers also commented on the relationship of monitoring to the United Nations Biosphere Reserve designation (NEPR.91 Section 9.5.2.3):

With respect to the Biosphere Reserve designation, it seems to us that the Commission and the Ministries have not been fulfilling one of the purposes of the designation, that is, to monitor the effects of man's activities on the environment. UNESCO [United Nations Educational, Scientific and Cultural Organization] apparently believed that the Niagara Escarpment Plan Area provides the opportunity not only to preserve important natural features and ecosystems but to monitor the effects of man's intrusion in order to guide future planners. We believe the Commission and the Ministries should incorporate this objective of the Biosphere Reserve designation into the proposed monitoring program.

On July 27, 1992, while the Plan Review was in progress, the Minister of the Environment (then responsible for the Commission) announced that a monitoring system to “provide a constant check on the environmental health of Ontario’s Niagara Escarpment and the communities it passes through” was to be developed (Ontario Ministry of the Environment News Release, July 27, 1992). Known as the Niagara Escarpment Cumulative Effects Monitoring (CEM) Project, this effort, under the auspices of the Ministry of the Environment, was aimed at monitoring the linkages between land use change and ecosystem status in the Plan area. An expert Steering Committee and a broadly-based Monitoring Advisory Committee supervised a comprehensive, three-phase process over four years, leading to the implementation of an Ontario Niagara Escarpment Monitoring Program (ONEMP).

ONEMP was to be built on existing projects and data wherever possible and designed so as to involve community volunteers, partnerships with provincial ministries, conservation authorities, universities, colleges, naturalists clubs and others. The program framework was based on monitoring questions directly related to the purpose and objectives of the Plan.

Between 1993 and 1996 a comprehensive monitoring program was, indeed, carefully designed, and formally launched in 1997. The Commission co-ordinates the program and projects have been initiated with various partners such as the Department of Environment and Resource Studies at the University of Waterloo. Although a good deal has been accomplished and presentations on several monitoring projects were made at the Commission’s public “Leading Edge” conferences in 1997 and 1999, the current level of activity appears to be less than envisaged during the designing and planning of the program.

As the Hearing Officers in the last Plan Review observed, the designation, in 1990, of the Plan area and two adjacent National Parks as a World Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO), gave added impetus to the need for a monitoring program. The NEC Discussion Paper for this Plan Review topic describes Biosphere Reserves as having three functions:

- To conserve landscapes, ecosystems, species and biodiversity;
- To foster development that is ecologically and culturally sustainable; and
- To act as an area for research, monitoring, training and education related to local, regional, national and global conservation and sustainable development.

Following the designation of the Niagara Escarpment Biosphere Reserve, the South Central Region of the Ministry of Natural Resources undertook an ecological survey of the entire 183,670 ha of the Plan area published in 1996 (Riley, J.L., J.V. Jalava and S. Varga, Ecological Survey of the Niagara Escarpment Biosphere Reserve, MNR 1996, 2 vols.).

After 16 years in existence, and 11 of those years as a Biosphere Reserve, the Escarpment Plan area has still to see the scope and intensity of monitoring anticipated when the environmental monitoring project was announced in 1992. However, the groundwork has been thoroughly prepared.

### **1.1.1 NEC Discussion Paper**

#### **a) Monitoring Program**

There is no mention of environmental monitoring in the current Plan. In its Discussion Paper on this Plan Review topic, *Environmental Monitoring*, Discussion Paper 4 (“the Discussion Paper”), the Commission took the approach that only a general statement about environmental monitoring is required in the Plan, with no program details, specific targets, or even a definition of environmental monitoring. Reference in the statement to “monitoring ecosystem components and multiple land use activities” appears to show that economic and social indicators were not to be included in the proposed program.

Although it is said in the Discussion Paper (p.5) that “Environmental monitoring is and continues to be an important part of the NEP program” and that “Without monitoring it would be difficult to objectively review the effectiveness of the policies of the NEP and determine what changes are necessary to satisfy the purpose and objectives of the NEP and the NEPDA over time”, no monitoring results are included in the Discussion Papers. Furthermore, no specific indication is given about where results can be found or what is available.

The proposed monitoring statement fails to recognize environmental stress caused by global or regional factors such as climate change or air quality. It appears that only the influence of development or land use in one form or another was included in the concept of the program envisaged in the statement.

Despite the strategy of only using a general statement and leaving details of the application of monitoring to administration of the Plan by the NEC, a specific application of environmental monitoring in parks was included in Discussion Paper 5, *Intensive Recreational Development in Escarpment Parks and the Status of Land Trust*. The Commission proposed that:

Park master/management plans will provide policies for environmental monitoring designed to assess the effectiveness of park plans in meeting the objectives of the Niagara Escarpment Parks and Open Space System in Part 3.1.1 and the assigned park or open space classification as set out in Part 3.1.4.

A second specific application was proposed for the Bruce Trail in the same Discussion Paper concerning parks:

As part of its Trail Corridor planning responsibility, the Bruce Trail Association shall undertake environmental monitoring to ensure that the use of the Trail is consistent with the objectives of the Niagara Escarpment Parks and Open Space System as set out in Part 3.1.1.

## **b) Vision Statement**

The Hearing Officers in the last Plan Review concluded (NEPR.91 Sec. 5.1.4) that a “long term vision” should be developed for the Plan Area. According to the Discussion Paper (p.6), the question in the mind of the Commission when approaching this Review was “whether or not the NEP needed a ‘vision statement’ to support the monitoring program by providing a clear expression of what the long term goal for the Niagara Escarpment should be.”

The relationship of a vision statement to monitoring lies in the kinds of questions that monitoring could be designed to address if, for example, “more forest cover, improved wildlife habitat, increased species diversity, clean water supplies, healthier communities, sustainable use of resources” (ibid) were to be part of the vision.

The Commission, after consulting with interested parties prior to the Hearing, concluded that a vision statement was unnecessary because the Plan already contains a purpose statement and objectives. Others, such as the Town of Halton, agreed with that reasoning. In responding to comments from the Preservation of Agricultural Lands Society on the Discussion Paper, Commission staff went so far as to state that “An interpretation of this [the Plan’s] purpose and objectives could confuse or weaken the Plan” (*Environmental Monitoring* Position Paper, p.5).

Despite the Commission’s decision, we raise the question of a vision statement since it was addressed in some detail in the Discussion Paper and was brought up several times during the Hearing. The different opinions on the matter might, to some degree, be a case of varying understandings of the meaning of “vision statement”. At least some of the interest in such a statement might be addressed within the design of the monitoring program itself.

### **1.1.2 NEC Position Paper**

The only substantial change from the Discussion Paper was the inclusion of a definition of “environmental monitoring”. Only ecological indicators are included; economic, social, cultural and program implementation indicators suggested by some respondents are not. For example, the Provincial Ministries submitted that “monitoring by definition needs to include ecological, social and economic components.”

Several respondents asked that more detail be provided on such operational matters as the indicators to be used and targets. The Commission maintained its position that what was appropriate for the Plan was simply a statement that acknowledged the importance of an environmental monitoring program, but that all detail concerning its operation, management, implementation and financing need not be addressed in the Plan.

## **1.2 Issues**

- Should an environmental monitoring program be developed for the Plan area?
- If so, what should be the scope of the monitoring program? Should economic, social and/or cultural indicators be used?

### **1.3 Submissions and Presentations**

Almost all submissions and presentations, whether from members of the public, including two former members of the Commission, municipalities or organizations such as the Coalition on the Niagara Escarpment, Protect our Water and Environmental Resources represented by a former member of the Cumulative Effects Monitoring Committee, and the Wildlands League, were supportive of the Commission's proposed definition of environmental monitoring and the explanatory statement.

Underlying the agreement with the Commission's proposal lay a deep concern that without monitoring, we could not foresee what kind of Escarpment future generations would know. Few were as passionate in their remarks to us as Ms. Jean Smith, who was also a participant in the last Plan Review. After telling us that "the word monitor originally referred to the edict of an ecclesiastical court which admonished people to change their wicked ways" she presaged much of what others would say about "the stresses on the vitality of the Escarpment", the "intrinsic value in having natural areas" and the importance of stewardship.

One of the faculty members at the University of Waterloo, who has been involved in a joint project with the Commission and the Ministry of the Environment gathering data from five NEC monitoring stations, emphasized that environmental monitoring was an excellent way for the Commission to build links with other organizations. At the same time, like many others, he underlined the fact that comprehensive long-term monitoring requires commitment and investment. Several municipalities and conservation authorities pointed out that they did not have the necessary financial resources.

The Town of Caledon described its own policy concerning environmental monitoring. That policy is incorporated into a Section of its Official Plan that details Caledon's policy approach to the protection, management and stewardship of ecosystems:

In order to assist in the implementation of the Town's ecosystem principle, goal, objectives, planning strategy and policies, the Town shall:

- within the context of best available methodologies, initiate, or participate in, environmental monitoring programs and state of the environment reporting which, among other things, consider cumulative effects and carrying capacity, and will assess the relative success of the Town's Ecosystem Planning Strategy.

We understand that so far, implementation of the Town's policy has consisted largely of participating as a partner in the monitoring programs of other agencies. However, the Town has also begun to gather base line and site-specific monitoring data through development approvals.

Caledon's aggregate resource management policies also contain a section concerning monitoring:

That the Town will monitor extractive operations on an individual and cumulative basis. Items to be monitored include the progress of extraction, compliance with approvals, extent of disturbance and rehabilitation, noise, dust and other social and economic impacts, and effects on water resources and ecosystem integrity.

At least one private citizen participant echoed the significance of monitoring noise and dust from quarry operations.

With regard to the scope of monitoring Caledon recommended, in the program proposed by the Commission:

That the actual effects of land use changes (as well as individual development) over time be monitored, e.g.: if a land use change was supported as being consistent with the objectives of the NEP, has it proven to be so over time?

Caledon's submission noted that it would promote joint monitoring programs and help ensure that results were shared.

The Preservation of Agricultural Lands Society (PALS) and the Hamilton Naturalist's Club were two of the participants who suggested that targets and performance indicators should be included in the descriptive statement of environmental monitoring. Such indicators might, for example, measure species loss, woodland fragmentation and degradation, the state of groundwater aquifers and the health of streams, and could be rooted in a vision statement. PALS also pressed for inclusion of agricultural lands in any monitoring effort.

Several participants requested that results of past and future monitoring be made more accessible. An annual "State of the Environment" report would, PALS suggested, be a good way to identify progress and setbacks. We were also presented with the opinion by the Grey Association for Democracy and Growth, that it was not sufficient to make results known only through "conferences, presentations and reports" and that making monitoring results better known would help fill a "long standing grass roots communication vacuum".

Strong objections were registered by two organizations, the Ontario Property and Environmental Rights Alliance and the Grey Association for Democracy and Growth. The Association wrote that it:

Believes this proposed Plan addition originates with a United Nations protocol and, as such, surrenders, in whole or in part, provincial management of an Ontario resource to an international agency without public knowledge or consent.

However, the Association also stated that it would support the idea of environmental monitoring if it could be satisfactorily demonstrated that monitoring will not be "dictated, influenced or managed" by the United Nations.

Regarding the proposed Amendment itself, the Association stated that environmental, social and economic indicators must "be seen to be given equal importance" in any monitoring program because, they argued, their inclusion is mandated by section 3(2) of the Act. That section requires the Commission to "carry out an investigation and survey of the environmental, physical, social and economic conditions in relation to the development of the Planning Area" before presenting "a plan suitable for approval as the Niagara Escarpment Plan."

The Joint Ministries also suggested that economic and social indicators be used in the monitoring program and proposed an amended wording for the definition of environmental monitoring that included:

... repetitive measurement of the natural environment and land use activities using ecological, social and economic indicators as a basis for anticipating, identifying and better understanding changes in the natural environment over time.

The Conservation Authorities stated that although they did not object to the concept of environmental monitoring, they were concerned that they did not have the resources needed to do the monitoring required of them in the proposed NEPOSS amendment. We did not hear that concern from the Bruce Trail Association which, we understand, already includes provision for monitoring in its plans for properties acquired for the Trail Corridor.

## **1.4 Findings**

### **1.4.1 Content and Definition of Environmental Monitoring**

The scope of the monitoring program proposed for inclusion in the Plan should be based only on the purpose and objectives of the Plan. All the work undertaken in the three phases of the ONEMP was linked directly to monitoring questions derived from the Plan and we endorse that approach.

The Provincial Ministries' oral presentation to the effect that economic and social indicators should be included so that monitoring "captures the broader elements" in measuring the effectiveness of the Plan's policies, or that these indicators should be included as a matter of definition, seems to relate well to the extremely broad definition of "environment" found in

ss. 1(1) of the *Environmental Assessment Act*, R.S.O. 1990, c.E-18, as amended, that includes:

- c) the social, economic and cultural conditions that influence the life of humans or a community;  
and
- d) any building, structure, machine or other device or thing made by humans.

Unfortunately, “environment” is not defined in the Act or the Plan. There is no indication in the Purpose of the *Niagara Escarpment Planning and Development Act* that such a broad definition of “environment” was intended. The only relevant definition in the Plan (Appendix 2) is of the “natural environment”:

**Natural Environment** – the air, land and water or any combination or part thereof, of the Province of Ontario.

Although this definition is curiously out of step with common sense because it makes no reference to anything living, it does at least make it clear that the Purpose of the Act and the objectives of the Plan that arise from it, are not based on an expansive definition of “environment” like that in the *Environmental Assessment Act*. We believe that this is confirmed by the purpose and objectives of the *NEPDA*:

“The **Purpose** of the *Niagara Escarpment Planning and Development Act* is:

to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment.

The **Objectives** of the Plan are:

1. to protect unique ecologic and historic areas;
2. to maintain and enhance the quality and character of natural streams and water supplies;
3. to provide adequate opportunities for outdoor recreation;
4. to maintain and enhance the open landscape character of the Niagara Escarpment in so far as possible, by such means as compatible farming or forestry and by preserving the natural scenery;
5. to ensure that all new development is compatible with the purpose of the Plan;
6. to provide for adequate public access to the Niagara Escarpment; and
7. to support municipalities within the Niagara Escarpment Plan Area in their exercise of the

planning functions conferred upon them by the Planning Act”.

The purpose of the Act refers to maintenance of the “natural environment” and ensuring that development is “compatible with the natural environment”. That requires monitoring of economic activities such as resource extraction from pits, quarries and forests and, therefore, the use of economic indicators appropriate to judging the environmental compatibility of those industries.

There is no mention of specific social or economic matters in the objectives except insofar as outdoor recreation and access to the Escarpment serve social values, and “compatible farming and forestry” are economic activities that can help maintain an open landscape character.

In fact, the only economic and social indicators required by the purpose and objectives of the Plan are those aimed at quantifying the changes and intensity of land use. In that context they are part of assessing the cumulative stress on the ecological status of the Escarpment. The definition of “environmental monitoring” in the Provincial Ministries’ written submission (see above) fits well with that land use oriented approach. However, the Ministries may have been moving beyond that in their orally presented suggestion that social and economic indicators be used to “capture broader elements of the Plan”.

The Grey Association for Democracy and Growth’s argument that economic and social indicators should be given equal weight with ecological indicators is reminiscent of the discussion about indicators that occurred during the 1991 Plan Review in the context of:

- The description of the Niagara Escarpment Plan in section 1 of the *NEPDA* as a plan “designed to promote the optimum economic, social, environmental and physical condition of the Area”; and
- The concept of “sustainable development” introduced to the discussion by the designation of the Plan area as a UN Biosphere Reserve.

That discussion led the Hearing Officers to recommend (NEPR.91 Rec. 5.1.5.2) that in the list of objectives to be added to the Plan should be one derived from the definition of the Niagara Escarpment Plan set out in section 1 of the Act:

- “Niagara Escarpment Plan” means a plan, policy or program, ... designed to promote the optimum economic, social, environmental and physical condition of the Area ....

It is notable that the other seven objectives recommended by the Hearing Officers for inclusion in the Plan were taken verbatim from section 8 of the Act. Those objectives were subsequently accepted for inclusion in the amended Plan. However, the additional eighth objective, concerning promotion of the economic and social “condition of the Area” recommended by the Hearing Officers, was not accepted. We take that to have been a reaffirmation of the objectives of the Plan in the *NEPDA* and, therefore, of the limited, focused role for economic and social indicators in evaluating the Plan’s policies.

With regard to the position of the Grey Association for Democracy and Growth that inclusion of social and economic indicators is required because of section 3(2) of the Act, it is important to understand that the “survey of the environmental, physical, social and economic conditions in relation to the development of the Planning Area” in section 3(2) refers only to the direction given by the Minister to prepare a plan for approval. This task was completed with the approval of the Plan in 1985. One obvious reason for that instruction was to guide selection of the land to be covered by the Plan. After the adoption of the Plan, the purpose of that survey was superceded.

Assets of an historic nature that are part of the cultural heritage of the Escarpment should be known to the Commission because protection of “unique ... historic areas” is specifically part of one of the objectives of the Plan. However, knowledge of those assets and their status is more in the nature of making and maintaining an inventory than monitoring. Furthermore, making and maintenance of a cultural asset inventory is already the objective of section 2.12, Heritage: “to *inventory*, interpret, evaluate, maintain and conserve the cultural heritage features of the Niagara Escarpment Plan Area” [emphasis added]. Taken together, these responsibilities require regular inspection that might be seen as amounting to monitoring, as Dr. Paul Aird stated in his submission. However, we believe it is preferable to keep all matters related to cultural assets focused in section 2.1.2 and not to include cultural indicators in the environmental monitoring program.

## **1.4.2 Monitoring for the UNESCO Biosphere Reserve Program**

The proposed introductory description of environmental monitoring includes the statement that:

The monitoring program will also assist the Niagara Escarpment Commission in meeting its *obligations* as a designated UNESCO World Biosphere Reserve; namely in the areas of management for biodiversity, research, monitoring, demonstrations of environmentally sustainable development and education [emphasis added].

The word “obligations” caused a sharp reaction from several participants already fearful of the United Nations intruding into land management policies in the Plan area. We are not aware of any “obligations” arising from the Biosphere Reserve designation that might dictate the scope of environmental monitoring. During the hearing the Commission readily agreed that “obligations” was too strong a word. In our view, monitoring will allow the Commission to *contribute*, on behalf of Canada it might be said, to the Biosphere Reserve program.

It is, therefore, our opinion that the definition of environmental monitoring proposed by the Commission should not be expanded to include economic and social indicators beyond those required to answer monitoring questions directly arising from the Purpose and Objectives of the Act. Economic and social indicators need only be used to the extent necessary to judge the environmental compatibility of land use.

More extensive data for use in understanding social and economic trends could be gathered by a variety of bodies to supplement environmental monitoring if and when desired. For example, assessments of economic benefits from tourism in minor urban centres or the demographic characteristics of escarpment communities could be accomplished with appropriately designed surveys. This is not to deny the significance of social and economic data; it is simply to avoid losing the focus of the environmental monitoring program.

## **1.5 Recommendations**

### **1.5.1 Recommendation 1**

That a new section under the heading Environmental Monitoring be added immediately after the section

Purpose and Objectives:

### **Environmental Monitoring**

- An environmental monitoring program will be implemented in conjunction with the application of the land use policies and development criteria of the Plan. It will be designed to assess the effectiveness of policies, decisions and practices throughout the Plan area in meeting the purpose and objectives of the Niagara Escarpment Plan.

Consistent, long-term monitoring of selected environmental indicators allows analysis of the cumulative response of all parts of the environment in the Plan area, including ecosystem and landscape components, to external influences. Such influences include local human activity, such as land use practices and changes in land use, as well as regional and global stresses such as climate change.

- Comparison of indicator values with targets will allow evaluation and refinement of management and planning policies and practices. Furthermore, monitoring is a means of understanding and anticipating environmental changes and, when possible, minimizing deterioration in environmental quality.
- In some cases monitoring will be carried out on a regional, landscape scale, in others it will be on a local or even site-specific scale. The scope and some elements of the broad monitoring program will change over the course of time as stresses on the Escarpment change.
- Monitoring information will be used in the day-to-day implementation of the Plan, when considering Plan Amendments, and during periodic reviews of the Niagara Escarpment Plan under section 17 of the *Niagara Escarpment Planning and Development Act*.
- Monitoring results and analyses will be disseminated through the Niagara Escarpment Commission's website, conferences, presentations, publications and regular reports produced as part of the Niagara Escarpment Monitoring Program. The data will be available for evaluation and use by interested individuals, organizations, agencies and the academic community throughout the world.
- The monitoring program will also assist the Niagara Escarpment Commission in contributing to the United Nations Biosphere Reserve program in such areas as managing for biodiversity, education and research, and study of environmentally sustainable development.

## **Rationale**

We believe that this rewritten section more clearly describes the purpose and value of an environmental monitoring program than the Commission's proposal. It states clearly that it is to be used throughout the Plan area, may be regional or local, and will be an integral part of evaluating the effectiveness of development criteria as well as land use policies. It also recognizes cumulative impacts and stresses that are not land use related, such as climate change.

### **1.5.2 Recommendation 2**

That Appendix 2 of the Niagara Escarpment Plan, Definitions, be revised by adding the following definition:

- **Environmental monitoring** – the long-term and repeated measurement of selected properties or characteristics of the environment and of the activities believed to be responsible for changes in the environment. The most significant properties or characteristics are often referred to as environmental indicators. Monitoring may be carried out on a very broad, even global scale or on a restricted, local scale.

Instead of the Commission's proposal:

**Environmental monitoring** – means the long-term monitoring and repetitive measurement of the natural environment and land use activities using ecological indicators as a basis for anticipating, identifying and better understanding changes in environmental quality.

## **Rationale**

"Measurement of the natural environment" is a concept that is not actually achievable. Certain parameters or indicators are chosen that are relevant to the purpose of the monitoring program.

It is not only the "natural" or undisturbed environment of the Plan area that could be monitored. For example, erosion or the leaching of pesticides from agricultural operations might be targeted by monitoring.

It is not only local land use activities, but also widespread influences such as climate change and the long-range transport of air pollutants that are responsible for changes in “environmental quality”. Although land use may be the most important factor in considering the policies contained in a land use plan, they may not be the only ones that are relevant.

Not all indicators are ecological in the sense of being directly related to an identifiable ecosystem, for example, temperature or air quality. A more general term is “environmental indicator”.

Monitoring is carried out on many different scales. What is appropriate for understanding climate change is quite different in scale from what is necessary to assess the impact of hikers on the Bruce Trail or soil erosion from a vineyard.

Although it is important to state what can be gained from interpreting the results of environmental monitoring, we believe that information of this kind should be included in the proposed Environmental Monitoring statement at the beginning of the Plan rather than in the definition of what monitoring is.

### 1.5.3 Recommendation 3

That Appendix 2 of the Niagara Escarpment Plan, Definitions, be revised by adding the following definition:

- **Environment** - means the air, land, water, plant life, animal life and ecological systems of Ontario.

### Rationale

At the same time as environmental monitoring is defined in the Plan, we believe that a definition of “environment” should also be provided. There is not a definition in the current Plan (although the Position Paper on Topic 4, *Environmental Monitoring*, p.15 claims there is) nor has one been proposed by the Commission. The definition in the *Environmental Bill of Rights*, 1993, R.S.O. 1990, c.26, as amended, is already in use in Ontario and is appropriate for a land use plan like the Niagara Escarpment Plan. We have used it as our working definition in considering the issues and submissions and believe it should be incorporated into the Plan for the proper understanding of environmental monitoring.

#### **1.5.4 Recommendation 4**

That Appendix 2, Definitions of the Niagara Escarpment Plan, be revised by adding the following definition:

- **Natural Environment** – that part of the environment composed of ecological systems that are relatively unaltered by the impact of human activity or have returned to such a state after being significantly disturbed by human activity. The natural environment is essentially the product of evolution rather than human manipulation.

#### **Rationale**

The current definition of “natural environment” in the Plan does not include any living things and is, therefore, obviously inadequate, especially in the context of the new Environmental Monitoring statement proposed for the Plan. The definition needs to distinguish those ecological systems that are essentially the result of evolution and those, such as farmland, that are the result of human activity. We have used this working definition in our consideration of the issues and submissions and recommend it be adopted in the Plan.

#### **Application of Environmental Monitoring**

We have chosen to deal in this section of our report with two proposals for monitoring in the park system included by the Commission in their Position Paper on Recreational Development in Escarpment Parks. The application of monitoring seems to fit most logically with consideration of its purpose and scope.

As indicated in the descriptive statement, environmental monitoring will be applied as a means of evaluating policies, decisions and practices involving land use and the implementation of development criteria. Monitoring can be carried out on a broadly based, landscape scale or on a very restricted, local scale. Analysis of satellite images to determine the connectedness of woodland habitat and on-the-ground monitoring of trail erosion illustrate the two extremes.

Large scale, pan-escarpment monitoring should remain the responsibility of major partners like the ministries, agencies and institutions already involved in the Ontario Niagara Escarpment Monitoring Program. However, some local, on-site monitoring should be governed by the same principle that underlies the development permit process.

Just as the onus is on the party seeking a development permit to demonstrate that the proposed development is compatible with the purpose of the Plan, the onus, in our view, should be on the holder of the permit to demonstrate, in certain circumstances, that the development when completed, has not had unacceptable environmental consequences. That would be accomplished by local environmental monitoring. It might simply involve reporting the results of regular maintenance inspections of a septic system or records of water levels and quality in a wetland.

### **1.5.5 Recommendation 5**

That Land Use Policies, section 1.2, Plan Amendments, paragraph 5, and section 2.1, Development Criteria, paragraph 3, be revised to include the following provision:

- Environmental monitoring designed to assess the impact of a development or land use change on the environment may be required as a condition of issuing a development permit.

### **Rationale**

On certain properties, especially those in environmentally sensitive locations or where use may escalate beyond anticipated levels, site specific environmental monitoring is a prudent step that can lead to the timely mitigation of unpredicted impacts. In many cases, what is required will be small scale and need not be complex or costly. We note that the Town of Halton has taken a similar approach.

### **1.5.6 Recommendation 6**

That Part 3.1.6, Master/Management Planning Policy, be revised as proposed by the Commission to include the following provision as Part 3.1.6.6:

- Park master plans and management plans will provide policies for environmental monitoring designed to assess the effectiveness of park plans in meeting the objectives of the Niagara Escarpment Parks and Open Space System in Part 3.1.1 and the assigned park or open space classification as set out in Part 3.1.4.

## **Rationale**

Parks are an example of properties where use may grow beyond predicted levels and where mitigation of the impact of that level of use may be necessary. Environmental monitoring, often simple and straightforward, is simply a prudent evaluation tool that should be as acceptable and routine as an annual financial audit.

### **1.5.7 Recommendation 7**

That Part 3.2, The Bruce Trail, be revised as proposed by the Commission, to include the following as its penultimate paragraph:

- As part of its Trail Corridor planning responsibility, the Bruce Trail Association shall undertake environmental monitoring to ensure that the use of the Trail is consistent with the objectives of the Niagara Escarpment Parks and Open Space System as set out in Part 3.1.1.

## **Rationale**

We understand from the Commission's Position Paper that the Bruce Trail Association already provides for environmental monitoring in its plans prepared for Trail properties acquired as part of the NEPOSS program. This provision formalizes that practice.

## **Vision Statement**

Participants who commented on the value or otherwise of a forward look at the future of the Escarpment area or "vision statement", clearly had a wide variety of purposes and endpoints in mind. Some were looking for targets against which the state of the Escarpment's environment might be measured. For our part, we believe that the environmental monitoring program must try to understand the direction and intensity of current trends that are already leading to the environment of the future. The best monitoring questions will draw on that dynamic view of a changing environment.

### **1.5.8 Recommendation 8**

We recommend that a stimulating, descriptive scientific essay be written, which is understandable by the general public and projects the results of existing monitoring programs combined with climate change scenarios to 25- and 50-year horizons. It will not be the vision statement that some are looking for, but it should be required reading for all who aspire to create one.