**Negotiating a Sustainable Path:  Museums and Societal Therapy**

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How can more than 6 billion people lead peaceful and fulfilling lives on a planet that has a limited ability to service our needs and wants? This question has sparked countless debates and actions aimed at sustainability, where different forms of development are supposed to "meet the needs of the present without compromising the ability of future generations to meet their own needs."[1] Debates about water, endangered species, social justice, biotechnology, militarism and, most recently, the Kyoto protocol, have kept aspects of sustainability in the public eye, and there is growing concern about forms of economic development that have undesirable social and ecological impacts. But trying to respond to all of these problems in isolation is not likely to produce a desirable future. Values and patterns of behaviour from the past are being transformed as new pressures from globalization are creating opportunities and challenges that humanity has not faced before. Increased consciousness, along with a revised set of values, will be necessary if our various societies are to share and consume resources in an equitable and sustainable way.

The challenge we face is a cultural one, since "development divorced from its human or cultural context is growth without a soul."[2] While our lives are shaped by the decisions we make and the things we do as individuals and groups, the cultural values that support our choices and actions will ultimately determine whether our societies will be sustainable or not. The problem is that people are often reluctant to acknowledge the significance and impacts of their choices and actions, let alone the cultural values that support them. People with economic and political power, especially in the West, are worried about the consequences of a fundamental shift in our lifestyles. Some leaders are trying to figure out how to better distribute wealth in an increasingly globalized world, where the "haves" traditionally depend on the "have-nots." Others want to protect their corner of it and preserve the status quo. Industries, businesses, nations, communities, religions, and individuals are all experiencing this scramble and have been slow to respond because change always starts a domino reaction – and that, for many, is scary. Yet, since sustainable development became an international standard with the publication of the Brundtland report *Our Common Future* (United Nations 1987), the number of organizations that claim to be active in this area has grown tremendously, and this trend is likely to continue for some time. Unlike some debates and the uncertainties that spark them, the need for sustainable forms of development shows no signs of fading away. Unfortunately, there are few indications that we are effecting real changes in our lifestyles and moving closer to a sustainable path.

In this chapter, we describe sustainability as a path and suggest that society needs therapy. We chose to call sustainability a path, as opposed to a destination, because while it has elements of both, the distinction is important. Defining sustainability as a destination reflects linear thinking, where society has to pass a series of milestones in order to reach some distant location. This approach to development is a common feature of Western industrialized cultures, but it has limited value when applied to sustainability. It is more appropriate to consider the dynamic nature of social and ecological systems and define sustainability as a social, environmental, economic, and spiritual trajectory that not only has to be developed (or rediscovered) but constantly reinforced. This is more in keeping with the realities of cultural development, where changes may be understandable and measurable but are often chaotic. At the same time, defining

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[1] This is how the United Nations defined sustainable development in *Our Common Future: Report of the World Commission on Environment and Development*, (1987, pg. 8).

[2] UNESCO, (1995) *Our Creative Diversity: Report of the World Commission on Culture and Development.*

and staying on this sort of path requires a repeating and integrated series of checks and balances, as opposed to dealing with issues (like climate change) in isolation.

The museum community is increasingly interested in sustainability[3], which is definitely a good sign. But there is a growing 'sustainability' bandwagon which tries to argue that museums should be sustained as they currently are. Their argument is typically based on the old rhetoric of how undeniably good museums are – and that they should be better supported. Other museologists would rather reshape museums so that they effectively contribute to society's overall sustainability. Presented with challenges ranging from a growing ecological crisis, systemic social inequities, skyrocketing urbanization, and the increasing complexity of culturally pluralistic communities, they see an opportunity for museums to play new, catalytic, and galvanizing roles. If this were actually achieved, instead of the current preoccupation with museums as cultural tourism engines, then there would be compelling reasons for continued or increased public funding.

For the authors of this article and others in the museum community, sustainability involves revisiting the first principles of museum work, assessing the cultural needs and opportunities of our communities, and evaluating how our institutions are engaging and addressing those cultural situations. We believe that, while museums can and should be addressing sustainability through the non-formal education system, they also have a much broader role to play as active facilitators of social change at local and regional levels. Our motivation reflects the fact that sustainability requires a focus on complex, dynamic systems, the development of an ecocentric world view (Rowe 1992, Sutter 2001), an appreciation for how we understand our underlying values, and shifts in how consciously held values are reflected in our daily lives. Our thinking has also been influenced by the development of The Human Factor exhibit at the Royal Saskatchewan Museum, and by activities of the Working Group on Museums and Sustainable Communities, coordinated by the Canadian Museum of Nature.[4]

The intent of this chapter is to explore the links between sustainability (in the Brundtland sense), culture, and the potential of museums as agents of social change. We consider issues around sustainability and unsustainability to be cultural matters, where culture involves the myriad ways in which people relate to their world. We see culture resting on, and responding to, the complex set of values and actions that link individuals and groups to their ecosystems – much of which remains beyond their control and understanding (Worts 2003). Many cultures in the "developing world" are trying to meet the basic human needs of their citizens, often by emulating Western lifestyles that offer wealth and security. The challenges facing the industrialized or "developed" world have more to do with consciousness, relatedness, and humility.

Given that sustainability is a relatively new concept in museum circles, we start with an overview of the topic, including why society needs "therapy." We then describe how 'The Human Factor' exhibit was developed as an attempt to address sustainability from an exhibit perspective. In the

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[3] For example see: Worts (2003), Leahy (2003), AAM (2002), Silverman (2002), Sutter (2000), UNESCO (1995).
[4] The Working Group on Museums and Sustainable Communities includes professionals and academics from across Canada who have been developing workshops and materials on this topic since 2000. More information is provided in Appendix A.

last section, we elaborate on four key points about the role that museums might play in creating a culture of sustainability.

**The Sustainability Challenge**

To be sustainable, human activities have to be conducted with respect to ecological principles, including the fact that ecosystems have limits. For example, from small puddles to the global Ecosphere, every ecosystem has a carrying capacity defined by the maximum number of organisms it can support. If a population exceeds this maximum, corrective measures such as dispersal or increased mortality due to disease will eventually cause it to fall below carrying capacity. Humans have managed to increase their global carrying capacity in the past by developing new technologies, notably in agriculture and medicine, but we are still subject to this ecological constraint.

Whether we appreciate ecological limits is another matter. Despite clear evidence that our impacts are causing ecological stress – the Antarctic ozone hole and the shrinking Aral Sea are prime examples – we are hesitant to question underlying actions and values. We continue to insist that all types of progress are desirable and that human economies can expand beyond a level that ecosystems can support. We stand amazed at the riches produced by compound interest, seeing it as a path to fortune, forgetting that exponential growth is also a feature of cancer and pyramid schemes. Similarly, people are reluctant to acknowledge that actions taken by a small number of us can now have global consequences, both positive and negative.

The goal of any sustainable development is to maintain the health of social and ecological systems so that all stakeholders have a fair opportunity to live a fulfilling life. To achieve this at the cultural level, people need to be more conscious of their social and ecological relationships. We also need to foster a sense of individual and collective responsibility for both our selves and the others who share this planet. One of the largest challenges we face is developing adequate feedback about the consequences of our choices. Anyone reading these words is likely living an unsustainable lifestyle – despite our efforts to avoid this state. The question is: how do we know where we are in the sustainability challenge?

Sustainability indicators do exist, but they are far from complete or sufficient. One powerful indicator is the ecological footprint, which measures the productive land and water needed to support a person or population at a given standard of living. Ecological footprints are estimates of the area needed both to produce the materials we consume and to turn our wastes back into productive elements in the ecosystem (Wackernagel and Rees 1995). They indicate that human activities have reached a point that the global ecosystem cannot sustain.[5]

A second line of evidence comes from an alternative measure of economic health called the Genuine Progress Indicator (GPI), which has been used to highlight the limitations of the more

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[5] In 1995, with about 5 billion people on Earth, the average person had an ecological footprint of 2.4 hectares. The available productive land amounted to only 2.0 hectares each, producing a global deficit of 0.4 hectares per person. Now, with a population of more than 6 billion, we would need 1.3 Earths to sustain the current population with no deficit. If everyone in the world lived like the average Canadian, we would need 4 whole planets!

traditional Gross Domestic Product (GDP)[6].  The GPI[7] suggests that health of the U.S. economy was improving until the mid 1970s and has been level or falling slightly ever since, presumably because of accumulating damage to social and ecological systems at the regional and global level (Cobb et al. 2001).

The underyling pressure on these systems is a combination of values and attitudes that dominate in the industrialized world, powerful technologies, economic affluence, and a burgeoning world population.  According to United Nations estimates[8], the growth rate of the global population started to fall in the 1990s, but the total number of people is still rising, especially in low-income areas.  Models suggest that world population will either peak at 8 billion around 2040 and then decline to less than 6 billion, or it will grow to 18 billion by the end of the 21st century.

Cast in this light, sustainability becomes a fundamental, cross-cutting, and elusive challenge that has already started to affect museums and the societies they reflect.  It is fundamental because it not only reflects and responds to our personal and collective values, it also applies to all of our institutions, our daily decisions, and possibly the long-term survival of our species.  It is cross-cutting because it involves processes and interactions that span or supercede political, institutional, and academic boundaries.  And it is elusive partly because the social and ecological systems involved are highly variable and often chaotic.

The classic model of sustainable development calls for an integration of social, economic, and environmental concerns and is generally illustrated by three overlapping circles labelled society, economy, and environment (Worts 2003).   In social terms, sustainability hinges on social justice, both locally and globally.  Individuals need to feel that they are equal partners, as opposed to pawns, in the stewardship of human life.  If equity is not achieved, the 'have-nots' will not be motivated to contribute and are likely to exacerbate problems by shear weight of their numbers.  This goes beyond a leveling of the economic playing field and calls for a wholesale reduction in underlying prejudices and hatreds.  From an economic perspective, sustainability requires the development of a steady-state economy (Daly 1999), where people live off the "interest" generated by social and ecological systems and avoid depleting stocks of natural, human, social, and manufactured capital[9].  In environmental or ecological terms, sustainability is about interactions, carrying capacity, and how systems recover from disturbance.  Defined by flows of

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[6] GDP is the dominant indicator of economic well-being in our world.  It is a reliable measure of economic activity, but it says nothing about the impact of that activity on quality of life.  The GDP increases, implying economic health, not only when people are employed and buying consumer items, but also when catastrophes like the Exxon Valdez oil-spill occur, when war breaks out, when fires ruin lives, when car accidents lead to more cars being produced, and so on.

[7] The GPI is a revision of the GDP based on factors such as income distribution, the value of household and volunteer work, and the costs of crime and pollution.  For details, visit the Redefining Progress website at
http://www.rprogress.org/projects/gpi/

[8] For the latest information, visit the United Nations Population Information Network website at
http://www.un.org/popin/publications.html.

[9] Natural capital refers to physical resources provided by nature, including freshwater, food, and wildlife.  Human capital is a reflection of collective knowledge developed through education, training, and research.  Social capital is based on rules, norms, and relationships that affect people and institutions, while manufactured capital refers to buildings, roads, and other parts of the built environment.

material and information, social and ecological systems cycle between different states based on the distribution and movement of capital (Holling 1992), and the rate of cycling depends on their innate resilience and feedbacks that can be positive or negative (Marten 2001). While human actions can affect the rate of cycling, sustainability is not about holding a social or ecological system in a given state, since this is impossible. The aim is to ensure that transitions from one state to another occur without reducing the potential welfare of future generations.

The three-circles model of sustainability has been justifiably criticized for a number of reasons (Worts 2003). One of its biggest drawbacks is that it suggests that human society and the world economy are equivalent to the global ecosystem, when they are actually subsets of it. A more realistic version (Fig. 1) indicates that any manifestation of human activity, such as a sustainable community, is ultimately supported and constrained by larger ecosystems. But the central point of both models – that social and ecological systems are inextricably linked – is widely accepted and provides a foundation for elaborating on what sustainability actually means.

By defining sustainability in terms of economic development[10], the Brundtland Commission challenged us to plan and act in ways that do not compromise the ability of future generations to meet their needs. Since then, sustainability has evolved into a way of thinking about the vitality and unpredictable behaviour of social and ecological systems, and a way of acting that limits the destruction or loss of natural, manufactured, social, and human capital. It can also be viewed as a pressure aimed at personal, institutional, and cultural development. In the end, sustainability requires an equal emphasis on ecosystem health, economic development, and social justice because they are all mutually reinforcing (Marten, 2001). It also requires humility, and an acknowledgement that humans are part of nature, with a capacity for consciousness that is invaluable and presumably unique but often overlooked.

The notion that society needs therapy – or possibly full-blown analysis[11] – stems from recent work by ecological psychologists (e.g., Sheppard 1995, Winter 1996), who point out that unsustainable values and actions have their roots in the industrialized world view. A major part of this worldview is a "human-nature split" that leads to social and physical isolation and may be preventing us from pursuing ecocentric forms of development (Fig. 2). Many types of isolation have been implicated, from physical barriers to schisms associated with academic and technical specilization. Historically, the human-nature split can been traced to philosophers such as Plato, Aristotle and St. Augustine, who separated experiences of the mind from those of the body. The gap widened with the emergence of Newtonian science and the so-called Age of Enlightenment, where aspects of nature began to be understood in mathematical and mechanical terms. Early

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[10] By development we mean an increase in the quality of economic interactions, as opposed to the physical growth or expanion of an economy.

[11] Sheppard (1995) and other psychologists have suggested that the human-nature split has produced a "sick society" that ought to be treated with therapy. They point to signs of a collective "madness" typified by short-sighted actions and beliefs, no appreciation of consequences, always wanting more, selfishness, insecurity, and low self-esteem. Given the complexity of the sustainability challenge, any therapy is bound to include an analysis stage, where issues are broken down to examine their constituent parts.

concerns about the schism were voiced by conservationists such as John Muir and Aldo Leopold, who called for a fundamental shift in ethics:

> That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics.  That land yields a cultural harvest is a fact long known, but latterly often forgotten.
>
> Aldo Leopold, (1949, pg viii-ix)

If societies are indeed suffering from the consequences of the human-nature split, then museums ought to be offering societal "therapy" for selfish, altruistic, and pragmatic reasons.  On the selfish side, museums rely on the social and ecological systems that have been affected, and anything they can do to make themselves relevant will increase their odds of survival.  From an altruistic perspective, museums are ideally positioned to influence the make-up of the systems around them, especially their human and social capital.  In pragmatic terms, most museums are obliged to work on behalf of the public good, if only because of their dependence on public funding.  The suggestion that museums might play a therapeutic role in society may seem unsual, but in fact is an elaboration of ideas developed by other museum writers (e.g., Silverman (1989), Kaplan et al. (1993)).

Part of the challenge around sustainability is helping individuals and groups gain an enhanced sense of consciousness about their world, a sense that has been fading for several generations. Museums can help by encouraging people to become more conscious of critical relationships that link them to nature and to other people.  Some of the roles that museums can play include being storytellers through non-formal education, providing sanctuaries that inspire reflection, and acting as catalysts to spark needed social change.

**The Human Factor exhibit**

The next section is based on insights that one of us (Sutter) gained through the development of The Human Factor exhibit, a series of permanent displays in the new Life Sciences Gallery (LSG) at the Royal Saskatchewan Museum (RSM) in Regina, Saskatchewan.  The RSM is a medium-sized museum of natural and human history and is part of the provincial government.  It has an annual visitation of about 150,000 plus some 18,000 students in programs and teacher-supervised visits.  Developed to replace a gallery that was damaged by fire in 1990, the new LSG was designed by Blair Fraser Exhibits, Ltd., and opened in 2001.  It covers about 1200 square metres and consists of an orientation area, a tour of unaltered Saskatchewan landscapes, a section called Global View that looks at how the province is connected to distant locations, and The Human Factor, which occupies about 25% of the exhibit space.

The Human Factor is the last part of a gallery storyline about connections and dependencies that keep the Earth and other living systems in a state of dynamic balance (e.g., Lovelock 1987).  It is divided into sections called Time Tunnel, Living Planet, Causes of Stress, and Solutions, and includes a computer-based learning centre that is also available on-line at www.royalsaskmuseum.ca. The exhibit and learning centre are designed to examine regional and global issues associated with human activity from an ecocentric perspective.  They establish prehistoric and historic time

frames, describe global processes and imbalances in social and ecological terms, and explore the challenges and potential of sustainable development. The exhibit and the LSG are both described in more detail in Sutter (2000).

The Human Factor exhibit and learning centre appear to be unique on three counts. First they examine the scope and consequences of human activities by blending ecology, economics and psychology into a central, coherent message. Second, they identify and assess the industrialized worldview as the root cause of global and regional issues. The exhibit does this through seven sculpted "towers" that reflect and scrutinize industrialized attitudes and actions. Crafted by Dave Gejdos, each tower consists of objects that reflect each theme (Table 1). They are about 2.5 m tall, including the human figures on top, and are covered with a rough, grey coating for texture and consistency. Finally, the exhibit and the learning centre both stress the importance of restorative economics, individual choices, and our emotional connection to nature.

Considerations that arose during the development of The Human Factor fall into four areas. First, to tell this sort of story, the RSM had to take a position around controversial issues such as climate change and the ecological constraints on economic growth. This was easy to justify from a scientific perspective, given the evidence (e.g., Sanderson et al. 2002), but it also introduced an unavoidable bias towards certain facts and set the stage for political or emotional responses. On the political side, senior government officials were informed about possible points of contention, such as the misleading nature of the GDP as a measure of economic health, we were careful not to question the intent of current government policies, and we emphasized that all parts of the story are substantiated by wide bodies of research.

Second, The Human Factor had to reflect the central theme of the LSG, which is "dynamic balance through interconnection." To this end, the exhibit focusses on industrialized values, actions, and behaviours that appear to be out of balance, and on the consequences of social and ecological connections that are either frayed or strong. As an example of imbalance, the Can Science Save Us tower (Table 1) suggests that while the objectivity of reductionist science is valuable and necessary to address some problems, societies that rely on it too heavily run the risk of losing "slow" knowledge (Orr 1996) and other valuable "ways of knowing." Other towers focus on frayed connections, including one called Ours To Conquer, which looks at the divisive effects of a social focus on independence, agression, and competition (Table 1). The benefits of strong connections are evident in the Living Planet area, which looks at processes and relationships that are part of a healthy global ecosystem, and in a Solutions display called Reconnection, which is based on biophilia[12].

Third, instead of focussing on any one symptom of human activity, such as the loss of biodiversity, we wanted to illustrate how seemingly isolated issues are actually interconnected. The exhibit tells a cause-and-effect story that singles out the industrialized world view (Winter 1996) as the root cause of a broad range of problems (Fig 3). The situation is not this clear-cut,

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[12] Biophilia – literally, attracted to life – refers to set of genetically-based learning rules that influence our actions and development (Wilson 1984). As an example, people are often more frightened of some animals, such as snakes, even if they have never encountered one, than they are of guns, which are far more dangerous. Biophilia is believed to be a reflection of prehistory when people lived much closer to nature.

since world views are also influenced by the problems they produce, but this approach allowed us to tell a comprehensive, integrated story and to ellaborate on underlying values and behaviours. It also allowed us to personalize issues that are easily externalized and may have produced a more useful educational tool as a result.

Finally, from an educational perspective, we recognized that emotional responses can have positive and negative repurcusions. They can inspire people to reflect on their own values and beliefs, but they can also raise psychological barriers that would hamper the development of new insights (Clinebell 1996). We addressed this by trying to anticipate how visitors might respond, by aiming for a tone of guarded optimism, and by including features designed to heightened and subsequently relieve levels of anxiety (Sutter 2000). The fact that humanity has become a major global force is mentioned at the start of the LSG, partly so visitors are forewarned about the content of The Human Factor. To engage visitors and help them feel included, most of the displays in The Human Factor are tangible, touchable, and interactive, and a central wall panel points out that religious, indigenous, and scientific world views often have an ecocentric dimension. At the same time, we stayed away from contentious issues, such as the debate between evolutionists and creationists, and took care to avoid confrontational or antagonistic language. To keep anxiety levels in check, we assumed that images and experiences that speak to the intrinsic value of nature and human goodness would provide a sense of comfort, while details about biophilia, sustainability, success stories, and the importance of daily choices would offer hope.

The LSG is becoming a central part of education programming and evaluation efforts at the RSM. The Human Factor section has been challenging from a programming perspective, partly because many of the key points are complex and not easily linked to a tangible object. The notion of an ecological footprint has been helpful in this sense because staff and visitors can easily relate to it. Evaluation efforts have ranged from using exit surveys, concept maps and heart-rate recorders to gauge knowledge levels and emotional reactions, to soliciting feedback from grade-school students involved in exhibit development. Early results suggest that visitors may be responding as predicted as they move through the space, that the overall experience is positive, and that some insights may have lasting consequences (Fig 4).

**Museums and Sustainability**

Now that we have described what sustainability involves and how one museum exhibit has tried to address it, we can elaborate on insights and principles that museums might consider as they delve into this area.

First, context is critical. Sustainability issues affect systems that are highly integrated and chaotic[13], with overlapping physical, biophysical, social, economic, and psycho-spiritual dimensions that cut across social, political, and geographic boundaries. Based on concept maps developed through our Working Group (Appendix A), museum people seem to appreciate the

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[13] Ecosystems, economies, and social systems are characterized by a complex of internal and external connections. Any complex system can exhibit chaotic behaviour, where even slight changes have large and unpredictable consequences.

breadth and complexity of the issues, though they may be uncomfortable with the uncertainty and vagueness that goes along with them. Often, the biggest hurdle is getting people to accept that most features of the social and ecological systems they depend on are beyond their control.

The Human Factor exhibit includes many examples of interconnection and interdependence. Dominant issues are identified as symptoms of a deeper problem (Fig. 3). Graphs in the Time Tunnel illustrate correlations between global temperature and atmospheric concentrations of carbon dioxide and methane over the last 420,000 years (Petit et al. 1999). The ecological footprint indicator makes it clear that our global crisis involves more than population growth. A display called Building Blocks and Nested Layers illustrate that life is based on a nested hierarchy that ranges from atoms to the global ecosystem (Rowe 1992). And there are repeated references to emergent properties such as ecosystem health and ecological services (e.g., Costanza et al. 1997).

Second, when people look sustainability "in the eye," their reactions will reflect attitudes and beliefs that support their worldview, which is likely an unsustainable one. It follows that efforts to move individuals or groups toward a sustainable path need to bring issues down to a personal level and consider the values and beliefs involved. This is especially important in light of the human-nature split and a general lack of consciousness in highly urbanized societies. Our goal should be to reinforce, embellish, or alter what people know about their world (their ecological literacy) and how they relate to it (their ecological identity), but this needs to be pursued with care and compassion. It is important to be direct about the tragic nature of some problems, but not to a point that raises emotions or psychological barriers that hamper learning and action. Educators of all types need to consider emotions that might arise and use approaches that preserve trust and build rapport.

This may be part of the reason The Human Factor exhibit has been well-received. Museums are generally respected and trustworthy institutions, and visitors appear to feel quite comfortable as they take in the nature dioramas that precede The Human Factor section. The dioramas seem to provide rich, satisfying experiences, which may be due to biophilia (Wilson 1984), and by the time visitors reach The Human Factor, they are often quite open to being challenged about their personal actions and beliefs. Positive visitor responses may also reflect the effort that went into finding common ground between diverse interests, avoiding dogmatic or antagonistic statements, and linking problems and potential solutions to the choices we make as individuals and groups.

Third, as an integral part of complex socio-economic systems, museums ought to be more responsive to their communities. Educators in museums and other settings have assumed that if people are told what the problems are and given the skills and information they need to deal with them, they will find common ground between divergent interests and work for a healthier, safer, more humane world. Instead, counter-intuitively, highly educated people are usually part of highly polarized, stress-filled communities. This result is predictable, since complex systems often produce results that are counter-intuitive (Marten 2001). It also suggests that prescriptive approaches to education may be contributing to the problem.

Rather than prescribing solutions – or, worse, passively dispensing information – museums might benefit from encouraging individuals and communities to identify their underlying needs and reflect on the ramifications of their actions. This may be the biggest challenge facing our institutions, because it questions the purpose of museums and flies in the face of momentum that wants to maintain the status quo.  It also means playing a less authoritative and possibly less visible role in society, as well as basing outcomes and performance measures mostly on community needs and opportunities.

Finally, sustainability has to be measured through robust indicators and adequate feedback mechanisms involving individuals and organizations.  These measures are still evolving and present a range of challenges, especially with 'cultural' indicators.

There are three spheres within which museums would benefit from reliable indicators.  The first relates to the issues, needs and wants that inhabit a community at any given point in time.  Some of these will be timely in nature – reflecting realities that affect lives, such as an employment crisis, a housing shortage, a rash of domestic violence, high school drop-out rates for certain groups, increasing racism, threatening pollution, funding for public transit and such.  Others will involve more timeless human experiences that shape who we are as individuals and communities.  These might include such things as beauty, love, self-esteem, relationships, trust, respect, humility.  By conducting a scan of the issues, needs and wants of community, museums can develop public activities to intersect with what is most pressing and relevant for their communities.  There are already sets of indicators that help cities monitor their well being – but museums rarely start their planning from the needs and wants of their communities.  Generally, museums are preoccupied with the subject or discipline focus they have set for themselves.

The second sphere of indicators would be designed to assess whether individuals and the larger communities are actually moving towards a "culture of sustainability."  For example, measuring pollution levels in air, lakes and rivers, as well as the prevalence of certain plants and animals in local natural settings, provides insight into the health of the ecosystem.  Housing, education, energy usage, food consumption, mortality rates and other measures reflect the social reality of a population, while income distributions, employment rates, and disposable income provide useful indicators of economic well-being.  It is important to remember that  these large-scale community indicators become more texture and valuable when they are cross-referenced with major demographic characteristics to determine problems of systemic inequity and dysfunction.

Cultural indicators are still eluding those who are trying to develop indicators of movement towards sustainability.  Museums could help to develop such indicators.  Some of these might involve assessing individuals':
- awareness of their personal, ethnic, gender and racial histories,
- propensity for reflecting on environmental, economic or social justice issues;
- sense of personal responsibility for the wellbeing of others, and the community generally;
- understanding and acceptance of significant forces in our lives that are unknowable and uncontrollable (e.g., questions of spirituality).

If museums began to explore these questions, then their public programming could be much more effectively targeted to addressing issues and opportunities that will determine whether our collective future is sustainable or not.

The third sphere of indicators involves understanding how a museum's public program impacts individuals and groups within the community. Part of this is being done by people who are conducting at least one of the three basic forms of audience research in museums – front-end, formative, and summative. Unfortunately, audience research still has a very difficult time being allocated human and financial resources in most museums, and when museums decide to conduct audience research, it is often geared towards marketing and figuring out how best to deliver 'cultural commodities' to a target group. This type of market research is not going to move museums towards becoming effective facilitators of culture within communities. Instead, museums need research that helps them understand how to support individuals in cultural reflection and responsible action. Some work has been done in this area (e.g., Worts, 1995), but it just scratches the surface. Much remains to be learned about building social capital, or 'cultural capital' in our pluralist, urban environments.

**Concluding Remarks**

Based on media reports, one might determine that our future is in the hands of scientists, economists, politicians, and business executives – supported by an army of lawyers. To live sustainably, we will undoubtedly need to make our lives more equitable and efficient, which will require the expertise of such specialists. But even if we solve technical challenges related to production and pollution, we will still be on an unsustainable trajectory. Negotiating a more desirable path will require the conscious participation of individuals seeking to embody the core values of sustainability, especially as ecosystems strive to correct imbalances through famines, floods, epidemics, and other phenomena. The most difficult part of the challenge will involve cultivating worldview(s) in which individuals and groups subscribe to reflective, responsible, and democratic ways of life. This is where museums have a tremendous opportunity to play a vital, new role as cultural facilitator – encouraging individuals to reflect and stimulating communication between people.

Museums could take advantage of the unique position they occupy between the academic world and the general public to help move humanity onto a sustainable path, but not without fundamental changes in their mandates, activities, and organizational structures (cf. Stapp 1998). Those that continue to operate mainly as object-centered tourist attractions may find it difficult to be involved in sustainability work because of inherent controversies (Worts 1998). At the same time, museums risk becoming marginalized or even irrelevant if they avoid controversy altogether (Weil 2002).

The strategies that museums apply as we move into the 21st century are likely to fall somewhere between the traditional focus on exhibitory and collection-building, and more responsive approaches designed to inspire reflection and cultural development. Those that follow traditional lines will be making a tentative commitment that requires no fundamental change in their mandate. They will have to assume that experiences inspired by exhibits and programming are

able to restore depleted stocks of human and social capital such as low levels of ecological literacy, the loss of "slow knowledge," and strained relationships within communities and between people and nature. Their best option might be to highlight historical and contemporary examples of socio-economic and ecological sustainability.

Museums that decide to be more progressive will be closer to the notion of a museum as any setting where the muses gather to inspire reflection. They will be making a fundamental commitment based on mandates that emphasize personalized, non-formal education, and actions that respond to, and are largely directed by, the needs of their communities. They will be working to rebuild depleted stocks of human and social capital through interactive, community-led activities that identify the common ground between diverse interests and give rise to appropriate actions and social norms.

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## *Appendix A:  Working Group on Museums and Sustainable Communities*

**Membership:**
- Thérèse Baribeau and Linda Liboiron, The Biosphère, Environment Canada (Montréal, Québec)
- Anne Breau and Catherine Dumouchel, Canadian Museum of Nature (Ottawa, Ontario)
- Elizabeth Kilvert, Ecological Monitoring and Assessment Network, Environment Canada (Burlington, Ontario)
- Barbara McKean, Royal Botanical Gardens (Burlington, Ontario)
- Diane Pruneau, Université de Moncton (Moncton, New Brunswick)
- Glenn Sutter, Royal Saskatchewan Museum (Regina, Saskatchewan)
- Douglas Worts, Art Gallery of Ontario (Toronto, Ontario)

**Activities:**
Established in 2000, the *Working Group on Museums and Sustainable Communities* is focusing its efforts on engaging the museum community in Canada in a process of awareness, reflection, learning, sharing of knowledge and experience, capacity-building and action related to their role in creating a culture of sustainability.

In order to achieve this goal, the working group:
- organises workshops at the Canadian Museums Association (CMA) Annual Conferences:
  - The Role of Museums in Environmental Education and Sustainability (Ottawa, 2001)
  - Museums and Sustainability – Tools for Action (Calgary, 2002)
  - Engaging Your Community in a Culture of Sustainability - Museums as Agents of Change (Winnipeg, 2003)
- has participated in the development of a Framework on Environmental Learning and Sustainability in Canada and an Action Plan that was presented, with others from across Canada, at the World Summit on Sustainable Development, Johannesburg in 2002
- has presented its initiative to the CMA and is being offered the opportunity to have a private website on museums and sustainable communities
- is looking at implementing pilot projects that would provide models on how museums can engage their community in a process leading to a culture of sustainability
- has had discussions with ICOM Canada (who has an ongoing interest in the topic) to look at possible collaborations.

**Indicators for Success**
- participation in workshops offered by working group, positive feedback from participants and subsequent actions
- visits, repeat visits and interactions with the Museums and Sustainable Communities website
- implementation of a 'Museums and Sustainable Communities' pilot project
- increased level of awareness and understanding amongst the museum community in Canada of the concepts of sustainability and sustainable community – and the linkage of these concepts to culture
- number of museums that identify sustainable community as a core part of the Mission Statement
- increasing numbers of initiatives related to this topic in the museum community in Canada
- requests for working group to participate in conferences, training sessions, projects, etc.
- unsolicited inquiries for information
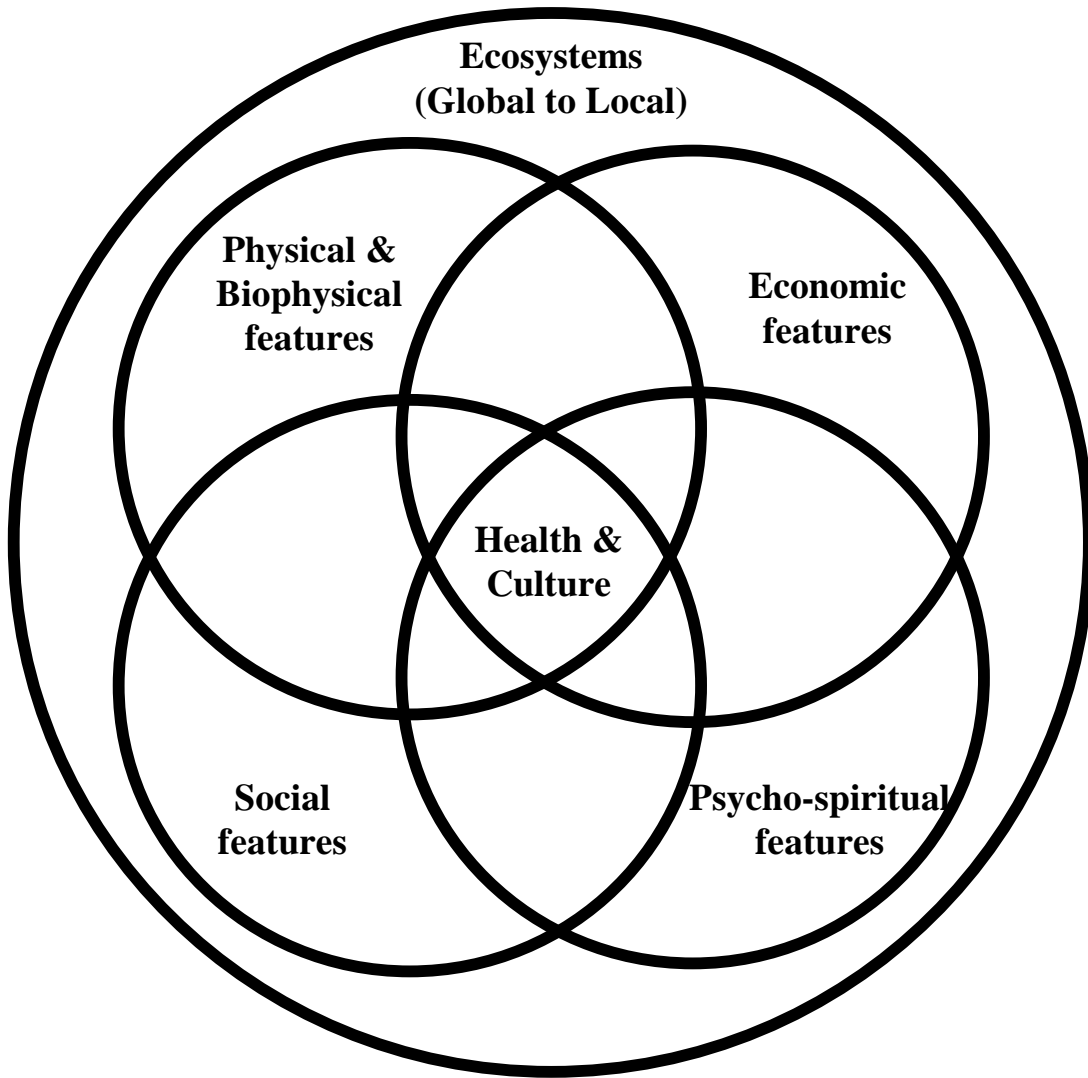- continued interest and support from the Canadian Museums Association towards this initiative

Fig. 1. Aspects of a sustainable community. Note that all features interact to support derived qualities, such as health and culture, and that the community as a whole is constrained by ecosystems at various scales.

High ◀━━▶ Low

| Judgements & Actions | ━━▶ | Degree of Separation |

Cognitive and Operational Models ◀━━ Development: personal community political corporate
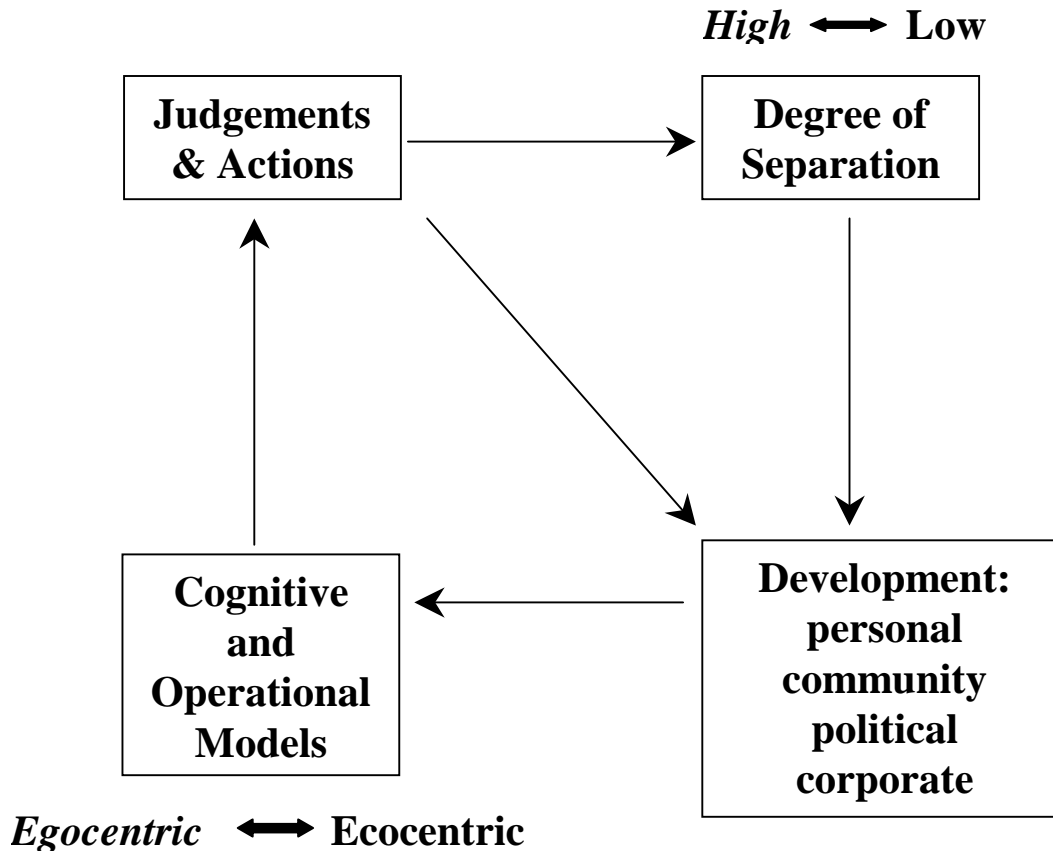
Egocentric ◀━━▶ Ecocentric

Fig. 2. A generalized model illustrating how the human-nature split may be affecting different types of development. As part of a repeating cycle, development options are affected directly and indirectly by the judgements and actions of individuals and groups. The indirect path is affected by the degree of physical and cultural seperation between the people involved and their ecosystems. The cognitive and operational models that inform their judgements and actions are more likely to be ecocentric where the degree of separation is low and egocentric (or anthropocentric) where separations are wide.
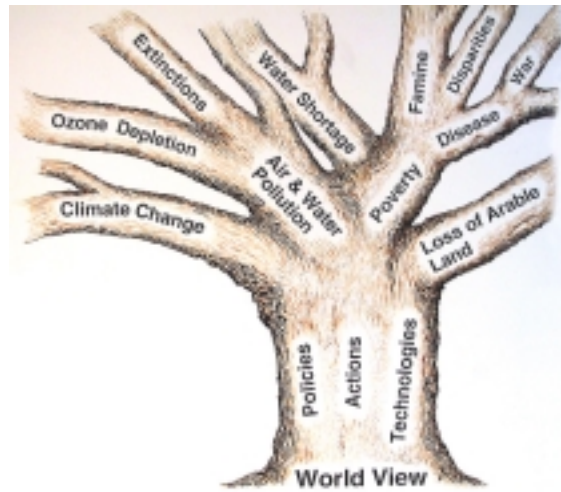
Fig. 3.  This diagram is on a large wall panel at the start of The Human Factor exhibit. It indicates that seemingly disparate problems are actually extensions of policies, actions, and technologies that stem from the industrialized world view.  This assumption is central to the storyline of the exhibit, which includes a detailed assessment of industrialized values, actions, and beliefs (Sutter 2000).

Table 1.  Topics and imbalances examined by sculpted "towers" in the Causes of Stress section of The Human Factor exhibit.  For each imbalance, the capitalized term tends to receive more emphasis in Western society.
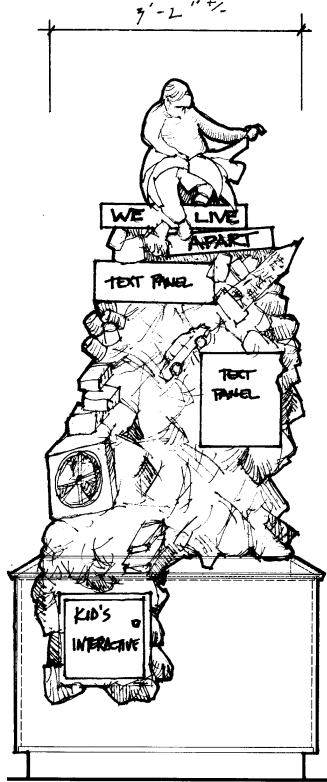
| | Tower Title | Imbalances Depicted | Issues Examined |
|---|---|---|---|
|  | Can we live apart? | PEOPLE vs. nature<br><br>INDIVIDUALS vs. communities | Physical and cultural barriers between people and nature. Psychological consequences Individualism |
| | Buy and by happy? | GREED vs. need<br>MONEY AS MASTER vs. money as servant<br>PRICES vs. reality | Consumerism as fulfillment<br>The social power of money<br><br>Hidden costs |
| | Is bigger better? | GROWTH vs. progress<br>GLOBAL vs. local | Expansionism<br>Global trade<br>Power of global corporations and financial markets |
| | Are there no limits? | CONSUMPTION vs. nature as a source<br>WASTE vs. nature as a sink<br>SLOW & PREDICTABLE vs. rapid & chaotic | Dwindling supplies<br><br>Garbage and pollution<br>The speed of past climate changes |
| | Can science save us? | INFORMATION vs. wisdom<br>PRIDE vs. humility<br>CONFIDENCE vs. caution | Other "ways of knowing," e.g., slow knowledge<br>Can we manage ecosystems?<br>What are acceptable risks? e.g., biotechnology |
| | Ours to conquer? | AGRESSION, COMPETITION & INDEPENDENCE vs. compassion, cooperation & community<br>GENDER BIAS vs. gender equality | Militarism<br><br>Overlooked skills<br><br><br>Poverty and oppression<br>Children as security |
| | All for some? | PEOPLE vs. nature<br>HAVES vs. have-nots | 40% of NPP appropriated by one species<br>Do we have the right?<br>Social and economic disparities |

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Fig. 4.  *Water Lady* by Fabre Pingert.  This painting was submitted along with an essay by a grade-school student who was involved in the development of the *Our Dreams* display at the end of The Human Factor exhibit.  The impact of the experience is echoed in this excerpt from her essay.  "I hadn't really thought of making my passion, my career, my life…  This is my "Water Lady."  One day she will speak out, one day she'll make the difference, one day I'll stand up…"