The Role of the Ecosystem Approach in Ontario's Land Use Planning Regime

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November 8, 2010

Walter & Duncan
GORDON FOUNDATION

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ABSTRACT:

Government support for the adoption of the Ecosystem Approach has existed in Ontario for over 25 years. The Ministry of the Environment specifically advocated for its application in land use planning in a 1994 policy document. The author in this paper reviews Ontario's land use planning regime in order to determine whether the Ecosystem Approach principles of integrated, equitable and sustainable management have been meaningfully incorporated into the legal framework. In examining the *Planning Act*, the 2005 *Provincial Policy Statement*, and three official plans (the Cities of Belleville, Welland and Timmins), the author concludes that although there have been concerted efforts to incorporate elements of the Ecosystem Approach, the conventional land use planning model remains fundamentally intact and unchallenged. One must look beyond the basic planning regime to special provincial policies designed to protect specific environmental features in order to find meaningful restrictions on the standard growth model.

ACKNOWLEDGEMENTS:

I wish to acknowledge the generous support of the Walter & Duncan Gordon Foundation. Thanks to Rob de Loë at the University of Waterloo, Anastasia Lintner at Ecojustice, Theresa McClenaghan and Christopher Waffle at the Canadian Environmental Law Association, and Tim Morris at the Walter & Duncan Gordon Foundation for sharing their expert knowledge.

CELA Publication #793

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LIST OF ABREVIATIONS

Act	Planning Act
ANSI	Areas of Natural and Scientific Interest
CA	Conservation Authority
CBD	Convention on Biological Diversity
CIP	Community Improvement Plan
COP	Conference of Parties
CWA	Clean Water Act
EA	Ecosystem Approach
EBR	Environmental Bill of Rights
ECO	Environmental Commissioner of Ontario
EIS	Environmental Impact Study
GGH Growth Plan	Growth Plan for the Greater Golden Horseshoe, 2006
Minister	Minister of Municipal Affairs and Housing
MMAH	Ministry of Municipal Affairs and Housing
MNR	Ministry of Natural Resources
MOE	Ministry of the Environment
MOEE	Ministry of the Environment and Energy
MOI	Ministry of Energy and Infrastructure
MTO	Ministry of Transportation
OMB	Ontario Municipal Board
PPS	Provincial Policy Statement
RAP	Remedial Action Plan

I. INTRODUCTION

For much of the past century, conventional land use practices across North America have encouraged environmentally destructive developments such as urban sprawl, mining, deforestation, and industrial activities. These developments reflect our larger economic growth strategies which are notorious for undervaluing environmental processes. The Province of Ontario is no exception. With its population predicted to increase by up to six and a half million people by 2036 from its present 13 million, land use planning will play an increasingly important role in determining ecosystem wellbeing and human health.[1] Alternative natural resource management models that can be applied to land use planning have been advanced in recent decades to reform or replace existing harmful trends.[2] One of the most holistic and widely advocated alternatives is the ecosystem approach ("EA").

The EA is defined by the United Nations' *Convention on Biological Diversity* as "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way."[3] Though concise in its description, its implementation is exceedingly complex as this review of Ontario's land use planning regime will attest. One of the main challenges with the EA is that there is no single way of implementing it. Rather, local governments and citizens are called upon to create a practical expression of it in accordance with their traditions, values, and needs. Regardless of the strategy adopted, the implementation of a supporting legal regime is a key element of any successful model. Not until the principles of the EA are articulated into law and policy can we expect to see the desired result of sustainable environmental management and protection in the long-term.

For over 25 years the Government of Ontario has asserted that the EA should be incorporated into its legal regime. The Ministry of Environment and Energy ("MOEE") recommended that it be applied specifically to land use planning in a 1994 policy report entitled *Towards an Ecosystem Approach to Land-Use Planning*,[4] which will be referenced throughout this study. Presently, many provincial laws and policies claim to embody the EA – claims that may not bear close scrutiny. This study will attempt to evaluate the actual impact of these recommendations on land use planning.

To begin I will briefly review Ontario's land use planning system, including its institutional structure and legal framework. The EA will then be explored, with a particular focus on its role in shaping land use planning laws and policies. Finally, I will assess the extent to which Ontario's land use planning responds to the principles of the EA. This analysis will involve a

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[1] Statistics Canada, *Population Projections for Canada, Provinces and Territories 2009 to 2036*, Statistics Canada Catalogue no. 91-520-XWE (May 26, 2010) at s.3, online: <http://www.statcan.gc.ca/pub/91-520-x/2010001/t472-eng.htm>.

[2] Discussion of "resource management" in this paper refers to the management of our interactions with our natural environment. See David Waltner-Toews, et al. (2003) "Perspective Changes Everything: Managing Ecosystems from the Inside Out", 1 *Front. Ecol. Environ.* 1, 22-30.

[3] U.N. Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79, online: <http://www.cbd.int/convention/convention.shtml> [*CBD*].

[4] Ministry of Environment and Energy, *Towards an Ecosystem Approach to Land-Use Planning* (Queen's Printer for Ontario, 1994), online: < http://www.ene.gov.on.ca/envision/techdocs/3147.pdf>.

review of the provincial *Planning Act*[5] and *Provincial Policy Statement*[6], as well as the official plans of three municipalities. The official plans in question will be those of the Cities of Belleville, Welland, and Timmins, selected for a variety of reasons outlined below, such as similar populations, yet disparate geographic locations and economic foundations.

The results of this assessment suggest that though there have been concerted efforts to incorporate EA elements, the conventional land use planning model remains fundamentally intact and unchallenged.[7] To find meaningful restrictions on the standard growth model that allows for urban sprawl and land conversion, one must look beyond the basic planning regime to special provincial policies designed to protect specific environmental features or geographic areas. Even these examples of special policies do not represent radical departures from the norm.

II. ONTARIO'S LAND USE PLANNING REGIME

1. Government Players

The Ministry of Municipal Affairs and Housing ("MMAH") is the lead provincial ministry for land use planning in Ontario. It provides a "one-window planning service to municipalities" as it is the "primary provincial contact for advice and information on land use planning issues".[8] One of its most important functions in the context of this report is the responsibility to issue provincial policy statements establishing provincial interests designed to guide planning decisions. The MMAH is also responsible for reviewing and approving municipal official plans, as well as coordinating comments and responses to planning proposals.

Several other ministries and government agencies also play a role in planning. The Ministry of Natural Resources ("MNR") has a significant supporting role as it is responsible for conducting land use planning for Crown lands and establishing guidelines for natural resource activities. Moreover, it deals with the conservation and management of Ontario's natural heritage systems, aggregate and petroleum resources, as well as public safety issues related to natural and human-made hazards.[9]

The Ministry of the Environment ("MOE"), previously MOEE, has a Land Use Policy Branch designed to encourage environmental protection though "developing and updating land use

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[5] R.S.O. 1990, c. P.13 [*Act*].
[6] Ministry of Municipal Affairs and Housing, *2005 Public Policy Statemen*t (Queen's Printer for Ontario, 2005), online: <http://www.mah.gov.on.ca/Page1485.aspx> [*PPS*].
[7] Conventional land use planning in North America is based upon the premise that land is a commodity, and thus is driven by market principles of supply and demand. The complexities of planning are simplified by breaking down and compartmentalizing land uses into more manageable elements; not taking into account the workings of the larger ecosystem. See for example: Jane Silberstein and Chris Maser, *Land-use planning for sustainable development* (CRC Press LLC, 2000) and Charland, J.W. 1996. "The "problem-isolation paradigm" in natural resource management", 94 *J. Forest* 5, 6-9.
[8] Ministry of Municipal Affairs and Housing, *Citizens' Guide 1: The Planning Act* (Queen's Printer for Ontario, 2008), online: <http://www.mah.gov.on.ca/Page1760.aspx>.
[9] Ministry of Natural Resources, Municipal Planning in Ontario Web site, online: <http://www.mnr.gov.on.ca/en/Business/LUEPS/2ColumnSubPage/STEL02_165804.html>.

policies and programs, and by promoting integrated and innovative approaches to foster the protection of human health and ecosystems".[10] The Ministry of Transportation ("MTO") and the Ministry of Infrastructure ("MOI"), for their parts, are responsible for ensuring that the municipal official plans incorporate transportation and energy policies set out in the *PPS*. MOI also houses the Ontario Growth Secretariat, which implements the *Places to Grow Act, 2005*[11] and the *Growth Plan for the Greater Golden Horseshoe, 2006*.[12]

Conservation Authorities ("CAs") have an important role in planning. Established under the *Conservation Authorities Act*,[13] CAs are organized according to watersheds for which they develop business and natural resource management plans. They can also perform a technical advisory role to the municipalities within the watershed boundaries by determining environmental impacts of planning decisions. Municipalities are encouraged to incorporate CAs' plans and recommendations into their decision-making processes to help ensure that a comprehensive resource management program is implemented on a watershed basis.[14] With the adoption of the *Clean Water Act*, *2006*,[15] CAs gained many new responsibilities with regard to implementing Source Protection Plans—an important drinking water protection strategy. Though not discussed in this report because it lies outside the basic planning scheme, it should be noted that land use planning documents must be amended to be consistent with these Protection Plans once approved.

The administrative tribunal established to deal with land use planning is the Ontario Municipal Board ("OMB"). The OMB has been the subject of much controversy because of its unusual degree of power to reverse local decisions, a power that seems inconsistent with the province's stated goal of devolving authority to the local level. It plays an influential role in overseeing and shaping Ontario's planning regime because it typically has the authority to approve, dismiss, or substitute its own decisions for those of the municipality.[16]

Municipalities themselves are the central players in the planning regime. Ontario has 444 municipalities divided into single, and upper and lower tiers with corresponding degrees of regulatory authority according to the *Act*.[17] They are responsible for developing official plans for their communities; these plans must be consistent with the *PPS* and conform to various provincial plans.

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[10] Ministry of the Environment, Integrated Environmental Policy Division Web site, online: <http://www.ene.gov.on.ca/envision/org/iepd.htm#LandUse>.
[11] S.O. 2005, C. 13.
[12] Ministry of Public Infrastructure Renewal, *Growth Plan for the Greater Golden Horseshoe, 2006*, online: <https://www.placestogrow.ca/images/pdfs/FPLAN-ENG-WEB-ALL.pdf> [*GGH Growth Plan*].
[13] R.S.O. 1990, c. C.27 [*CAA*].
[14] Conservation Ontario, Conservation Authority Role in Land Use Planning Web site, online: <http://www.conservation-ontario.on.ca/planning_regulations/land_use_planning.html>.
[15] S.O. 2006, c.22 [*CWA*].
[16] John George Chipman, *A Law Unto Itself: How the Ontario Municipal Board has Developed and Applied Land Use Planning Policy* (Toronto: University of Toronto Press, 2002) at 4.
[17] Southern Ontario is divided into single-tier, and upper and lower-tier municipalities. Northern Ontario only has single-tier municipalities. The distinction relates to different levels of planning authority. While single-tier municipalities have undivided municipal power, lower-tier municipalities are required to be in compliance with the regional plans of the corresponding upper-tier municipalities.

2. Law and Policy

The *Act*, established in 1946, is the main piece of legislation that sets the ground rules for land use planning in the province. This legislation establishes provincial goals, planning processes, and the roles and authorities of different levels of government. It also provides guidance and spells out specific requirements to be met in preparing official plans. Many changes were introduced in the early 1990s when the *Act* was revised and a *Comprehensive Set of Policy Statements*[18] were issued to take into consideration previously neglected environmental considerations.

The current *PPS* on land use planning, which is the subject of this review, was adopted in 2005. As section 3(10) of the *Act* requires the policy to be reviewed every 5 years in order to determine whether revisions are required, MMAH in conjunction with other related ministries launched a review on March 1, 2010.[19] It typically takes a couple years to complete the process. The *PPS* is of significant importance from an environmental perspective as it provides direction on the designation and protection of sensitive environmental features and areas, such as woodlands, wetlands, and wildlife habitat. It also provides guidance on management matters relating to mineral aggregate management, agricultural lands, transportation, and municipal infrastructure and services. When decisions are made by the Province, OMB, or municipalities, they "shall be consistent with the PPS".[20]

In compliance with the *Act* and *PPS* as well as others, municipalities are required to adopt official plans to provide guidance regarding the physical development of their communities over a 20-year period. This responsibility involves identifying where growth and development should occur, as well as where it should not. Issues such as the provision of municipal services and infrastructure are outlined, while protected areas, agricultural lands, intensification and redevelopment zones, and resource extraction areas are identified. Every five years the official plans must be reviewed to ensure that they are still consistent with the provincial framework.

3. Selected Municipalities

A number of considerations guided my choice of the Cities of Welland, Belleville, and Timmins as subjects for this study. Similarly sized at around 50,000 people, these cities are representative of different aspects of Ontario's economy, geography, and municipal tier designation as established by the *Act*. They were, furthermore, selected to represent Ontario's basic planning regime by avoiding the effects of special protective land use planning legislation, such as the *Lake Simcoe Protection Act*,[21] *Oak Ridges Moraine Protection Act*,[22] and the *Greenbelt Act*.[23]

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[18] Ministry of Municipal Affairs, *Comprehensive Set of Policy Statements (*Queen's Printer for Ontario, 1994).
[19] For further information see Government of Ontario, Environmental Registry Web site, EBR Registry Number: 010-5853, online: <http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTA1NzU3&statusId=MTU4NTQx&language=en>.
[20] *Supra* note 5 at s.3(5).
[21] S.O. 2008, c.23 [*Lake Simcoe Act*].

Unfortunately it is impossible to avoid all special provincial plans if a city from Ontario's most developed region was to be included. Consequently, Welland will be reviewed despite its falling under the *GGH Growth Plan*.

III. Ecosystem Approach

1. Origins

The Great Lakes Research Advisory Board created the concept of the EA in a seminal report for the International Joint Commission in 1978.[24] The concept has since evolved and gained widespread international acceptance through a variety of international agreements. Arguably the most notable example is the United Nations' *CBD* signed at the 1992 Earth Summit by 193 parties, Canada included. The *CBD* Secretariat has taken significant steps to try to turn this abstract concept into a more practical framework through the production of guidelines, online sourcebooks, and a case study database. Perhaps the *CBD*'s most important contribution is the creation of a list of 12 Principles of the EA adopted by the Conference of Parties ("COP") in 2002, which transformed generalized ideas into more carefully articulated standards.[25]

These Principles were drawn from the expanding literature on the subject of ecosystem management in the 1980s and 90s. Fundamental to these developments was the growing recognition that human meets must be met within the limits of the earth's resources, and that maintaining healthy ecosystems is paramount to this process.[26] According to Dr. David Neufeld:

> "[e]ight guiding principles can be derived from recurring themes in the literature... Four principles relating to key properties of ecosystems include (1) boundaries, (2) objectives, (3) functions, and (4) cumulative effects. The remaining principles describe key properties of the rules and institutional arrangements to be applied, including (5) integrated, (6) adaptable, (7) coordinated, and (8) catalytic."[27]

As will be discussed in greater detail below, these recurring themes find themselves articulated into the 12 Principles.

While the *CBD* was designed to protect biodiversity, the principles of the EA can be applied to the management of any natural resource. In fact, most EA research efforts internationally have been directed towards the marine environment in the context of fisheries management. This is likely the result of the numerous international fisheries instruments which include EA principles

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[22] S.O. 2001, c.3 [*Oak Ridges Act*].
[23] S.O. 2005, c.1.
[24] Great Lakes Research Advisory Board, *The Ecosystem Approach: Scope and Implications of an Ecosystem Approach to Transboundary Problems in the Great Lakes Basin*, prepared for the International Joint Commission (Windsor, Ontario: July 1978).
[25] COP 5 Decision V/6, Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity. *The Hague, Netherlands*, 7-19 April 2002, online: < http://www.cbd.int/decision/cop/?id=7148>.
[26] D.A. Neufeld, "An ecosystem approach to planning for groundwater: The case of Waterloo Region, Ontario, Canada" (2000) 8 *Hydrogeol. J.* 239-250 at 241.
[27] *Ibid.*

and elements, such as the *1982 United Nations Convention on the Law of the Sea*,[28] the *1995 FAO Code of Conduct for Responsible Fisheries*,[29] the *1995 United Nations Fish Stock Agreement*,[30] and the 1995 *Jakarta Mandate on Marine and Costal Biological Diversity*.[31]

2. Developments in Ontario

The push for Ontario to start implementing the ecosystem approach to natural resource management came in the form of a flurry of reports and recommendations by committees, commissions, councils and round tables in the 1980s and 90s addressing issues such as Toronto's waterfront redevelopment, environment protection, economic development, and social justice.[32] As part of this reform movement, the MOEE issued the above-mentioned 1994 policy report, *Towards an Ecosystem Approach to Land-Use Planning*.[33] As the title suggests, this report outlines why "an ecosystem approach should be the foundation for managing growth" and municipalities should adopt "comprehensive environmental policy frameworks in their official plans".[34]

The effect of these reports and recommendations is that the EA has worked its way into the law. Its influence can be detected, for example, in the *CWA*, the *Lake Simcoe Act*, the *Oak Ridges Act*, and the *1978 Canada-United States Great Lakes Water Quality Agreement*.[35] Furthermore, the MOE has legally committed itself through its Statement of Environmental Values[36] to apply the EA to all its Acts, regulations and policies related to environmental protection—though it took a legal judgment to ensure this obligation is applied effectively in practice.[37]

Difficult as it is to measure the true extent of the adoption of the EA even in the case of the theoretically exemplary environmental protection laws listed above, its role in the basic land use planning scheme is still less clear. This reality is due, in part, to the fact that Ontario's lead land use planning Ministry, the MMAH, has a conflicted mission. Its goal as a Ministry, amongst

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[28] United Nations Convention on the Law of the Sea, Dec. 10, 1982, U.N. Doc. A/CONF.62/122.
[29] FAO, Code of Conduct for Responsible Fisheries (FAO, Rome 1995).
[30] Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Aug. 4, 1995, reprinted in 34 I.L.M. 1542 (entered into force Dec. 12, 2001).
[31] S.M. Garcia, et al., "The Ecosystem Approach to Fisheries: Issues, Terminology, Principles, Institutional Foundations, Implementation and Outlook", *FAO Fisheries Technical Paper 443* (Rome, Rome: 2003), online: <ftp://ftp.fao.org/docrep/fao/006/y4773e/y4773e00.pdf>.
[32] For example, the Royal Commission on the Future of the Toronto Waterfront; the Commission on Planning and Development Reform in Ontario; the Ontario Round Table on Environment and Economy; the Premier's Council on Health, Well-Being and Social Justice; the Environmental Assessment Advisory Committee; and the Conservation Council of Ontario. *Supra* note 4 at 1.0.
[33] *Supra* note 4.
[34] *Ibid.* at 2.0.
[35] U.S.T. 1383, Can. T.S. No. 20, TIAS 9257 (1978). Note that while these Acts impact land use planning in certain regions, they do not alter the basic planning regime established under the *Act* and *PPS*.
[36] Ministry of the Environment, *The Statement of Environmental Values*, online: <http://www.ebr.gov.on.ca/ERS-WEB-External/content/sev.jsp?pageName=sevList&subPageName=10001>.
[37] *Dawber v. Ontario (Director, Ministry of the Environment),* 28 C.E.L.R. (3d) 281 (Environmental Review Tribunal), (November 26, 2008). Note that the MMAH, for its part, has made no such commitment.

other things, includes promoting economic growth and development, attractive housing options, as well as environmental protection.[38] Though these goals are not necessarily incompatible—indeed at a deep level they are entirely convergent—the current short-term approach focused on growth creates a tension among them.

The understanding of the EA's role in land use planning is also less well understood than it should be, for it is typically associated with the natural resource context as opposed to urban and rural landscapes, which are often considered separate and apart from nature. The impact of land use planning on the ecosystem is, however, no less significant or meaningful than the fisheries or forestry industry. Arguably, it is actually more important because it creates the zoning framework that allows for habitat fragmentation, natural resource extraction, and permanent land alterations.

In light of these considerations, it was determined for this study that reviewing the land use planning regime would be a more effective means of determining Ontario's commitment to the EA than would be a review of those laws designed to protect the environment. The following review will be informed by the vision set out in the MOEE's 1994 policy report in combinations with the *CBD*'s 12 Principles. Together they will provide the framework against which to judge Ontario's current regime.

3. Ministry of Environment and Energy Recommendations

The MOEE's report includes a series of recommendations for how the land use planning regime should be reformed to implement the EA. The recommendations, which will be explained below, are organized according to five general components,[39] namely: 1) boundaries for planning purposes; 2) environmental objectives and targets; 3) assessments of cumulative environmental effects; 4) information collection and management; and 5) monitoring. Although the 12 *CBD* principles were not written until almost a decade after the MOEE report was produced, they are compatible with the five components. In fact, it is not unheard of to create themed categories such as these to cope with the arbitrary order in which the *CBD* listed the principles.[40] The following discussion of the EA will thus include an incorporation of the 12 principles into the five components.

a. Boundaries for Planning Purposes

The first component involves defining boundaries for planning purposes, specifically biophysical, temporal, and administrative boundaries. Establishing biophysical boundaries as the

[38] National Housing Research Committee, *Ontario Ministry of Municipal Affairs and Housing*, online: <http://nhrc-cnrl.ca/en/hub/ontario-ministry-municipal-affairs-and-housing>.
[39] "Component" is the term used by MOEE, referring to the theme or category headings.
[40] The International Union for Conservation of Nature and Natural Resources, for example, also organizes the 12 principles into five slightly different categories. See: *The Ecosystem Approach: Learning from Experience*, ed. Gill Shepherd in Ecosystem Management Series No.5 (Gland, Switzerland: IUCN, 2008) at 4.

basic framework through which to regulate is a necessary first step, as regulating according to political boundaries undermines the integrity of the ecosystem.[41] The most appropriate biophysical boundary is the ecosystem, and the watershed in turn is often considered the most appropriate ecosystem scale. The MNR recommends the watershed scale because the hydrologic cycle represents the "pathway that integrates physical, chemical and biological processes of the ecosystem".[42] Consequently—although the term ecosystem is much broader the watershed and they are not synonymous—ecosystem and watershed will be used interchangeably in this paper because the watershed is advocated as the ecosystem scale of choice.

The temporal boundary refers to the fact that ecosystem processes are characterized as having varying temporal scales and lag-effects. The effects of environmental harm, for example, are often not felt immediately and this reality must be accounted for. Consequently, it is important to adopt the appropriate timeframe for regulation.[43] Defining a long-term perspective as a necessary dimension of the EA is also an essential strategy for protecting against short-term political interests in favour of sustainability.

Decentralization is another ecosystem principle, which promotes ecosystem management being decentralized to the lowest appropriate level.[44] Although this concept is not mentioned in the MOEE report, it is nevertheless considered an important strategy for ecosystem protection because the "closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation and use of local knowledge".[45]

b. Environmental Objectives and Targets

The category of environmental objectives and targets includes a disparate set of principles that cover both the process for establishing environmental objectives generally and the core strategies for reaching the most important objective of environmental sustainability. Stakeholder participation is a central device in establishing objectives for managing land, water, and living resources. This decision must be a matter of societal choice.[46] Different sectors of society have different interests in their ecosystem, and they need it—both biologically and culturally—in different ways. This should be considered in establishing goals.

Regardless of the variety of distinct societal goals, one priority target that must be adopted is the conservation of the ecosystem structure and functioning in order to maintain ecosystem services.[47] Ecosystem services are fundamental to our wellbeing, as they provide the resources and processes upon which our survival depends, such as water purification and plant pollination. If the integrity of the ecosystem structure or functioning is compromised, then these "services"

[41] *Supra* note 25 at Principle 7.
[42] Ministry of Natural Resources, *Watershed Management on a Watershed Basis: Implementing an Ecosystem Approach* (Queen's Printer for Ontario, 1993) at iv, online: < http://www.ene.gov.on.ca/programs/3109e.htm>.
[43] *Supra* note 25 at Principle 8.
[44] *Ibid*. at Principle 2.
[45] *Ibid*.
[46] *Ibid.* at Principle 1.
[47] *Ibid.* at Principle 5.

can be interrupted at great cost to humankind. Conservation and restoration strategies should be implemented to achieve this goal, such as protecting sensitive ecological lands, adopting water conservation strategies, and promoting brownfield restoration.

Another *CBD* principle not included in the MOEE report, addresses the role of economics in either undermining or protecting ecosystem health. Certain market distortions, such as subsidizing urban sprawl by expanding municipal infrastructure with public money, should be corrected. Economic and conservation incentives must be aligned, while the costs and benefits in the ecosystem must be internalized.[48] Only a true sense of the worth of natural systems can prevent extensive land use changes that lead to degradation of the environment and the health of the local population.

c. Assessments of Cumulative Environmental Effects

Although single land use changes will likely not be enough to undermine the ecosystem's resiliency, planning decisions can collectively cause death by a thousand cuts. The key to restoring the ecosystem and preventing future harm is to assess the cumulative environmental effects of land use decisions. This knowledge of cumulative effects is necessary to ensure that we live within the limits of an ecosystem's functioning.[49] A balance between conservation and the use of the watershed for our present needs should be sought.[50] Furthermore, an understanding of the environmental effects on adjacent watersheds must be determined as neighbouring ecosystems are connected and interdependent. In order to develop this understanding, assessing the environmental impacts on neighbouring ecosystems is also required.[51]

d. Information Collection and Management

Possession of accurate information is essential to making appropriate decisions. The EA advocates that all forms of relevant information be considered, be it local, scientific, academic or traditional Indigenous knowledge.[52] In fact, all relevant sectors of society and scientific disciplines should be involved in decision-making to encourage the presence of widespread expertise.[53] Making appropriate and sustainable choices regarding resource management requires having a deep understanding of the ecosystem.

[48] *Ibid.* at Principle 4.
[49] *Ibid.* at Principle 6.
[50] *Ibid.* at Principle 10.
[51] *Ibid.* at Principle 3.
[52] *Ibid.* at Principle 11.
[53] *Ibid.* at Principle 12.

e. Monitoring

The MOEE report emphasizes the need for ecosystem monitoring to help establish a variety of important facts. In the words of the MOEE, the "goals of the ecosystem monitoring should be to: understand long-term changes in the ecosystem; identify baseline conditions; follow ecosystem response to specific threats; ensure specific conditions are maintained".[54] Even though the *CBD* principles do not directly refer to monitoring requirements, these are the most effective means of reaching many of the principles. For example, access to this kind of information is necessary to help with the principle that recognizes that change is inevitable and consequently management should be adaptable, flexible and responsive.[55] Carefully established monitoring scheme can play a key role in alerting us to when a management or environmental problem arises. The role of monitoring can also play a significant role in assessing the cumulative impacts on or establishing the limits of ecosystem functioning. It is important to recognize that "[a]ll environmental effects can be described as cumulative because an ecosystem has historical, successive, and multiple stresses acting upon it. The response of ecosystems to stress may be manifested in changes to ecosystem structure as well as partial or complete loss of ecological functions at different scales."[56]

IV. ANALYSIS

The following review of Ontario's land use planning regime involves assessing whether the five components of the EA are included meaningfully in the *Act*, the *PPS*, and the three selected official plans. As the *Act* and *PPS* establish the framework and parameters for both the provincial regime and the official plans, they will be subject to a more detailed analysis involving a series of questions. The review of the official plans will be a more general discussion of local differences of approaches to implementing or failing to implement the EA principles. In both cases, the focus will be on recognizing those provisions requiring specific action as opposed to those making aspirational statements that simply encourage or recommend certain behaviour.

There are many strategies for incorporating the EA principles and they can be applied with varying degrees of rigour and efficiency. Bearing this in mind, we should not expect questions directed at these strategies to elicit simple yes or no answers. The answers sketched below are indeed summaries of the kinds of approaches adopted—along with brief commentary where warranted.

Unfortunately, my research yielded no similar assessment of a land use planning regime against which to compare this one. Had such a document existed, it would have been interesting to see how it was constructed, for the fundamental flexibility the EA requires might be expected to lead to multiple different analyses. As matters stand such comparisons must await the work of others. And the importance of the present exercise is underscored.

[54] *Supra* note 4 at 12.
[55] *Supra* note 25 at Principle 9.
[56] *Supra* note 26 at 242.

1. Assessment of Planning Act & Provincial Policy Statement

a. Boundaries

1) *Does the Act or PPS require that planning occur at the watershed level?*

As mentioned above, the EA requires the planning and regulatory regime to respect the ecosystem boundaries, in this case the watershed. In fact, land use planning in Ontario proceeds on the basis that the functional unit is the municipality with its administrative boundaries.[57] The *PPS* does, however, require in the context of protecting water quality and quantity that municipalities use "the *watershed* as the ecological meaningful scale for planning ".[58] In the absence of further elaborations or explanation, municipalities are left to discover for themselves how this watershed scale should be applied.

2) *Does the Act or PPS provide for long-term management?*

All discussions of EA stress the importance of long-term planning. Ontario's planning timescale is based on a 20-year period, although it can by exception be much shorter. The *PPS* specifies, for example, that "[s]ufficient land shall be made available through intensification and redevelopment and, if necessary, designated growth areas, to accommodate an appropriate range and mix of employment opportunities, housing and other land uses to meet projected needs for a time horizon of up to 20 years".[59] Although the specification of 20 years takes planners beyond the next election or probably even the existing government's mandate, it falls short of international principles of intergenerational equity, sustainable development and the precautionary principle which are designed to represent a more ecologically relevant time-scale.[60] Furthermore, the emphasis of this timeline is on meeting housing and employment needs as opposed to ecosystem wellbeing such as sustained or improved soil nutrient contents, clean air, potable water, and biodiversity.

Despite this 20 year timeframe, the *PPS* also suggests rather vaguely that "[l]ong-term prosperity, environmental health and social well-being should take precedence over short-term considerations".[61] Also, "[n]atural features and areas shall be protected for the long-term, and the long-term ecological function and biodiversity of natural heritage systems should be maintained, restored, improved where possible".[62] Despite these provisions, various other often competing policies are included in the *PPS*, such as providing infrastructure, employment and housing. Although the *PPS* claims that there is "no implied priority" between these policies, the reality is

[57] The terms "planning authority" and "municipality" are used interchangeably in this paper.
[58] *Supra* note 6 at Part V (2.2.1).
[59] *Ibid*. at Part V (1.1.2).
[60] For further information, see for example: Edith Brown Weiss, *Environmental change and international law: New challenges and dimensions* (Tokyo: United Nations University Press, 1992).
[61] *Supra* note 6 at Part IV.
[62] *Ibid.* at Part V (2.1).

that despite the aforementioned emphasis on long-term planning, the language in the *PPS* favours short-term economic goals.[63] According to the Environmental Commissioner of Ontario ("ECO"):

> The 2005 PPS and the various laws that shape how it is implemented unequivocally establish priorities. Environmental planning and protection... are not given the same importance as economic drivers. This fact is not new, but rather, indicates that minimal progress has been made. Municipalities must now actively plan for residential and commercial growth and set aside sufficient lands in order to meet rigid growth targets... The entire planning system presupposes this growth and has been explicitly designed for it. From a strictly traditional economic perspective, this approach might be sound. From an ecological or sustainable perspective, this planning approach will fail in the long term.[64]

The prioritization mentioned here is revealed in a variety of ways. The *PPS*, for example, allows for environmentally harmful activities to occur even in protected natural features and areas, such as infrastructure development and aggregate mining.[65]

3) *In what way does the province limit the municipality's decision-making abilities?*

Given the importance of decentralized management to the philosophy of the EA, the provincial government is expected to meaningfully devolve its regulatory authority to local municipalities. Because one of the *Act*'s stated purposes is to "recognize the decision-making authority and accountability of municipal councils in planning",[66] the *Act* and *PPS* present themselves as created only to guide effective municipal decision-making. In fact, their effect is to direct and limit municipal decisions. The other listed purposes of the *Act* reveal this tension by discussing how provincial interests are to be integrated into municipal planning decisions, and provincial policy is to lead the land use planning system.[67] While this top down approach can be useful in ensuring that EA principles be implemented across an entire region (despite the principle of decentralized management), some of the provincial policies actually work to undermine the capacity of a progressive and pro-active municipal council to protect the integrity of the ecosystem.

More specific examples of the province retaining its authority over municipalities include the ability of the Minister of Municipal Affairs and Housing (Minister) to revoke responsibilities delegated to municipalities,[68] to amend official plans which in any case require provincial approval,[69] and to request amendments to municipal by-laws.[70] The OMB, for its part, can also

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[63] *Ibid.* at Part III.
[64] Environmental Commissioner of Ontario, "2005 Provincial Policy Statement", *Planning our Landscape, ECO Annual Report, 2004-05 (*The Queen's Printer for Ontario, 2005) at 44.
[65] *Ibid*.
[66] *Supra* note 5 at s.1.1(f).
[67] *Ibid.* at s.1.1.
[68] *Ibid.* at s.5(1), for example.
[69] *Ibid.* at s.23(1).
[70] *Ibid.* at s.27.

undermine municipal decision-making authority with its significant powers. Several recent legislative amendments were introduced to the *Act* in order to try to correct this problem by making municipal decisions less easily appealable.[71] The reality remains, however, that municipalities are discouraged from defending their decisions against developers by the fact that hearings are so expensive and outcomes in their favour so unreliable.[72]

Although these constraints are significant, it is important to note that the province increased municipal powers meaningfully in the past decade through the *Municipal Act*[73] reforms. The *Municipal Act* has been shifted "from a prescriptive to a more permissive approach by including natural person powers and spheres of jurisdiction to allow municipalities to administer and organize their affairs and deliver services".[74] These reforms have given municipalities broader jurisdiction, power and accountability which are allowing them to play a more serious role in urban rehabilitation efforts.

b. Ecosystem Objectives and Targets

4) *Does the Act or PPS include provision about public participation in establishing objectives and decision-making?*

The public has a right to participate in updating official plans, which must occur every five years,[75] and "council shall have regard to any written submissions... and shall give any person who attends the special meeting an opportunity to be heard".[76] "Adequate information and material" is to be made available to the public, with at least one public meeting to be held for the public's chance to make representations in respect of current proposed plans.[77] Open houses also provide a chance for the public review of plans and ask questions, and make representations.

The *Environmental Bill of Rights*[78] is supposed to provide further protection of public participation in planning decisions. As MMAH and the *Act* are both prescribed under the *EBR*,[79] they are subject to the *EBR* requirements regarding notice and comment on decisions that may have a significant environmental impact.[80] This means, for example, that even when the *Act* only requires the Minister to "confer with such persons or public bodies that the Minister considers have an interest" in issuing a policy statement, the *EBR* imposes the broader requirement of

[71] *Ibid*. at s.22(7.2), (7.3).
[72] Environmental Commissioner of Ontario, "Reforming Land Use Planning." *Building Resilience, ECO Annual Report, 2008-09 (*The Queen's Printer for Ontario, 2009) at 31. See also: Jeff Gray, "Ontario looks to smack down SLAPPs", *The Globe and Mail*, July 6, 2010, online at: <http://www.theglobeandmail.com/report-on-business/industry-news/the-law-page/ontario-looks-to-smack-down-slapps/article1630818/>.
[73] S.O. 2001, c.25.
[74] MMAH, *Municipal Act*, Web site: <http://www.mah.gov.on.ca/Page184.aspx>.
[75] *Supra* note 5 at s.26.(1).
[76] *Ibid.* at s.26.(5).
[77] *Ibid.* at s.17.(15).
[78] S.O. 1993, c.28 [*EBR*].
[79] The term "prescribed" means prescribed by the regulations under the *EBR*.
[80] *Supra* note 78 at s.3.

public notice and the opportunity to comment.[81] This mandated opportunity for public intervention is currently shaping the five-year review that the *PPS* is undergoing.

5) *Does the Act or PPS include provisions to prevent market distortions or corrections from affecting the watershed?*

A few modest economic incentives are established by the planning regime to encourage sustainability. Grants and loans are available for community improvement plans by municipalities for undertakings such as environmental site assessments, environmental remediation, and the encouragement of energy efficient uses.[82] (Improvement plans, however, may also involve support for activities such as "clearing, grading and levelling" land for development activities unlikely to improve watershed conditions.)[83]

Despite these modest, overt economic incentives encouraging environmental protection, the *Act* and *PPS* effectively undermine watershed protection[84] by encouraging standard economic growth strategies. One key example of this support for growth is the promotion of aggregate extraction, which serves the dual purpose of deriving economic gain from natural resource extraction and supporting urban development (i.e., sprawl), increasing the municipal tax base. "[V]irtually 100% of the production from sand, gravel and stone quarries [in Southern Ontario] is consumed by residential and non-residential construction in the major urban growth centres."[85]

Even in the face of this reality, the *PPS* pays lip service to the notion of discouraging sprawl by requiring municipalities to establish intensification and redevelopment targets within built-up areas.[86] The *PPS*, however, does not specify what these targets should be, essentially making this provision meaningless. To find a true commitment to intensification one must look outside of the general planning regime to special provincial policies, such as the GGH Plan.[87]

The true economic cost of environmental harm caused by development is not meaningfully accounted for in the planning regime in other important ways.[88] The community at large, for example, is often left to subsidize infrastructure development, thus rewarding such development. This unfortunate state of affairs can be attributed largely to the 1997 *Development Charges Act*[89] reforms which required municipalities to subsidize growth by preventing development charges from being applied. As stated by the Association of Municipalities in Ontario the "changes were

[81] *Ibid.* at s.3
[82] *Supra* note 5 at s.28(7).
[83] *Ibid.* at s.32.(1).
[84] The term "watershed protection" here is referring to the protection of water quality and quantity in the face of pressures from land development. Disruption of these factors can interrupt the hydrologic functioning of a watershed, and/or make it too contaminated to support the existing biodiversity.
[85] Jack A. Donnan, *Economic Implications and Consequences of Population Growth, Land Use Trends and Urban Sprawl in Southern Ontario: Final Report*, Prepared for the Environmental Commissioner of Ontario by Environmental Economics Services (June, 2008) at 15.
[86] *Supra* note 6 at Part V (1.1.3.5).
[87] *Supra* note 12.
[88] *Supra* note 85 at 45.
[89] S.O. 1997, c.27.

dramatic, costly to municipalities and unfair to property tax payers. The changes reduced the developers' contribution to services such as water and sewer infrastructure and transit, and eliminated any responsibility for the costs of additional waste management capacity to meet the demands of growth."[90] While municipal taxpayers immediately felt this financial burden, the long-term environmental impacts will be felt by future generations.[91]

Due to the existence of these externalities, the OMB will be undervaluing ecosystem services when making decisions about the "highest and best use" of the land. Allowing land to "sit idle" is not usually considered "the highest and best use" as it is unlikely to create revenue, jobs, or taxable assets.[92]

Despite these discouraging trends, it should be mentioned that some beneficial government and non-governmental collaborative initiatives exist outside of the *Act* or *PPS* that encourage environmental protection. In particular, the Conservation Land Tax Incentive Program and the Managed Forest Tax Incentive Program were developed to encourage the protection of privately owned lands in return for the reduction of property taxes.[93]

6) *Does the Act or PPS require that municipalities restore or mitigate harm to the ecosystem?*

There are several provisions encouraging municipalities to protect, restore, or mitigate harm to sensitive water features and natural heritage areas.[94] The *Act* allows municipalities to designate Community Improvement Projects ("CIPs"), as mentioned above, through their official plans in order to rehabilitate designated areas.[95] Municipalities may acquire the land or provide grants to proprietors to assist with "improvements".[96] Currently, the most widespread use of CIPs in Ontario is to support brownfield redevelopment, particularly in industrial urban communities suffering from contaminated land issues. The provisions encouraging land use intensification in the *PPS* support these initiatives, as well as other legislation reforms made through the *Brownfields Statute Law Amendment Act, 2001*[97] which removed redevelopment barriers.

The strongest provisions requiring rehabilitation are related to mineral resource extraction in order to accommodate subsequent land use.[98] The nobility of these protective environmental provisions, however, is undermined the province's corresponding requirements that "as much of

[90] Association of Municipalities of Ontario, *Under Pressure: Ontario's Municipalities and the Case for a New Fiscal Arrangement*, AMO Submission to the Standing Committee on Finance and Economic Affairs (January, 2007) at 9.
[91] *Supra* note 85 at 51.
[92] *Ibid.* at 18.
[93] Ministry of Natural Resources, *Ontario's Natural Heritage Areas: Their Description and Relationship to the IUCN Protected Areas Classification Systems (A Provisional Assessment)* (Queen's Printer for Ontario, 2009) at 309.
[94] For example, see *Act* at 34(1)(3.1) and (3.2), and *PPS* at Part V (2.2.1 & 2.2.2).
[95] *Supra* note 5 at s.28.
[96] *Ibid.* at s.28(7.1).
[97] S.O. 2001, c.17.
[98] *Supra* note 6 at Part V (2.5.3) and (2.4.3.1).

the mineral aggregate resources as is realistically possible shall be made available as close to markets as possible." Developers do not even have to demonstrate a need for the resource.[99]

7) *Does the Act or PPS protect sensitive environmental areas?*

The *PPS* requires municipalities to protect and restore water quality and quantity, by protecting the following: municipal drinking water supplies; designated vulnerable areas; and vulnerable surface and ground water features and their hydrologic functions.[100] This involves restricting development in or near these areas, or requiring mitigative measures and/or alternative development approaches.[101] Zoning by-laws can be passed prohibiting the use of lands containing various sensitive ecological elements, such as groundwater or surface water features,[102] water body shorelines, or significant natural corridors, features or areas.[103]

The *Act* also recognizes the source water protection regime newly established under the *CWA*.[104] The process for designating source waters is currently under way and involves establishing "a locally driven, science-based, multi-stakeholder approach for protecting drinking-water sources and promoting the notion of stewardship". Where there is a conflict between Acts, the provision providing the greatest protection to quality or quantity of drinking water prevails.[105]

The most important environmental protection scheme established by the *Act* and *PPS*, however, is the elaborate system of designating and protecting "natural heritage features and areas". Development and site alteration are not permitted in significant habitat of endangered and threatened species, significant wetlands in southern Ontario, and significant coastal wetlands.[106] The same is true of significant wetlands in the Canadian Shield, woodlands and valleylands south and east of the Canadian Shield, wildlife habitat, and areas of natural and scientific interest ("ANSIs"), "unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions".[107] Finally, fish habitat cannot be subject to development or site alteration except in accordance with provincial and federal requirements.

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[99] *Supra* note 6 at Part V (2.5.2.1).
[100] *Ibid.* at Part V (2.2.1(d)).
[101] *Ibid.* at Part V (2.2.2).
[102] *Supra* note 5 at s.34(1)(3.1).
[103] *Ibid.* at s.34.(1)(3.2).
[104] *Ibid.* at s.34(1)(3.1)(iii). The impetus for this legislative enactment was the Walkerton tragedy in 2000 in which numerous people died from E coli contaminated drinking water. Justice O'Connor, who led the Walkerton Inquiry, stated that "I restrict my recommendations to those aspects of watershed management that I think are necessary to protect drinking water sources, but I want to emphasize that a comprehensive approach for managing all aspects of watersheds is needed and should be adopted by the province". The *CWA* fails to adopt this comprehensive watershed approach. For more information see: Part Two Report of the Walkerton Commission of Inquiry at 9, online: <http://www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/part2/>.
[105] Ministry of Natural Resources, *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005*, 2nd ed. (Queen's Printer for Ontario, March 2010) at s.2.6, online: <http://www.mnr.gov.on.ca/en/Business/LUEPS/Publication/249081.html>.
[106] *Supra* note 5 at Part V (2.1.3).
[107] *Ibid.* at Part V (2.1.4).

MNR is responsible for designating significant wetlands, coastal wetlands, habitat of endangered and threatened species, and ANSIs.[108] It lists guidelines for doing so in its recently released second edition of the *Natural Heritage Reference Manual*.[109] Municipalities are responsible for establishing the criteria for what constitutes significant woodlands and valleylands (south and east of the Canadian Shield), and significant wildlife habitat. In both cases, the municipality must protect these designated lands within their official plans.[110] Although fisheries are fundamentally a federal responsibility outside of the planning regime, municipalities are responsible for identifying fish habitat in order to proactively protect them within the planning process with the support of MNR and CAs.[111]

There are three main concerns about the effectiveness of these protected areas. Firstly, although the *PPS* prohibits "development" and "site alteration" from occurring in protected areas, the definition of these terms excludes important, potentially disruptive activities. Specifically, the term "development" excludes infrastructure activities authorized under environmental assessment processes (including the notoriously superficial Class Environmental Assessment process),[112] as well as works subject to the *Drainage Act*.[113] Moreover, both "development" and "site alteration" exclude aggregate mining in various regions across the province.

Secondly, the designation process itself is problematic. Those areas which require MNR designation must not only be identified as significant by MNR but must also be included in municipalities' official plans.[114] Until this two-step process is completed and the sensitive environment is designated as "significant", development may well be ongoing in the area.[115] As MNR's designation process has been inconsistent across the province, and many areas have not been assessed—most likely the result of deep budget cuts to environmental protection efforts.[116] The risk is even greater for those significant areas that are to be designated by municipalities, as they may establish vague or weak criteria for making these determinations.

The third concern is that the protection of mineral and petroleum resources to ensure extraction is possible can trump the protection granted to natural heritage features and areas. Municipalities lack the authority to resist the development of new pits and quarries encroaching into natural heritage features and areas, and are left only with the ability to request conditions be placed on the permit

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[108] The *PPS* includes the environmental features mentioned here under its definition of "significant".
[109] *Supra* note 105.
[110] *Ibid.* at s.4.21.
[111] *Supra* note 105 at s.11.0. Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements, specifically defined by the *Fisheries Act*, c.F-14.
[112] Environmental Commissioner of Ontario, "Reforming Land Use Planning", *Building Resilience, ECO Annual Report, 2008-09* (Queen's Printer for Ontario, 2009) at 20, online: < http://www.eco.on.ca/eng/index.php/pubs/eco-publications/2008-09-annual-report.php>.
[113] R.S.O. 1990, c. D.17.
[114] *Supra* note 112.
[115] *Ibid.*
[116] For a discussion of budget cuts, see: Environmental Commissioner of Ontario, "Doing Less with Less - How shortfalls in budget, staffing and in-house expertise are hampering the effectiveness of MOE and MNR", *A Special Report to the Legislative Assembly of Ontario* (April 24, 2007), online: <http://www.ecoissues.ca/index.php/Less_with_less>.

c. Assessment of Cumulative Environmental Effects

8) *Does the Act or PPS include adaptive management provisions?*

There are various strategies that can be adopted to allow for adaptive management—an essential characteristic to make a regime responsive to problems and able to institute change. One such method is to establish a legal process that allows members of the public to petition for reconsideration of specific provisions that appear ineffective or harmful. The EBR has established such a process, allowing members of the public to submit applications for review of legislative or policy provisions. Yet the MMAH denied all 28 applications regarding the *PPS* over the last decade, many of which concerned environmental protection shortfalls in the planning regime. In fact, the "MMAH has denied every single EBR application that it has ever received on any subject matter".[117] This track record suggests a profound institutional resistance to consider public concerns and allow for reform.

Another important component of adaptive management is the collection of baseline data against which to monitor for change. Without extensive monitoring and data collection, it is impossible to react effectively to environmental changes. As will be discussed below in the "Monitoring" section, the *Act* and *PPS* do not require such a monitoring scheme. As a result, though the *PPS*[118] and official plans[119] must be reviewed every five years, the monitoring schemes that should be in place to inform these reviews is not happening.

Finally, the need to create various specific, additional provincial plans to protect important environmental features, such as the Niagara Escarpment, Lake Simcoe, Oak Ridges Moraine, suggests that the general planning regime is ineffective at doing so. Though it is a positive sign that these provincial plans have been developed in light of this shortcoming, it does not bode well for the general planning regime. The existence of plans designed to protect certain environmental features highlights their absence elsewhere; sensitive environmental areas that lack such additional protection, like the Galt-Paris Moraine, are thus particularly vulnerable.

9) *Does the Act or PPS consider the effects of harmful activities on adjacent ecosystems (e.g., environment assessment requirements)?*

Environmental assessments can provide a central strategy in determining whether there will be negative effects of activities on adjacent ecosystems. The planning regime requires environmental assessments in a variety of circumstances. A comprehensive review, for example, which includes considering cross-jurisdictional issues, is required before expanding or creating new settlement areas.[120] Comprehensive reviews are meant to focus on population growth and infrastructure capabilities as opposed to ecosystem limits. Moreover, though there is mention of

[117] *Supra* note 112 at 18.
[118] *Supra* note 5 at s.3.(10).
[119] *Ibid.* at s.26.
[120] *Supra* note 6 at Part V (1.1.3.9).

cross-jurisdictional issues, the focus of required environmental assessments tends to be on the ecosystem in which the activities are occurring as opposed to those adjacent. For example, the *PPS* requires assessments to ensure that sewage and water planning are provided in a manner that can be sustained by water resources upon which such services rely, that protect human health and the natural environment, and that promote water conservation and efficiency.[121] Presumably, though these requirements are not based on evaluating the well-being of adjacent ecosystems, these requirements will indirectly benefit them.

Cumulative impacts of aggregate mining are supposed to be considered within the planning regime. ECO has criticized this arrangement, as using general zoning provisions to determine cumulative impacts is not adequate and cannot replace site-specific technical assessments that should be undertaken for each proposal.[122]

Various other provisions discuss preventing harm to lands adjacent to "natural heritage features and areas",[123] provincial parks, conservation reserves and areas, and shorelines.[124] While these provisions discuss adjacent lands, it is not clear that the lands in question are part of adjacent ecosystems. In short, despite these examples of provisions which may indirectly consider adjacent ecosystems, the regime does not adequately consider this issue.

10) *Does the Act or PPS require that watershed studies be conducted?*

The *Act* and *PPS* do not require the province or municipalities to conduct watershed studies. The CAs, however, have the authority to do so according to the *CAA* and they often do.[125] The existence of these agencies and their role in watershed planning plays an important role in filling in the gaps created by the land use planning regime in considering the watershed.

d. Information Requirements and Management Systems

11) *Are there any references to inter-governmental collaborations or information sharing with regard to environmental issues in the Act or PPS?*

One of the Act's listed provincial interests is the "co-ordination of planning activities of public bodies".[126] According to the *PPS*, a "coordinated, integrated and comprehensive approach should be used when dealing with planning matters within municipalities, or which cross lower, single and/or upper-tier municipal boundaries". The *PPS* also discusses how this approach should be adopted when dealing with a variety of issues, such as managing natural heritage, water,

[121] *Supra* note 6 at Part V (1.6.4.1).
[122] *Supra* note 112 at 30.
[123] *Supra* note 6 at Part V (2.1.6).
[124] *Ibid.* at Part V (1.5.1).
[125] *Supra* note 13 at s. 21(1)(a).
[126] *Supra* note 5 at s.2(m).

agricultural, and mineral resources, as well as ecosystem, shoreline and watershed related issues.[127]

Despite these generalized statements, there is limited guidance on how co-ordination should be undertaken. Moreover, these comments are just recommendations as opposed to being a legal requirement.

12) *Does the Act or PPS require or recommend the incorporation of traditional knowledge in decision-making?*

The EA principles make specific reference to the need to incorporate traditional knowledge, typically referring to Aboriginal knowledge. Neither the *Act* nor the *PPS* make any mention of the worth of or need to consider tradition knowledge in the decision-making process.

e. Monitoring

13) *Does the Act or PPS require the establishment of environmental monitoring schemes?*

The *PPS* requires the province, in consultation with municipalities, to identify performance indicators for measuring the effectiveness of some or all of the policies. The province is also charged with implementation these monitoring indicators, and then using the data collected to inform the *PPS* review process.[128] The first draft of performance indicators was released only in 2009 for comment. Not only is it long overdue, but it is also criticized as being superficial in that it focuses primarily on whether official plans are consistent with the *PPS* as opposed to whether the desired ecological protections are occurring.[129] The *PPS* also encourages municipalities to establish performance indicators to monitor the implementation of official plan policies; however there is no legal obligation to do so.[130]

Unfortunately, even though the *PPS* is considered the main mechanism for addressing the loss of biodiversity, the MMAH does not track the number of significant woodlands or wildlife habitat designated by official plans.[131] There are no requirements to record data on land use in the planning regime.

Although outside the land use planning legislation, various monitoring schemes do exist in the province. MNR has established monitoring schemes such as the Natural Heritage Information Centre, which tracks the location, condition, and distribution of all species potentially at risk in Ontario.[132] It also maintains the Provincial Wildlife Population Monitoring Program on Crown

[127] *Supra* note 6 at Part V (1.2.1).
[128] *Ibid.* at Part V (4.10).
[129] *Supra* note 112.
[130] *Supra* note 6 at Part V (4(11)).
[131] *Supra* note 112.
[132] *Supra* note 112 at 49.

lands. MNR has also committed to publishing a database of sites where rehabilitation orders have been issued for mining sites.

2. Background of Cities

a. City of Belleville

Belleville's current official plan,[133] adopted in 2002, is the oldest of the three discussed below. While currently undergoing review to bring it into conformity with the *PPS* as required by the policy, it will likely be another year or two before a new draft official plan is issued. Belleville may have deemed the task of updating its plan to be less urgent than many of the other municipalities whose plans were almost 50 years old.

Belleville is situated on the Moira River and Lake Ontario's Bay of Quinte in Ontario's southeastern Hastings Region. This single-tier municipality is 246.76 km^2, with a population density of 197.8 per km^2.[134] Though an idyllic natural setting, the Bay of Quinte watershed has suffered extensive environmental harm as a result of historic economic activities and land use planning decisions. In particular, it suffers from "excess nutrients, persistent toxic contamination, bacterial contamination and the loss or destruction of fish and wildlife habitat".[135]

This reality has shaped Belleville's planning system since the International Joint Commission designated the Bay of Quinte a Great Lakes Area of Concern ("AOC") in 1985. The result of this designation is the creation of the Bay of Quinte's Remedial Action Plan ("RAP")[136] which includes the strategies to have the Bay eventually delisted as an AOC. Various targets are established regarding issues such as toxic compounds in the drinking water, fish tumours, and wildlife deformities. This is done through a variety of means: by protecting fish and wildlife habitat, maintaining nutrient loading limits, controlling stormwater run-off quality, reducing impacts of agriculture on the watershed, and supporting watershed remedial programs.[137]

b. City of Welland

Welland is the smallest geographically of the three municipalities at 81.09 km^2 with a population density of 620.7 per km^2.[138] The current official plan[139] was adopted in May 2010, its first

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[133] City of Belleville Development Services Department, *City of Belleville Official Plan* (February, 2002).
[134] Statistics Canada, "Belleville", *2006 Community Profiles*, online: <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CMA&Code1=522__&Geo2=PR&Code2=35&Data=Count&SearchText=Belleville&SearchType=Begins&SearchPR=01&B1=All&Custom=>.
[135] Bay of Quinte, Remedial Action Plan, Web site: < http://www.bqrap.ca/about/remedialactionplan/>.
[136] *Ibid.*
[137] *Ibid.*
[138] Statistics Canada, "Welland", *2006 Community Profiles*, online: <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CSD&Code1=3526032&Geo2=PR&Code2=35&Data=Count&SearchText=Welland&SearchType=Begins&SearchPR=01&B1=All&Custom=>.
[139] The Corporation of the City of Welland, *Official Plan*, Prepared by Dillion Consulting Limited (May 2010), online: <http://www.welland.ca/development/opa.asp>.

consolidated plan since 1952. Its history is greatly affected by its location in the heart of southern Ontario's Niagara Region on the peninsula between Lake Ontario and Lake Erie. Welland Canal Company established the shipping canal in the 1820s, replaced in 1973 by the Welland By-Pass Canal. Welland has a long industrial legacy as it is home to some of Canada's most well-known industrial companies (e.g., John Deere, Union Carbide, Atlas Steel, and Henniges Automotive). As Ontario's economic gateway to the United States, Welland has devised a plan to encourage increased opportunities for cross-border trade, movement of goods, and tourism.

Welland is the only lower-tier municipality reviewed in this study. This means that its official plan must conform not only with the *Act* and *PPS*, but also the regional upper-tier municipality's official plan. The Regional Municipality of Niagara's *Policy Plan: Regional Strategy for Development and Conservation*[140] addresses the usual topics covered by official plans, such as growth development, environmental management, and agriculture land use, and it is updated regularly. Additionally, comprehensive reviews are undertaken to assess land use concerns at a regional level.

Due to its location in Ontario's most densely settled southern region, Welland's official plan must also be in conformity with the GGH Growth Plan. This 25-year land use vision is a provincial policy designed to encourage compact settlement and development patterns. Perhaps because of these added policies, the Niagara River RAP[141] figures less in Welland's official plan than in Belleville's.

c. City of Timmins

Timmins is found in northeastern Ontario in the Cochrane Region. As one of Canada's largest municipalities by area at 2,961.58 km^2, its low population density of only 14.5 per km^2 is unsurprising.[142] The city adopted a new official plan[143] in 2009, after having amended the previous plan from 1976 over 140 times.

As with most northern communities, its economy is supported primarily by the natural resource based sector. Specifically, Timmins owes its genesis to mining, given its location on the Abitibi Greenstone geologic formation. The minerals extracted include gold, silver, nickel, copper, cadmium, indium, talc, zinc, sulphur, stone, selenium, silica, and platinum.

Given Timmins' size and location, it has a less straightforward jurisdictional situation than the other two cities. Firstly, Crown lands located in Timmins are largely under the jurisdiction of the province and the official plan does not apply to those areas. Secondly, 7.7 percent of the

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[140] Regional Municipality of Niagara, *Policy Plan: Regional Strategy for Development and Conservation* (2007), online: <http://www.regional.niagara.on.ca/living/icp/policy-plan.aspx>.
[141] Niagara River, Remedial Action Plan, Web site: <http://npca.ca/water-management/nrap/default.htm>.
[142] Statistics Canada, "Timmins", *2006 Community Profiles*, online: <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CSD&Code1=3556027&Geo2=PR&Code2=35&Data=Count&SearchText=Timmins&SearchType=Begins&SearchPR=01&B1=All&Custom=>.
[143] *Timmins Official Plan*, Prepared by Tunnock Consultants and the Planning Divisions, City of Timmins (approved July 10, 2010).

population is Aboriginal,[144] and these groups may have legal interests in lands within the municipality. Council must thus consult with Aboriginal communities when conducting any reviews of the official plan.[145]

3. Assessment of Official Plans

Given the differences in geographic size and location, and economic base, the following comparison may result in a slightly incommensurate analysis of these cities. Moreover, comparing an outdated plan (Belleville's) to others that have already been revised (Welland's and Timmins') will put it unfairly in a more negative light. Given its upcoming review, however, reviewing Belleville's plan could provide for useful commentary. Nevertheless, because of these characteristics and circumstances, the following assessment will focus on the cities' core land use planning priorities and strategies.

a. Boundaries

The boundaries that shape the official plans are dictated largely by the provincial framework. Despite this curtailment of the cities' autonomy, each plan includes various provisions pointing to the importance of watershed planning and the need to co-ordinate with other agencies. Each plan discusses to some extent watershed planning and/or the ecosystem approach, usually in the context of mitigating harm to the watershed caused by land uses (e.g., stormwater management,[146] impacts from development on protected lands,[147] and major land use changes[148]).

The hydrologic realities and history of each city evidently play a role in what concerns exist with regard to watershed planning. In Timmins, for example, the Mattagami River is the only drinking water source and consequently the official plan is particularly concerned with the impacts of stormwater and septic systems.[149] Welland, for its part, lists the elimination of combined sewer overflow as being one of its priorities.[150] Belleville is also concerned with stormwater management, particularly as a remediation measure for the Bay of Quinte[151] and the reconstruction and rehabilitation of the sewer system, eliminating the sewer overflow.[152]

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[144] *Supra* note 142.
[145] *Supra* note 143 at s.3.5.1.
[146] *Supra* note 133 at s.5.5(b)-(c); *Supra* note 143 at s.2.9.7(ii); *Supra* note 139 at s.6.1.3.3.F.
[147] *Supra* note 139 at s.6.1.3.3.A and 6.1.1.3.
[148] *Ibid.* at s.7.11.2.1.
[149] *Supra* note 143 at s.2.9.7(ii).
[150] *Supra* note 139 at s.6.1.3.3.C.
[151] *Supra* note 133 at s.5.5(a) and 7.12(c).
[152] *Ibid.* at s.5.2(b)

b. Ecosystem Objectives and Targets

Market Incentives

A few provisions in the three plans touch on aligning market incentives with environmental protection, specifically with regard to infrastructure costs associated with urban sprawl. Welland's official plan includes a commitment that "Council shall adopt a by-law to levy development charges in the City as a means to ensure that the costs of growth are borne by growth".[153] Belleville includes a similar provision, although it refers only to the cost of extending water and sewer services being borne by private development, through direct contributions or development charges.[154] Unfortunately Timmins does not include such a provision, although its plan does guide development to lands already benefitting from full municipal services—presumably to cut the infrastructure expansion costs as well as to prevent more harmful septic systems from being developed.[155]

Intensification of Land Use

The plans all recognize the importance of supporting intensification, infill, and redevelopment of land use to reduce sprawl and human impacts on the ecosystem generally. Only in the case of Welland's official plan, however, are actual intensification targets included. This is due to its position as a lower-tier municipality under the Niagara Region and under the GGH Growth Plan. In 2006, the province determined the Built Boundary which represents the limits of existing development.[156] No new settlements may be established outside of this boundary.[157] The City plans to meet its local municipal intensification target of 40 percent, as recommended by the Regional Municipality of Niagara; this means that 40 percent of all annual housing development must occur within the City's Built-Up Area after 2015.[158] In order to reach this goal and still accommodate growth, the plan supports the creation of secondary suites, and financial incentives for intensification[159] and brownfield redevelopment.[160] The city also commits to maintaining and monitoring an inventory of intensification[161] and brownfield sites.[162]

Although Belleville's plan claims to encourage compact, intense development of lands, at least in the City Centre,[163] many conflicting provisions follow this statement. For example, Belleville prioritizes low density housing by preventing the construction of high density developments in the event of land use conflicts.[164] This prioritization is exacerbated by the plan's allowance of low density residential developments to occur in almost all areas designated Residential Land

[153] *Supra* note 139 at s.7.12.1.1.
[154] *Supra* note 133 at s.5.2(d).
[155] *Supra* note 143 at s.2.2 and 2.5.
[156] *Supra* note 139 at s.3.5.2.3.
[157] *Ibid.* at s.3.2.
[158] *Ibid.* at s.3.4.4.1.D.
[159] *Ibid.* at s.3.4.4.1.E.
[160] *Ibid*. at s.3.4.4.2.E.
[161] *Ibid.* at s.3.4.4.1.G.
[162] *Ibid.* at s. 3.4.4.2.G.
[163] *Supra* note 133 at s.3.8.2(f).
[164] *Ibid.* at s.3.10.2(d).

Use (thus setting the stage for land use conflicts).[165] The plan also encourages infilling housing but only if it does not detract from the character of the neighbourhood.[166]

Timmins' plan does not include intensification targets either. The limitations to urban sprawl come mostly as an accidental by-product of other provisions. Specifically, as mentioned above, the city focuses its future development on lands that already have access to full municipal services.[167] This has the effect of containing growth to serviced areas. Also, the priority of protecting mining resources from incompatible developments also serves to contain sprawl, although in no way does it protect the ecosystem.

Protected Areas

The provincial regime requires municipalities to include protective provisions regarding significant natural features and areas. Thus, municipalities have the responsibility of establishing the criteria for determining significant woodlands, valley-lands, and wildlife habitat (those areas not covered by MNR's guidelines). Belleville's plan, perhaps due to its age, has very ambiguous and non-committal criteria. Significant woodlands are defined as having a "strong influence on the quality of the environment often providing significant wildlife habitat". Valley-lands and wildlife habitat are equally loosely defined.[168] Belleville's plan, moreover, does not recognize the importance of protecting natural corridors linking protected areas, which is a crucial strategy for maintaining biodiversity.

Welland, in comparison, establishes a variety of criteria for these features. Woodlands, for example, are considered "significant" if one of a list of criteria is present, such as containing threatened or endangered species or species of concern or being of a certain size or age.[169] The official plan includes a number of provisions that go beyond the provincial requirements, such as developing a Tree Saving Plan,[170] meeting the forest cover target,[171] and implementing woodland protection and conservation strategies.[172] Support for natural heritage corridors that link the natural heritage system is also outlined in the official plan.[173]

While Timmins' plan recognizes the importance of protecting these significant environmental features listed by the *PPS*, it states ominously that it "also acknowledges that an appropriate balance between preserving provincial interests and promoting local interests, particularly economic growth and development opportunities, must be realized".[174] This statement of defiance is indicative of the climate towards environmental protection and economic growth in the area. Nevertheless, Timmins does mention "encouraging" the establishment and maintenance of forested corridors and greenbelt areas throughout the planning area.[175] Also, the City will

[165] *Supra* note 133 at s.3.10.2.(f).
[166] *Ibid.* at s.3.10.2(h).
[167] *Supra* note 143 at s.2.2.
[168] *Supra* note 133 at s.3.5.5.
[169] *Supra* note 139 at s.6.1.2.2.E.
[170] *Ibid.* at s.6.1.2.3.H.
[171] *Ibid.* at s.6.1.3.2.A.
[172] *Ibid.* at s.6.1.3.2.B.
[173] *Ibid.* at s.2.5.2(ii) and 6.1.2.1.A.
[174] *Supra* note 143 at s.3.5.1.
[175] *Ibid.* at s.2.9.5.

work with the forest and mining industries, and private sector to conserve vegetation buffers along highways, river corridors, lakes and other waterbodies.[176]

The physical distinctions between Welland and Timmins is abundantly clear in the case of woodland management when one considers that Timmins itself owns an estimated 25,000 acres of forested lands, which is larger than the entire municipality of Welland.[177] Moreover Welland and Belleville's economies are not based on the natural resource sector. While this reality gives the latter two cities more freedom to commit to protecting the environment, the need to do so is all the more important in the former because of its much larger impact.

Mineral Aggregate

Each official plan includes the requisite protection of aggregate mineral extraction activities.[178] The reality of this uncomfortable relationship between environmental protection and aggregate mining is at its greatest in Timmins. As Timmins owes its existence to mining activities, it is not surprising that the intent of the Plan is to encourage "geological surveys, exploration, development and mineral production within the areas of high mineral potential as well as to recognize and provide for similar activities in areas of lesser mineral potential".[179] This involves putting restrictions on any development that would preclude or hinder the establishment of new operations.[180] In fact, the Ministry of Northern Development and Mines has determined nearly all of Timmins as having "Provincially Significant Mineral Protection". Even areas no longer considered provincially significant may have good potential for being diamond bearing rocks.[181] Faced with this reality, the focus on economic development will no doubt continue to trump environmental protection.

c. Assessment of Cumulative Environmental Effects

All the official plans refer to the need for environmental studies in such circumstances as development on environmentally sensitive lands,[182] implementing stormwater management plans,[183] and protecting groundwater from mineral extraction and development.[184] The official plans also support the implementation of monitoring programs and studies designed to help determine whether the plan's objectives are being met. This information is intended to assess the policies during the review process.[185]

The most progressive of these commitments to implement monitoring strategies can be found in Welland's official plan. It states that it will collaborate with Niagara Region, the Niagara

[176] *Ibid.* at s.2.7
[177] *Ibid.* at s.2.9.5.
[178] *Supra* note 133 at s.3.7 and 7.10.
[179] *Supra* note 143 at s.2.9.2.
[180] *Ibid.* at s.2.9.2.
[181] *Ibid.* at s.2.9.2.
[182] *Supra* note 133 at s.3.5.6; *Supra* note 139 at s.6.1.3.1.
[183] *Supra* note 133 at s.8.12.3, *Supra* note 139 at s.6.1.3.3.G and 7.11.5.
[184] *Supra* note 133 at s.7.12; *Supra* note 143 at s.2.9.7(v) and 2.10.3.
[185] *Supra* note 133 at s.8.12.2(b); *Supra* note 139 at s.7.2.1.1; *Supra* note 143 at s.1.4.

Peninsula CA, and other stakeholders "in developing and maintaining an environmental data base and monitoring program to assess the ecosystem health and integrity and recommend improvements, where necessary, to this Plan".[186] The Niagara Peninsula CA recently published its 2006-2009 Natural Areas Inventory.[187]

Apart from these discussions of monitoring and conducting studies, none of the plans has significant strategies for "adaptive management" apart from the 5-year official plan review requirements under the *PPS*. The other examples that demonstrate responsiveness and adaptability are limited. One such example is Welland's provision that deals with the addition of environmental features or areas to the list of protected lands. Specifically, if the municipality discovers when it is reviewing a planning application that an important environmental feature or function has not been adequately evaluated, the applicant shall have an evaluation prepared to determine whether the area qualifies for protection.[188]

d. Information Requirements and Management Systems

All three plans claim to promote intergovernmental efforts and collaborations, particularly with respect to watershed protection.[189] Each refers to the role of the local CAs in this process. Because of Welland's position as a lower-tier municipality, it is by definition involved in intergovernmental strategies. Belleville's plan, for its part, takes seriously the RAP strategies that include co-operating with other agencies to meet the environmental improvement targets.[190] Timmins has particular constraints as it is forced to contend with intergovernmental issues due to the provincial Crown lands and Aboriginal land claims.

e. Monitoring

Timmins discusses the issue of monitoring loosely, and as such the likelihood of real proactive efforts seems provisional at best. Belleville's plan does more to "encourage" the Municipality and CA to monitor the environment, such as groundwater conditions within land use areas designated agricultural and rural.[191] Monitoring of groundwater resources, moreover, "should" occur when taking of water for commercial purposes is approved.[192] The aspirational language, however, does not inspire confidence that these endeavours will actually occur. Welland, as discussed above, has made more serious commitments to monitoring environmental conditions,

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[186] *Supra* note 139 at s.6.1.3.7.
[187] Niagara Peninsula Conservation Authority, *Natural Areas Inventory*, online: <http://www.npca.ca/water-management/water-planning/natural-areas-inventory.htm>.
[188] *Supra* note 139 at s.6.1.2.2.D.
[189] *Ibid.* at s.6.1.1.4
[190] *Supra* note 133 at s.7.12(c).
[191] *Ibid.* at s.3.2.2(j) and 3.3.5(b).
[192] *Ibid.* at s.7.12(a).

including co-establishing an environmental database—its official plan even includes a map of vulnerable groundwater areas as an appendix.[193]

V. ANALYSIS SUMMARY

The preceding analysis reviewed the *Act*, the *PPS*, and the official plans of Timmins, Belleville, and Welland to determine whether the EA is being applied. The questions posed typically did not provide straightforward answers, in part because there are many different strategies that could be adopted and also because the plans and policies themselves have built-in ambiguities and ambivalences.

The first component listed by MOEE's policy document involves the implementation or reorganization of boundaries for regulation. The land use planning regime failed to apply these new boundaries in a meaningful way. Planning continues to occur at the municipal as opposed to the watershed scale. The official plans do, to a certain extent, make references to watershed planning, such as in the context of stormwater management planning; however, these secondary concerns do not shift the regulatory framework. With regard to the time scale, 20 years is too short a period to meaningfully take into account the needs of future generations. And though one of the Act's stated purpose is to recognize municipal authority, the province still has a significant top-down approach to planning, thus preventing the true decentralization of regulation.

The second component discusses the establishment of ecosystem objectives and targets. Public participation in helping to establish those objectives is an important part of this process. While participation is protected by the legislation to a certain extent, the actual practice reveals a profound institutional resistance to do so meaningfully.

The market corrections that are supposed to help recognize the true worth of ecosystem services, and the real cost of land use changes are not addressed adequately. Some granting programs and tax exemptions have been established to encourage activities such as brownfield redevelopment and residential intensification and to discourage sprawl development. These efforts, however, are likely not radical enough to rein in the current growth rates. Only in the case of Welland, which falls under a special growth plan policy outside of the basic planning regime are there actually meaningful targets established for intensification of development that would prevent further sprawl.

One of the major aspects of establishing ecosystem objectives and targets is to protect sensitive environmental features and areas, be it ground water intake zones, provincially significant wetlands, or endangered species habitat. While there is an elaborate provincial system in place for designating and protecting these areas, several aspects that form part of this system work to undermine the entire system. Specifically, several harmful activities are allowed to occur on these lands and the procedure for establishing the lands itself leaves areas vulnerable. Also, where municipalities are responsible for determining the criteria for significant areas, such as woodlands and wildlife habitat, the differences in how to make such determinations can be

[193] *Supra* note 130 at s.6.1.3.3.C.

striking. The unwavering support of aggregate mining by the province also undermines environmental protection efforts. This is felt most strongly in Timmins, which was settled for the potential to develop extractive industries.

The fourth component focuses on information requirements and management systems. Inter-governmental collaborations and information sharing is discussed in various provisions throughout the provincial regime and the official plans. The role of the CAs is important in watershed planning, and the importance of their role continues to increase with the adoption of the CWA. Otherwise, strategies for inter-governmental cooperation are not clearly laid out, except in unusual circumstances such as Welland being a lower-tier municipality. There is no recognition of traditional knowledge, which is another important EA principle.

Provisions regarding the final component—monitoring—are inconsistently spread throughout the various policies and plans. The only requirement for monitoring at the provincial level is found in the *PPS*. The province is supposed to establish performance indicators, and yet the recently released draft version of these indicators is belated and provides for only superficial assessment requirements.

VI. REFLECTIONS ON THE ECOSYSTEM APPROACH

Despite its wide acceptance as a worthy and even a necessary undertaking, many just criticisms have been levied against the EA. Implementing the approach is an incredibly difficult undertaking as there are so many variables and steps. The flexibility and adaptability so central to this approach, allowing for local interpretations and manifestations, make implementation efforts even more uncertain. Meaningful and accurate evaluations of EA implementations efforts are equally complex, as is trying to ascertain whether these efforts are having the desired ecological results.

The EA is sometimes criticized as being too academic, theoretical and consequently unworkable in practice. Even fundamental terms like "ecosystem" are contentiously debated as it can refer to many different scales and levels.[194] A lack of understanding of ecosystem science is another practical concern. The principle that states we must live within the ecosystem's limits suggests that we are able to make that determination. Understanding the interactions of an infinite number of elements in the natural world is exponentially more complex than the usual reductionist scientific methods.

The value of individual principles may, in and of themselves, also be debatable. For example, the principle of decentralizing management to the lowest appropriate level is actually quite controversial. Although the caveat of "lowest level appropriate" is included, the foundation of this principle is the belief that those who live closest to the resource will be the most likely to understand it and want to protect it. For this principle to be effective, it is believed that population densities must be low, and the local culture must have a high appreciation for the

[194] Bruce Mitchell, "Integrated water resource management, institutional arrangements, and land-use planning", *Environment and Planning A*, 2005, vol.37 at 1337.

value of ecosystem services.[195] Municipalities are not homogenous cultures, but a diverse group of stakeholders with conflicting self-interests. Moreover, municipalities are typically seriously underfunded, and their financial constraints can encourage short-term exploitative behaviour.

Finally, despite the widespread ratification levels worldwide, the *CBD* is not having the desired results. The Subsidiary Body of Scientific, Technical and Technological Advice released its third edition of the Global Biodiversity Outlook this year and it reveals that the primary goal of significantly reducing the rate of biodiversity loss by 2010 has not been reached. In fact, pressures leading to biodiversity loss are in some cases intensifying.[196]

In spite of these valid criticisms and discouraging setbacks, striving to adopt the EA principles is a positive step in increasing awareness of our place within the ecosystem and the need to try to ensure its sustainability.

VII. CONCLUSION

The EA is most commonly applied in the context of natural resource management. Land use planning is often considered separate and apart from the environment and yet our decisions regarding how we use the land is of fundamental importance to watershed protection, biodiversity, climate change, and any number of other essential environmental considerations. This holistic management system is designed to be flexible and adaptable to all locations in all contexts. These characteristics are what make the EA so useful, and yet so difficult to apply and evaluate. But one must stress that even if there is no single, correct way to apply the EA, this does not mean that anything goes.

Ontario's MOEE published a report in the early 1990s recommending that the EA be applied according to specific guidelines. This document informed the approach taken in this study which was designed to determine whether the recommended changes were successfully introduced. This analysis reveals that meaningful strides have been made in recognizing the importance of protecting the watershed and environmentally sensitive features, promoting intensification and limiting sprawl. Nevertheless, the conventional growth paradigm, both in our economic practices and our physical development of lands, remain largely unchanged. Fundamentally, to bring the planning system into full conformity with the EA would require a complete overhaul of the current regime. In the interim, smaller-scale reforms that promote awareness of the need to consider ecosystem health are incredibly important and useful.

[195] Oswald J. Schmitz, *Ecology and Ecosystem Conservation* (Washington: Island Press, 2007) at 120.
[196] Subsidiary Body of Scientific, Technical and Technological Advice, "Global Biodiversity Outlook 3", online: <http://gbo3.cbd.int/>.