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The Lorax Can Win: Using Scenario Building to Create A New Vision and Invigorate An Activist Agenda“for the Great Lakes St. Lawrence Basin

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Introduction

The Lorax is Dr. Suess’s 1971 piquantly told children’s fable that uses metaphor to chronicle the impact of human greed on the environment. Beyond being an amusing anecdote, *The Lorax* demonstrates the power of narrative to illustrate cause-and-effect outcomes that can drive societal change. In one sense, Dr. Suess is using a modern planning technique—scenario building to describe a particular future and associated outcomes. Through the examination of the central question “what can happen if…” scenario building can help create a common argumentation among different individuals that can assist in setting the foundation for desired policy and management outcomes (e.g., Bezold, 1999; Collins & Porras, 1996; Lindgren & Bandhold, 2003).

In the Great Lakes St. Lawrence context, we argue that while progress has been made over the last half-century, the environmental agenda largely suffers anemic implementation; particularly within the last 15 years. The myth of abundance—that is, the enormity of the Great Lakes St. Lawrence debars it from collapse—seems ingrained in the wider public consciousness. Decision-making at the economic, societal and political levels largely continues under a traditional exploitation paradigm established with first European settlement. On the other hand, the region’s economy is undergoing rapid transition from the familiar heavy industrial base to a post-industrial era (e.g., Austin, Dezenski & Affolter-Caine, 2008). The confluence of these pressures has left basin experts questioning if the current governance and management regime is sufficient to meet future challenges (e.g., Manno & Krantzberg, 2008; Jackson & Kraft Sloan, 2008).

The use of vision statements as a policy tool to ground management regimes and guide associated actions is widespread in the environmental management sphere. Although some Great Lakes St. Lawrence actors feel an adequate vision exists in the Great Lakes Water Quality Agreement (GLWQA)—as centered on water quality—Krantzberg (2009) diagnoses the lack of a binational macro-scale vision as a principal malaise in improving implementation of the basin’s environmental agenda.

A significant gap missing in the 1987 GLWQA is the recognition of the requisites for a sustainable Great Lakes St. Lawrence River Basin ecosystem. The socioeconomic nature of this region is nowhere acknowledged nor are there programs or policies in place that overtly enhance the economic vitality and social cohesion of the region (p. 255).

The need for a higher-level vision that integrates environment, economic and social dimensions, has also been echoed in other policy forums including the Great Lakes Futures Roundtable (GLFRT) which is currently undertaking a stakeholder process to seek higher-level consensus among upper level bureaucrats and power holders to move forward on a proposed vision.ⁱⁱ Furthermore, the Environmental Commissioner of Ontario reported the overarching theme throughout the roundtables and public forums was the need for greater Great Lakes presence on the government's policy agenda; in short, a Great Lakes vision backed by strong leadership (Environment Commissioner of Ontario, 2006).

Although we argue that the need for an improved policy and management regime backed by a vision is necessary, action on this front is by no means exigent. Rather, there seems to be a chronic lethargy plaguing implementation with no common consensus on the root causes. Recognizing the need to build positive momentum in the region's environmental agenda, Krantzberg et al. convened a workshop to create a Great Lakes St. Lawrence meta-strategy in November 2008 (Krantzberg et al., 2009). They employed scenario building as a technique to open discussions, dissipate cynicism and foster trust amongst workshop attendees. In the following pages we layout the four scenarios as described by participants. By so doing, we specifically aim to advance the policy debate surrounding the need for a high-level vision and tenets on which it should rest. Finally, we argue our scenarios showed that nothing short of pursuing urgent action, or in other words what we call an "activist" agenda would be sufficient in ensuring the protection and restoration of this region.

Pursuing an "Activist" Agenda in the Great Lakes St. Lawrence Basin

Great Lakes at the tipping point

A quick perusal of the volumes of information chronicling the state of the Great Lakes can leave no other impression than an "activist" agenda is needed to pull the basin back from irreversible and unknown change. While the term activist often connotes action taken by a minority in pursuit of a cause, we use the term to call to action every Great Lakes St. Lawrence actor from government to industry, from non-governmental organizations to ordinary citizens. Indeed, nothing short of radical action in favour of shifting the current paradigm of traditionally defined progress will ensure this life-support system is able to continue to provide incalculable services from drinking water to transportation.

Despite the vast wealth these ecological services provide, there is relatively little mainstream appreciation these services play in the regional economy. Krantzberg and de Boer (2008) attempt to place an economic value on some of these services: transportation in the Great Lakes St. Lawrence is estimated to be worth US \$ 2.2- 2.96 billion; sport fishing U.S. \$7.4 billion; beaches US \$197-\$247 million; and wetlands and biodiversity US \$69 billion. Economic and social policy tends to pursue the precedent of exploitation established with European colonization (Manno & Krantzberg, 2008; Austin et al., 2008; Commissioner of the Environment and Sustainable Development, 2001). It is a precedent that assumes the environment is limitless in its ability to provide resources and absorb pollution.

As early as 1909 with the enactment of the *Boundary Waters Treaty*, governments have at least rhetorically recognized the importance of the Great Lakes St. Lawrence ecosystem and tried to manage human impacts. But the overall condition of the Lakes themselves is at best mixed and unchanging (with lakes like Superior balancing heavily degraded lakes like Ontario and Erie) (*State of the Great Lakes Highlights 2005, 2007, 2009*). On the other hand, trends showing overall decline in the health of the Lakes are numerous. For example, according to *State of the Lakes Highlights (2007)*, despite a decrease in pollutants like Polychlorinated biphenyls (PCBs) and dioxins, there has been an increase in flame-retardant polybrominated diphenyl esters (PBDEs) and polycyclic aromatic hydrocarbons (PAHs), particularly in the lower Lakes where population is the highest. The nearshore environment is deteriorating with phosphorous levels still high while the growth of nuisance algae has appeared along some shorelines (*State of the Lakes Highlights, 2007*). The *State of the Lakes Report (2009)* showed that between 1996 and 2008 alone, there was an additional 19 invasive species in the Lakes adding to the 166 aquatic invasives identified since the 1800s. There was a virtual disappearance of native fresh water mussels from the Lakes while an aquatic invertebrate *Diporeia*, important in the marine food web, has all but disappeared from the lakes except Superior (*State of the Lakes Highlights, 2009*).

Increasingly, scientists are unsure about the future of the ecosystem (International Joint Commission, 2006). Recently, a number of Great Lakes' scientists endorsed a report by Bails, Beeton, Bulkley, DePhilip, Gannon, Murray, Regier, and Scavia (2005) stating the lakes were under extreme stress. They assert:

In large areas of the lakes, historical sources of stress have combined with new ones to reach a tipping point, the point at which ecosystem-level changes occur rapidly and unexpectedly, confounding the traditional relationships between sources of stress and the expected ecosystem response. There is compelling evidence that in many parts of the Great Lakes we are at or beyond this tipping point (p. 1).

Scientists are urgently calling for action at the binational level to accelerate the environmental agenda to protect and restore the Lakes (Krantzberg, 2009; Krantzberg, 2008; Krantzberg, 2007; Bails et al., 2005). Additionally, a storm of incoming threats including but not limited to climate change and significant population and economic growthⁱⁱⁱ are expected to besiege the basin and severely exacerbate existing problems challenging the future of the ecosystem (e.g., Commissioner on Environment and Sustainable Development, 2001; Bails et al., 2005; Government of Ontario, 2009). Looking ahead, the Canadian Commissioner of the Environment and Sustainable Development (2001) declared, "as challenging as the past has been, the future will be a far greater challenge. We have come through relatively still waters compared with the whitewater rapids we are quickly approaching" (para., 9.12).

An environmental agenda besieged by government inaction

Compounding regional environmental problems is an environmental agenda that can be largely characterized as lacking implementation and momentum (particularly within the last 10-15 years). There have been significant victories such as the delisting of Collingwood Harbour, the decrease in several classes of pollutants, and the re-establishment of extirpated species like the Bald Eagle. More recently, there is at least the promise of institutional renewal with the renegotiation of the Great Lakes Water Quality Agreement (GLWQA). However, the central problem remains that to date the Canadian and U.S. governments at the federal, provincial/state and municipal levels have not gone far enough or fast enough to resolve existing environmental problems (Jackson & Kraff Sloan, 2008; Manno & Krantzberg, 2008).

This inertia has occurred both politically and institutionally, with the root malaise being a lack of leadership and faltering governance (Jackson & Kraff Sloan, 2008). For example, on the Canadian side, the Commissioner of the Environment and Sustainable Development (2001) calls for the federal government to align programs and policies noting the Lakes' agenda is predominated by short-term approaches from government with stakeholders persistently calling for more leadership on a range of issues from toxic substance to controlling urban sprawl (para., 9.3). The Commissioner further notes,

The federal role is limited, in part, by constitutional constraints. But the government has chosen to limit its role further. It is not using the legislative powers and tools it could use. In the past few decades, especially the last one, the federal government's role changed and it retreated from many areas where it once was active. It is shifting the emphasis from leading to facilitating, from deciding to consulting, from acting to studying, from intervening directly to relying on others (para., 9.37).

Recent audits by the Commissioner show despite numerous recommendations, the Canadian federal approach hasn't substantially changed. For example, a 2008 audit on the issue of aquatic invasive species found the Department of Fisheries and Oceans' response still inadequate, with the progress of government "unsatisfactory" (Commissioner of Environment and Sustainable Development, 2008, para., 6.53).

Despite recent announcements to invest money in Great Lakes' infrastructure, governments at the federal and provincial level have been cutting funding to the Great Lakes for more than a decade. In a report entitled *Doing Less with Less*, the Ontario Commissioner on Sustainable Development (2007) found that while the mandates of both the Ministry of Natural Resources and the Ministry of the Environment continue to expand, budgets were 18 to 34 percent lower in years 2006 to 2007 than 14 years earlier. And, during the 1990s Environment Canada shrank investments in Great Lakes Programs (Manno & Krantzberg, 2008).

Similarly, Manno & Krantzberg (2008) point to cuts throughout the 1990s on the U.S. federal side affecting States' ability to deliver programs. In July 2009, Great Lakes' mayors affiliated with the Great Lakes and St. Lawrence Cities Initiative (GLSLCI) accused the federal government of shortchanging the Great Lakes when the National Oceanic Atmospheric Administration (NOAA) awarded only three of their 50 grants to this region; this equated to less than 10 per cent of the total \$167 million (Great Lakes St. Lawrence Cities Initiative, 2009). In July of the same year, President Barrack Obama signaled his government was prepared to begin to turn things around when he followed through on his commitment to appoint a Great Lakes coordinator as part of his administration's stated commitment to cleaning up the region. The region got a further boost when the U.S. Congress approved \$475 million to the U.S. Environmental Protection Agency (EPA) to implement the Great Lakes Restoration Initiative. Approved at the end of October 2009, this money represents less than one-fifth of President Obama's September 2008 campaign promise to set up a \$5 billion trust fund 10-year plan for Great Lakes programs (Egan, July 21 2009).

With compounding government inertia and budget constraints, both Jackson and Kraft Sloan (2008) and Manno and Krantzberg (2008) have found that while there are many groups working to protect and restore the Lakes, the broad governance structure throughout the basin is fragmented and dysfunctional. For example, Jackson and Kraft Sloan state, "concerted action by the Great Lakes community is needed to ensure that implementation of the Agreement is viewed as a continuing national priority by the Governments of Canada and the U.S." (p. 14). While Krantzberg, Manno and de Boer (2007) find, "other Great Lakes constituents are no longer participating in the community building aspect to a measurable extent. This might be due to a lack of funds and absence of a presence because of the general lack of national and binational attention being paid to Great Lakes issues at the federal level" (p. 9). Elder (2010) opines this trend continues with the lack of engagement of U.S. non-

governmental agencies on the renegotiation of the Great Lakes Water Quality Agreement, and states "we're not only not at the table, we don't seem to care if there is a table in the first place".

Great Lakes St. Lawrence: An Economic Region in Transition

By all accounts the Great Lakes region's economy is massive. If it stood alone, it would be the second largest economy (next to the U.S.) in the world (Austin et al., 2008). Austin et al. note "the economic primacy of the United States and Canada, and especially the Great Lakes region has been challenged... by the globalizing economy, fast-rising economic competitors, domestic and international demographic shifts, and pressures on natural resources and climate change" (p.1). These authors assert to realize a vision of continued economic prosperity requires both leadership and purposeful action. Austin et al. (2008) call for a strengthening of the binational economic relationship and for the current administrations of Canada and the U.S. to "articulate bold, tangible goals, and provide the leadership needed to revitalize them" (p. 2).

For more than a decade, experts have been calling for a transition to a knowledge economy, and increasingly there is recognition of the need to transition to a green economy. This recognition is at least rhetorically occurring at the highest levels of government. Remarking on the renewable energy sector, President Obama (2009, March 19) said, "We can let the jobs of tomorrow be created abroad, or we can create those jobs right here in America and lay the foundation for lasting prosperity."

But what might a transition to a green economy look like? As the world's largest repository of freshwater, Austin et al. (2008) identify several economic opportunities including the development of freshwater technology (estimated to be worth \$400 billion a year) and renewable energy including wind and hydrogen-based power. As part of evolving towards a green economy, Austin et al. (2008) and Austin et al. (2007) call for the restoration and remediation of the Great Lakes region, noting "restoration will provide economic benefits to both the region and the nation that substantially outweigh the costs" (p. 3).

Austin et al. (2008) advise governments to take real tangible actions and set goals which should include: creating a Great Lakes Coast Development Authority and implement a binational restoration strategy to create momentum in redeveloping the coasts, invest in a more efficient transportation network, and to realize bi-national carbon goals and renewable energy standards. To attain these goals Austin et al. (2008) urge greater public awareness and higher-level leadership starting with the prime minister and president.

Using Scenario Building to create a Great Lakes St. Lawrence vision and inform an "activist" agenda

Lindgren and Bandhold (2003) postulate scenarios are powerful because they are compatible with how the human brain functions. That is, scenarios create simple mental pictures through the use of memorable narratives. On a broad level, scenarios facilitate strategic thinking because the process uncovers concealed risks and helps tackle uncertainty (Lindgren & Bandhold, 2003). Thus, as Lindgren and Bandhold argue, scenarios help sharpen strategies, draw plans for the unexpected and inform on the right direction and on the right issues.

While scenario building can help inform a vision, a scenario itself is neither a vision nor a forecast, rather according to Lindgren and Bandhold it is a “well-worked answer to the question what would happen if?” (p. 21). Scenarios tend to fall into three categories: desirable, probable and possible (Lindgren & Bandhold, 2003). Increasingly, Kepner et al. (2004) assert the use of scenario planning is emerging in environmental studies (as cited by Mahmoud et al., 2009).

Scenarios can also help create a common language between different expert groups. In the Great Lakes St. Lawrence discussions, McLaughlin and Krantzberg (2006) argue scientists and policymakers have difficulty finding common ground on which to base discussions because they lack appreciation for the others domain (i.e., scientists start with the resources and policy makers start with social consequences of resource decisions). By creating simple futures that are easy to describe and visualize, scenario building can bridge discussions between experts and other stakeholders, and facilitate the creation of a common argumentation on which to rest policy and their ensuing management regimes.

Scenario building can also help tackle uncertainty—which is a central challenge commonly faced by environmental leaders, planners and decision makers. In fact, Wilkinson and Eidinow (2008) assert most environmental challenges present themselves as “wicked” problems rife with uncertainty. By definition, wicked problems are those problems that tend to be circular (there is no definite stopping point), nested (problems within problems), and don’t lend themselves to easy definition (the process of defining the problem leads to a process itself necessitating the input of various stakeholders) (Wilkinson & Eidinow, 2008).

Jentoft and Chuenpagdee (2009) argue most problems within the coastal governance sphere are wicked problems at heart, because decision makers must address interlinked issues of a biological, social and economic nature. The tight interplay of issues is compounded because decision makers must exercise judgment on ecological and social systems, yet the level of disruption these systems can withstand before collapse is usually not clear. In systems defined by wicked problems, Jentoft and Chuenpagdee argue decision makers also face the persistent problem of maintaining a balance between the ecosystem and the social system—a balance that requires attention, action and flexibility. Within wicked problems purely technical solutions don’t work, because these solutions don’t factor in the social sphere and stakeholders cannot be tamed

with measures counteractive to democratic principles, thus problems can only be solved through an essentially political means (Jentoft & Chuenpagdee, 2009). There is circularity in decision making with decisions being made and re-made. Adaptive management is often difficult because paths of dependency are created with each resource decision, establishing societal norms.

Most problems within the Great Lakes St. Lawrence region, indeed the central problem of putting this region on the path of the sustainability, fit into the wicked model. Decision makers and stakeholders continuously face the need to solve issues by tackling both the technical and societal spheres simultaneously. Wilkinson and Eidinow (2008) argue that the discursive-analytical nature of scenario processes help formulate approaches to tackling wicked problems, particularly since it helps expose key uncertainties.

By exposing uncertainties and creating common discourses, scenario building can also help communities establish common ground and build a better future. Bezold (1999) makes the case that communities can reinvent themselves and meet the challenges of the future with the aid of scenarios, because they facilitate a process that enables better understanding of what futures exist, and possible paths and associated consequences. Thus, as Bezold argues, scenario building is a necessary step in creating a community-wide vision. The implementation of the vision comes with the creation of associated goals, as well as a strategy to implement the goals. These goals require effort to bring them to fruition—they are in essence what Bezold calls a “noble commitment” to the direction of the community encouraging “visionary commitment and action” (p. 467).

Bezold (1999) suggests good scenarios encourage a community to embrace a paradigm shift through visionary action. He also argues scenario building should help gather intelligence and stimulate creativity. Lindgren and Bandhold (2003) similarly show that good scenarios provide useful insights and a set of plausible alternatives. Scenarios should also be substantially different from one another, memorable and challenge the imagination (Lindgren & Bandhold, 2003). Good scenarios have good starting questions; that is, they address the purpose and desired outcome of the scenario (Lindgren & Bandhold, 2003).

Creating four alternative scenarios in service of a GLSL vision

Currently, scenario theory is under active development with no single framework practiced in the field of environmental studies or elsewhere (Mahmoud et. al. 2009). Rather, it has diverged into many different schools each with their own associated typologies and methodologies. Borjeson et. al. (2006) (as cited by Wilkinson and Eidinow, 2008) posit different theorists have attempted to categorize scenario typologies based on a scenario’s characteristics. For example, scenario theorists Eidinow and Wilkinson (2008) distinguish two types of traditional scenario approaches: the problem focused and the actor focused. The problem-focused typology uses experts and

research to extrapolate historical trends and aims at creating a chain of causality (for example, the IPCC use of scenarios to model climate change). Actor-focused scenarios are based on group participation with an emphasis on the actors involved, their relationship to their environment and their interpretation of events. The aim of this kind of scenario is to create shared strategic language for shaping the future.

Mahmoud et. al. (2009) break environmental scenarios down into similar typologies. The first typology is what these theorists classify as exploratory scenarios. The aim is again technical, using extrapolation and expert advice to answer the specific question 'what if...', and output is usually numerical. The second is what Mahmoud et al. (2009) call anticipatory scenarios based on different desired or feared visions of the future that may be achievable or avoidable.

For community planning purposes, Bezold (1999) uses an archetype approach classifying scenarios based on the futures they generate (i.e. business-as-usual, transformative and two other alternate futures one of which is usually 'hard times'). Again, this is not a technical application, rather these scenarios are actor-dependent greasing the wheels for collective group visioning, and hence fit into what scenario theorists refer to as a normative typology. Finally, the actor-focused, anticipatory and archetypal scenarios are aimed at examining 'what could happen' in the broadest possible sense, and are of a fundamentally transformative nature (Wilkinson and Eidinow, 2008; Lindgren and Bandhold, 2003).

With an eye to spurring forward momentum on the Great Lakes St. Lawrence agenda, we used scenario building as a means of having strategic conversations and creating a common foundation amongst Great Lakes St. Lawrence actors. We were not so much focused on the 'what if?' in a technical sense, but rather creating futures based on 'what might or could happen if?'. Hence, our approach focused on qualitative experiences of workshop participants— experts who represented mainly Great Lakes St. Lawrence environmental organizations, with one industry representative. In examining our central question, we created four scenarios by setting up one axis using two key uncertainties: the environment and the economy. Lindgren and Bandhold (2003) and Bezold (1999) suggest creating no more than four scenarios at one time, as more tends to create confusion. As illustrated in previous discussions, the future of either the environment or economy is largely unknown for this region. Both agendas require radical vision and active leadership. The interplay between these two uncertainties is also of importance. Although Great Lakes St. Lawrence actors implicitly understand one affects the other, examining the trajectories of each agenda side-by-side produced useful insights and facilitated understanding of impacts and consequences, thus, benefiting discussion and vision of the region's future. For simplicity, the third leg of sustainability, the social political realm, was not used, but as will be shown when

examining the four scenarios, is intimately interwoven with the first two. Next we present the four scenarios as discussed during the workshop.

The Four Alternative Futures for the Great Lakes

The Lorax Wins: our happy future

'The Lorax wins: our happy future' is a transformative scenario where both the economy and the environment move towards improvement. The premise of this scenario is one of striking a balance between environmental and economic objectives. It is one that ensures the well being of the general population is on the rise while meeting simultaneous goals of protecting and restoring the Great Lakes St. Lawrence environment. Simply, the vision is one of sustainability.

With the better regulation and removal of toxic burdens from the ecosystem, the health of the general population is on the rise. There is a decrease in diseases associated with pollution such as cancer, relieving the burden on health care systems. There are many natural places for people to recreate including access to beaches, trails and natural environments. With the preservation and restoration of habitat, the region's biodiversity is maintained and improved with delisting of species.

The economy is becoming green. Decision-making is completed with an eye to long-term outcomes. Sustainable principles such as precaution are the norm with a shift to true valuation for the ecosystem services the basin provides. These resources are no longer taken for granted as seemingly free and limitless; rather they are included on the public and private sector's balance sheet with true cost pricing in effect. Valuing the ecosystem includes a shift from traditional gross domestic product (GDP) as a short hand for societal health to economic, social and environmental measures that robustly reflect the state of the economy, society and environment.^{iv} Society adopts a new definition of well being and metrics for measuring it, moving away from a purely consumerist model, to one that considers overall work-life balance as a measure of quality of life. Other principles such as polluter pays are the norm with cradle-to-grave policies used to ensure manufactured goods and industrial processes have a life plan from the drawing board to disposal sites, rather than leaving the burden on the environment and public monetary resources for clean up and disposal.

The regional economy is important, therefore, there is an emphasis both within the U.S. and Canada on adopting policy options that strengthen the economy at this scale with an emphasis on stimulating and building the region's local economies. The private sector leads in innovation creating jobs and economic diversification with new capital investment being sustained over time. Businesses capitalize on the opportunity to provide new services in the form of green technology in areas including but not limited to water resources and renewable energy. Governments support research and development enabling

businesses to bring these technologies to the global market place. The strong economy provides traditional and new sources of revenue helping governments fund public services from schools to libraries, research and development, roads and infrastructure, and the funding of science and environmental priorities in support of the Great Lakes St. Lawrence environmental protection and restoration agenda.

On the governance level, government is less top-down and more bottom-up. Government decision-making and environmental management occurs at the ecosystem level recognizing municipal governments as the principal stewards of the Great Lakes St. Lawrence ecosystem. Municipalities work in close connection with province/state and federal levels, and at a binational level through organizations like the Great Lakes St. Lawrence Cities Initiative (GLSLCI) towards basin-wide and local ecosystem objectives.^v Dedicated and sustained funding is the norm with monies allocated from the federal and provincial/state levels ensuring municipalities are able to fund infrastructure projects of benefit to achieving water quality objectives.^{vi} Municipalities follow policy regimes employing sustainable planning practices such as reducing urban sprawl and investing in more efficient modes of transportation. Planning practices are rooted in a cultural esthetic that ensures a sense of place while moving towards the concept of creating communities where people can live, work and play rather than the current commuter-oriented model.

At the federal and state/provincial levels, authorities work to address issues of regional and national significance such as air pollution and aquatic invasive species. At the binational level Canada and the U.S. work closely in recognition that ecosystems have no political boundaries employing the ecosystem approach. At all levels of government there is an investment in terms of both time and people to develop the legal, regulatory and policy regimes based on sound science necessary to carry forth the stated environmental and economic priorities. There is a model of collaboration amongst law/policy makers, scientists and other experts.

Governments also strengthen public participation including better access to information and creating governance structures that are coordinated, purposeful, cooperative and characterized by accountability. Capacity building is a priority. Governments place emphasis on training youth as leaders environmentally, economically, scientifically, socially and politically. Leadership comes from First Nations and Aboriginal communities recognizing these communities as being integral to governance.

The Lorax Wins: but everyone else is run out of town

The second scenario, 'The Lorax wins: but everyone else is run out of town', is predicated on a Great Lakes St. Lawrence agenda where environmental priorities trump economic and social considerations. This scenario assumes a vision of the Great Lakes St. Lawrence where environmental priorities

are key, and flowing from this vision are goals and objectives that move towards the protection and restoration of the Great Lakes St. Lawrence ecosystem as the government's prime policy objective. The economy is not actively subverted; rather it assumes a more contemporary position similar to that of what the environment holds today—the poor cousin and secondary citizen to economic priorities.

Similar to the scenario above, governments work together bi-nationally committing large amounts of money to improving and maintaining infrastructure with an eye to meeting air and water quality objectives. As in the scenario above, there is an investment in science to define measure and monitor environmental indicators. It also assumes a strict regulatory regime that places the environment as key—a regime where regulations are created and re-created responsively to move towards environmental goals.

The regulatory regime rests on legal instruments that encapsulate the vision and move towards the implementation of key principles including polluter pays and precautionary approaches. It assumes that regulations are vigorously enforced with strict penalties. Policies that flow from this regime emphasize environmental well being as a panacea to improve societal wellbeing, or in its most fundamentalist form, policies that favour the environment without regard for economic or social welfare. These may include policies that support restricting population growth, limiting development, halting urban sprawl, focusing on mass transit initiatives and movement away from a car-centric society.

At the economic level, de-industrialization advances rapidly, as does capital flight from the area. Subject to more onerous regulatory burdens than in other jurisdictions, businesses seek to relocate enterprises to increase profitability and survivability. The result is higher unemployment throughout the region and tax-base depletion. Research and development are stifled in areas that don't directly support environmental objectives. When economic and environmental priorities intersect in a conflicting way, the economy and those who depend on its direct benefit bear the upfront burden.

At the societal level, while people experience improved health related to an improvement in environment, they experience a down turn in quality of life with a decrease in employment opportunities. There is a general discontent as people are increasingly unable to support themselves and their families. There is a rise in accompanying diseases associated with unemployment including depression, alcoholism and drug use. As there are few resources to devote to health-care and social programming, these burdens intensify exacerbating social and family breakdown. People begin to migrate to other areas in search of better economic opportunity.

As unrest grows, government is characterized by top-down, single-minded command and control approach. Achieving environmental goals may be accelerated with de-population but governments are increasingly finding it hard to fund public systems. As the population's needs and wants are on

collision course with public policy, cynicism grows fuelling a political backlash and the possibility of a rapid transition in government favoring one that chooses economic priorities with no regard to environmental ones.

Once-lers Rule: the Lorax is run out of town

This scenario could also be called the business as usual scenario—it is the future as told by Dr. Seuss' fable *The Lorax*. A scenario of present day, it is of little trouble to imagine. It is the reverse to the scenario above. The economy is the greatest societal priority, resting on the assumption that if the economy is strong (and on a traditional limitless growth trajectory), then society is a beneficiary with human well being on the rise. In this scenario, the environment is the poor cousin to the economy. It is the present day model that assumes the Great Lakes St. Lawrence ecosystem is inexhaustible in its ability to absorb pollution and provide resources such as clean water.

The economy may be growing, but it may or may not do so in a manner that strengthens regional economic goals. An innovation agenda may or may not be funded, or it may be funded in a short-term manner where the power holders choose to fund short-term winners rather than investing in technology that will provide longer-term gains (i.e. renewable energy). There is no drive to solve the current environmental crises, or find solutions to environmental problems. The economy remains traditionally rooted.

Within society there is a continued emphasis on rapid unsustainable consumption of consumer goods with generation of unsustainable amounts of waste including air and water pollution. The current environmental downward trend continues. While there may or may not be more money for monitoring and science, there is a continued lack of action on the environmental agenda including invasive species, urban sprawl, deforestation, loss of biodiversity, degradation of water quality, remediation of contaminated sites and continued loss of habitat to name a few. Public consciousness continues to be dominated by consumer-oriented marketing messages with relative ignorance of the environmental situation. Public ignorance reinforces political systems that remain myopically focused on short-term priorities with agendas perpetually focused on re-election platforms promising more economic growth.

Although there is relatively high employment, there is a continued trend towards wage stagnation in some sectors with an increasing gap between good jobs (i.e., those that provide secure, high wages and benefits) and part-time jobs (providing no security, low wage and poor benefits). There is also an increase in the demand for health care as environmentally related diseases such as respiratory illnesses rise. Outdoor recreation is on the decline as the number of smog days, violent weather episodes and beach closures increase. The environmental costs are disproportionately born by those people who can least afford it, such as the urban poor.

As we move through time, health care and infrastructure costs becomes more of a burden as the environment deteriorates. Increasingly, public and private funds must be spent on trying to compensate for lost ecological services including remediation of toxics in soil, air and water. There is an ever-increasing need for government spending on infrastructure to off set the ravages of climate change, as well as more government spending on the agriculture sector to mitigate the shift of weather patterns.

While there may be lip service to improving the environment at the political and corporate level, meaningful progressive movement on the environmental agenda remains impeded and regulatory implementation is lax. There is a laissez-faire attitude with respect to creation, buy-in and implementation of environmental management tools particularly of the preventative or precautionary kind.

No One Wins: doomsday

This is the familiar hard times or doomsday scenario, but in reality it could be a further progression of the second and third scenarios. In the negative economy, negative environment, the Great Lakes St. Lawrence experiences the worst of all worlds. It is a future characterized by an environment unable to provide its life-support services and economy unable to generate wealth and provide a foundation on which to rest society. Society and government have largely become paralyzed; wicked problems dominate the environmental, social and economic agendas and negatively feed and reinforce one another. Just as these problems intensify, society's ability to address them is failing. The population is experiencing a rise in chronic illness, hunger, disease, violence and loss of life from increasingly intense weather episodes as caused by climate change.

At the environmental level, resources are depleted; clean water and clean air are scarce. Access to the limited resources is competitive and generates intense conflict at the political, economic and social levels. Food, gas, electricity and water are all extremely expensive and access to these goods is increasingly deteriorating. There is an increasing gap between the very few rich and the mostly poor citizens. As governments fail, environmental problems are exacerbated. Protection and remediation of the environment are abandoned, as society is in full crisis mode trying to meet the population's immediate needs.

Economically, there is little investment in this basin. Businesses have gone elsewhere as they have a hard time attracting talented professionals to work in the region. People prefer other areas seen as less degraded, more scenic and offering a better standard of living. Deindustrialization continues but it is accompanied by a lack of innovation. There is a monoculture of poor paying jobs and no movement towards a green economy or technological innovation. Research and development is absent and occurring in other parts of the world.

This region is no longer at the leading cusp of technological innovation; it therefore cannot capitalize on high-quality employment opportunities. The region loses technological and engineering know how.

High unemployment is commonplace. Poverty is widespread and increasing. Poverty-related diseases are on the rise placing a greater burden on strained public resources. With declining tax revenue, the government is unable to ensure equitable access to basic services. It is unable to make strategic investments in infrastructure, education, research and development, thus the economic, environmental and social areas continue to suffer. The health of the population declines and hospitalization rise creating pressure on healthcare. Life span falls. Conflict and violence are common and crime is on the rise.

Politically, there is little money to devote to raising public consciousness and helping public opinion evolve towards environmental sensibilities that will improve the environmental situation. Governments tend to be short sighted and limited working in a crisis-oriented fashion. They resort to traditional thinking of placing economic priorities over social and environmental. However, neither the social nor environmental sphere is able to provide the services they once did. The society is characterized by missed opportunities in all realms from economics, cultivating leadership, technology, science, social development and effective response to the environmental crisis. Thus, there is little movement towards improving the situation and no ready way out of the quagmire. As the environment further deteriorates, so does the economic and the social spheres. The spiral tightens and plunges downward.

Key elements to inform a vision and inspire an “activist” agenda

Of the four possible futures above, only the first scenario where both the economy and the environment move in a positive direction shows itself to be tenable. This scenario is the preferred path because it addresses both the environmental and economic challenges within the region, with the maximum social benefit accruing from both. As population continues to grow, and the pressures placed on the ecosystem simultaneously increase, the region simply cannot follow the traditional business-as-usual model where economic priorities trump environmental realities. The Great Lakes St. Lawrence ecosystem is showing signs of compounding stress, and as many scientists warn is at a tipping point. To follow a path of future development that does not protect the environment will inevitably lead to the final scenario where both the environment and economy are in decline. Thus, it is incumbent upon power-holders and policy-makers that any economic and environmental laws, policies and programs move to recognize the limited thresholds of the ecosystem.

Twinning economic and environmental priorities is a key

Krantzberg (2009) argues that there is a significant gap missing in the 1987 GLWQA, which is the recognition of the requisites for a sustainable Great Lakes St. Lawrence River Basin ecosystem. These requisites include the knitting together of policies and programs within the environmental sphere that recognize the need to intertwine economic, environmental and social agendas as the foundation to pursue sustainable outcomes in the region. In a region where the interests of different stakeholders vie fiercely with one another for political, societal and media attention as they attempt to influence and exercise their own agendas the need to understand diverse agendas is not an effete of an observation. Rather, as the scenarios show, should one priority become the poor cousin of the other as one interest group or coalition of groups exert their influence, the outcome of policy and practice leads to an unbalancing of both the long-term economic, social and environmental spheres for the region.

One might think the second scenario where environment trumps economy is implausible. However, in modern times there are situations where environmental priorities are exercised even under considerable backlash from (and to the severe detriment of) local economic interests.^{vii} This scenario could become commonplace on the micro scale as local ecosystems breakdown and resources such as freshwater become depleted, forcing decision makers into win-lose decisions. When environment wins over the economy it will invariably generate pertinacious conflict. As losers seek to re-assert their influence, the outcome will be one of instability where environmental and economic interests clash in the public realm. This scenario is a powerful reminder that human needs must remain in balance to environmental objectives otherwise the resulting instability generated at the societal level can create futures of severe social and political instability.

This business-as-usual or probable third scenario is an important reminder of the cross roads the Great Lakes St. Lawrence is at today. It clearly shows that this ecosystem is not the boundless and limitless provider as commonly assumed in the current economic and environmental paradigm. It also clearly demonstrates what the future is likely to bring should a different course of action not be pursued. Strategically, the message of driving the Lorax out of town needs to be more urgently brought to not only stakeholders, but to the wider society to inform the need for collective action and the evolution of the current model towards one of sustainability. In short, it must inform a new narrative for the region.

The fourth, doomsday scenario where both the economy and the environment move in a negative direction is a future that society would not purposefully choose, but it is useful to explore this scenario and examine the critical decision points and factors that bring about this future. It is also informative to remember that the final future, replete with wicked unsolvable problems, is a situation that many modern nation states grapple with everyday, so it is not out of the realm of possibility. What is particularly illustrative in this scenario is that once this future unfolds there is no easy way out. This scenario is

a powerful reminder that a particular future may result even if it is not the intention of stated policy outcomes and political rhetoric. Rather, it occurs because of an unwillingness of a society to face hard truths and undertake necessary but seemingly bold steps towards transformation. Thus, this future underscores the need for an “activist” agenda to call governments to action and pursue a vision of sustainability for the region.

Seizing upon an “activist” agenda for the Great Lakes St. Lawrence Region

Scenario building in the Great Lakes St. Lawrence context provides useful insights as to why this region must transition economically, environmentally and socially. We present the four scenarios as means to inform a new vision for the region and to galvanize the need among Great Lakes St. Lawrence actors to seize a narrow window of opportunity—in short, to inform an activist agenda. The time to drive a new vision based on a different narrative is now. With the renegotiation of the Great Lakes Water Quality Agreement (GLWQA) underway, the highest-levels of government are signaling they are prepared to listen. For example, Secretary of State Hillary Rodham Clinton acknowledged that as “good stewards”, the U.S. and Canada must join forces in protecting the environment, renegotiating an agreement that “reflects our best knowledge and our unshakable commitment to preserving this vital natural resource” (Rodham Clinton, 2009, June 13). Jackson and Kraft Sloan (2008) reference a 2007 opinion poll showing that public and policy makers on the Canadian side have strong expectation for government to take the lead in solving environmental problems in the Great Lakes. While Krantzberg (2009) argues there are a number of factors including heightened media attention and public awareness that are creating a moment of “ripeness” in the Great Lakes St. Lawrence agenda with bureaucrats, politicians and citizens engaging.

Clear environmental signals are showing this region is at a pivotal point. Should ecosystem collapse occur in all or part, there will be serious economic and social repercussions as demonstrated by scenario building. But, as also demonstrated, this future replete of societal hardships and suffering can be avoided. When looking ahead, the economic foundations of the region are in a period of rapid transition, challenging decision-makers to take a new direction. Creating a new vision, one that is premised on advancing the environmental, social and economic agendas in concert with each other is the first step. However, as the recent history of the region has shown, creating a vision and then moving toward implementation will require a strenuous push by all actors within the basin. In short, it will require all to become activists whether one sits primarily in the environmental, economic or social camps.

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Footnotes

ⁱ The story can be viewed at <http://video.google.com/videoplay?docid=6650219631867189375>.

ⁱⁱ To view a draft copy of the vision statement see
<http://www.pollutionprobe.org/Reports/greatlakesvision.pdf>.

ⁱⁱⁱ The Office of the Auditor General of Canada (2001) predicted population would increase by some three million people by 2020, while Gross Domestic Product (GDP) is expected to be 60 percent higher.

^{iv} Costanza notes (as cited in Krantzberg and de Boer, 2008, p. 101) there has been widespread criticism as the use of GDP does not account for non-renewable resource depletion and the general entropy and pollution that are associated with traditional measures of wealth.

^v The Great Lakes and St. Lawrence Cities Initiative (GLSLCI) is a binational coalition of mayors working with all levels of government to promote the protection of the Great Lakes St. Lawrence. Recently, this coalition produced key recommendations to forge a stronger relationship and strategic coordination among the three orders of government (GLSLCI, 2009).

^{vi} For example, EcoJustice (2006) estimated that the 20 cities it evaluated (representing a third of the region's 35 million people) alone dump more than 90 billion litres of untreated sewage into the Great Lakes each year.

^{vii} One recent example occurred in California where local agronomists have been denied access to water quotas in order to save an endangered fish species (Verma, July 25 2009).

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