The Regional Vancouver Urban Observatory (RVu): counting on Vancouver, "our view" of the region

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Abstract

The Regional Vancouver Urban Observatory (RVu) was established in 2004 to provide a new model for measuring and monitoring regional progress toward sustainability. RVu is the first indicator project in Canada to join the UN-Habitat Global Urban Observatory network. RVu takes up the challenge within sustainability assessment theory to analyze and inform at the same time as it attracts and unites the widest range of citizens possible toward the goal of improving our common future. This article presents the processes carried out by RVu in 2005-2006 to recommend sustainability indicators for the Vancouver region. While RVu's expert process built upon rational models, RVu's nonexpert process operationalized a systems modelling approach. RVu has aimed to mesh international expectations and regional aspirations, expert- and citizen-based views of progress, and hard line and storyline trends. The process and results hold lessons for other regions grappling to apply sustainability principles in practice.

Keywords: urban sustainability, sustainability indicators, sustainability assessment, urban observatory, Vancouver

1 Introduction

Indicators like Gross Domestic Product, the consumer price index, and life expectancy at birth have long been used in the policy craft to focus attention where strategic (Cobb and Rixford, 2005), (Duncan, 1984). Sustainability indicator projects attempt to deepen these measures in the pool of human values, recognizing that not just how much we produce, what we pay, and how long we live determines the worth of our cities; urban worth is also reflected in the nature, relationships, and quality of our lives (Philips, 2005), (Gahin, Veleva and Hart, 2003). Sustainability indicator projects seek to enumerate a larger and more forward- and backward-looking set of values in social, environmental, and economic realms. They attempt to keep track of our progress in new dimensions of human responsibility and concern.

For those working in the realm of urban sustainability, indicator projects have become one of the most popular tools employed (Portney, 2003), (Hallsmith, 2003). Sustainable Seattle, a citizens' network that generated a set of regional sustainability measures in 1992, is widely cited as the first urban sustainability indicator project (Holden, 2006a). Since then, hundreds of community and regional scaled indicator projects have been developed, from Calgary to Penang, Hong Kong to Santa Monica[1]. Internationally, UN-Habitat established a Global Urban Observatory following the 1996 Conference in Istanbul to take up the work of the Urban Indicators Programme, which had been transferred to UN-Habitat from the World Bank (Metropolis 2005). The Global Urban Observatory collects data to report on specific indicators related to shelter and maintains a network of local and national urban observatories throughout the developing world in its efforts to improve the development and use of data and information on urban trends worldwide (UN Habitat, 2006).

The Regional Vancouver Urban Observatory (RVu), established in 2004, is the first urban observatory in Canada.[2] RVu takes up the challenge within sustainability assessment theory and practice to use the best of our rational and learned tools not just to analyze and inform but also to attract and unite the widest range of citizens possible toward the goal of improving our common urban future.

This article presents results of the processes designed by RVu and carried out in 2005-2006 to develop a set of sustainability indicators for the Vancouver region. While RVu's expert process built upon rational models operational within traditional policy contexts, RVu's nonexpert process operationalized a systems modelling approach within a six-month study group framework (Meadows, 1998). Results of these processes are considered as they position RVu in relation to three key debates in sustainability assessment and indicators practice: questions of scale from the local to the global, questions of process in engaging experts and citizens, and questions of the most effective audience target, from formal policy decision-makers to citizen change agents. RVu has endeavoured to mesh international expectations and regional aspirations, expert- and citizen-based views of progress, and hard line and storyline trends. The process and results hold lessons for other urban regions grappling to ground and apply sustainability

principles in governance practice.

2 Connecting Sustainable Development to Assessment

When we ask the question, 'what is prohibiting sustainable development around the world?' the response we get tends to refer to one or more of the following grounds: *uncertainty* in our knowledge base, the *subjectivity* and value-laden nature of defining and operationalizing sustainable development; and *ambiguity* in the connections among the different components of sustainable development as a guiding concept for development.

The blame for uncertainty falls on those who generate the knowledge and information about key trends—researchers and scientists, for not moving swiftly enough and not gaining reliable enough insights into pressing trends that threaten further development, like climate conditions, disease and hunger rates, quality of life measures, and biodiversity values. The blame for the ambiguity of sustainable development falls on the theorists, modelers, and leaders who promote the use of sustainable development as a guiding concept but have yet to provide a rubric that could enable us to make the action plans that will unambiguously move communities and cultures toward sustainability. The blame for the subjectivity of sustainable development lies at the feet of all those who make use of the term, who to date have been unable to settle and communicate a coherent opinion on a fundamental means for defining, across contexts and knowledge differentials, this most integrative of concepts. The field of sustainability assessment, and the practice and theory of sustainability indicators projects, is fuelled by and further catalyzes these three questions related to the uncertainty, ambiguity and subjectivity of the field of sustainable development (Figure 1).
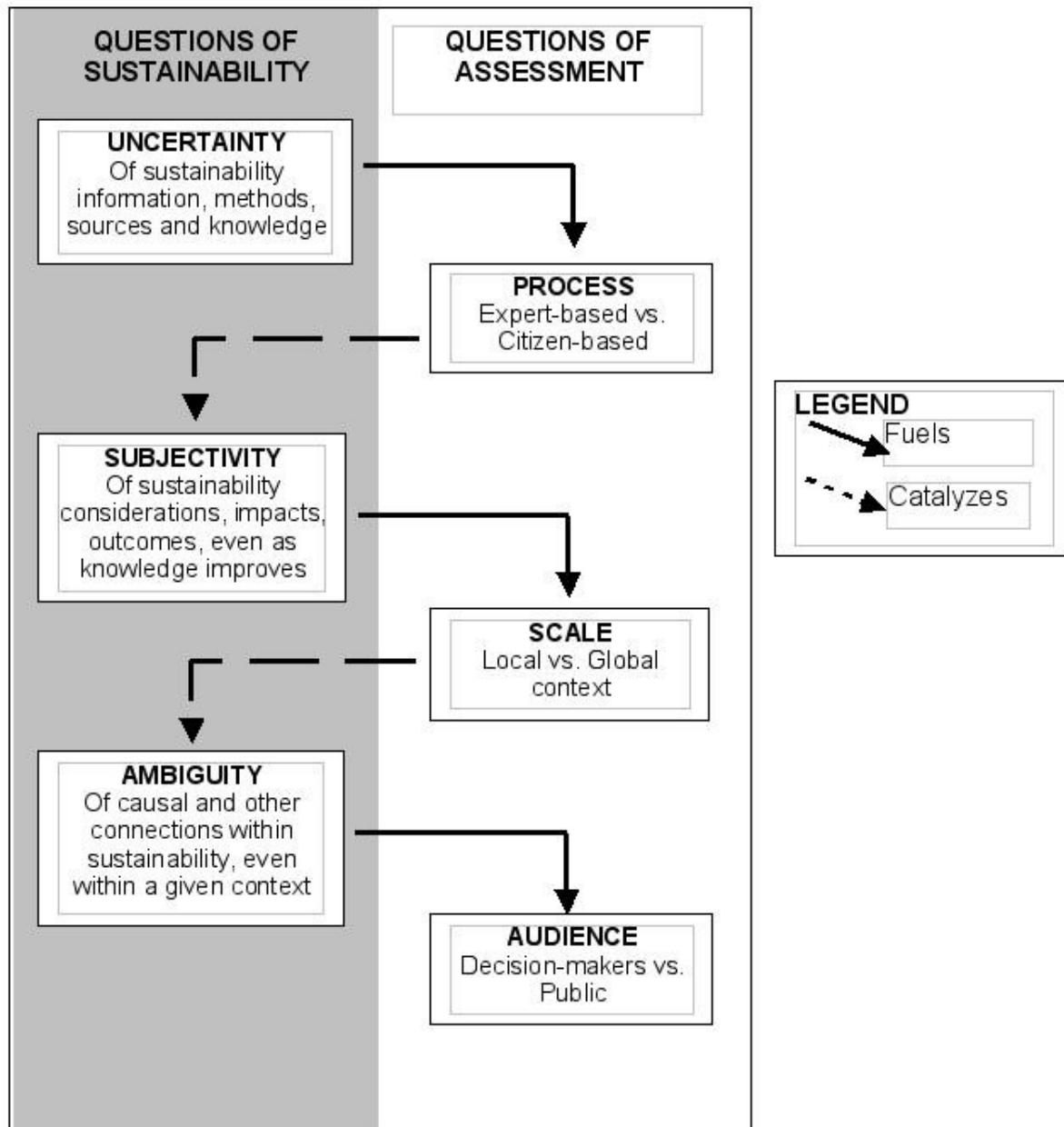
Figure 1. Conceptual model relating key debates within sustainable development and sustainability assessment

The thread of rationality runs through most sustainability and urban indicators research. That is, a base assumption in sustainability indicators work is that more knowledge will lead to better urban sustainable development policy (Friedman, 1953), (Simon, 1957). Rationality in policy making is: "a kind of recipe for making decisions" in which a series of tasks is undertaken in sequence (Friedmann, 1987, p. 36). These tasks include identifying objectives, considering relevant policy alternatives, tracing the major consequences of each, and implementing the best one available. The rational model assumes that tasks within the policy process are divided so that policy makers set objectives, experts do the analysis using formal information such as indicators and statistics, purportedly unbiased by political processes, and policy makers make the final

decision (Innes, 1990).

The three key questions identified above represent a failure of sustainability research and policy to meet all the requirements of the rational model. While these three questions are related to one another, each also poses a unique challenge to rationality. Uncertainty in our sustainability knowledge base means that the input ingredients to the rational model are suboptimal, such that our construction of possible alternatives may be fuzzy or misguided. Subjectivity in different interpretations of the meaning, considerations and implications of sustainability means that there can be no perfect recipe or sequence of activities undertaken that are not dependent on context. Different contexts and standpoints produce different – possibly irreconcilable – interpretations of the 'most sustainable' course of action. Ambiguity in the necessary component relationships within our understanding of sustainable development means that our decision criteria and thus our design of action plans may be incomplete and/or inappropriate. In other words, to make better decisions for sustainable development, we need more robust, quality information about important factors in development, a means to check and reconcile processes and perspectives in different contexts, and a better sense of how and with whom to use this information in the name of more sustainable outcomes for development. We will demonstrate this point by examining each of the questions in greater detail.

Calls to reduce the uncertainty that clouds sustainability progress take the form of requests from high-level decision-makers for new indices and aggregate or composite measures that are easy to use in decision-making, that signal a clear direction and that adequately relate to sustainable development priorities. Examples of attempts to fulfill these requests include the Environmental Sustainability Index (Yale Center for Environmental Law and Policy, 2005), the Canadian Index of Well-Being (Romanow, 2005) and the Genuine Progress Index (Hagerty, et al., 2001). The claim is that "without hard evidence of progress toward sustainable development (or lack of it), they will be unable to sustain momentum for their policies" (Lawrence, 2001, p.9). Nevermind the fact that modern history is full of policies that have been steadfastly maintained in the absence of hard evidence of progress – the American 'war on drugs' along with other more conventional wars could be named here – many persist in expecting that evidence-based decision making is and should be the norm.

In situations of uncertainty, the lack of a firm base of knowledge or scientific authority on which to stand increases the importance of the process used to generate information to produce assessments and guide decisions. It is thus not surprising that one of the original debates within sustainability assessment is that of the most appropriate process to guide sustainability measurement projects in order to reduce the uncertainty of sustainable development concepts. The question of process refers both to the question of what scientific or humanistic means count in producing reliable new knowledge and what scientific, political or community groups are qualified to produce and handle it. In the realm of sustainability, simply defining many issue areas in an assessable and meaningful way is difficult, complicated politically more than scientifically. Thus, leaving this task to scientists alone is not particularly useful in reducing

uncertainty enough to produce learning and action.

The question of subjectivity within sustainable development results from the lack of a single common definition and framework of the concept. Sustainable development is a contested term with many definitions, some of which are in fundamental conflict with one another (Moffatt, 1996), (Selmon, 1996), (Mitlin, 1992). Since it became popular in the late 1980s, the term has been adopted by an increasingly diverse set of writers and speakers, adding yet a new layer of implicit definitions. As a result, economists Sudhir Anand and Amartya Sen, for example, advance an anthropocentric vision whereby development is sustainable to the extent that it makes each new human life worth sustaining, based on a relatively universal understanding of quality of life (2000); the World Commission on Environment and Development suggests a broader casting of the net of human responsibility for development action (1987); and Meadows, Meadows and Randers propose an ecocentric notion of limits, flexible but ultimately absolute, on human populations, aggregate affluence and technology (1992). These varied definitions are also widely politicized. Politicians talk about positioning their jurisdictions for a "sustainable future" that prioritizes education, job growth, healthy families, safe communities, and protection of vulnerable children and adults as well as parks and green space. Similarly, businesses issue "sustainability reports" as more of a marketing strategy than a genuine tool for improving their social and environmental impacts.

The subjectivity of sustainable development is illustrated by the distinction between 'weak' and 'strong' sustainability. 'Strong' definitions of sustainability begin from the ecological concept of carrying capacity: any species that overgrows or 'overshoots' the natural limits of the environment in which it lives will cause natural resource scarcity and experience die-off or collapse (Odum, 1971). In this ecocentric view, growth in the human world has ultimate limits imposed by the natural world that supports it. Strong sustainability means living within the carrying capacity of the Earth, which in turn requires changing policies and ultimately, social and political values (Hawken, 1993), (Daly and Cobb, 1989). To supporters of 'strong sustainability,' the economic and social dimensions of sustainability are subjective, driven as they are by largely unpredictable market trends, whereas the environmental dimensions take the form of more-or-less hard and fast limits to growth.

'Weak sustainability,' by contrast, treats the environmental dimensions of sustainability as subjective, since the Earth's carrying capacity is currently unknown and many past attempts to estimate hard and fast limits to growth have been proven wrong by demonstrations of human technological, social and economic ingenuity. Advocates of 'weak sustainability' find less subjectivity and more reliable limits in the economic and social dimensions of sustainability, such as the need to eliminate poverty and human suffering, the need to stimulate continued individual opportunity without reducing opportunities for future generations or distant groups (Satterthwaite, 1997), (Anand and Sen, 2000).

 The subjectivity of defining and operationalizing sustainability demands leads to careful consideration of scale and context in the pursuit of sustainability assessment. Because the

concept is open to a wide range of interpretations, context matters in determining how sustainability attempts will be assessed. Considerable energies have been expended on the quest for nationally and internationally-applicable sets of sustainability assessment criteria. Notably, the Bellagio Principles for Assessment, one of the most successful international attempts to offer advice about best practices in sustainability assessment, does not specify the specific measures that should be used internationally, but only a set of principles for use "in determining starting points, specifying content, and suggesting scope." This was a carefully considered stance taken by the international panel of researchers that drafted these principles, namely:

> . . .there is no one right way to do an assessment . . . case studies collected from around the world emphasize site-specific issues and unique approaches. They demonstrate the diversity in sustainable development assessments. Each case tells an interesting story in its own way . . . Each case study contributes to the process and content of sustainable development assessments" (Hardi and Zdan, 1997, pp. 21, 23).

Concurrent with the quest for international standards and indicators is the recognition that local areas and local governments are often the best units for enacting and monitoring change toward sustainability, because it is in local places that people best see the effects of non-sustainable practices on their built and natural environment, and it is in local places that governments are most likely to be responsive to citizen concerns (Marvin and Guy, 1998), (Selmon, 1996). Based on decades of experience in the field of quality of life assessment, Michalos argues for balance between the values of international standards and locally home-grown indicator approaches:

> Although I do not think it is possible to evaluate different reports using generic criteria like the Bellagio Principles ... I also think that every community has to make its own decisions regarding the Critical Issues around sustainable development. I also think that wherever it is possible, communities ought to adopt internationally agreed upon classifications and reporting systems, as long as these do not compromise their own development agenda (2006, p. 41).

Questions about the ambiguity of calls for sustainable development are more diffuse but just as important. On this point, the challenge of translating the concept of "development that meets the needs of present generations without compromising the ability of future generations to meet their own needs" into hard decision rules and criteria comes to the fore (World Commission on Environment and Development, 1987). For example, sustainability is often modeled as a three-legged stool, giving rise to the practice of triple bottom line (TBL) accounting amongst some leading sustainability businesses. TBL accounting attempts to consider social and environmental costs simultaneously with standard economic costs in order to reduce the likelihood of discounting social and environmental damage outright in the name of economic efficiency or profit. TBL practice, however, and the three-legged stool model of sustainable development more generally, tend to assume commensurability and substitutability of all components of the 'new bottom line' for decision-making. The reality, however, is that some inputs to development (like energy and job categories) are substitutable, while others (like good health and a

functioning climate system) are not (Pope, Annandale and Morrison-Saunders, 2004).

The implications of the ambiguity of sustainability relate to which audience and strategy will best motivate action, which in turn leads to questions regarding the appropriate division of power, involvement, and responsibilities. In her examination of the relationship between cities with significant sustainability indicator projects and city sustainability policy initiatives, Jacob came to this conclusion: "the most useful role of urban sustainability indicators . . . may be their potential to enhance civic processes which value diversity, participation and community-building among the various groups and sectors within a community. The more collaborative problem-solving that occurs, the greater the chances for sustainability" (1996, p.92). This preference for greater involvement and distribution of powers and responsibilities to citizens rather than elected officials or elites, of course, is not shared by all in the assessment field. Indeed, dominant preferences for targeting the results of indicators work exclusively to those in power positions works simultaneously to create its own rationale and to diminish the value of alternative strategic action plans. As described by Michalos: "those in power tend to create barriers to increases in public involvement. Their reluctance to share power tends to produce apathy on the part of ordinary citizens, which tends to re-inforce the elites' reluctance, which continues in a vicious circle" (2006, p.12).

In this view, the limited success of sustainability indicator projects to date results from the ill-founded expectation that indicator projects' primary contribution is the final report or analysis, appearing for the first time in final form on a decision-maker's desk. The alternative argument is that the more an innovation serves a perceived local need, the more it develops collaborative problem-solving through a range of social networks, and the more innovation-ready the locality is, the more effective the innovation will be at encouraging social learning and diffusing through local social and policy networks. This view thus privileges locally-driven and engaged processes of indicator development, selection, measurement and reporting approaches that ensure that "indicators must be developed with the participation of those who will use and learn from them"(Innes and Booher, 2003, p. 173).

We argue that the terms of the debate about sustainability indicators and assessment systems can be shifted somewhat away from challenges of uncertainty, subjectivity and ambiguity by giving greater consideration to the need for more realistic expectations and interventions at different stages of the policy cycle and more carefully designed, democratically-transparent process. This argument builds on the principles of incrementalism originally conceived by Lindblom as a manner of dealing more effectively with the limitations on rationality inherent in nearly all real world policy problems, a way of thinking about policy problems and making decisions in a step-wise, incremental fashion as circumstances allow (1959). Incrementalism supports the view that "neither revolution, nor drastic policy change, nor even carefully planned big steps are ordinarily possible"(Lindblom, 1979, p.517). These circumstances demand analysis and action that attempts to address more limited issues, beginning from the starting point of immediate and pressing needs, rather than that which strives more purely for a systematic understanding of the

comprehensive (often elusive) whole. Although this approach can be used to stall needed change, incrementalism should not be equated with conservatism in general, as, in Lindblom's words, "incrementalism . . . is not necessarily . . . a tactic of conservatism. A fast-moving sequence of small changes can more speedily accomplish a drastic alteration of the status quo than can an only infrequent major policy change" (1979, p. 520) Acting in small increments allows us better to learn from our past experience and avoids reliance on predictions that are beyond anyone's knowledge.

The argument builds on Hirschman's still-vital assessment of the development process (1971), in which he avowed that innovations and the processes for their implementation cannot be engineered and planned out in advance; they must move forward incrementally, experimenting, taking advantage of situations and addressing contingent problems as they arise. Change takes place not as a result of rational planned processes but as a result of a combination of factors such as local energy, knowledge, and incremental implementation -- a deliberate learning process. Hirschman believed that development would proceed only in those places where motives for development already exist and development reforms are already likely to be implemented. These broad lessons could well be applied to the study and application of sustainability indicators.

Eckerberg and Mineur develop a typology for understanding various development strategies for sustainability indicator projects at the municipal scale and determine that different approaches to developing sustainability indicators affect their use (2003). The two ideal types of projects are identified as citizen- or expert-oriented according to what indicators are measured, how the project defines sustainable development, the purpose and intended audience of the project, the organizational and political context in which the project is embedded and the actors involved. Five distinct indicator projects in use in two Swedish municipalities, Stockholm and Sundsvall, are examined according to this typology. Differences among these projects point to future ways to examine the development and use of municipal-level sustainability indicator projects, and to the need to improve the participatory and democratic nature of projects, beyond citizen involvement in initial project development.

Organizations including the World Bank (1997), UN-Habitat (2006), Metropolis (2005) and the Global Reporting Initiative have joined the OECD (OECD, 1999, 2000) in attempts to generate effective urban indicators for a range of different purposes, not least of which is sustainable development. The continuous generation of new approaches and rounds of indicator and performance measurement development indicates at least one thing clearly. These international indicator programs seem to be recognizing what Hirschman and Lindblom did in 1969: "the much maligned 'hard way' of learning by experiencing the problems at close range may often be the most expeditious and least expensive way to a solution" (1969, p.364).

3 Case: The Regional Vancouver Urban Observatory

The Regional Vancouver Urban Observatory (RVu) was established in late 2004 as the first local urban observatory within the UN-Habitat Global Urban Observatory network in Canada. RVu is

based at the Simon Fraser University Urban Studies Program as an action research project and is grounded in the regional community of Vancouver through an advisory group of community leaders and a network of over 100 volunteers. As a starting point for its work, RVu recognized that although the Vancouver region had a number of compelling sustainability policy initiatives underway, the region was without a community-driven, policy-relevant set of indicators to determine progress toward policy goals. This lack of sustainability measures reflected low accountability from government to citizens and of all individuals and groups to the effects of their own behaviours on larger goals and ideals. It also meant that citizens were without the information necessary to monitor progress towards their goals and sustainability trends. RVu's vision is to fill this void by establishing a long-term sustainability monitoring facility with coordination, communication, and capacity-building as well as research functions (Holden, 2006b).

RVu's initial work consisted of an integrated expert-based and citizen-based indicator research and selection process. Research was conducted into indicator projects, measures and outcomes in other cities around the world and local experts in a range of urban-related fields were consulted to assess the state of information and need for measures in specific areas. An adapted urban capital approach was taken to considering the different, overlapping domains of action and impact in cities (Mega, 1996). Some of this research, in topics of urban environmental economics, urban governance, issues of the underclass urban Aboriginal population, and issues of hidden homelessness and pockets of poverty among new immigrants, was collected in a special issue of *Cities* journal (Holden, 2006c).

All of this research was used as a bridge to the public, citizen-based indicator selection process which followed. Launched by way of a full-day forum in October 2005, "Focusing ouR View," this process employed a study group model in which individuals from the public, government, business, academia and civil society organized themselves into eight focus areas and, guided by a facilitator and workbook, met monthly through April 2006. The study group process was designed to draw out dialogue and lead to consensus among small groups of citizens from different walks of life around the region on particular focus areas within sustainable urban development, including pressing trends, the relationships between them, and key points of leverage where indicators could be most effective to drive change. At a full-day public forum in April 2006, "Expanding ouR View," all eight study groups presented the results of their process, including a goal statement for their particular focus area, their ideas about key challenges, leverage points and interconnections among urban trends that they recognized and three key indicators in the areas of sustainable mobility, overcoming poverty, economic development, governance, community building, the natural environment, food systems, and arts and culture. Graduate students worked with the study groups to create poster displays representing the key findings of each group. In addition, community leaders were invited to respond to the ideas and recommendations each study group.

The indicator recommendations that resulted from the study group and expert-based processes

that preceded it were brought back to RVu advisors for comment. The public was also encouraged to provide feedback through a variety of in-person and electronic, online formats, including a web-based survey. With a few clarifying and simplifying adjustments, the RVu project team used this input as a basis for researching existing data sources for these indicators. The results of this research are presented in the inaugural RVu indicators report, *Counting on Vancouver: Our view of the region*, which was released at the World Urban Forum 3 in June 2006. The 24 indicators and the direction of their trend, where known, are presented in Table 1.

Perhaps the most striking aspect of these indicator results is the fact that so few of the indicators recommended were amenable to trend calculation based on accessible data. *Counting on Vancouver* does report on data for a single point in time where time series trend information could not be calculated. It is also the case that the indicator selection process design was biased toward the selection of indicators for which data do not currently exist. Study groups organized themselves around new hybrid focus areas rather than pre-existing categories, and the study group process itself tended to favor the selection of new indicators capable of integrating priorities across economic, social, environmental and other common divides. Indicators assessable via qualitative methods were seen as more compelling by nearly all study group participants. Participants also demonstrated an implicit bias toward new and creative indicators and measures. Nevertheless, the RVu indicators exercise leaves one with the distinct impression that Vancouver has rather sparse information in some critical sustainability dimensions. This conclusion was also independently met by community leaders and decision makers who attended the April forum, "Expanding ouR View."

	INDICATOR	TREND
Sustainable Mobility	Percent of children who walk or cycle to school	Negative
	Percent of household income spent on transportation within the region	No Change
	Level of agreement with the statement: "I live in a neighbourhood in which I can walk to work and to meet my personal needs."	?
Overcoming Poverty	Availability of emergency services (food, beds, detox) as a proportion of demonstrated need for these services.	Negative
	Percent of households in the region consistently able to meet their basic needs.	Negative
	Quality of media coverage of poverty as a regional sustainability issue.	?
Economic Developmnt	Local Index for a Vital Economy (LIVE).	?
	Number of land use bylaws passed by municipalities that contravene the vision and principles outlined in the Livable Region Strategic Plan (LRSP).	?
	Efficient resource use in local municipalities (oil equivalent per capita).	Positive
Governance	Percent of Vancouver region residents who feel they have opportunity to voice thoughts on major community decisions.	?
	The success of a sample of attempts by municipalities to reach diverse groups of the public in strategic work toward sustainability.	?
	Percent of Vancouver residents who are aware of the Ecological Footprint and understand their contribution to it.	?
Building Community	The number and location of "third spaces" around the region.	?
	The number of institutions, organizations and businesses which engage with the public on a regular basis.	?
	The number of public consultations which achieved "true dialogue."	?
Natural Environmt	Total regional waste produced per capita.	Positive
	Percent of citizens who participate in environmental stewardship activities.	?
	Percent of development on greenfield vs. brownfield land.	?
Food Systems	The gap between the percent of income spent by each of 4 income groups needed to purchase a "healthy" food basket.	Negative
	Ratio of all land available for growing food to the potentially productive land in both urban and rural areas.	?
	Ratio of food items produced and consumed within the region those imported and consumed within the region for selected foods.	?
Arts and Culture	Quantity and quality of opportunities for cultural activity, as represented by an annually updated cultural events matrix.	?
	Percent of individuals who feel that they have adequate access, freedom and time for cultural and artistic activity.	?
	Ratio of dollars spent promoting multicultural awareness and artistic work to the dollars these activities contribute to the region.	?

Table 1. RVu Indicators and Trends 2006 (Holden and Mochrie, 2006)

4 Success in Sustainability Indicators and RVu's Approach to Integration

The RVu project to date has investigated progress toward sustainability at local and global scales, facilitating the insertion of citizen values into expert measures, questioning government about accountability for formal policy changes and working to motivate positive action. This approach is based on the belief that better indicators – grounded in local values – will help strengthen accountability and advance progress at regional through global scales. The RVu process has sought to draw out and facilitate recognition of diverse perspectives in approaching a common understanding of sustainability and progress. The project also appreciates the highly complex and integrative nature of social, ecological and economic systems that shape our world.

Far from prescriptive or deterministic, RVu's approach has been designed to support and optimize the interplay of multiple values and different knowledge types. We seek to instigate dialogue on the basis that no absolute truth is to be found. Further, we facilitate collective learning and action on timely issues as they relate to us as parts of bigger wholes – individuals, neighbourhoods, city-region and global system. RVu's recommendations for key factors of success in the design and implementation of urban sustainability indicator projects are listed in Figure 2.

Successful urban sustainability indicator projects are:

[1] Generative, drawing local people's values and concerns into the open, where they can be grappled with;

[2] Integrative, using simple concepts to knit together the complexity of real experience through increasing ties and linkages;

[3] Actionable, setting forward the range of actions possible to correct negative trends;

[4] Derived by the people the indicators are intended to monitor and account for, which means both experts and citizens;

[5] Able to communicate to experts and the public at different levels and able to mobilize and motivate change agents;

[6] Regional in scope with the flexibility to see difference in municipalities and neighbourhoods that would disappear in the region-wide averages;

[7] Scalable, in order to zoom in and out to global-local connections, just as our lives, actions and policies can have local and global effects.

Figure 2. Key Success Factors for Urban Sustainability Indicator Projects (Holden and Mochrie, 2006)

These key success factors are drawn in part from the inspiration of projects gone before, in part from theoretical perspectives, and in part from our own learning by doing in RVu. They provide a basis for the insights that RVu wishes to contribute to the scale, voice, and target debates within indicators theory and practice. Our premise in taking a stand in each of these debates has been that intersection points can be found where each of the three questions can contribute to a non-contradictory answer to each other. These points are nexus or integration points. While RVu has yet to prove that a nexus point position is tenable long term, the next section presents the project's progress to date in this direction.

4.1 On the Question of Scale: Connecting regional expectations and global aspirations

As cities grow and increase in complexity, metropolitan area planning for sustainable development becomes the expected norm. In 1996, the Greater Vancouver Regional District (GVRD) established the Livable Region Strategic Plan, with a set of four development strategies: protecting the green zone, building complete communities, achieving a compact metropolitan region, and increasing transportation choices (GVRD, 1996). In 2001, the LRSP was expanded via the Sustainable Region Initiative (SRI), which constitutes a framework, vision, and action plan for economic prosperity, community well-being, and environmental integrity[3]. As a regional authority with responsibilities for water, sewage, energy, and some other planning functions, governed by a board of mayors of different municipalities within the region, the GVRD has a limited mandate to pursue and enforce these encompassing goals. In pursuing the SRI, the GVRD is experimenting with partnership-based action strategies, engaging not just other government actors but also community leaders from the private, nongovernment, and research university sectors. Success in this scenario may come from the raising of expectations region-wide for coordinated policy and action toward sustainable development in spite of the fact that no government agency has sole authority to tackle this.

At the same time as our regional expectations rise, the realities of a highly globalized economy push aspirations for sustainable development policies and assessment tools to the global scale. This push comes from above through high-level programs like the Millennium Development Goals (MDGs), which represent a global compact for poverty eradication and environmental improvement, established by United Nations member states in 2000 (UN Millennium Project, 2005). The push also comes from city governments, local businesses and individuals interested in globalizing the city's economy and culture, in order to reach a certain status and appeal in the international community. Vancouver is particularly susceptible to this push, as an aspiring 'world city' anticipating a global reputation for sustainability, and as one of the world's most multicultural city-regions, where over half of the population will be non-white by 2017.

It is the contention of RVu that rising regional expectations for sustainability performance across a range of different sectors and rising global aspirations for sustainability need not be contradictory in the selection and use of effective indicators. Figure 3 demonstrates the match and ongoing feedback between local and global goals in the Vancouver context. The

understanding depicted here of the fundamental connections between scales and indicators of sustainable development draws upon the Driving Forces – Pressure – Impact – State – Response framework developed by the Organization for Economic Cooperation and Development (OCED, 1999). This is a quintessentially rational model of the knowledge-action continuum, but when converted into a cyclical process, serves a more complex purpose. To move from each stage to the next, whether at a global or regional scale, critical resources are needed and conditions must be met. The figure also shows how the RVu regional indicators have been driven by regional forces just as the MDGs have been driven by forces at the global scale.
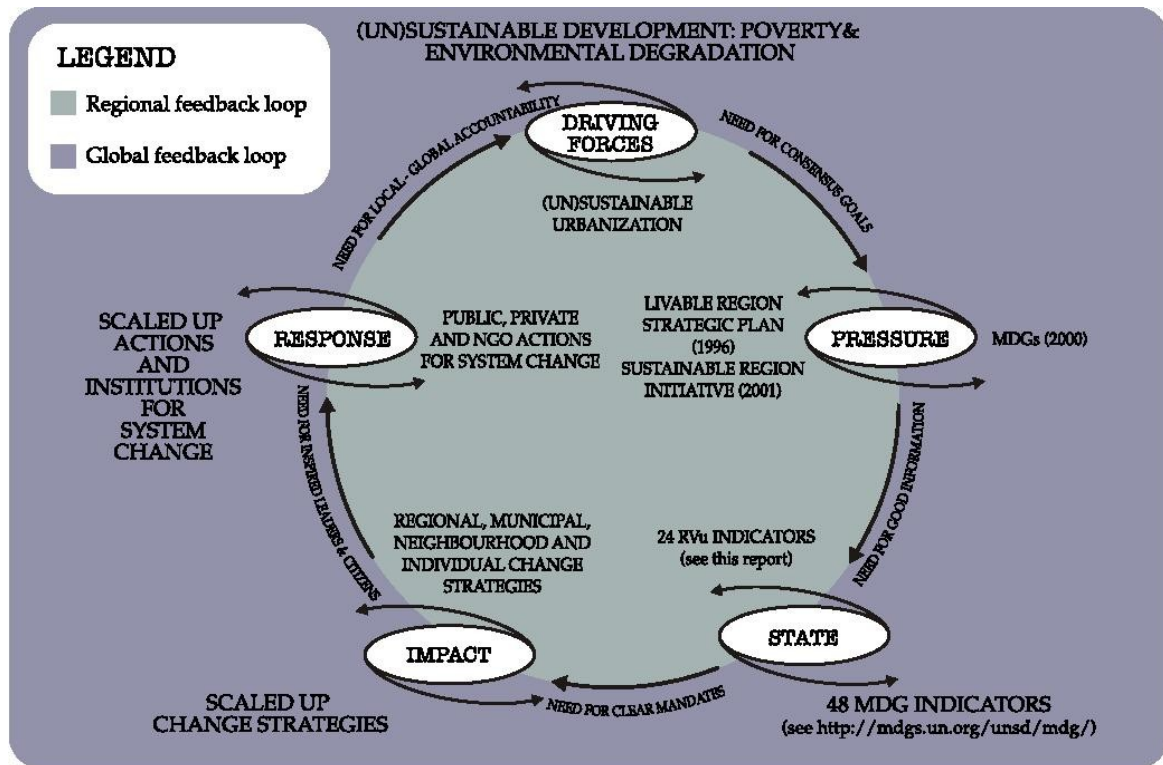

Figure 3. Global and Regional Feedback Loops in the (Un)Sustainability Cycle

RVu's stand in relation to scale is at the nexus of the feedback loop between the global and the local. RVu demonstrates how the MDGs connect to our local and regional goals for sustainability. Our local connection to these global goals for poverty eradication and environmental conservation is at least fourfold. First, Canada has a proud history of leadership in international development policy. This history establishes a need for multilateral action at the city-region scale as an integral part of our international policy agenda. Second, advancing the means to a productive life around the world is a clear path to advancing our most personal commitments to human rights. In so doing, we also increase the chances that our ambitions, ideas, and travels throughout the world will be understood, appreciated and welcomed by others. Third, when we in Canada reap the profits of our economic activities, often we do so by exporting and burying the costs in the developing world. Adding to this, some of our most precious goods are indivisibly global. We have only one climate system that we must do a much

better job to protect, and one global network of knowledge and its cultural and technological fruits, that we are only beginning to learn how to share. Fourth and perhaps most practically, eliminating poverty is the surest means to promote global security. Cities in wealthy countries like Canada contain pockets of poverty with increasing gaps between rich and poor where frustration and despair often overtake national policy rhetoric of equity and opportunity. In developed and developing world contexts alike, urbanization carries with it significant environmental costs and "the current phase of globalization puts a new set of pressures on cities as part of the overall race to the bottom"(Sassen, 2005, p.24).

The MDGs are unprecedented in the breadth of international commitment involved in their establishment and in the ambitious rates of progress that they target. Yet, the MDGs do not go far enough toward understanding the complex relationships between pressures, states, and responses in urban and national systems. The complexities of these relationships, and how they have traditionally been conceived, are such that we often have growth that makes us poorer (Daly, 1996). Moving toward achieving some of the Goals could actually work against others; determining concrete means to meet MDG 7, Ensure Environmental Sustainability, while continuing to battle poverty as per MDGs 1-6, is a particularly confounding challenge. We need indicators that expose these contradictions; and we need measures and targets of quality, not just quantity.

While 6 of the 8 MDGs rightly focus on breaking absolute poverty in the less developed world, our corresponding local focus has been on overcoming the relative poverty that is growing in our region. In the Vancouver region, we relate most directly to MDGs 7 and 8 – Ensure Environmental Sustainability and Develop a Global Partnership for Development – and we believe the two are inseparable. We also find that in turning the MDGs into policy recommendations for action, many of the indicators that RVu has identified have international resonance: good governance, economic vitality, quality jobs, development planning, transportation infrastructure and mobility, sustainable food systems, engagement and the role of civil society, and arts and culture development.

4.2 On the Question of Voice: Integrating expert and citizen-based views of progress

Arriving at sustainability indicators that are valid and value-rich, reliable and respectful of diversity, is an additional key challenge. In meeting and matching global goals with local values and means, RVu is also committed to the meaningful role that partnerships and civil society groups, individual citizens, government entities, private businesses, and research universities can play in making a difference and maintaining accountability.

A few quotes illustrate the challenge that RVu has faced between the demand from decision makers for simple, single-trend indices with validity and appeal across political lines, and the opposing demand from representatives of different demographic interest groups for indicators that are more sensitive to difference and that reveal important distinctions.

A City of Vancouver Councillor, commenting on the recommended indicators as presented by citizens, emphasized: "We [elected officials] want this help. I would love to have an indicator that we can all agree on —that we can point to and say, if that's going down, we're not going in the right direction. It doesn't matter what the GDP is doing; if this is going down, that's a problem." The Councillor offered this encouragement alongside the recommendation that the indicators be pared down, aggregated, indexed, or otherwise reduced in order to become truly usable.

At the other end of the spectrum, a Vancouver community leader and representative of urban Aboriginal people in the region made a poignant comment upon receiving the indicator recommendations that reinforced the need for a range of indicators able to capture not simply the mainstream trends but the particular value of diversity. In this case, he referred to the value of diverse belief systems coexisting in the region and the inability of a single indicator set to reflect the most meaningful trends for multiple belief systems:

> We're constantly as Aboriginal people measured up against non-Aboriginal people. Indicators for us are always: underemployed, in prison more often, our health is worse than non-Aboriginal people . . . when you actually apply standards that relate to our belief system, relate to the fact that our people have more family ties than non-Aboriginal people, have better relationships to the land and understanding of the land, if you were able to quantify that . . . you would see that our numbers are better than those of non-Aboriginal people.

RVu's thesis on the question on voice, as reflected in acronym for the Regional Vancouver Urban Observatory is RVu, pronounced "Our View," is that the views of a diversity of regional residents are critical to arriving at a meaningful set of key indicators of sustainability for the future of the region we share. While it is a tautology that the greater the diversity of views represented in a conversation, the more difficult it becomes to achieve any non-trivial consensus, this kind of consensus is exactly what we must strive for if we aspire to capture "Our View of the Region."

In this scenario, one possible way forward could be to create a layered indicator system, with the simplest, most aggregated and indexed data at the top level for the immediate needs of decision makers, and additional layers available for further investigation of different cross-sections of diversity, according to more specific needs or critical examinations. Software data management platforms are currently in use to achieve something like this level of indicator organization for decision-support. They are not without their faults and failings. Sophisticated indicator platforms vary directly with resource needs to maintain and calibrate these platforms, to take one important issue. Another issue with this solution is that such platforms will tend to replicate hierarchical patterns in the city as a whole, such that the frustrations and heartbreak of the disadvantaged continue to be tolerated rather than eradicated because they are minority concerns. The layering in of qualitative storyline data, embedded within the data structure, could help mitigate the pitfalls of this model.

4.3 On the Question of Targets: Focusing on decision-makers *and* change-agents

Many sustainability indicator projects have been evaluated as failures because of their inability to directly engage and inspire elected decision makers as champions and institutionalizing agents (Rydin, Holman and Wolff, 2003), (Brugmann, 1997). The sentiment is generally that without the strong support of elected leaders, an indicator project's results will never have sufficient status to tip the scale of a policy decision. In the words of one elected leader in Vancouver:

> If you don't get [decision makers'] attention and you don't get them activated, what's the point of having the indicator? Things are just going to keep drifting around in the wrong direction. . . you've got to engage the people who have some say in what direction we're moving. And they're not always politicians, but that's part of it.

This is one path to impact of interest to RVu. However, it is RVu's contention that this is not the only path to impact. Rather than being called upon directly by policy makers to meet the needs of informing particular decisions, indicators may be better able to achieve impact through uptake by change agents – citizens in the community who may hold any number of different positions outside the formal policy arena but who are critical to influencing behavioural shifts in the wider community. Sometimes effective change agents are recognized community leaders called upon by news agencies, business groups, and others for their views. In the Vancouver context, Dr. David Suzuki has been rated "the most trusted Canadian" and is looked to for his stance on a range of political and environmental issues, based on a long-standing environmental television show and powers of public speech. Other times, change agents hold no recognized position at all, but are sufficiently mobilized by a given situation to catalyze great movements. Again in the Vancouver context, the founders of Greenpeace were 'hippies' and 'beatniks' without recognizable names or positions but nonetheless created a movement which has had profound effects on the whaling and nuclear power industries.

A community leader from a nongovernment organization in Vancouver expressed the need to think about how indicators have an influence beyond the realm of decision-makers:

> If you're a decision-maker, you're a decision-maker for a short term. If we're looking at sustainability, longer processes of change [are] ultimately going to change the way that politicians look at this and respond to the indicators. But I don't think you have to frame the indicators for the politicians who are here and now.

In effect, thinking about the long term precludes the possibility of targeting indicators solely to elected decision makers.

All of the indicators recommended by RVu were selected in part based on their ability to reflect trends that would be amenable to policy redirection. Considerable thought was given and will continue to be given to the type of policy and behavioural change that could bring about more positive indicator trends at a range of scales. However, only one (Number of land use bylaws passed by municipalities that contravene the vision and principles outlined in the Livable Region Strategic Plan) is tied to a specific policy.

One of the key lessons that RVu has taken from the systems-based approach we employed to select and target indicators is that, while we may seek to find key leverage points for change toward sustainable urban systems, these leverage points are not always available to be found. Key turning points within systems are often invisible, can change over time, and different perspectives may recognize such points differently. RVu's working solution is to continue to expand the range of partners with whom we seek dialogue on our key sustainability systems, in order to better understand these systems and, over time, better target our indicators based on the responses they are fit to produce.

5 Conclusion

This article has presented the background, motivation, process and results of the Regional Vancouver Urban Observatory (RVu) sustainability indicators project in Vancouver, Canada. It has additionally positioned the work of RVu at the integration point of a number of key debates in the sustainability indicators and assessment field, through the discussion of project models, process, and the use of qualitative interview data from key stakeholders in the project. Within the debate about the proper scale of urban sustainability indicator projects, we see global goals for urban sustainability, as represented for example through the Millennium Development Goals, as intricately intertwined with our ability to set and attain regional sustainable development goals, and advocate greater awareness of the ways in which global and local sustainability are interdependent. The second debate relates to the proper scope and focus of sustainability indicator projects, on the continuum from simplified, standardized expert sets to localized and community-driven indicator sets capable of reflecting the diversity of experience of different groups in the region. Here, we are committed to the ongoing work of arriving at a regional consensus on development as an effective guide to decision making, and we believe this consensus is dependent on adequate sensitivity to the growing diversity of socio-econo-environmental experience in the region. The third debate surrounds the question of properly targeting indicator projects to create change. In considering the relative merits of strictly formal policy-based indicators and those indicators that target broad-based community change via the work of change agents, we reject the need to directly address current policy specifically, given the long-term view of sustainable development, and we embrace the work of long-term policy planning, incremental and community-based change toward sustainability with the aid of indicators.

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Notes

1   A number of compendia of indicator projects exist, at variable levels of comprehensiveness. Notable is the Compendium: A Global Directory to Indicator Initiatives, maintained by the International Institute for Sustainable Development. <http://www.iisd.org/measure/compendium/>. Also, a database of primarily corporate sustainability indicator reports is maintained by the Global Reporting Initiative <http://www.globalreporting.org/ReportsDatabase/> [Accessed 12/01/2007]

2   To the credit of the relevance of the urban observatory model to the Canadian context, the Greater Toronto Urban Observatory formed in late 2006. More information about this, the second urban observatory in Canada, can be found at <http://www.gtuo.ca/> [Accessed 12/01/2007].

3   For more information about the Sustainable Region Initiative, please see: <http://www.gvrd.bc.ca/sustainability/about.asp> [Accessed 12/01/2007].