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City Indicators: Now to Nanjing[1]

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"I have an affection for a great city. I feel safe in the neighbourhood of man,
and enjoy the sweet security of the streets."

Henry Wadsworth Longfellow

"I view cities as pestilential to the morals, the health, and the liberties of man."

Thomas Jefferson

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Abstract

This paper provides the key elements to develop an integrated approach for measuring and monitoring city performance globally. The paper reviews the role of cities and why indicators are important. Then, it discusses past approaches to city indicators and the systems developed to date including the World Bank's initiatives. After identifying the strengths and weaknesses of past experiences, it discusses the characteristics of optimal indicators. The paper concludes with a proposed plan to develop standardized indicators that emphasizes the importance of indicators that are measurable, replicable, potentially predictive, and most importantly consistent and comparable over time and across cities. As an innovative characteristic, the paper includes subjective measures in city indicators such as well-being, happy citizens, and trust.

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The last 200 years of civilization are largely defined by our disparate visions of cities. We love the dynamism, the potential increases in efficiencies, the economic might, the self-reinforcing collections of culture, education and employment of cities, yet we hate the congestion, the pollution, the vulnerability, the social unrest, and the often impersonal nature of cities.

Our relationship with cities determines the environment, the economy, and the quality of life for almost all of humanity and the natural world. Technology, globalization and the increased complexity of human life now place cities at the very center of economic development and social progress. The offices of city hall, and the streets, coffee shops, schools, businesses, and homes of our cities are the nexus of human ingenuity, imagination and innovation, globalization, urbanization, scientific discovery, industrialization, and the generation and sharing of information.

Cities are, by 'natural construction' the optimum social unit to implement changes and improve people's lives. Small enough to have sufficient community cohesion to discuss and enact new programs, yet large enough to have a demonstrable impact, cities are the harbingers of the future; change cities, change the world.

1. Introduction

This paper outlines a proposal by the World Bank to begin an initiative for the development of a set of indicators collected and used by cities, representative and comparable across countries, and rigorous enough to enable third-party verification. A wide range of partners should share this ideal and contribute their expertise and ideas for the construction and sustainability of this system.

The paper begins with a brief introduction of the objective of the proposed work, a review of the role of cities and why indicators are important. Then, it discusses the characteristics of optimal indicators, and how the work would unfold during the next two years so that a methodology could be piloted, and a plan for further expansion would be presented at the next World Urban Forum.

City Indicators

Motivation: Today there are thousands of different sets of city (or urban) indicators and hundreds of agencies compiling and reviewing them. Most cities already have some degree of performance measurement in place. However, these indicators are usually not standardized, consistent or comparable (over time or across cities), nor do they have sufficient endorsement to be used as ongoing benchmarks.

Vision: The World Bank proposes to build on existing indicators and to help facilitate the development of (somewhat) standardized city indicators. These indicators would only capture a part of what is happening in any participating city. Measurements would be sufficiently standardized to allow cross-city comparisons and third-party verification. The indicators should be sufficiently simple and inexpensive to collect. Furthermore, results should be published annually in order maximize usefulness.

> **City focused-City managed:** Once designed, tested and in place, the city indicators would be managed by cities with their own funds as part of their normal governance functions. The many international agencies and other associated stakeholders active in urban issues should have sufficient confidence in the indicators to use them for policy development and global monitoring purposes. Any global city indicator program should be applicable in all cities and designed to facilitate comparisons across differing affluence and culture.

Now to Nanjing: These indicators and the method of development and ongoing refinement would be piloted in several cities in at least Brazil, Colombia and Canada, and would be presented for consideration at the World Urban Forum (IV) in Nanjing, China in 2008. The indicators should be relevant for all of the world's cities[2] and attempt to capture the quality of life and efficiency of service delivery within participating cities.

Over the next two years: The development and implementation of any set of city indicators must be led by cities. Over the next two years the World Bank intends to assist and facilitate the development of practical city indicators through partnerships with leading cities. At a minimum, the World Bank is working with Belo Horizonte and São Paulo, Brazil; Bogotá, Colombia; and Toronto and Vancouver, Canada. Other cities are expected to be added as their interest and work plan logistics overlap.

Why the World Bank Interest: The World Bank's city indicators initiative is being led by the Latin America and Caribbean Region (LCR) where the critical influence of cities is obvious. LCR is the World Bank's most urbanized region, both in terms of population and GDP generation[3]. The World Bank's Finance, Private Sector and Infrastructure (FPSI) Sector of the LCR Region works with some of the world's most dynamic cities. The Bank's assistance to these cities has spanned more than 55 years, and includes a wide array of programs such as investment lending, sector work, and the day-to-day hands-on participation of over 100 highly skilled professionals. Many Bank-wide initiatives get their start in the LCR Region. The initiative would start with LCR cities and would expand to other Regions once the indicators are tested for predictability and consistency. The goal is to build a set of indicators that help to better understand the dynamic and good performance of cities.

Partnering with Canada: In undertaking the facilitation of city indicators the World Bank is partnering with Canada. This partnership is outlined in a proposed Memorandum of Understanding between Infrastructure Canada and the World Bank (see Annex 4). Key Canadian partners, as described in the MOU, include the cities of Vancouver, Toronto and Montreal[4], the Canadian Standards Association (especially as Chair of ISO 14000 and TC 207), academic institutions, and the Federation of Canadian Municipalities (FCM). Canada's extensive and expanding city indicators initiatives, such as Ontario's Chief Administrative Officers Benchmarking exercise, indicators for proposed gasoline tax allocations, and FCM's Quality of

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[2] Proposed for cities with a population of 100,000 and above, regardless of country or affluence. This would apply to over 4,000 cities.

[3] Latin America is the most urbanized region in the developing world, with 77 percent of its population – 433 million people – living in cities. Urbanization has yet to reach its peak; by 2015, 81 percent of Latin America's population is expected to reside in cities. (from UN-HABITAT, State of the World's Cities, 2006).

[4] To be confirmed and arrangements with all cities still to be finalized.

Life in Canadian Communities (see Annex 3), will be reviewed as part of the indicator development.

City indicator activities in other countries such as India, Japan, Australia, New Zealand, and the U.S. will also be reviewed. The objective would be to develop indicators that capitalize upon international experience while minimizing 'new requirements' for cities, most of which are already collecting extensive data for city indicators.

Partnering with UN-HABITAT: The work plan builds on UN-HABITAT's extensive experience and Urban Indicator database. This comprehensive database and national statistics information of individual countries is expected to comprise the bulk of readily accessible data for development of future city indicators in developing countries. UN-HABITAT's 'State of the World's Cities – 2006' highlights the critical role of cities, and the need for comprehensive indicators. The Report's four parts[5] review critical themes for cities in developing countries. In all areas, urban indicators are crucial for monitoring trends and measuring the impacts of interventions.

The first phase of this work plan includes a study financially supported by the Government of Japan (value of study estimated at $US 830,000). The work plan is presented in Annex 8. Draft indicators will be proposed and then piloted by several cities.

2. The Role of Cities

Cities can be thought of as set of people and firms linked by economic and social relations in a tight web of physical connection and communication. The concentration of employment, education, entertainment, and accommodation, brings people close enough to share each other's company, culture and ideas. It brings firms close enough to develop markets, takes advantage of diversified consumers and inputs, generates innovation, and pushes forward social progress. Cities enable specialization and the creation of niches that can be capitalized upon.

Arguably a city's most important role is to supply as good a 'quality of life' as possible for its current and future residents. Cities do this with varying degrees of success and this success is not always predicated on a city's affluence. Two neighboring cities, of similar economic means, can provide very different qualities of life for their residents.

The role of cities is often complicated as cities are defined largely by local and national culture, and their ability to deliver services is often determined by national affluence and the share of government revenues entrusted to cities. Cities are generally 'the creatures' of 'higher' levels of government and yet they are usually held most accountable by the public for service delivery.

Cities often have local and global roles. Locally, cities ideally provide a set of services and products that are needed by their residents and for which these residents would contribute directly or indirectly. A city's global role is a function of the degree of globalization and world-wide transactions reflected in interactions between cities. Large 'world cities' are part of the contemporary globalized world as wider contexts and more complex technology favors the existence of large human agglomerations where creativity and employment can have their highest

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[5] State of the World's Cities – 2006. Part 1: The Millenium Development Goals and Urban Sustainability, Part 2: The State of the World's Slums, Part 3: Human Settlements and Vulnerability, Part 4: Pro-Poor Reform for Slum Upgrading and Prevention. UN-HABITAT.

synergies[6]. The Globalization and World Cities (GaWC) Network identifies 122 "world cities" (see Annex 2, section 10). The measures used to identify 'world cities' focus on international transactions. They do not necessarily reflect a city's ability to develop or capitalize upon these linkages.

A key role for cities and the main impetus behind their formation is the enlargement of local economies which simultaneously enable the specialization of services and the creation of a wide web of exchanges. Only a sufficiently dense and large enough population can support specialized services such as a thoracic surgeon, a nuclear physicist, a retail outlet for fashionable handbags or wine and cheeses from around the world. As urbanization continues, a system of cities will increasingly specialize within the global commercial framework. Different sized cities may specialize in pharmaceuticals, or post-secondary education, or act as a regional transportation hub or financial center. The larger cities will try to keep enough diversification to render their economies flexible and ready to adapt to new changes or intellectual creation. The challenge and wonder of cities is that they are both the contributors to economic activity and progress of civilization, and the providers of basic services for residents, households, firms and governments. Usually the best service providers are also the best economic performers.

Cities also need to provide safe-spaces for their residents. Crime, natural disasters, environmental degradation, and poverty are taxing many cities. A city's response usually requires a balance between short-term imperatives and long-term social marketing.

Finally, cities are the most tangible level of government for mediation between the rights of an individual and the aspirations of society. Cities are therefore the essential element of democracy. For example, Canada's new same-sex marriage legislation was catalyzed by the City of Toronto's actions. Without cities to generate ideals and promote debate, it would be difficult to visualize a democratic society.

Unfortunately, there is no clear definition of a "city". Cities are often defined as areas with significant population density and self-government. They have distinct administrative, economic and geographical boundaries and these areas often do not coincide. They often comprise "urban agglomerations" and in large metropolises, the city center could be itself an agglomeration. The most common setting is a large urban agglomeration comprising several cities and their suburban fringes.

City definitions differ across countries. In the design of city indicators to be comparable on a wide scale, agreement is needed on the criterion that defines a city or urban agglomeration, which would be the specific unit of analysis. Developing city indicators is especially challenging in metropolitan areas where the internationally recognized city can be made up of many municipalities. City performance indicators may therefore vary from urban performance indicators, as the term 'urban' will encompass spatially enlarged units. How best to reflect city indicators in cities and their respective urban areas will be an important aspect of this upcoming work plan.

3. The Need for Indicators

3.1. Capturing City Trends

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[6] Globalization and World Cities (GaWC) – www.lboro.ac.uk/gawc

The pace of change within and among cities is increasing. To capture trends, city indicators need to be anchored on baseline data (preferably annual) and be sufficiently broad to capture social and economic aspects. City Indicators should be able to capture global city trends such as:

i. **Greater competition for the best managed cities:** As part of a more interconnected world, cities are competing for international events such as sports competitions, fairs, and corporate and institutional headquarters as part of their participation in a globalized world. Most of this growth is occurring in developing countries. Competition among cities is intensifying, but is expected to be most intense among the 'elite' cities. Concepts such as 'brand cities' are being developed to help cities define their product and become individual members of a wider urban concept.

ii. **Growing importance of service and creative industries:** In cities, advanced producer services such as advertising, finance and banking, and management consulting, are growing much faster than traditional manufacturing businesses. This is part of the expected change in economic structure associated with economic development. Service industries are attracted by a city's quality of life, affordability, and connectedness, as well as an educated workforce.

iii. **Changing demographics** have a significant influence on many cities. In many developed country cities, the average population is aging rapidly and city managers need to contend with labor shortages and services for older residents, while in many developing country cities a 'youth bulge' necessitates greater attention on job creation, crime and violence, and equal opportunities.

iv. **Growth of small and intermediate cities***:* This will be the source of most future urban growth. Already more than 53 percent of the world's urban population lives in cities of fewer than 500,000 inhabitants, and another 22 percent lives in cities of 1 to 5 million people[7].

v. **Megacities will grow as well***:* The number of "metacities", those with over 20 million inhabitants, and "megacities", those with more than 10 million inhabitants, is growing. By 2020 all but four of the world's largest cities will be in developing countries. Managing these large urban agglomerations is particularly challenging. Increased metropolitanization and innovative and more decentralized forms of governance are needed for these large cities[8]. Specialized or differentiated city indicators are likely to also be needed for these large cities.

vi. **The vanishing urban-rural divide***:* The old city-rural dichotomy is increasingly disappearing. Urbanization will bring about increased rural specialization, absorb the rural labor force, and provide the services that the rural economy needs to flourish. From the social perspective, often the best way to address a rural issue is through a nearby city.

vii. **Increasing informal sectors***:* The informal economy is particularly important in cities. This economy is likely to grow faster than the formal economy, especially in the cities of developing countries.

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[7] UN-HABITAT, State of the World's Cities. 2006
[8] Ibid.

viii. **Unmanaged city growth can fuel discontent***: As cities grow, discontent may continue due to the negative impact of unmanaged urban growth and its impact on the environment, climate change, and increased vulnerability. These vulnerabilities can be both immediate, e.g. to events such as terrorist attacks, and longer term, such as water insecurity and increased coastal protection requirements. Additional attention and efforts will be needed to meet these challenges. In addition, broader and more inter-city disaster responses will be needed.

ix. **Cities will face increased diversity***: This could be a plus but is often a challenge. Cities will increasingly need to accommodate diverse groups which may be divided by affluence, religion, and culture. The creativity brought about by these differences would need to be explored and promoted.

x. **Cities are becoming key political players***: The political influence of cities is increasing. Part of this is due to size and representativeness. For example the mayor of Tokyo represents more people than all of Canada. Part of this is due to affluence; Canada's three largest cities account for more than 75% of the country's high-tech sector. Much of this growing political influence reflects citizen demand for leadership, e.g. the 243 U.S. cities that have signed on to binding agreements to reduce greenhouse gas emissions. Thus, urban citizens are likely to demand more leadership from their municipal representatives. The number of national and international city-to-city agreements and accords will continue to increase.

xi. **In many countries, cities are demanding more powers and financing authority from state and national governments***: Cities, they argue, provide the bulk of services and are usually less well-financed than higher levels of government. Responses to these requests vary depending on the fiscal situation at the national level as well as perceptions of good governance and management capacity within cities. For example, in almost all countries where the municipal, state or provincial, and national leaders are elected, voter turn-out and electoral oversight is lowest at the municipal level. This is contrary to what is expected given the proximity of the local politicians to their constituency. Senior levels of government may increasingly seek reassurances of financial and management discipline through municipal 'report cards' and verified indicators.

xii. **Climate change and cities***: City indicators may also play an important role in upcoming climate change programs. In some countries the majority of upcoming greenhouse gas emission reductions are expected to come from cities. Similarly, the bulk of climate change impacts, such as increased storm severity, rising sea levels, and water scarcity, are expected to have disproportionately severe impacts on cities. Responding to the pending impacts of climate change, and recognizing the need for leadership, in June 2005, over 40 cities signed 'urban environmental accords' to reduce each city's total Greenhouse Gas emissions by 25% by 2030 (Annex 9). Environmental accords of this nature will likely increase, and cities will play an increasingly important role in their implementation. City indicators that could contribute to these accords are therefore important. City indicators will also need to track progress on national and international objectives. Monitoring the Millennium Development Goals is an important example.

No system of indicators can capture the wealth of all these issues, however through continued discussion and successive iterations, basic indicators could accurately reflect the above trends.

3.2 Defining City Performance

A system of indicators that measure a city's performance requires an agreement on what the output of a city should be. City performance could be measured by how much, and how well, a city is doing given the resources it has available, as well as by its ability to generate new and sustained resources. Quantifying outputs and measuring how well they are delivered given a certain level of input is difficult, especially for something as complex as a city.

Cities are responsible for a wide range of services. These include health, education and human services[9]; infrastructure; administrative and community services; public safety; frameworks and operating regimes for legal and business affairs; recreation; and ambient environmental quality. By providing these services cities try to achieve shared goals while responding to individual, stakeholder, and community-wide priority concerns.

The last 50 years saw growing and intense competition between cities. Cities now compete to attract investment, 'knowledge workers', tourists, and in the better cities, talented management staff. Cities need to provide secure political, financial and environmental communities. Often though, many of these characteristics are beyond the mandate of the city, requiring support from national and state and provincial governments.

With rapid urbanization, many cities do not have the capacity to absorb the high levels of new population influxes. The lack of shelters, basic services, such as water supply and waste collection, and jobs for these new residents significantly impacts the city as a whole. Migration, both in and out of cities, is one of the main factors shaping cities, e.g. São Paulo and Toronto. Although the level of influx often is not driven by the city but by national and international factors, the city still needs to recognize and prepare for these changes.

What does a Mayor need to know to measure the performance of a city? Mayors, residents, businesses, and financial institutions all desire information on a city's performance. There are many ways to measure city performance. At both national and international levels, methodologies have been developed by many agencies and public bodies. This commendable effort has yielded important results. However, much work is still needed to make these measurements standardized, consistent, and comparable. Only then can the indicators be used as benchmarks and comparators across countries and over time.

4. Experience with Indicators

4.1 The World Bank and City Indicators

The World Bank recognizes the growing importance of cities and their role in globalization, decentralization and urbanization, which have characterized the last 50 years. Many questions can only be answered with city level data. Unfortunately, much of the research conducted by the World Bank has been limited due to the lack of reliable disaggregated data that are comparable across cities and over time.

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[9] The level of health, education, and social services provision varies considerably across cities. In many countries these services are provided by state/provincial or national agencies, however in all cities the most immediate impacts of the quality these services are experienced. Cities typically provide services directly or indirectly through concessions or management contracts. Canadian cities do not generally provide health and education services.

"Cities in a Globalizing World (2006)" is the latest effort of the World Bank Institute to put together a database that integrates existing data with newly collected data and indicators, covering a total of 412 cities in 134 countries. The source of this data includes the UN Observatory (1998), the enterprise-specific Earth Observing System (EOS) survey database (2003), and the Taylor database. They also include indicators constructed from internet searches. Even though this dataset is a good starting point, it has two crucial limitations: (i) important indicators are still missing and (ii) it is a cross-section of cities that can not be compared over time, limiting how much can be learned about the dynamics of the cities.

The construction and use of indicators in World Bank projects has been a common practice for monitoring and evaluation purposes. The World Bank often emphasizes the importance of developing and improving a result-based framework for monitoring and evaluating the impact of key investment projects.

The indicators currently used can be classified into two types: those that measure output and those that assess outcomes. Outputs relate to the quantity of goods or services produced, while outcomes relate to the results of providing those outputs. More emphasis is usually placed on intermediate and final outputs. Output indicators are usually collected before the project starts, during implementation in a periodic fashion, and upon completion. This process provides information that is essential for the management and supervision of projects.

The indicators are not collected at the same level of disaggregation across projects but instead, according to the unit of intervention (neighborhoods, municipalities, provinces, regions, etc.). Therefore, the data that the World Bank usually has are not comparable across projects or over time.

The lack of reliable disaggregated data is a limitation that the World Bank faces when trying to construct the baseline indicators for diagnosis. Usually, the projects need to conduct their own surveys to collect the data, thereby increasing the cost of preparation. Even though indicators disaggregated at a city level would not directly solve this problem, they could be an excellent tool to make the first evaluation of the potential impact of an intervention. The World Bank could also use city indicators to provide an approximate measure of the impact of an intervention at a city level.

4.2 Approaches to City Indicators and Systems Developed to Date

Many organizations have worked on city indicators. UN-HABITAT is now the lead organization to design, organize and publish databases on urban indicators. Their specific goal has changed over the years. It began as a tool for monitoring shelter performance (1991), then focused on broader urban issues (1996-2001), and today is mostly centered on urban indicators that reflect the Millennium Development Goals. UN-HABITAT's urban indicators measure how well a city or local authority is achieving Target 11 of the Millennium Goals. The methodology of the Global Urban Indicators is structured on collaborative data collection between national, local and metropolitan governments in each country[10].

There are many definitions of indicators and more specific 'city indicators'[11]. Many communities already have some form of municipal monitoring in place. For example, Australia and New

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[10] http://www.unchs.org/programmes/guo/
[11] The Organization for Economic Cooperation and Development (OECD, 1994) defines indicators as: "A statistic or parameter that, tracked over time, provides information on trends in the condition of a phenomenon and has significance extending beyond that associated with the properties of the statistics itself."

Zealand communities have informative municipal 'Annual Reports,' and pilot communities in India have city 'report cards'. Annex 2 discusses some of the existing city indicator programs. These include:

- The most important set of urban indicators is the **UN-HABITAT's** extensive database on Global Urban Indicators, which was initiated in 1996.
- **The World Health Organization**, **WHO**, began a Healthy Cities Project in 1992 and now collects 32 indicators on city health from a variety of cities.
- In 2004 **UNESCO** supported the launch of a 'Coalition of Cities Against Racism' and developed a series of 'Indicators for Evaluating Municipal Policies Aimed at Fighting Racism and Discrimination'
- In 2003 the **European Foundation** proposed 'European Urban Indicators' under the European Common Indicators Project.
- **ICLEI**[12] was tasked at the 1996 Istanbul-Habitat Conference with assisting local authorities to monitor and evaluate their own performance on 'Agenda 21'. ICLEI also participated in the development of Global Urban Observatories.
- **'City Mayors'** is an extensive independent website of international experts who promote strong cities and good local governments. They survey 40 municipal indicators in five categories: stability; healthcare; culture and environment; education, and infrastructure.
- The International Institute for Sustainable Development, **IISD**, has been working on indicators related to sustainable development since 1995. Some of their activities include cities.
- The **International Sustainability Indicators Network** is a web-based network that encourages indicators for sustainability. Similarly, 'Sustainable Measures' is an American web-based company that develops indicators to measure progress toward a sustainable economy, society, and environment.
- **The Globalization and World Cities** (**GaWC**) Study Group and Network used indicators to create an inventory of 'world cities'. This does not appear to have been updated since the first analysis in 1999.
- The **Mercer Human Resources Consulting** Firm annually rates cities through a 'worldwide quality of living' survey. Cities are rated by: political and social environment; economic environment; socio-cultural environment; medical and health considerations; schools and education; public services and transportation; recreation; consumer goods; housing; and, natural environment. The survey is proprietary and city-specific ratings need to be purchased.
- **The Economist Intelligence Unit** produces an annual 'livability ranking' largely intended to approximate 'hardship ratings' for expatriate residents. The survey takes 40 factors into consideration which are weighted across five categories: stability, healthcare, culture and environment, education, and infrastructure. The survey is proprietary and city-specific ratings need to be purchased.

4.3 Canadian City Indicators

As part of the World Bank city indicator initiative, city indicators in Canada will be reviewed and incorporated where possible – see Annex 4 for a Memorandum of Understanding between Infrastructure Canada and the World Bank. Canada provides a unique set of experiences in developing and implementing city indicators.

The Jacksonville Community Council, 1992 stated that "Indicators are a way of seeing the 'big picture' by looking at a smaller piece of it. They tell us which direction we are going: up or down, forward or backward, getting better or worse or staying the same".

[12] ICLEI – International Center for Local Environmental Initiatives

The Canadian Standards Association, CSA, chairs the ISO[13] 9000 and 14000 through the Technical Committee TC 207. Development of an international standard of city indicators would likely benefit from the close support of TC 207. The Federation of Canadian Municipalities, FCM, has extensive experience with development of city indicators (see Annex 3). Since 1996 FCM has conducted 'Quality of Life Reporting Systems' (QOLRS) for twenty Canadian communities (greater than 50 percent of the country's population). Much of the data is from Census of Canada. Currently 72 indicators are collected from 12 sources (see Annex 3).

Other Canadian city indicator programs include: (i) Environment Canada's Sustainable Communities Program which is an Internet-based guide; (ii) the Pembina Institute's sustainability indicators program, especially as it relates to the City of Calgary, (iii) the Greater Vancouver Regional District's long term sustainability indicators; (iv) Statistics Canada's work on trends and conditions in Canadian communities and comprehensive database; (v) the Municipal Chief Administrative Officer's Benchmarking Program in Ontario; (vi) the Province of Ontario's mandatory municipal 'report card' program, and (vii) current national discussions on allocation of a gasoline tax based on municipal performance.

4.4 City Indicators in Belo Horizonte, São Paulo, Bogotá, Toronto, Vancouver and Montreal

Annex 5 provides a summary of city indicator initiatives in six pilot cities: Belo Horizonte, Sao Paulo, Bogotá, Toronto, Vancouver, and Montreal. These six cities are expected to be the first pilot communities to develop and test proposed city indicators under the work plan. City indicator work usually includes participation from the municipality, local academic institutions, the private sector, higher levels of government, and international agencies.

Generally all cities in the world have existing city indicators of one type or another. Reviewing progress in the aforementioned six cities will highlight the similarities and differences that are likely to be found across other cities.

5. Looking for Robust City Indicators

5.1 Construction Cycle Process

Considerable information on the methodology to construct good indicators is available, and there is now an informal consensus on the set of characteristics that an indicator should satisfy. All indicators share a common construction cycle process that consists of three steps: (1) collection of raw data, (2) construction of statistics, and (3) creation of indicators from the statistics. The quality of the indicator depends crucially on how "efficiently" each of these stages is performed.

- **Raw data:** The collection of raw data requires a city-level representative sampling, or the availability of "weights" that enables extrapolation. The data should be collected in a systematic way to be comparable over time and across cities.
- **Statistics:** Sometimes, statistics can be used directly as indicators, but in most cases they are just part of the process of indicator construction. For example, statistics such as the mean education level of the unemployed population might give a good sense of the skill level of the individuals who are looking for jobs, and could then be used to guide the policies that may be relevant for this situation. However, when and where the composition of the labor force changes over time, this measure is no longer a good indicator.

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[13] ISO – International Standards Association – see Annex 8

- **Indicators:** These are usually, but not necessarily, constructed from statistics. They are simple numbers comparable over time and space that have a clear link with policy implications.
- **Indexes:** These are constructed as weighted combinations of indicators and usually are used to describe an overall performance. For instance, the City Development Index (CDI) was developed as a prototype for Habitat II to rank cities according to their level of development. The CDI is based on five sub-indices (City Product, Infrastructure, Waste Management, Health and Education), the total value of which ranges from 0 to 100.

5.2 Raw Data: Existing and Potential Sources of Data

Even though there is a common understanding that time and cross-section comparable data are fundamental to construct useful indicators, most countries fail in this first stage. Typically this happens because cities lack the capacity (skills and funding) to collect accurate data directly at the local level, or lack the resources to transform national data using appropriate weights.

The data that are currently and usually available come from censuses, national household surveys, demographic, health, and living standards measurement surveys, vital statistics registries, administrative or infrastructure data available from public or private companies in charge of services, or specific surveys. The census is the most important source of data providing information at the city level. However, due to its high cost it is usually collected with long lags (typically every 5 or 10 years).

Household surveys include social and economic data at the household or individual level but they are usually representative at the State level, and no disaggregation at the local level is possible.

New city indicators will need to:

- Increase the capacity and improve management information systems at the local level to collect and analyze the already existing data in standardized methods. This will allow for transversal and longitudinal comparisons.
- If new data need to be collected, they have to be incorporated in one of the existing city systems to guarantee the continuity of its collection.
- Promote waves of data collection in a routine manner and independent of external funding to guarantee continuity in data gathering.
- Emphasize to city officials the importance of indicators for the management and planning of cities. Successful examples of cities using indicators are key to providing motivation and incentives to collect data and construct indicators in a systematic way.
- Begin incorporating GIS techniques in future data collection to permit a better understanding of geographical changes over time.

5.3   Characteristics of City Indicators

Good data are a necessary but not sufficient ingredient for the construction of good indicators. The following are characteristics that an indicator must possess for it to be accurate, timely and relevant for policy purposes:

Aspects of Good City Indicators

- **Objectiv**e: clear, well defined, precise and unambiguous, simple to understand.
- **Relevant**: directly related to the objectives.
- **Measurable and replicable**: easily quantifiable, systematically observable.
- **Auditabl**e: valid, subject to third-party verification, quality controlled data (legitimacy across users).
- **Statistically representative** at the city level.
- **Comparable/ Standardized** longitudinally (over time) and transversally (across cities).
- **Flexibl**e: can accommodate continuous improvements to what is measured and how. Have a formal mechanism for all cities and interested parties to comment on.
- **Potentially Predictive**: extrapolation over time and to other cities that share common environments.
- **Effective**: tool in decision making as well as in the planning for and management of the local system.
- **Economical:** easy to obtain/inexpensive to collect. Use of existing data.
- **Interrelated**: indicators should be constructed in an interconnected fashion (social, environmental and economics).
- **Consistent and sustainable over time**: frequently presented and independent of external capacity and funding support.

The last feature, **"**consistent and sustainable over time"**,** needs to be at the root of the construction of any indicator. Many of the initiatives to create urban indicators fail to analyze the technical and economic capacity of the city to produce the indicator in a systematic way.

Cities need to be involved in the selection and development of indicators and in the process in which they will be used and updated. City ownership and support among stakeholders within and outside the city is critical for the development and sustainability of the indicators system. The participatory process will vary according to the technical and institutional capacities of the city. Some cities have a more developed culture of measuring performance while others have very weak sources of information.

The system of indicators has to be understood, achieved and sustained by the city itself. The main cause of failure is when external agencies produce the indicators for the city based on external sources of financing. The project usually works well during the period of close support but as soon as the assistance ends, the collection of information ends.

A system of indicators controlled and maintained by the cities in order to monitor their own performance is likely to generate incentives to manipulate the results. A third-party verification system to audit the information provided will likely be necessary (similar to ISO 9000 or 14000 or generally accepted accounting principles). The system will be reliable as long as the auditors are well-known, independent and trusted, and the costs are minimal.

The verification system should validate not only the source of information but also the construction of the indicators to guarantee standardized indicators subject to comparison across cities and over time. No set of city indicators can be static; therefore the process to revise indicators is important. Updating indicators while simultaneously maintaining the usefulness of the previous baseline data is critical. The formal revision process within the International Standards Organization (ISO) may be a practical model. In Annex 6, a brief description of the ISO 9000 and 14000 is provided to illustrate the process. ISO produces standards which provide an organization with a model for setting up and operating a management system that can assure a

quality standard. Similar standards could provide cities with a model for constructing indicators of reliable quality that can be compared over time and across cities.

Finally, although often missed, it is important to conceptualize indicators that work in an interconnected fashion. A simple indicator could be used to measure performance in more than one area (social, environmental, economic) in the same way that more than one indicator could be used to evaluate a particular target. The following subsection describes the different approaches to construct indicators.

5.4 Approaches to Construct Indicators

Following Villa V. and M. Westfall (2001), the development of indicators may follow different approaches. For example:

- **The policy-based approach:** this framework is associated with community concerns and goal based indicators. They are holistic. The objective of these indicators is to measure progress towards goals and therefore they usually involve more than one area of the management structure (e.g. policymakers and stakeholders).
- **The thematic/index approach:** these are usually indexes that focus on broad, multidimensional themes. For example: the City Development Index, or poverty, governance and competitiveness indicators.
- **The system approach***:* indicators are developed in a system where operators and causality between sectors are well defined. For example: the State of Environment indicator (OECD).
- **The needs-based allocation approach:** these indicators are used to efficiently allocate or reallocate funds to those areas with particular needs in order to establish targets and priorities. For example: poverty indicators.
- **The performance approach:** indicators are outcome oriented. They include measures of inputs, outputs, outcomes and efficiency and they are particularly used by public sector agencies to measure the performance of program and projects.
- **The benchmarking approach:** these indicators measure performance in areas that need improvement. They are used for comparison with other agents that are performing better. The overall objective is to adopt and/or adapt the best practices of those that are performing better.

The approach selected to develop city indicators will depend on the definition of a city (political, economic and or geographical limits), the objectives, the users, and by whom and when (frequency) the indicators are constructed.

City governments, particularly mayors, are often concerned that they will be judged for not improving short-term indicators when they do not have complete control over the inputs. This may reduce their support for the creation or improvement of new indicator systems.

A system of indicators controlled and maintained by cities and audited by a third-party is predicated on city government support. This may require creating a system of indicators with a clear link between inputs and outputs, whereby the resource constraint will be clearly revealed, where operators and causality between sectors are well defined, and where accountabilities and responsibilities are clearly determined. It is also necessary to generate short term and long term incentives for the cities to maintain the system.

In the long-run, if there are worldwide comparable city indicators that are broadly used and trusted by third parties, and used as reference for investment decisions, cities will have the

incentives to ensure that they frequently disseminate the indicators to the public in order to compete with similar cities.

In the short-term, in piloting city indicators, support to the model cities will be critical since the incentives to participate are weak. In this early phase of the work plan, the indicator systems will be of limited value since cities will not yet have a baseline, and indicators will not be comparable across many cities.

6. The Proposed Plan

6.1 Objectives

The LCR-FPSI Unit of the World Bank proposes to work with its client cities to help facilitate the standardization and documentation of city indicators. This effort includes partnerships with key pilot cities in Brazil, Colombia and Canada. Objectives of the city indicators include:

- **Annual reporting***: Similar to the annual reports produced by publicly traded companies to inform shareholders and potential investors, the exercise aims to help cities develop an annual reporting mechanism. And similar to how a company's annual report contains an internationally accepted reporting mechanism for financial information (e.g. GAAP or IASB[14]), so too might cities report their 'city indicators'.

- **Comparability***: Indicators need to be comparable. Just as report cards generally enhance student performance, there are numerous city scorecards and urban indicators. These are usually intended to provide feedback to city administrators, residents, and urban practitioners. More difficult however is comparing how well a city provides municipal services compared to another similar city, or how well services are being provided compared to a decade ago.

- **Support of cities and key agencies**: Indicators need the support of cities and key agencies. Considerable data already exist on municipal service levels and the quality of urban life, however there are no agreed-to indicators, and perhaps more importantly, there is no trend that allows monitoring of improvement or deterioration of a city's performance over time.

- **Robust and rigorous***: Indicators would meet the critical aspects of good indicators. Hundreds of various city indicators exist for most Part 1 and Part 2[15] cities; for example, UN-Habitat, various magazines, the World Bank, and numerous academic institutions (see Annex 2). However these indicators do not yet consistently meet the critical aspects of good city indicators reviewed in the previous section.

- **Indicators as a monitoring tool**: One of the main goals is to build an efficient system of indicators, that is, to have a small set of indicators (reducing the total cost) that maximize the number of characteristics that they could monitor. The table below lists the main potential characteristics that a good set of indicators could monitor.

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[14] GAAP – Generally Accepted Accounting Principles; IASB – International Accounting Standards Board
[15] 'Part 1' and 'Part 2' refers to a country's relative economic standing. Part 1 countries are those more affluent countries that generally contribute to the International Development Association in freely convertible currency. For a complete list see www.worldbank.org.

City Indicators Could Monitor the Following Characteristics
- Quality of urban environment   - Numbers and condition of the poor   - Health care availability and coverage   - Treatment of the poor   - Education: availability, quality, coverage, knowledge/technology level   - Cost of living (including value for money)   - Average travel times   - Crime rates   - Delivery of municipal services: water, wastewater, building permits, land use planning, solid waste, transportation   - Receptivity to guests: hotels, airport quality, taxes   - Local media: openness, objectivity, professionalism   - Credit worthiness (financial strength)   - Growth of economic opportunities (new firms, value of business, levels of R&D)   - Links with the external world

Developing robust city indicators is beneficial and urgent for many reasons. For example, they will enable better monitoring of projects (such as those financed by the World Bank or any other IFI) and mesh with current 'results monitoring frameworks'. Good city performance indicators will also provide important data for follow-on research. The more reliable the data, the more reliable the research.

6.2 Challenges, Fairness and Cost

Challenges: Design and definition problems often occur when choosing city indicators (See table below). Challenges include the concept and definition of cities (size, scope, administrative boundaries, etc), what and how to measure, how often, how much will it cost, who will pay for it, and how to reflect political aspects of the indicators? Overcoming these challenges has so far hindered the development of internationally accepted and consistently replicable city indicators.

Challenges in Developing City Indicators
- Determining what to measure   - Cost of measurement   - Political influence is common   - Ensuring replicability and reliability   - Numerous starts-and-stops, due to varied political commitment and funding   'Soft' aspects, e.g. subjective well-being and trust, are difficult to measure   - Determining and continuing to agreed-to political boundaries is challenging   - Much of the datum are generated by non-city agencies

In this context, the biggest challenge facing the development of city indicators is reaching consensus on what to monitor, and how. A balance between the cost and gathering sufficient information to reach useful conclusions is difficult to achieve. Difficulties in reaching a consensus will be amplified due to the number of stakeholders who want city indicator data and will use the results of the indicators to promote their interests; e.g. businesses, environmental groups, higher levels of government, and other political parties. The proposed exercise and work

plan aims to reach out and involve as many stakeholders as possible. Their knowledge and experience in the field will be of great value to all participants.

Fairness: Issues of 'fairness' can also challenge the integrity of performance indicators. Much of what the local or international community views as good or bad service is often beyond a city's responsibility. For example, airports, utilities, health and education services, are often not a city's direct responsibility, yet the quality of these services has a direct bearing on the city's perceived quality of life and competitiveness.

Cost: The cost of measuring performance is one of the key factors determining feasibility. Cities that have regular household or firm surveys may design a monitoring system based on city indicators by either using their existing sources of data or by adapting these. However, many cities do not have such surveys and will need to find the sources to finance the data collection and processing. Finding permanent sources of financing is the most significant challenge in developing city indicators. However, given the importance and usefulness of the exercise, it has been shown that partnerships with chambers of commerce, international business associations, and academic institutions often help to fill this important need.

6.3   Including Subjective Measures within City Indicators

6.3.1   Measuring Well-Being and Happy Citizens

An emerging field of research involves 'subjective well-being' as a broader measure of 'happiness'[16]. Initially limited to individual humans, this research is now trying to determine the degree of 'city well-being' (see Annex 7).

Empirical research has proven that in industrialized countries well-being appears to rise as the national income rises, up to a certain level. Above such a level (about US$15,000), increases in well-being are so small that they become almost undetectable (Eckersley, 2000). Wills (2006) proposes to expand the data beyond objective indicators and to create data that measure subjective well-being, and more specifically, personal well-being. The personal well-being index developed by Professor Robert Cummins is applied on a comparative basis in different countries and cities by the International Wellbeing Group[17] and serves as a good model. These subjective indicators may provide the basis for intercity comparisons of subjective well-being. Cities that are found to have higher levels of subjective well-being may provide useful information on which values and dimensions of life are more important for citizens.

In developing countries and cities, citizens' sense of well-being does not automatically match the objective conditions of their economic environment. For example, it has been shown that in cities like Bogotá, subjective well-being of citizens can be as high as in other cities, such as Sydney, Australia, which are "objectively" more developed (Wills, 2006). Just as people tend to have an 'emotional baseline' (Gilbert, 2006) so too could cities have an ambient level of subjective well-being.

The Personal Well-being Index (PWI) consists of seven domains of the overall measure of life-satisfaction: (i) standard of living, (ii) health, (iii) achieving in life, (iv) personal relationships, (v) safety, (vi) community connectedness and (vii) future security. The National Well-being Index

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[16] Subjective well-being includes cognitive evaluations about achieving important values and goals in the life span of the individuals as well as the affective measure of how well that person feels, whereas happiness comprises only the affective elements of pleasure and avoiding pain.
[17] http://acqol.deakin.edu.au/inter_wellbeing/ int_wellbeing_group.

(NWI) consists of six domains (Tilouine, Cummins & Davern, 2006): (i) satisfaction with economic situation of the country or city, (ii) state of the environment, (iii) social conditions, (iv) satisfaction with national or local government, (v) business, and (vi) security. Wills (2006) has applied these in Bogotá (see Annex 4).

Seemingly, intractable problems, especially those of a societal or political nature, reflect the public's collective will, or fear, of proposed changes, in addition to their level of well-being and the degree of trust within the community. A community's responses will be tempered by the ability of city leaders and practitioners to mobilize public support for alternatives. Cities will be increasingly called upon to provide global leadership over the next fifty years. Measuring the attitudes and receptiveness of citizens toward challenging social changes, especially as they progress over time, would be very useful. However this may be well-beyond the scope of typical city indicators, given that measuring subjective well-being and trust is complex, requiring expensive surveys.

6.3.2 Measuring Trust

Each year a 28 country survey of over 750 companies is completed to determine the 'best places to work'[18]. Consistently the most important aspect for a positive work environment and well-functioning organization is *trust*. The importance of trust within a city is usually not well-defined, recognized, or measured.

If a sound mechanism could be designed, it would also be useful to include other difficult-to-measure but crucial aspects of a city within city indicators. Conflict resolution, innovation, and local and national cooperation, are also important indicators of a city's performance.

Next Steps

The World Bank hopes to partner with several key agencies, governments, and pilot cities over the next two years to develop a set of draft city indicators that could provide a snap-shot of a city's performance and quality of life. Sustainability and broad adoption of the indicators would be enhanced through: city ownership; mechanisms for third-party verification; internationally wide-spread acceptance and relevance; and initially a greater focus on the methodology and city support, rather than on specifics of individual indicators.

This proposal builds on UN-HABITAT's extensive work on indicators, and is strengthened through key partners such as the governments and standards associations of Brazil, Canada, and Colombia; the financial and technical support of the Government of Japan; the Federation of Canadian Municipalities; ICLEI; the World Economic Forum; and especially the staff of all pilot cities.

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7. Proposed Timetable

The following schedule reflects the World Bank's proposed work plan to help facilitate the development of a standardized set of city indicators. Support from participating pilot cities will be critical and will largely determine actual schedules.

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[18] Great Place to Work Institute, San Francisco – from Canadian Business, April 10-23, 2006, p 89.

June, 2006: Presentation of Concept – World Urban Forum (III), Vancouver.

October, 2006: Release of Draft Discussion Document 'The Current Status of City Indicators'.

April, 2007: Finalization of 'The Current Status of City Indicators' and placement on an active website, ideally for ongoing updating.

December, 2006: Proposed Draft City Indicators issued for public comment.

March, 2007 to March, 2008: Trial of Draft City Indicators in at least Bogotá, São Paulo, Belo Horizonte and Canadian pilot cities.

May, 2008: Issuance of a Report, 'The Use of Standardized City Indicators' for presentation at the World Urban Forum (IV), Nanjing.

Annex 1: References on City Indicators and Selected Bibliography

The following includes references compiled both by the World Bank as well as the University of Ontario Institute of Technology, during the University's review of city indicators. This work was part the University's evaluation on the establishment of an Urban Observatory. References with an '*' were used by the World Bank during preparation of this report.

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Annex 2: Some Existing City Indicator Programs

1. UN-HABITAT Urban Indicators

A first Global Urban Indicators Database (GUID1) was produced in 1996 in order to provide information on urban conditions and trends for the Habitat II Conference in Istanbul that same year. This database provided information on 237 cities worldwide and was perhaps the first representative sample of urban indicators on a global basis.

As part of the statistical analysis of this database, a City Development Index similar to the Human Development Index of UNDP, was developed to serve both as a ranking of cities according to their level of development and as a baseline for comparative study of indicators that designated urban conditions. Subsequent work with updated and enriched versions of this index has shown it to be a valuable tool for assessing the quality of life and the condition of city environments.

The Habitat Agenda and Resolutions 15/6 and 17/1 of the UN Commission on Human Settlements required the development of an indicators system representing the minimum data required to monitor changes in conditions in human settlements post Habitat II. In answer to such need, UNCHS (Habitat) developed an indicators system that contains a set of 23 key indicators and 9 lists of qualitative data. These are considered to be the minimum data required for reporting on shelter and urban development. They are also consistent with the 20 key areas of commitment in the universal reporting format.

Such indicators are designed to measure the performances and trends in the 20 selected key areas, as well as to register progress in the implementation of the Habitat Agenda. These indicators, to be chosen by the various countries, provide a comprehensive picture of cities, in a quantitative and comparative base for evaluating the conditions of cities, as well as the progress towards achieving urban objectives.

The Global Urban Indicators Database 2 (GUID2) prepared for Istanbul+5 included data for 151 cities worldwide. It was intended to assess urban conditions and trends in the target years of 1993 and 1998, and to evaluate progress made in that 5-year period. It provided the main source of information for analyzing urban conditions, trends and progress which were reported at the Istanbul+5 meeting in June 2001.

Table 1- List of Habitat Agenda Indicators		
Sector	**Indicator**	**Goal**
Shelter	Durable structures	Promote the right to adequate housing
	Overcrowding	
	Secure tenure	Promote security of tenure
	Housing finances	Provide equal access to credit
	Land prices	Provide equal access to land
	Access to safe water	Promote access to basic services
	Access to improved sanitation	
	Connection to services	
Social Development and eradication of poverty	Under five mortality	Provide equal opportunities for a safe and healthy life
	Homicides	
	VIH prevalence	
	Poor households	Promote social integration and support disadvantaged groups
	Literacy rates	Promote gender equality in human settlements development
	School enrolment	
	Women councillors	
Environmental management	Urban population growth	Promote geographically balanced settlement structures
	Planned settlements	
	Price of water	Manage supply and demand for water in an effective manner
	Water consumption	
	Wastewater treated	Reduce urban pollution
	Solid waste disposal	
	Regular solid waste collection	
	Houses in hazardous locations	Prevent disasters and rebuild settlements
	Travel time	Promote effective and environmentally sound transportation systems
	Transport modes	
Economic development	Informal employment	Strengthen small and micro enterprises particularly those developed by women
	City product	Encourage public-private sector partnership and stimulate productive employment
	Unemployment	
Governance	Local government revenue	Promote decentralisation and strengthen local authorities
	Voters participation	Encourage and support participation and civic engagement
	Civic associations	

2. World Health Organisation, WHO, 'Healthy Cities Project'

During the first phase of the Healthy Cities Project, a set of 53 indicators was produced to assist cities in gathering appropriate data to describe city conditions. Between 1992 and 1994, data were collected from 47 cities for 53 indicators. After an analysis of these data by experts in each of the 53 fields, some indicators were excluded as the information provided was not reliable or appropriate. A more concise set of 32 indicators was then proposed. Cities such as Toronto, Sai Kung District (China), Seoul, Baltimore, Jakarta, Belfast, Kansas City and Glasgow have applied them.

Table 2 – WHO List of City Indicators	
Sector	**Indicator**
Health	Mortality: all causes
	Cause of death
	Low birth weight
Health services	Existence of a city health education programme
	Percentage of children fully immunized
	Number of inhabitants per practising primary health care practitioner
	Number of inhabitants per nurse
	Percentage of population covered by health insurance
	Availability of primary health care services in foreign languages
	Number of health related questions examined by the city council every year
Environmental	Atmospheric pollution
	Water quality
	Percentage of water pollutants removed from total sewage produced
	Household waste collection quality index
	Household waste treatment quality index
	Relative surface area of green spaces in the city
	Public access to green space
	Derelict industrial sites
	Sport and leisure
	Pedestrian streets
	Cycling in city
	Public transport
	Public transport network cover
	Living space
Socio economic	Percentage of population living in substandard accommodation
	Estimated number of homeless people
	Unemployment rate
	Percentage of people earning less than the mean per capita income
	Percentage of child care places for pre-school children
	Percentage of all live births to mothers -20;21-34;35+
	Abortion rate in relation to total number of live births
	Percentage of disabled persons employed

3. UNESCO – Indicators on Municipal Policies Aimed at Fighting Racism and Discrimination

Ethnocultural diversity increasingly constitutes an important characteristic of major cities around the world. As the primary centres for national, ethnic and cultural intermixing, cities are laboratories for new ways of "living together" (UNESCO, 2004). However, when this diversity is accompanied by inequalities, racism and discrimination, it can increase the social divide.

As part of its activities to promote and reinforce municipal anti-discriminatory policies, UNESCO has supported the launching of a "*Coalition of Cities Against Racism*" For that purpose, it developed a series of indicators for evaluating municipal policies to fight racism and discrimination. This work was carried out with the goal of assisting cities that want to adopt public policies of diversity management and wish to fight racism and discrimination, as well as to evaluate the impact of such policies. The goal was to equip cities with tools for evaluating in quantitative and/or qualitative terms whether their actions lead to less discrimination and racism.

Table 3 – UNESCO List of Indicators of racism and ethnic discrimination	
Sector	**Indicator**
Residential Segregation	Concentration of members of racial groups in certain neighbourhoods (cross-tabulated with poverty rates)
	Modes of tenure (ownership, tenancy) by neighbourhood and by group
	Mode of transport and commute time, by neighbourhood and by group
Public Order	Number and nature of hate crimes
	Racist incidents reported
	Number of discrimination complaints made and registered
	Offence rates by neighbourhood
	Percentage of persons indicted/tried for offences
Education	Attainment levels
	Competence in official language
	Success rate of young people from racial groups
City Administration	Representation rate of racial groups in city personnel
	Representation rate of racial groups in management positions
	Representation rate of racial groups in cultural bodies
	Participation rate in city council and its committees

4. European Foundation - European Urban indicators

Common Indicators – towards a local sustainability profile: In 2003 the Ambiente Italia Research Institute published the final report on the development, refinement, management and evaluation of European Common Indicators Project. The report explains that a prerequisite for sustainability is the need to measure impacts of urban activities and monitor its progress. A methodology to define the ten selected indicators is proposed, and applied to 80 local authorities from 22 European countries that signed the "Agreement on the adoption of a Sustainability Profile – European Common Indicators".

In Europe, the magnitude and significance of sustainability indicators has received much attention in recent years, but their use is still at an initial stage. The European Foundation created a set of indicators to measure urban sustainability and since then has applied it to several European cities.

Indicators are limited without specified objectives; they cannot contribute to the improvement of the urban quality of life if there is not a policy framework, which must be based on a diagnosis of the current situation

Table 4 – European Foundation suggested indicators:		
Sector	**Indicator**	**Goal**
Environmental	Global climate	Responsibility of the city for the global environment
	Acidification of the environment	
	Toxification of ecosystems	
	Energy consumption	
	Water consumption	
	Local disturbances	Local quality of life
	Air quality	
	Urban mobility	
	Waste management	
Socio-economic	Social justice	Key social elements of sustainability
	Housing	
	Urban safety	
	Citizen participation	
	Quality of green heritage	Quality of spaces promoting public health, social life and cultural identity
	Public space	
	One indicator according to each city typical situation	

5. 'Best' Performing Cities in the U.S.

The Milken Institute is an independent economic agency whose mission it is to improve the lives and economic conditions of diverse populations in the U.S. and around the world. It does so by helping business and public policy leaders identify and implement innovative ideas for creating broad-based prosperity.

The components shown in the table below are used to calculate the rankings. The index includes measures of job, wage and salary, as well as technology output growth over the past five years (1999-2004) and the latest year's performance (2004). The latest 12-month job-growth performance is also incorporated. Employment growth is given the greatest weight in the index because of its critical importance in determining the vitality of America's communities. Wage and salary growth is intended to measure the quality of jobs created. Technology output growth is included because of its important role in determining the economic vibrancy of cities.

Table 6 – Milken Institute survey instrument of best performing cities in the U.S.	
Component	**Weight**
Job Growth (1999–2004)	0.143
Job Growth (2003–2004)	0.143
Wage & Salary Growth (1998–2003)	0.143
Wage & Salary Growth (2002–2003)	0.143
Short-Term Job Growth (July 2004–July 2005)	0.143
Relative High-Tech GDP Growth (1999–2004)	0.071
Relative High-Tech GDP Growth (2003–2004)	0.071
High-Tech GDP Location Quotient	0.071
Number of High-Tech GDP	LQ>1 0.071

6. ICLEI Sustainable Development Program

After Member States of the United Nations committed themselves to implement the Habitat Agenda (Istanbul, 1996), local authorities were asked to monitor and evaluate their own performance in working toward sustainable urban development. International Center for Local Environmental Initiatives, ICLEI, is the international association of local governments created by more than 475 cities, towns, and counties. ICLEI undertook a program to develop indicators to monitor how local authorities and national governments are implementing key sustainable development programs consistent with Habitat Agenda.

ICLEI participated in the development of the Global Urban Observatory by helping to establish National Urban Observatories (NUOs) and Local Urban Observatories (LUOs) in Uganda, Zimbabwe, Chile, Ecuador, Poland and Bulgaria. Chile's Urban Observatory has created a well established website in which different urban experiences are listed[19]. More than two hundreds indicators, organized into 10 categories are presented for every Chilean city and town.

7. City Mayors

'City Mayors' is an Internet website of international experts committed to promote strong cities and good local government. In its yearly survey, the group examines how initiatives are being developed to achieve solutions to urban problems such as housing, transport, education and employment, as well as environmental, technological, social and security challenges.

The survey analyzes 40 indicators according to five different categories: Stability; Healthcare; Culture & Environment; Education; and Infrastructure. The survey is structured according to quantitative and qualitative data. Each indicator is given a rating between one and five, (one means there is no impact).

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[19] http://www.observatoriourbano.cl

8. International Institute for Sustainable Development (IISD)

IISD has been working on measurements and indicators since 1995, with the aim of making significant local, national and international contributions to the implementation of sustainable development. While focused on sustainability indicators their research emphasizes the importance of linking assessment and measurement work to decision-making and policy-making. IISD produces a broad list of sustainable development activities.

9. International Sustainability Indicators Network and 'Sustainable Measures'

The International Sustainability Indicators Network is a web based network that shares experiences in creating indicators for sustainability. Despite its clear focus it seams that the Institute has not been active recently since the last update registered in their website is 2004.

Similarly, 'Sustainable Measures' is an American website based company that develops indicators that measure progress toward a sustainable economy, society and environment.

10. Inventory of World Cities

Globalization and World Cities (GaWC) Study Group and Network, Research Bulletin Number 5 as published in Cities, 16 (6), 1999, pp 445-458, constructed an inventory of world cities based upon their level of advanced producer services (accountancy, advertising, finance, and law). Cities were rated as Alpha, Beta and Gamma (world cities) and cities showing evidence of world city formation (cities rated from a high of 12 to low of 1).

Table 7- Inventory of World Cities		
Classification	**Rating 12:highest 1: lowest**	**Cities**
A. Alpha World Cities (full service world cities)	12	London, New York, Paris, Tokyo
	10	Chicago, Frankfurt, Hong Kong, Los Angeles, Milan, Singapore
B. Beta World Cities (major world cities)	9	San Francisco, Sydney, Toronto, Zurich
	8	Brussels, Madrid, Mexico City, Sao Paulo
	7	Moscow, Seoul
C. Gamma World Cities (minor world cities)	6	Amsterdam, Boston, Caracas, Dallas, Düsseldorf, Geneva, Houston, Jakarta, Johannesburg, Melbourne, Osaka, Prague, Santiago, Taipei, Washington
	5	Bangkok, Beijing, Montreal, Rome, Stockholm, Warsaw
	4	Atlanta, Barcelona, Berlin, Budapest, Buenos Aires, Copenhagen, Hamburg, Istanbul, Kuala Lumpur, Manila, Miami, Minneapolis, Munich, Shanghai
D. Evidence of World City Formation		
D(i) Relatively strong evidence	3	Athens, Auckland, Dublin, Helsinki, Luxembourg, Lyon, Mumbai, New Delhi, Philadelphia, Rio de Janeiro, Tel Aviv, Vienna
D(ii) Some evidence	2	Abu Dhabi, Almaty, Birmingham, Bogotá, Bratislava, Brisbane, Bucharest, Cairo, Cleveland, Cologne, Detroit, Dubai, Ho Chi Minh City, Kiev, Lima, Lisbon, Manchester, Montevideo, Oslo, Riyadh, Rotterdam,

		Seattle, Stuttgart, The Hague, Vancouver
D(iii) Minimal evidence	1	Adelaide, Antwerp, Arhus, Baltimore, Bangalore, Bologna, Brasilia, Calgary, Cape Town, Colombo, Columbus, Dresden, Edinburgh, Genoa, Glasgow, Gothenburg, Guangzhou, Hanoi, Kansas City, Leeds, Lille, Marseille, Richmond, St Petersburg, Tashkent, Tehran, Tijuana, Turin, Utrecht, Wellington

11. MERCER, Human Resource Consulting

Each year the Mercer Human Resource Consulting Firm publishes a ranking of cities. The cities are ranked according to 'livability'.

Scores are based on the following criteria compared to the base city (for a total of 100 points).

1. Political and social environment (10 points)

> 1.1 Ease of entry and exit
> 1.2 Relationship with other countries
> 1.3 Law enforcement
> 1.4 Internal stability
> 1.5 Crime

2. Economic environment (10 points)

> 2.1 Banking services
> 2.2 Currency Exchange regulations

3. Socio-cultural environment (10 points)

> 3.1 Media and censorship
> 3.2 Limitations on personal freedom

4. Medical and health considerations (10 points)

> 4.1 Air pollution
> 4.2 Troublesome and destructive animals and insects
> 4.3 Hospital services
> 4.4 Medical supplies
> 4.5 Infectious diseases
> 4.6 Water potability
> 4.7 Waste removal
> 4.8 Sewage

5. Schools and education (10 points)

> 5.1 Schools

6. Public services and transport (10 points)

      6.1   Water availability
      6.2   Traffic congestion
      6.3   Electricity
      6.4   Telephone
      6.5   Mail
      6.6   Public transport
      6.7   Airport

7.   Recreation (10 points)

      7.1   Variety of restaurants
      7.2   Cinemas
      7.3   Theatrical and musical performances
      7.4   Sport and leisure activities

8.   Consumer goods (10 points)

      8.1   Food (Fruit and Vegetables)
      8.2   Food (Meat and Fish)
      8.3   Daily consumption items
      8.4   Alcoholic beverages
      8.5   Automobiles

9.   Housing (10 points)

      9.1   Household appliances and furniture
      9.2   Household maintenance and repair
      9.3   Housing

10.   Natural environment (10 points)

      10.1   Climate
      10.2   Record of natural disasters

Table 8-Worldwide Quality of Living Survey 2006					
Base City: New York – USA (=100)					
Rank 2006	**Rank 2005**	**City**	**Country**	**Index 2006**	**Index 2005**
1	*1*	ZURICH	Switzerland	108.2	*108.0*
2	*2*	GENEVA	Switzerland	108.1	*107.9*
3	*3*	VANCOUVER	Canada	107.7	*107.4*
4	*3*	VIENNA	Austria	107.5	*107.4*
5	*8*	AUCKLAND	New Zealand	107.3	*106.5*
6	*5*	DUSSELDORF	Germany	107.2	*107.0*
7	*6*	FRANKFURT	Germany	107.0	*106.8*
8	*7*	MUNICH	Germany	106.8	*106.7*

9	9	BERN	Switzerland	106.5	106.4
9	9	SYDNEY	Australia	106.5	106.4
11	11	COPENHAGEN	Denmark	106.2	106.2
12	14	WELLINGTON	New Zealand	105.8	105.0
13	12	AMSTERDAM	Netherlands	105.7	105.7
14	13	BRUSSELS	Belgium	105.6	105.6
15	16	TORONTO	Canada	105.4	104.9
16	16	BERLIN	Germany	105.1	104.9
17	14	MELBOURNE	Australia	105.0	105.0
18	18	LUXEMBOURG	Luxembourg	104.8	104.8
18	21	OTTAWA	Canada	104.8	104.3
20	19	STOCKHOLM	Sweden	104.7	104.7
21	20	PERTH	Australia	104.5	104.5
22	22	MONTREAL	Canada	104.3	104.0
23	22	NURNBERG	Germany	104.1	104.0
24	22	DUBLIN	Ireland	103.8	104.0
25	25	CALGARY	Canada	103.6	103.3
26	25	HAMBURG	Germany	103.4	103.3
27	25	HONOLULU, HI	United States	103.3	103.3
28	28	SAN FRANCISCO, CA	United States	103.2	103.2
29	29	ADELAIDE	Australia	103.1	103.1
29	29	HELSINKI	Finland	103.1	103.1
31	31	BRISBANE	Australia	102.8	103.0
31	32	OSLO	Norway	102.8	102.8
33	33	PARIS	France	102.7	102.7
34	35	SINGAPORE	Singapore	102.5	102.0
35	34	TOKYO	Japan	102.3	102.3
36	36	BOSTON, MA	United States	101.9	101.9
37	37	LYON	France	101.6	101.6
37	37	YOKOHAMA	Japan	101.6	101.6
39	39	LONDON	United Kingdom	101.2	101.2
40	40	KOBE	Japan	101.0	101.0
41	41	WASHINGTON, DC	United States	100.4	100.4
41	52	CHICAGO, IL	United States	100.4	99.3
43	42	PORTLAND, OR	United States	100.3	100.3
44	43	BARCELONA	Spain	100.2	100.2
45	44	MADRID	Spain	100.1	100.1
46	45	NEW YORK CITY, NY	United States	100.0	100.0
47	46	SEATTLE, WA	United States	99.9	99.9
48	47	LEXINGTON, KY	United States	99.8	99.8
49	48	PITTSBURGH, PA	United States	99.7	99.7
49	48	WINSTON SALEM, NC	United States	99.7	99.7
51	50	OSAKA	Japan	99.6	99.6
51	51	MILAN	Italy	99.6	99.4

12. Economist Intelligence Unit's Global Livability Rankings

The Economist Intelligence Unit's livability ranking is an expansion on the methodology of previous 'Hardship' surveys. In addition to the factors that were previously attributed to specifically causing hardship a number of other factors have been included to give a more rounded impression of how livable a city is.

The survey takes over 40 factors into consideration which are weighted across five different categories: Stability; Healthcare; Culture & Environment; Education; and Infrastructure. Across the survey a mixture of quantitative and qualitative data are used, which are combined to give an overall Quality of Life Index rating. Each indicator is given a rating of between one and five, where one means there is no impact and five means the factor is extremely challenging. These are then weighted to produce an index, where 0% means a city is exceptional and 100% means it is intolerable.

© 2005 The Economist Intelligence Unit Limited- Overall rankings							
Country	City	Rating %	Rank	Country	City	Rating %	Rank
Canada	Vancouver	1	1	UK	London	10	47
Australia	Melbourne	2	2	US	Los Angeles	10	47
Austria	Vienna	2	2	Ireland	Dublin	10	47
Switzerland	Geneva	2	2	Portugal	Lisbon	11	51
Australia	Perth	3	5	US	San Francisco	11	51
Australia	Adelaide	3	5	US	New York	11	51
Australia	Sydney	3	5	South Korea	Seoul	12	54
Switzerland	Zurich	3	5	Singapore	Singapore	12	54
Canada	Toronto	3	5	US	Lexington	13	56
Canada	Calgary	3	5	Hungary	Budapest	14	57
Australia	Brisbane	4	11	Italy	Milan	15	58
Denmark	Copenhagen	4	11	Italy	Rome	16	59
Finland	Helsinki	4	11	Czech Rep	Prague	16	59
Sweden	Stockholm	4	11	Greece	Athens	17	61
Germany	Frankfurt	4	11	Taiwan	Taipei	19	62
Canada	Montreal	5	16	Slovakia	Bratislava	19	62
Japan	Tokyo	5	16	Uruguay	Montevideo	20	64
Germany	Hamburg	5	16	Argentina	Buenos Aires	20	64
France	Paris	5	16	Chile	Santiago	20	64
Norway	Oslo	6	20	Poland	Warsaw	22	67
New Zealand	Auckland	6	20	Puerto Rico	San Juan	23	68
Germany	Berlin	6	20	Israel	Tel Aviv	23	68
Belgium	Brussels	6	20	Costa Rica	San Jose	24	70
Japan	Osaka Kobe	6	20	China	Shanghai	24	70
New Zealand	Wellington	6	20	China	Beijing	24	70
Germany	Düsseldorf	7	26	China	Tianjin	24	70
Netherlands	Amsterdam	7	26	UAE	Dubai	25	74
Iceland	Reykjavik	7	26	Russia	Moscow	25	74
Germany	Munich	7	26	UAE	Abu Dhabi	26	76
Luxembourg	Luxembourg	7	26	China	Shenzhen	26	76
US	Cleveland	7	26	Panama	Panama City	27	78
US	Pittsburgh	7	26	Russia	St Petersburg	27	78
US	Honolulu	8	33	Bahrain	Bahrain Manama	27	78
US	Boston	8	33	Malaysia	Kuala Lumpur	28	81
France	Lyon	8	33	Peru	Lima	28	81
US	Chicago	8	33	China	Guangzhou	29	83

Country	City			Country	City		
US	Miami	8	33	Romania	Bucharest	29	83
US	Seattle	8	33	South Africa	Pretoria	30	85
Spain	Madrid	8	33	China	Dalian	30	85
Spain	Barcelona	8	33	South Africa	Johannesburg	30	85
US	Atlanta	9	41	Kuwait	Kuwait City	30	85
Hong Kong	Hong Kong	9	41	Brazil	Sao Paulo	31	89
US	Minneapolis	9	41	Thailand	Bangkok	31	89
UK	Manchester	9	41	Brazil	Rio de Janeiro	32	91
US	Washington, DC	9	41	Ukraine	Kiev	32	91
US	Detroit	9	41	Jordan	Amman	33	93
US	Houston	10	47	Serbia & Montenegro	Belgrade	33	93
Tunisia	Tunis	34	95	Kenya	Nairobi	45	111
Paraguay	Asuncion	34	95	Venezuela	Caracas	46	113
Brunei	Bandar Seri Begawan	35	97	Vietnam	Hanoi	46	113
Mexico	Mexico City	36	98	Indonesia	Jakarta	48	115
Ecuador	Quito	38	99	India	Mumbai	48	115
Azerbaijan	Baku	38	99	Colombia	Bogotá	49	117
Saudi Arabia	Jeddah	38	99	Iran	Tehran	52	118
Turkey	Istanbul	39	102	Cameroon	Douala	53	119
Saudi Arabia	Al Khobar	39	102	Zimbabwe	Harare	53	119
Saudi Arabia	Riyadh	39	102	Cote d'Ivoire	Abidjan	54	121
Philippines	Manila	39	102	Cambodia	Phnom Penh	55	122
Egypt	Cairo	39	102	Nigeria	Lagos	59	123
Uzbekistan	Tashkent	42	107	Pakistan	Karachi	60	124
Guatemala	Guatemala City	43	108	Bangladesh	Dhaka	61	125
Sri Lanka	Colombo	43	108	Algeria	Algiers	66	126
India	New Delhi	43	108	PNG	Port Moresby	66	126
Vietnam	Ho Chi Minh	45	111				

13. 2006 SustainLane U.S. City Rankings

©SustainLane, an online network that promotes practicing healthy living at home and in communities, conducted a nationwide study that measures the 50 largest cities in America on essential quality-of-life and economic factors that affect personal sustainability.

The Philosophy of this organization is that sustainability is a more appropriate approach for urban areas than environmental management because it combines environmental, economic, and social issues, and recognizes people and institutions as the primary actors that benefit from change, with indirect benefits also accruing for natural systems as a result.

The 2006 SustainLane U.S. City Rankings were developed using a combination of primary and secondary research directed by SustainLane. Fifty US Cities were included in the study. Data and information are drawn from surveys and interviews from 2005-2006, and publicly available sources published in the period 2002-2006. Overall rankings were determined by averaging 15 individual category rankings, each of which was given a weighting of 0.5, 1, or 1.5 (see below for details). Cumulative averages ranged from 85.08 out of 100 for the highest-scoring city (Portland, Oregon) to 32.50 out of 100 for the lowest-scoring city (Columbus, Ohio).

Table 9- © 2006 SustainLane U.S. City Rankings 50 Largest Cities Overall Sustainability Ranking		
Ranking	City	Cumulative Score
1	Portland, OR	85.08
2	San Francisco	81.82
3	Seattle	79.64
4	Philadelphia	71.58
5	Chicago	70.64
6	Oakland	69.18
7	New York	68.20
8	Boston	68.18
9	Denver	66.72
10	Minneapolis	66.60
11	Baltimore	64.78
12	Washington	63.14
13	Sacramento	62.64
14	Austin	62.00
15	Honolulu	61.42
16	Milwaukee	60.42
17	San Diego	57.18
18	Kansas City	56.64
19	Albuquerque	56.10
20	Tucson	55.86
21	San Antonio	54.60
22	Phoenix	54.50
23	San Jose	54.28
24	Dallas	52.58
25	Los Angeles	52.28
26	Colorado Springs	51.36
27	Las Vegas	50.24
28	Cleveland	50.10
29	Miami	50.00
30	Long Beach	49.46
31	El Paso	49.10
32	New Orleans	49.04**
33	Fresno	48.96
34	Charlotte	47.58
35	Louisville	47.14
36	Jacksonville	46.80
37	Omaha	46.54
38	Atlanta	45.20
39	Houston	44.68
40	Tulsa	43.74
41	Arlington	41.80
42	Nashville	40.70
43	Detroit	40.30*
44	Memphis	40.30*
45	Indianapolis	38.40
46	Fort Worth	37.50
47	Mesa	36.70
48	Virginia Beach	34.00
49	Oklahoma City	32.92
50	Columbus	32.50
* denotes tie	** reflects pre-Katrina data	

Annex 3: Federation of Canadian Municipalities' Quality of Life Reporting System

By John Burrett, Senior Manager, Social Policy, Federation of Canadian Municipalities

The Federation of Canadian Municipalities' (FCM) Quality of Life Reporting System (QOLRS) has been in operation since 1996.[20] Conceived by a group of large municipal governments, the system was to track changes, primarily in social conditions, following changes in the system of federal/provincial/territorial social support funding in the middle of that decade. The system's scope has now grown to cover the local economy and environmental conditions.

Currently 20 Canadian cities and regional municipal governments participate:
- City of Vancouver
- City of Calgary
- City of Edmonton
- City of Regina
- City of Saskatoon
- City of Winnipeg
- City of Greater Sudbury
- City of London
- City of Toronto
- City of Hamilton
- City of Ottawa
- Halifax Regional Municipality
- Regional Municipality of Waterloo
- Regional Municipality of Niagara
- Regional Municipality of Halton
- Regional Municipality of Peel
- Regional Municipality of York
- Regional Municipality of Durham
- Communauté métropolitaine de Québec
- Ville de Laval

Other major cities and regional municipalities in Canada are currently considering membership, and work is underway to develop the capability of serving smaller centers.

Three rounds of reports have now been released, in 1991, 1996 and 2004-2005. The reports have relied on Census of Canada data for approximately half of the indicators, along with data from other government departments and various non-profit and commercial sources. A significant portion of the data used came from surveys of the participating municipalities. The system produced 72 indicators of local conditions and municipal activities for the latest round of reports.[21]

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[20] FCM has been the national voice of municipal governments since 1901. The organization is dedicated to improving the quality of life in all communities by promoting strong, effective and accountable municipal government. FCM membership includes Canada's largest cities, small towns, rural municipalities, and the 19 major provincial and territorial municipal associations.

[21] All reports of the QOLRS, as well as all current indicators and the underlying data are available on the FCM website: www.fcm.ca.

<u>Uses of the System</u>

FCM itself primarily uses the national reports and data to strengthen its advocacy initiatives in support of the municipal sector, targeted to the Government of Canada. The system covers primarily issues of social and economic conditions and has therefore thus far been most useful in promoting those issues. As the system evolves, it is expected to expand to cover more environmental issues and address the infrastructure and service provision capabilities of municipalities, relative to their growing responsibilities.

The system has produced a large database, disaggregated at the level of the municipal government, which is used extensively by its members. Disaggregation using municipal boundaries is one of the unique features of the QOLRS. Most analyses of "local" issues outside the QOLRS system are done at the level of Census Subdivisions and Census Metropolitan Areas, and hence do not necessarily reflect the issues that a given municipal government faces. This orientation, of course, reflects the orientation of FCM, as a representative of municipal government.

Using the database, QOLRS members produce their own local reports.
Members of the QOLRS use their reports and data, along with the reports prepared by FCM, to inform their municipal councils and help guide discussions on priorities, planning and budgeting, as well as to point out issues to their provincial governments. Outcomes and conditions measures, as found in the FCM system, help to point out areas in which a municipality may have to effect improvements, or can, conversely, confirm that overall targets are being reached.

It is important to recognize that this style of measurement and management feedback is distinct from more formal "performance measurement" systems, which are now in place in a number of municipalities, and are being required of municipalities by several provinces. Mandated performance measurement systems generally concentrate on process and cost efficiency.

That being said, a number of municipalities are now integrating a balance of organizational measures, employee measures, financial health indicators, and community "quality of life" indicators. One of the goals of the FCM team now is to more fully integrate the QOLRS with their own management information and performance reporting systems.

Most QOLRS participants use their local reports as a means to report to their citizens, and many use the reports as the basis for community planning sessions involving citizens at large.

Finally, the system is a network of municipal government officials, both elected and staff, who are engaged in the process of improving their management capabilities to support their communities' quality of life.

<u>Indicators</u>

The QOLRS currently uses 72 indicators, grouped into a set of "domains", which are sets of indicators related principally to one aspect of quality of life or description of conditions.

Figure 1 summarizes the domains and indicators. The domains are indicated on the top row, with the columns containing the indicators. All indicators are documented and presented on the FCM website.[22]

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[22] See footnote 2.

The indicators for the 2005-2005 reports were developed by a consensus of the members of the team and usually informed by input from planning and service delivery staff in the participating municipalities.

Data were collected from a total of 12 sources, with the majority coming from Statistics Canada and a Survey of the QOLRS municipalities. Data are presented for each of the QOLRS municipalities, for a population-weighted average of all QOLRS municipalities, and for the "Rest of Canada" which excludes data for the QOLRS municipalities.

Membership

The current membership of 20 large cities and regional municipalities covers most of the major urban areas of Canada and close to 50 percent of Canada's population. FCM is pursuing membership of the remaining large urban centers.

Secondly, FCM is pursuing the means to extend the reach of the system to smaller communities. This has been challenging to date, due to data restrictions for smaller geographic areas and populations in Statistics Canada's products and due to resource constraints for FCM and potential participant municipalities.

Indicators and Reports

FCM plans to extend the scope of the system's indicators to better cover certain aspects of quality of life and sustainability. Principal among the areas requiring improved and additional measures are environmental conditions, public health and cultural life.

With data spanning ten years and three Censuses, the QOLRS database already provides a unique long term perspective on trends in member communities. This will continue to grow in significance as more Census data points are added.

The indicator set, however, will also be revised and expanded to allow editions of the QOLRS report during the periods between releases of Census data, as well as research reports on selected topics. The result will be a yearly or bi-annual publishing schedule, with Census-based reports going into more depth on demographic and socio-economic issues than the inter-census reports, which will deal more with locally-measured conditions and municipal activities.

Table 1 – Set of urban indicators used by FCM	
Sector	**Indicators**
Demographic and background information	Population growth
	Household & family composition
	Average income
	Renters & owners
	Population mobility
	Foreign born
	New immigrant groups
	Language spoken at home
	Visible minorities
	Aboriginal population
Affordable, appropriate housing	30+ Income on shelter
	50% + income on shelter
	Core housing need
	Substandard unit
	Changing face of homelessness
	Vacancy rates
	Rental housing starts
	Monthly rent
Civic engagement	Voter turnout
	Women in municipal government
	Newspaper circulation
	Volunteering
	Charitable donations
Community and social infrastructure	Social housing waiting lists
	Rental-geared-to-income housing
	Social assistance allowances
	Subsidized child care spaces
	Public transit costs
	Social services professionals
	Private health care expenditures
Education	Education levels
	Literacy levels
	Adult learning
	Education expenditures
	Classroom size
	Student/teacher ratio
	Post-secondary tuition
	Spending on private education
Employment	Unemployment / employment rates
	Quality of employment
	Long term unemployment
	Labour force replacement
Local economy	Business bankruptcies
	Consumer bankruptcies
	Hourly wages
	Change in family income
	Building permits
Natural environment	Air quality
	Urban transportation
	Population density
	Water consumption
	Wastewater treatment
	Solid waste

Table 1 – Set of urban indicators used by FCM	
	Ecological footprint
	Recreational water quality
Personal & community health	Low birth weight babies
	Teen births
	Premature mortality
	Work hours lost
	Suicides
	Infant mortality
Personal financial security	Community affordability
	Families receiving EI/Social assistance
	Economic dependency ratio
	Lone parent family
	Incidence of low income families
	Children living in poverty
	Income gap
Personal safety	Youth offenders
	Violent crimes
	Property crimes
	Injuries and poisonings

**Annex 4: Draft Memorandum of Understanding
Between Canada and the World Bank**

This Memorandum of Understanding made as of June 21, 2006

BETWEEN: **HER MAJESTY IN RIGHT OF CANADA**, ("Government of Canada") represented by the Deputy Head of Infrastructure and Communities.

AND: **THE WORLD BANK** represented by the Vice President of Infrastructure.

Preamble

The Government of Canada and the World Bank recognize that cities and communities around the world have a critical role to play in the long-term social and economic development of nations as well as the quality of life of their citizens.

The challenges and opportunities facing cities and communities are complex and are intricately entwined with social, economic, environmental, financial, technical and cultural issues.

Cities and communities are dynamic, evolving and at different stages of development, with challenges and opportunities that are different over time and by size and location.

The Government of Canada and the World Bank wish to enter into a Memorandum of Understanding to support sustainable development objectives and to make a transformative difference in the sustainability and future prosperity of cities and communities.

1. Purpose of Memorandum of Understanding

The purpose of this Memorandum of Understanding is to outline an understanding between the Parties and their respective roles and future work to help foster vibrant, creative, prosperous and sustainable cities and communities, and to develop an integrated approach for cities and communities performance measurement.

The World Bank study to develop city performance indicators will take into consideration the need to:
- factor the dimensions of sustainable development (economic, social, cultural and environmental) into the development of city performance indicators;
- ensure a broad range of consultations with governments, municipal associations, academics, city staff and citizens;
- consider short, medium and long-term objectives and outcomes, risks and constraints and develop appropriate indicators against which progress can be measured;
- monitor and evaluate development interventions; and
- disseminate and share information and knowledge, including lessons from past experiences and best practices, both domestically and internationally.

2. Outcomes and Roles

Collaboration between the Parties will support the following activities and objectives:

- Over the next 24 months, the Government of Canada intends to participate in the World Bank "study to assist cities to develop an integrated approach for measuring and monitoring city performance", which has been funded by the Government of Japan.
- The Government of Canada and the World Bank intend to foster a collaborative and integrated approach to the city indicator development and help ensure that the draft indicators are relevant, credible and applicable to the piloted cities and communities.
- Infrastructure and Communities, on behalf of the Government of Canada, intends to coordinate and facilitate discussions and partnerships with other federal departments, other levels of government, municipal associations, academics and citizens to develop a draft set of city performance indicators that are consistent with the goals of the World Bank study.
- The cities of Vancouver, Toronto and Montreal have been approached, and the Canadian Standards Association, the Federation of Canadian Municipalities (FCM) and various academic institutions have already agreed to provide assistance to the work by the World Bank. In particular, the work of the FCM in developing quality of life indicators will be very relevant to this study. The FCM has indicated that it will focus the work of its team to support all elements of this project and to promote this project among its members and to all municipalities across the country.
- Statistics Canada's work on trends and conditions in Census Metropolitan Areas and their upcoming paper, "Canada's global cities: Socio-economic conditions in Montreal, Toronto and Montreal", will be a valuable contribution.
- Infrastructure and Communities intends to host a workshop in Canada and invite other parties to support the development of city indicators and to review progress on the indicators. Infrastructure and Communities may also participate in other workshops in Washington and the piloted cities.
- Where appropriate and feasible, Infrastructure and Communities will work with others to facilitate and support data collection and analysis, further data development to address gaps, and research by Canadian academics on city and community indicators and related policy issues.
- The draft city performance indicators would be presented at the next World Urban Forum in Nanjing, China in 2008. The draft will include the methodology proposed for the collection of data, preparation of indicators, quality control and applied results generated in the pilot cities.
- Infrastructure and Communities intends to work with the World Bank to inform other interested parties such as other countries, the World Economic Forum, UN Habitat, OECD, and additional pilot cities.
- The World Bank will select through open competition the successful firm which will lead the study of city performance indicators, assist the firm in carrying out its work, and make available relevant project data and reports. In addition, the Bank will organize or participate in workshops in Washington and piloted cities to develop and review progress of the indicator work. At the World Urban Forum meeting in June 2006, the World Bank will host a networking event on indicators where it will present a paper and engage various speakers. The Bank, together with Infrastructure and Communities intends to ensure the widest participation in the review of the study and ensure that other critical work, such as UN Habitat, and the Asian Development Bank, is included.

SIGNATURES

IN THE PRESENCE OF: **GOVERNMENT OF CANADA**

Original signed by: Original signed by

_____   _____

WITNESS   Deputy Head of
                                            Infrastructure and Communities

IN THE PRESENCE OF: **WORLD BANK**

Original signed by: Original signed by:

_____   _____

WITNESS   Vice President of Infrastructure

Annex 5: City Indicator Initiatives from Six Different Cities:

Toronto

Initiatives from the city hall	Initiatives from the private sector	University based initiatives	Other initiatives
Toronto Economic Indicators is a monthly publication produced by the Economic Development Division of the City Hall. It provides a monthly snapshot of the regional economy, and includes data on employment, unemployment, real estate activity, transit rider ship, social indicators, financial indicators, innovation and others. The City Hall of Toronto financed a research on social indicators and priority areas. This report provides a description of social conditions in the new City of Toronto and focuses attention on indicators of risk, or social vulnerability. The concentrations of socially vulnerable people. In particular, the trends we see are; increasing income disparity within the City and between the City and the GTA regions; new priority areas emerging; large migrations of people into and out of the City; impeding issues due to a concentration of seniors; rejuvenation in parts of the City that relate in some case to the highest priority locations. This analysis helps to point out the areas for intervention and strategic reinvestment. **Toronto Environmental Database** (TED): Design with support form ICLEI, the TED was conceived as an aid for the city to make more informed decisions regarding the investments it makes in improving the urban environmental quality of Toronto. The TED is based housed in the W&ES department.	"**Urban Indicators**" is a website presenting free data analyzed in two contexts the great Toronto and the city itself. The variables are population, economy, development and crime. Each has its own division as such: total population and ethnicity, industry and employment, building and infrastructure and finally total crimes and homicides. This data is very useful for having a quick, general view of the city.	**University of Toronto** has The **Environmental Security Database** which contains information on books, journal articles, papers, and newspaper clippings relating to the study of the links between environmental stress and violent conflict in developing countries.	At the provincial level the Ministry of Municipal Affairs and housing collects each year from all the **Ontarian municipalities a set of information for the Municipal Performance Measurement Program**. However the results do not show how each municipality is performing, therefore results from Toronto are not evident.

Montreal

Initiatives from the city hall	Initiatives from the private sector	University based initiatives	Other initiatives
As part of the first strategic plan on sustainable development of Montreal community, the City Hall created a set of indicators to see how various elements of the environment are performing. Years 1999 - 2003 were established as the base line. From then, since 2006 each year a new survey will take place to be able to analyze improvements and failures according to the established policy. The framework includes twenty indicators divided into four categories: a) improve air quality and reduce gas emissions, b) ensure good residential environments, c) practice responsible resource management, d) adopt good sustainable development practices in companies, institutions and stores. Urban observatory of Montreal is a group within the City Hall dedicated to provide data about the city. At the Internet is published a report that compares Montreal with other North American. However the date of the report is 2003, therefore we may conclude that the exercise did not continue or that the last result were not meant to be published. http://www2.ville.montreal.qc.ca/urb_demo/chiffres/chiffres2.htm	**The Montreal Urban Indicators System Project** Urban Ecology is a private institution that has worked on a system of urban indicators that may be used to assess the progress of the City of Montreal toward a sustainable future. The indicators are grouped under 11 key heading: Air Quality, Surface Water Quality, Biodiversity, Energy, Water Consumption, Domestic Waste Management, Transportation, Housing Affordability, Community Health, Public Participation and Economic Viability. In each case, the document focuses on why the issue important, specific concerns for Montreal and presents data to support observations concerning: where we were, where we are and where we want to be. The project was a team effort that involved many participants associated with the School of Urban Planning, McGill University and the Urban Ecology Center It is hoped that this work will contribute to Montreal's effort to promote sustainable development by: 1) Facilitating educational activities pertaining to Montreal's urban sustainability. 2) Building a monitoring system which identifies and updates issues, uses indicators along with targets and reports on annual progress. 3) Recommending concrete practices at the city management and neighborhood levels. **Neighbourhood indicators** The report has five sections. The first section provides a brief introduction to the rationale for devising and applying sustainability indicators at the neighborhood level and situates the role that indicators might play within the Montreal context. The second section offers an overview of the nature of sustainability indicators and the processes that are used to identify indicators for a specific neighborhood. In the third section, the presentations of participants from Calgary and Baltimore who have significant experience in neighborhood indicator programs, and a representative of the Milton-Park community are summarized. In section 4, a preliminary list of indicators identified by workshop participants is presented. Finally, section 5 indicates the "next steps" for the project. The workshop agenda, as well as the names of presenters, organizers, and participants are listed in the appendices.		The Institute of Statistics of Quebec has a set or **indicators** that deal with cities within the province. http://www.stat.gouv.qc.ca/princ_indic/publications/indicat.pdf It is important to mention that various researchers have point out the lack of accurate measures that indicates the progress of sustainability in Quebec's major cities. http://www.mddep.gouv.qc.ca/developpement/2004-2007/memoires/0311/415-denis-dore.pdf
		Villes Régions Monde (VRM) World City Region is an urban research interuniversity network promoting research, training in the field as well as its diffusion. However, the network does not refer directly to indicators. **http://www.vrm.ca/presentation.asp**	

Vancouver

Initiatives from the city hall	Initiatives from the private sector	University based initiatives	Other initiatives
The City of Vancouver has created a framework for State of the **Environment Reporting.** The first step was to produce the 1995 State of the Environment Report. A number of key environmental issues facing the City were identified in this report. By reviewing the past histories of these issues and current City activities and trends, an environmental report card was created to rate the City's progress in protecting the environment.		**Simon Fraser University - Regional Vancouver Observatory - RVO** Initiated in 2004, the RVO represents the first local observatory of the global network of UN observatories to be established in the developed world. The aim of the observatories is to improve the world-wide base of urban knowledge by helping governments, local authorities and organizations of the civil society develop and apply policy-oriented urban indicators, statistics and other urban information. http://www.rvu.ca	**BC Progress Board** Even though it is not directly related to urban indicators, it is important to mention that, in 2001, the Premier formed the BC Progress Board as an independent Panel of eighteen eminent British Columbians from a variety of backgrounds, and since then the Board has delivered Annual Benchmarking Report The report includes 71 performance indicators in topics such as economic, innovation, education, environment, health and social performance regionally, nationally and internationally. This experience may be used by cities. http://www.bcprogressboard.com/index.php
In 2005 the Council of the City of Vancouver approved a common adopted a set of indicators and targets, as a preliminary framework for on-going monitoring of environmental, social, and economic sustainability goals for the SEFC community			

Bogotá

Initiatives from the city hall	Initiatives from the private sector	University based initiatives	Other initiatives
Secretaría de Hacienda del Distrito (equivalent to the finance ministry at local level) has undertaken an interesting exercise of collecting economic data since 1996 on three major economic issues: social development, economic actuality and city development, all three in terms of financial structure. The approach taken by SHD when designing and developing city indicators is based on a "*goal oriented budget methodology*" which analyzes not only tax entries and program allocation, but also concrete results in each sector according to established public policies. http://www.shd.gov.co	**Bogotá como vamos?** It is a partnership between four private Bogotá based companies aware of their city, namely El Tiempo (Colombia's largest newspaper), Bogotá's Chamber of Commerce, Corona's Foundation The project carries out periodic survey on how the local government is performing and produces a report presented publicly analyzing the performance of local. This exercise has become an important tool for citizens as well as for public servants in working together on improving specific areas of public administration. Annual management cost of Bogotá Como Vamos is US$ 100,000, including US$ 30,000 for the survey itself. www.Bogotácomovamos.org	**Red Bogotá** It is a program from the Arts Faculty of the National University in Bogotá that focuses on research, public presentations and analysis of the city and its dynamics. In order to produce its analysis and research it has indicators in the following topics: Education, health, housing, public services, environment, transportation, public space, vulnerability groups, and citizens' safety. www.redBogotá.com	Bogotá's District and the Department of Cundinamarca (Bogotá is also its capital) created **the regional planning table.** To achieve competitiveness for the city, economic data was analyze according to the following indicators: distribution between population and economic activity, productivity and competitive region, Environmental sustainability, Coverage and quality of physical infrastructures and social services, Social cohesion: governance, conflicts and poverty, Institutional development and local governments financing http://www.regionBogotácundinamarca.org
Bogotá's Planning Department – DAPD: has been in charged of collecting information and producing reports according to 2002 city Accord on sixteen (16) city indicators: Life expectancy at birth, Mortality rate per 1,000 inhabitants, Deficit of appropriate housing, Deficit of housing, Housing coverage of waste management system, Electricity housing coverage , Gas housing coverage , Percentage of informal work, rate of unemployment, Index of basic unsatisfied needs, Human development index, Human development index, Living conditions index, Poverty index, BIP index, Number of telephone lines per 1,000 inhabitants. www.dapd.gov.co		**Los Andes University:** The faculty of Management has carried out some consultancies for the District's Health Secretary for about US$ 10,000, with a focus on measuring citizens' perceptions about the public health system. The Health Secretary has manifested his intention to repeat this exercise annually. An interesting aspect of the survey is that it goes well beyond the Health Sector and asks questions on quality of life and even spirituality, which can provide interesting material for new research on urban matters.	

São Paulo

Initiatives from the city hall	Initiatives from the private sector	University based initiatives	Other initiatives
In 2005 the **Department of the Environment** did a study about the state of the environmental in Sao Paulo. The document explains how urban dynamics are pressuring the environment of the Sao Paulo underlying demographic impact, economic development, provision of services, and land occupation. The analysis is done from five (5) environmental indicators: 1. quality of air, 2. quality of water, 3. land, 4. biodiversity, 5. use of urban land 6. www.prefeitura.sp.gov.br	In 1996 **Instituto Polis** created the municipal management index with three main variables (1) waste management, (2) child education, and (3) child mortality, all of which being compared with the social municipal index. The key element of its success was that all information was available or easy to find in Brazilian municipalities. During the 90s, that Index became a tool for measuring performance of public governments in Brazil. However, lack of resources has constrained production of new data based on that index for further years. www.polis.org.br		**Seade** a public foundation of the State of Sao Paulo annually produces indicators on the following topics: Social Inclusion, Life expectancy, Racial inequality indicators, Youth vulnerability Index, Social responsibility Index , Social Vulnerability Index, Information on Sao Paulo's districts, Development of Millennium Objectives Research on life conditions, Job market index, Municipal public finances index, Cultural Guide of the State of Sao Paulo, Information for Municipal Plans, Memory of Demographic Statistics, Child mortality (2004), Electoral movement, Women and work, Sao Paulo's Municipal profile, Internal brut product (annually and every three months), Integrated system of criminal information. www.seade.gov.br
Periodically the **Planning Secretariat** presented a series of social indexes Human development index, Human rights maps, Youth vulnerability index, Social exclusion map (2002), Social vulnerability map, Social vulnerability index for the City of Sao Paulo. www.prefeitura.sp.gov.br			As a Brazilian municipalities network, **Muninet** was created in 2002 by the World Bank in partnership with more than twenty (20) Brazilian institutions and other international organizations. Muninet's objective is to strengthen municipal development in Brazil. Indicators presented by Muninet in the Internet: Population, Municipal Characteristics, Development in terms of: Culture, Human Development, social exclusion index, Education, Municipal finances, Municipal management, Income http://muninet.org.br/

Belo Horizonte

Initiatives from the city hall	University based initiatives	Initiatives from the private sector	Other initiatives

In 1994 the **Planning Secretariat** and the **Pontificia Universidad Catolica – PUC**, did a study exercise was initiated by a team composed of scholars and public officers and meant to calculate two indexes for the City of Belo Horizonte: the social vulnerability index and the quality of life index. In order to create analysis unity, the territory of the city was divided into eighty-one (81) units of planning. For the first index on vulnerability the variables are:
 1. Access to work
 2. Security and survival
   a. Health
   b. Social security
   c. Food supply
 3. Environment and access to housing
 4. Culture: access to formal education
 5. Legal assistance: access to justice
 http://portal1.pbh.gov.br			

The Services Superintendencia has also worked on city indicators but mainly to measure public access to services and facilities. It is measured from two perspectives: one is access to public services from home and the other is time spent for accessing to public services. The variables are: 1. Housing 2. Urban Infrastructure 3. Health 4. Education 5. Urban services 6. Urban security 7. Food supply 8. Environment 9. Culture 10. Sports 11. Social Assistance http://portal1.pbh.gov.br			

Annex 6: ISO 9000 and ISO 14000

The city indicators proposed in this paper would establish a system of indicators developed and maintained by cities. This may require third-party verification and audits of the sources of information, the methodologies for the establishment of the indicators, the processes to update indicators, and programs to disseminate the information. The verification should guarantee standardized indicators subject to comparison across cities and over time. The ISO 9000 and ISO 14000 standards overseen by the International Standards Organization (ISO) may be practical models to follow[23].

The ISO is an internationally recognized organization, responsible for producing standards that provide organizations with a model for setting up and operating management systems that assure quality standards.

The ISO 9000 and ISO 14000 are known as generic management systems. ISO 9000 is focused on quality management and customer quality requirements, control of processes, and promoting continuous improvement, while ISO 14000 focuses on environmental management.

ISO 9000

The ISO 9000 standards are maintained by ISO and administered by accreditation and certification bodies. Although the standards originated in manufacturing, they are now employed across a wide range of other types of organizations. ISO 9000 does not guarantee the quality of end products and services; rather, it certifies that consistent business processes are being applied.

ISO does not itself certify organizations. Many countries have formed accreditation bodies to authorize certification bodies (CB), which audit organizations applying for ISO 9001 compliance certification. The various accreditation bodies have mutual agreements with each other to ensure that certificates issued by one of them are accepted world-wide.

The applying organization is assessed based on an extensive sample of its sites, functions, products, services, and processes and a list of problems ("action requests" or "non-compliances") made known to the management. If there are no major problems on this list, the certification body will issue an ISO 9001 certificate for each geographical site it has visited, once it receives a satisfactory improvement plan from the management showing how any problems will be resolved.

An ISO certificate is not a 'once-and-for-all' award, but must be renewed at regular intervals. These intervals, recommended by the certification body, usually span three years.

There are various approaches which attempt to measure quality in a way that is not simply 'pass or fail', as is the case with ISO 9001. One such scheme is the BSI Benchmark, which evaluates the progress of an organization's management system by measuring the degree to which hit has applied the eight management principles underlying the ISO 9000 standards.

Two types of auditing are required to become registered to the standard: auditing by an external certification body (external audit) and audits by internal staff trained for this process (internal audits). The aim is a continual process of review and assessment, to verify that the system is working as it is supposed to, find out where it can improve, and correct or prevent problems

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[23] See: http://www.quality.co.uk/iso14000.htm **and**: http://en.wikipedia.org/wiki/ISO_9000

identified. It is considered healthier for internal auditors to audit outside their usual management line, so as to bring a degree of independence to their judgments.

ISO 14000

Background

ISO 14000 is the world's first series of internationally accepted standards for environmental management. The standards were originally established for industry and are increasingly being applied to governments and public agencies. ISO 14000 provides a management framework under which organizations or companies identify, achieve and control environmental performance standards. ISO 14000 is a voluntary series of standards that enable organizations to comply with national laws and regulations while continually supporting new ideas and opportunities for preventing pollution and reducing environmental compliance costs. In this regard the standard does not dictate specific solutions, but rather outlines a management approach for continuous problem identification, improvements in environmental practices, reporting of results and overall performance monitoring.

The driving philosophy behind ISO 14000 is that better management will deliver better results. The ISO 14000 series of standards is comprised of several 'guideline' standards and one 'compliance' standard, i.e. ISO 14001 Environmental Management Systems (EMS).[24] The EMS compliance standard helps organizations: (i) recognize the interactions that its activities, services and products have with the environment; and (ii) achieve continuous improvements in performance levels.

The Public Sector and ISO 14001

Obtaining ISO 14000 certification can have numerous benefits for public sector agencies. Public institutions work towards ISO 14000 certification for a range of objectives including:

- Developing a model for an Environmental Management System;
- Achieving compliance with local legislation and donor expectations;
- Obtaining local customers and international donor recognition;
- Demonstrating commitment to good environmental management;
- Increasing efficiency of resource use;
- Achieving a greater ability to adapt to changing circumstances; and
- Serving as a valuable motivational factor for management and staff.

Recent experience from local authorities and government agencies in Europe, North America and Japan highlights a clear relationship between establishing an EMS and improved service delivery. The scope of implementation of an EMS can cover direct and indirect effects arising from policies, decisions, ordinances, services and other actions by public sector agencies. A comprehensive EMS, as adopted through ISO 14001 certification, should improve an organization's overall environmental performance, especially over the medium and longer term.

When managing daily operations, an EMS is expected to create a structured mechanism for:

- Ensuring compliance with national and local environmental laws, statutes and regulations;
- Providing the evidence of due diligence when an environmental incident occurs;

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[24] The better known ISO 9000 series of Quality Management standards, with over 100,000 registrations around the world, is used by businesses and organizations as a model for a quality management system. It is aimed at meeting clients' requirements, as well as seeking control of the process and continuous improvement. ISO 14000 is aimed at these, and more: 'client's requirements' has expanded to include regulatory and other mandatory environmental requirements; and 'continuous improvement' is not only driven by customer expectations but also by priorities and objectives generated internally by the organization.

- Reducing both corporate and employee liabilities, in particular insurance claims;
- Improving employee health and safety and therefore reducing lost time and insurable risk;
- Increasing employee morale by creating a focused direction for the organization;
- Spreading environmental responsibility throughout the organization, in particular to those personnel directly associated with the identified environmental impacts;
- Identifying potential operational improvements and efficiencies and associated financial savings;
- Improving the efficiency of service delivery by creating a cycle of continuous improvement; and
- Creating the evidence that the clients' environmental issues of concern are being identified and controlled in the delivery of the services.

The EMS also needs to be owned by the organization's staff. Therefore the staff that will be responsible for implementation and maintenance should direct the development of the EMS and, if possible, be involved in its development. However, external, specialized assistance may be required, especially in the early stages.

ISO 14001 Certification Methodology, Implementation and Maintenance

ISO 14001 methodology is based on the 'plan-do-check-act' (PDCA) approach which also serves as the basis for more widely used ISO 9000 standards for Total Quality Management Systems. The table below outlines the methodology for implementing an ISO 14001 process:

Table 1- Methodology for implementing an ISO 14001 process	
Stage 1: Identify clear 'champions' within management and articulate a clear mission statement	Senior management should lead the effort and strongly articulate the organizational commitment to the process
	Orient staff to the EMS process demonstrating how the EMS process will help achieve better quality and client satisfaction
	Create opportunities for all staff to participate
Stage 2: Review program and identify potential environmental impacts	Carry out gap analysis to identify major limitations
	Outline a process for addressing gaps and bringing existing procedures and processes into the ISO 14001 structure
Stage 3: Set environmental objectives and targets	Communicate to the clients how the organization intends to address environmental issues and concerns
	Measure and report on achievements
	Develop annual and capital works programs
	Link operations and activities to the goals of the mission statement
Stage 4: Establish and clarify responsibilities, policies, procedures and records	Develop a corporate EMS manual to guide EMS implementation (to be reviewed and updated periodically)
	Establish implementation groups for different areas of activities
	Review and confirm arrangements for service delivery, environmental impacts and applicable legal requirements
	Identify which mechanisms, such as standard operating procedures, technological changes, inspection and monitoring, staff training and capital improvements currently exist or are being implemented for controlling the environmental impacts and maintaining regulatory compliance
	Restructure existing systems as needed to meet the requirements of the corporate EMS manual

	Develop an environmental management plan to address the objectives and targets
Stage 5: Create systems for regular evaluation and improvement of the management system	Review procedures and systems developed by implementation teams
	Prepare an action plan, as part of the annual budget process, for achieving the agreed objectives and targets
	Conduct training and awareness programs about the EMS requirements for all personnel
	Establish an internal management system audit process
	Implement an annual management review of EMS effectiveness

The ISO 14000 program must be led by senior management. Management would need to send a clear message on the importance of the process by defining and communicating the organization's environmental policy to staff and clients and designate personnel and resources towards the task. The organization and agency will require specialized external assistance. However, external consultants should not be seen as driving the process. The organization's environmental policy should affirm organizational commitment to continuous improvement, prevention of pollution and compliance with existing legislation and regulations.

The review of the environmental impacts of the program must consider all applicable environmental regulations, existing processes, documentation, work practices and effects of current operations. The focus of this review – an ongoing updating of this assessment – would be rooted in a thorough evaluation of potential environmental impacts including noise, emissions, waste reduction and energy use and then identify those impacts that can be controlled or influenced. The evaluation serves as a basis for setting goals and objectives. A strategic implementation plan would be developed based on this review outlining targets, objectives, steps and roles, and responsibilities for actors within the organization. Objectives and standards are set by the organization itself – and are not based on global ISO 14001 standards.

Maintaining an ISO 14000 Environmental Management System: A clear regime for monitoring, evaluation and continuous improvement once the EMS is in place will be critical. Both environmental and management procedures should be audited regularly. Issue-specific environmental audits may be conducted externally by regulators and consultants or internally by environmental engineers or other qualified personnel. Periodic Environmental Management System audits are needed to determine if the Environmental Management System conforms to the requirements of ISO 14001, and that the program is implemented and is continuously improving. Management needs to regularly review monitoring and evaluation results and reflect these findings in corrective action, revised management and environmental practices, new policies and other related actions.

Annex 7: Indicators of Subjective Wellbeing in Cities

By Eduardo Wills, Universidad de los Andes Bogotá-Colombia

1. Introduction

Traditionally wealth or economic performances have been the most important indicators used to measure the goodness of a society either at the national, local or urban levels (Kuznets, 1930). These indicators are based on the assumption or belief that by increasing only their output a society truly betters itself. These are "objective measures" with two main characteristics: i) they were not developed to capture the wellbeing of a subject that lives in a city or nation, nor are they suitable to do so and ii) these indicators measure means not ends. As Aristotle has stated more than 20 centuries ago "wealth is not the ultimate goal we search, but a means to reach more transcendental goals." Objective indicators of wealth or monetary outputs fail to measure what people feel about their inherent life or quality of life (Cummins, 1999). Additionally, objective indicators generally are very poor predictors of subjective quality of life (Cummins, et.al, 2003).

On the contrary, some authors (Zen, (1985,1999), Nussbaum(2001) have argued that increasing economic productivity or performance alone can eventually destroy traditional cultural values, disrupt social networks of interpersonal contacts and solidarity and eventually diminish the sense of well-being of parts of the population that live in a particular city or nation. Empirical research has proven that in industrialized countries wellbeing appears to rise as the national income does, to a certain level. Above such a level, increases in wellbeing are so small as to be almost undetectable. (Eckersley,2000).

Other economists as Easterlin (2001) have argued that the concept of utility, which is based on the assumption of revealed preferences made by rational decision makers, does not consider the fact that preferences are not fixed but vary according along income, thus undercutting potential beneficial effects of income on human satisfaction with life (Anand,2005). Other authors have also stated that economic performance is not per se interesting but its importance is that it is a means to an end. The end is not to increase the consumption of material goods but rather the enrichment of citizens' feelings of wellbeing. Economic things matter in so far as they increase the individuals' sense of well-being or their level of happiness. Despite some initiatives (Bhuthan´s gross happiness index), until now, governments at the national or local (urban) level do not record the level of sense of wellbeing from year to year unlike gross domestic product or the inflation rate.

2. The Importance of Subjective Indicators of Well-being for Urban Policies

People in cities have an innate interest in knowing how their subjective well-being increases from year to year and they are also interested to establish which the causes of such increases are. I state correspondingly that indicators of well-being, and more particularly of subjective wellbeing, can constitute an important goal for public policy at the national and urban levels.

I propose the importance of creating new data basis that measure subjectively the quality of urban development policies. The main indicator I propose is subjective well-being and more specifically the personal well-being index developed by Professor Robert Cummins which has been applied on a comparative basis at different countries and cities by the international wellbeing group. (http://acqol.deakin.edu.au/inter_**wellbeing**/ int_**wellbeing_group**).

These indicators may provide a base line of a monitoring system based on subjective indicators of wellbeing. These subjective indicators may provide the basis for intercity comparisons of subjective wellbeing. Inter temporal comparisons of wellbeing within cities may also constitute valuable instruments for improving urban policies.

These instruments provide the possibility of doing empirical research about the well-being of citizens in different countries and make inter country and inter temporal comparisons. Cities that are found to have higher levels of subjective wellbeing, that is to say, citizens in those cities evaluate their lives in more positive ways than citizens of other cities; may provide useful information and background to infer which values and dimensions of life are more important for these citizens. At the same time, measures of subjective wellbeing in cities may signal those cities where citizens cannot attain their substantive values and goals. Those citizens that cannot attain their valued ends and goals will feel less satisfied and happy.

In developing countries and cities, the sense of wellbeing of citizens does not automatically match with the objective conditions of their economic environment. For example, it has been shown that in cities like Bogotá (Wills, 2006), subjective wellbeing of citizens can be as high as in other cities which are more "objectively" developed such as Sidney in Australia.

2. Quality of Life, Subjective Well-being and Happiness

The terms happiness, quality of life and subjective wellbeing denote different meanings. Sometimes they are used as multidimensional constructs- like an umbrella- for all that is of value for quality of life, other times they denote specific meanings.

I argue that they are different concepts and that they may display casual interrelationships between them. In the case of Quality of life, the object of evaluation is life itself. It can be done from an objective external perspective or from an internal subjective point of view. In the first case, the quality is in the environment, in the latter it is in the individual. Here, as Veenhoven (2000) has suggested, the term objective does represent "truth", and the term subjective should not be interpreted as a matter of arbitrary taste. Veenhoven (2000) has proposed a typology for quality of like by which he combines objective/subjective variables with opportunities for a good life and results of life itself, stressing the importance of chances or opportunities and outcomes. This classification results in a fourfold matrix including the concepts of livability, referred to the environmental chances for a good life, and life-abilities, as the personal capacities for living a good life from a subjective perspective.) It is the opportunity to live a good life rather than the accumulation of resources that matters most for wellbeing (Zen, 1985). Opportunities in turn results from the capabilities subjects have. This capability approach focuses more on persons than goods.

The two other quadrants of the matrix are: utility of life as an objective result and appreciation of life as a subjective evaluation of results in life. Subjective well-being implies an appraisal of life-aspects such as satisfaction with job or the community in which the individual is embedded as well as an overall affective appraisal or general mood level.

3. Subjective Well-being

Measures of subjective wellbeing are based on the idea of how each person feels and thinks about his or her life. It comprises an evaluation, both affective (I feel good about my life) and cognitive (I think that the various aspects of my life, i.e., family, job, spirituality, education, etc., are satisfactory) of people's lives. It is not just the opinion of the elite or the intellectuals in a particular city but rather the subjective perceptions of their citizens. It includes components that are dependent on pleasure or affect and the fulfillment of basic needs (happiness) but it also includes people's ethical and evaluative judgments of their lives (cognitive evaluation). Diener, et.al, (1995) investigated the factors that lead to SWB and found that high income, social equality, individualism and respect of human rights are connected with it.

Subjective well-being scales have been researched for more than ten years and they show high construct validity so that they are comparable across individuals and societies. Subjective well-being is measured through self reports and this scale correlates well with a number of non-self-report- or objective measures such as reports from colleagues and friends, memory measures and interviews (Diener& Suh, 2000). Subjective well-being research has been based on surveys of population not only samples of college students

It is important to note that measures of subjective wellbeing are not equal to measures of happiness. The first variable includes cognitive evaluations about achieving important values and goals in the life span of the individual as well as the affective measure of how well that person feels, whereas the second variable comprises only the affective elements of pleasure and avoiding pain. So, measures of happiness are not sufficient to fully evaluate quality of life of societies or cities because people have terminal and intermediate values that they try to achieve in addition to feel hedonism in particular events. Subjective wellbeing values important considerations such as human equality, respect for nature, and a sense of social justice, regardless of whether these things will make people happier or more satisfied.   People hope to increase their subjective wellbeing through the quality of their social relationships and the attainment of goals and values and not only from instant pleasure has that may for example come from drugs use.

Measures of subjective wellbeing include an evaluation and a judgment of whether people are living a good life and include judgments that go beyond instant hedonism. Subjective wellbeing is one outcome measure by which people judge successful living. Additionally, human health and wellbeing are two important and good standards with which to start in judging a city and a society.

Subjective wellbeing can be measured from two different conceptual approaches: a top-down approach mainly developed by Diener (1985) or a bottom-up approach which measures facets or dimensions of the good life. The first approach has proposed a general measure of overall satisfaction with life in general which has shown good psychometrics qualities and a high validity and reliability. The second approach may be considered as the first deconstruction measure of the top down approach and it has been developed by the international wellbeing group a group whose academic leadership has been encouraged by Robert Cummins at Deakin University, Melbourne Australia.

4. International Well-being Index (IWI) and Personal Well-being Index (PWI):

The International Well-being Index (IWI) is the international application of the Personal and National Wellbeing Index (PWI; NWI) which include only subjective measures wellbeing (Cummins &Lau, 2005). The international application of these indexes has been carried out by the international Wellbeing Group Index which was initiated by Cummins in order to explore its validity across cultures. The author of this paper is the primary researcher for Colombia and has made its application to the case of its capital city Bogotá. The index consists of seven domains of the overall measure of life-satisfaction. The domains are: i) satisfaction of standard of living, health, achieving in life, relationships, safety, community connectedness and future security.

NWI consists of six domains (Tilouine, Cummins & Davern , 2006): satisfaction with economic situation of the country or city, state of the environment, social conditions, satisfaction with national or local government, business, and security.

The seven domains of PWI were regressed onto satisfaction with life as a whole (Diener, 1985). A factor analysis and reliability check was conducted in order to see if dimensions of PWI and NWI charge in one factor. The international reliability of the index was checked with Cronbach´s alpha (Cronbach, 1954) and item-domain correlations.

PWI has consistently resulted around 75% in Australia and other countries. This stability of the index has been explained with the theory of Subjective well-being homeostasis (Lau, et.al.,2005) which proposes that "SWB under normal circumstances is actively controlled and maintained within a limited positive range by a set of psychological devices and personality" (Lau et.al., 205,page 406).

5. An Application in Bogotá- Colombia

5.1. Sample Size and Demographics

A Telephonic Survey was held in Bogotá in April 2006. The total population of Bogotá is of 7´056.219 inhabitants. The sample size was of 830 subjects which is representative for "zonas" of the city (local parishes' level). The main demographics of the survey are as follows:

Table 1.1- Sample Size and Demographics					
Gender	**Men**		**Women**		
	44,1%		55,9%		
Age (years)	**18-25**	**26-35**	**36-45 years**	**46-55**	**>55 years**
	20,4%	19,7%	21,2%	16,0%	22,8%
Civil Status	**Married**	**Single**	**De Facto Union**	**Divorced**	**Widowed**
	36,9%	29,1%	24,4%	5,8%	3,9%
Number of children	**1 y 2**	**3 y 4**	**5 y 6**	**> 6**	**Without**
	37,8%	27,5%	7,8%	4,1%	22,8%
Occupation Level	**Student**	**Worker**	**Home**	**Works and studies**	**Unemployed**	**Pensioned**
	6,9%	37,9%	34,7%	2,3%	12,7%	5,5%
Education level	**Elementary**	**Secondary**	**University**	**Technical**	**Without Studies**
	29,7%	46,8%	15,8%	6,9%	0,8%
Socio-economical Level	**1**	**2**	**3**	**4**	**5**
	9,40%	47,50%	39,20%	2,70%	1,20%

5.2. Results
A. Diener's Scale: Satisfaction with Life as a Whole (1-7)

Table 1.2- Diener's Scale: Satisfaction with Life as a Whole (1-7)		
	Mean	**Standard Deviation**
In most ways my life is close to my ideal.	4.83	1.182
The conditions of my life are excellent.	4.80	1.288
I am satisfied with my life.	5.39	1.159
So far I have gotten the important things I want in life.	4.78	1.320
If I could live my life over, I would change almost nothing	4.34	1.651
Overall mean	4.828	1.00

B. Personal Wellbeing Index (PWI) and City Well-being Index (NWI) for Bogotá

The PWI and NWI means and standard deviations are shown in Table 2.The mean value of PWI is 75.9 with a standard deviation of 11.67, a result that is consistent with international standards. All individual domains show a mean between 68 and 81 which is also consistent with international standards. Satisfaction with personal relationships shows the highest mean for a domain (80.5) a result which presumably reflects the collectivistic nature of Colombians. Future security on the other hand shows the lowest mean for a domain reflecting the concern of the citizens of Bogotá about the social conflict. As expected NWI for Bogotá is consistently lower than PWI since it is a more distal index for the subject. Its mean value is of 51.9 with a standard deviation of 14.9.Individual domains average between 44 and 59 being satisfaction with security in the city the lowest (44.3) and satisfaction with business opportunities in the city the highest.

Although satisfaction with religion or spirituality is not a domain that is included in PWI in Australia and other countries, it was asked in the survey for Bogotá. As a very interesting result this domain shows the highest mean (86.5) and when it was regressed with overall satisfaction with life the contribution of its ΔR^2 was significant. This results shows that spirituality is a very important dimension of satisfaction with life in general for inhabitants of Bogotá and its relationship should be furthered researched.

Table 2- Means and Standard Deviation for PWI and NWI in Bogotá Colombia		
	Mean	Standard Deviation
Life as a Whole		
PWI	75.9	11.67
Standard of Living	75.3	11.828
Health	76.4	20.03
Achieving in Life	74.6	18.02
Personal Relationships	80.5	16.34
Safety	79.9	15.72
Feeling part of Community	75.9	19.57
Future Security	68.8	19.82
NWI	51.9	14.96

Economic Situation in Bogotá	53.0	19.47
State of Environment in Bogotá	45.5	19.19
Social Conditions in Bogotá	53.5	18.47
Local Government in Bogotá	54.9	25.04
Business in Bogotá in Bogotá	58.4	21.79
National Security in Bogotá	44.3	22.05
Other Issues		
Satisfaction with Religiosity and Spirituality	86.5	16.92
Satisfaction with Financial Security	58.3	24.78
Satisfaction with Help of Government	53.3	23.34
Satisfaction with help of private enterprises	46.7	27.52

As can be seen PWI lies in the interval 75-80. This interval has been found in other countries such as Australia. As expected the wellbeing index for the city, as a more distal

4. Reliability Checks

Cronbach Alpha: PWI: α= .756
                          NWI α= .802

These results are consistent with international standards and show a high reliability for both scales. Item total correlations (Pearson Correlations Coefficients) of the single domains and the summated score for PWI and NWI are shown in table 3. They range between .60 for health domain and .71 for Standard of Living domain for PWI and between .57 for Security and .76 for Social conditions for NWI, results that are slightly higher that the result found for Australia.

All domains correlate significantly with Satisfaction with Life as a Whole (p≤ 0.01)

Table 3- Validity of PWI and NWI in Bogotá- Colombia		
PWI	Standard of Living	.709**
	Health	.607**
	Achieving in Life	.655**
	Personal relationships	.641**
	Safety	.596**
	Feeling Part of Community	.568**
	Future Security	.700**
NWI	Economic Situation	.742**
	State of Environment	.751**
	Social Conditions	.762**
	Government	.634**
	Business	.695**
	National Security	.568

** Correlation is significant at 0.01 levels

PWI

Table 4- Domains of Personal Wellbeing Index regressed with Overall satisfaction with Life										
	Life as A whole	1	2	3	4	5	6	B	β	t
Constant								1.726		5.93**
1.Standard	.672							.103	.131	3.61**
2.Health	.331	.357						.047	.066	2.03*
3.Achive	.419	.462	.318					.128	.160	4.56**
4.Relations	.342	.345	.242	.387				.118	.135	3.88**
5.Safe	.261	.274	.248	.268	.413			.174	.190	5.69**
6.Community	.232	.294	.188	.158	.251	.250		.039	.053	1.63
7. Future Security	.362	.427	.294	.357	.327	.330	.343	.065	.090	2.57*

Adjusted R^2 = .298
Anova F= 49.75**

- significance at 0.01
- significance at 0.00

Table 5- Domains of NWI for Bogotá regressed with overall satisfaction with Life										
	Life as a whole	1	2	3	4	5	6	B	β	T
Constant								4.98		25.20**
1.Economic Situation	.232							0.212	.214	4.84**
2.Environment	.168	.585						-0.034	-.046	-.314
3.Social	.179	.457	.595					-0.038	-.049	-1.11
4.Government	.03	.250	.321	.410				.036	.063	1.699*
5.Business	.137	.399	.369	.427	.330			.022	.034	0.86
6. National Security	.168	.394	.444	.448	.371	.434		0.24	.037	.346

Adjusted R^2= .102
Anova F= 16.63**

Introduction

With funds from the Government of Japan, the World Bank (LCR-FPSI) intends to develop city performance indicators that would provide cities with a clear indication of service delivery standards and local quality of life, or 'livability' as well as economic vitality and business climate. The indicators would also provide other benefits, such as measuring the impact of public sector or international finance interventions. The following terms of reference outline the methodology of city indicators and the tasks to be undertaken by a consulting firm to develop and implement these city indicators.

Objectives

The first phase of this study would review existing city indicators, what they measure, how they are produced, frequency, and quality and relevance of information provided. The result of this first phase would be presented in a Discussion Document and reviewed at a venue(s) such as the World Bank's Urban Forum. After comments from cities and other municipal practitioners are received, the document would be finalized in a manner that facilitates regular updating. This phase will receive considerable assistance through a paper that the World Bank is now preparing for presentation at the World Urban Forum in Vancouver June 2006.

The second phase of the study would propose a draft set of city indicators that meets the overall concept defined above (livable and competitive cities) as well as the needs of pilot cities identified in Colombia, and Brazil, and is consistent with the indicators being developed in Part 1 cities, e.g. by Toronto, Vancouver and the Government of Canada. The World Bank is keen to use these indicators as a critical component in performance benchmarking of Bank supported Urban Projects.

1. Compilation of Existing City Indicators and Annual Report Information

Building on the comprehensive Habitat data base of city indicators, compile and analyze existing city indicators and city 'report cards' in both Part 1 and Part 2 countries. Produce a 'Discussion Document' that would be structured to solicit input from all practitioners in this sector. After a four month review period the consultant would compile all comments and produce a final document by February 15, 2007 that would include the development of a website to ensure that the report becomes a 'living document" and is regularly updated:

- review, compile and evaluate existing city rating systems
- review, compile and evaluate existing city 'annual plans' and where available, how city ratings are presented in the context of the overall annual plan
- estimate costs for data collection as presented in best examples and estimate overall accuracy of data and its ability to represent city service standards and 'quality of life'
- pay particular attention to cities in developing countries, but also include activities in at least Japan, Canada, Australia, New Zealand, Britain and Netherlands (list cities that have ISO 9000 and/or 14000 certification)
- review global indicator programs such as Transparency International, World Bank's 'Doing Business' program, UN-HABITAT, Economist, and US Central Intelligence Agency

2. Prepare Draft City Indicators

Consistent with the application of a standard environmental management system, as outlined in ISO 14000 (and other international standards), prepare a draft 'city rating protocol'. This international protocol should be relevant to cities in Colombia and Brazil, and be of sufficient rigor to analyze city 'quality of live' and service delivery in Brazil and Colombia. The methodology should be sufficiently detailed and robust, while data collection systems are easy enough to enable cities to collect much of the data annually. This is intended to lead toward a global benchmarking for cities:

- the consultant would need to meet with Canadian Standards Association to ensure that the proposed indicators are consistent with ISO protocol and standard environmental management systems
- the consultant will need to review all existing city rating information for Bogotá and Sao Paulo

3. Apply the Draft City Indicators – Case Studies

"Ground-truth" this rating system in at least two cities - expected to be Sao Paulo and Bogotá. Two smaller cities, as yet defined, in each country are expected to be included. In Sao Paulo and Bogotá, meet with city officials and provide an ongoing, likely web-based, public 'report card' facility. In these two cities review how previous World Bank projects have impacted the city ratings. Propose a draft baseline indicator that could be used as a results framework for future World Bank investment.

- the consultant will need local support in Colombia (likely for at least Bogotá) and Brazil (at least Sao Paulo and Belo Horizonte).

4. Prepare a Program for Adoption of City Indicators LCR Region-wide

Propose a costed timetable for Region-wide rating of cities and potential roll-out schedule.

Urban Environmental Accords

Signed on the occasion of United Nations Environment Programme World Environment Day
June 5th, 2005 in San Francisco, California

GREEN CITIES DECLARATION

RECOGNIZING for the first time in history, the majority of the planet's population now lives in cities and that continued urbanization will result in one million people moving to cities each week, thus creating a new set of environmental challenges and opportunities; and

BELIEVING that as Mayors of cities around the globe, we have a unique opportunity to provide leadership to develop truly sustainable urban centers based on culturally and economically appropriate local actions; and

RECALLING that in 1945 the leaders of 50 nations gathered in San Francisco to develop and sign the Charter of the United Nations; and

ACKNOWLEDGING the importance of the obligations and spirit of the 1972 Stockholm Conference on the Human Environment, the 1992 Rio Earth Summit (UNCED), the 1996 Istanbul Conference on Human Settlements, the 2000 Millennium Development Goals, and the 2002 Johannesburg World Summit on Sustainable Development, we see the Urban Environmental Accords described below as a synergistic extension of the efforts to advance sustainability, foster vibrant economies, promote social equity, and protect the planet's natural systems.

THEREFORE, BE IT RESOLVED, today on World Environment Day 2005 in San Francisco, we the signatory Mayors have come together to write a new chapter in the history of global cooperation. We commit to promote this collaborative platform and to build an ecologically sustainable, economically dynamic, and socially equitable future for our urban citizens; and

BE IT FURTHER RESOLVED that we call to action our fellow Mayors around the world to sign the Urban Environmental Accords and collaborate with us to implement the Accords; and

BE IT FURTHER RESOLVED that by signing these Urban Environmental Accords, we commit to encourage our City governments to adopt these Accords and commit our best efforts to achieve the Actions stated within. By implementing the Urban Environmental Accords, we aim to realize the right to a clean, healthy, and safe environment for all members of our society.

IMPLEMENTATION & RECOGNITION

THE 21 ACTIONS that comprise the Urban Environmental Accords are organized by urban themes. They are proven first steps toward environmental sustainability. However, to achieve long-term sustainability, cities will have to progressively improve performance in all thematic areas.

Implementing the Urban Environmental Accords will require an open, transparent, and participatory dialogue between government, community groups, businesses, academic institutions, and other key partners. Accords implementation will benefit where decisions are made on the basis of a careful assessment of available alternatives using the best available science.

The call to action set forth in the Accords will most often result in cost savings as a result of diminished resource consumption and improvements in the health and general well-being of city residents. Implementation of the Accords can leverage each city's purchasing power to promote and even require responsible environmental, labor and human rights practices from vendors.

Between now and the World Environment Day 2012, cities shall work to implement as many of the 21 Actions as possible. The ability of cities to enact local environmental laws and policies differs greatly. However, the success of the Accords will ultimately be judged on the basis of actions taken. Therefore, the Accords can be implemented though programs and activities even where cities lack the requisite legislative authority to adopt laws.

The goal is for cities to pick three actions to adopt each year. In order to recognize the progress of cities to implement the Accords, a *City Green Star Program* shall be created.

At the end of the seven years a city that has implemented:

19 – 21 Actions shall be recognized as a ★ ★ ★ ★ City
15 – 18 Actions shall be recognized as a ★ ★ ★ City
12 – 17 Actions shall be recognized as a ★ ★ City
8 – 11 Actions shall be recognized as a ★ City

ENERGY
Renewable Energy · Energy Efficiency · Climate Change

WASTE REDUCTION
Zero Waste · Manufacturer Responsibility · Consumer Responsibility

URBAN DESIGN
Green Building · Urban Planning · Slums

URBAN NATURE
Parks · Habitat Restoration · Wildlife

TRANSPORTATION
Public Transportation · Clean Vehicles · Reducing Congestion

ENVIRONMENTAL HEALTH
Toxics Reduction · Healthy Food Systems · Clean Air

WATER
Water Access & Efficiency · Source Water Conservation · Waste Water Reduction

ENERGY

Action 1 Adopt and implement a policy to increase the use of renewable energy to meet ten per cent of the city's peak electric load within seven years.

Action 2 Adopt and implement a policy to reduce the city's peak electric load by ten per cent within seven years through energy efficiency, shifting the timing of energy demands, and conservation measures.

Action 3 Adopt a citywide greenhouse gas reduction plan that reduces the jurisdiction's emissions by twenty-five per cent by 2030, and which includes a system for accounting and auditing greenhouse gas emissions.

WASTE REDUCTION

Action 4 Establish a policy to achieve zero waste to landfills and incinerators by 2040.

Action 5 Adopt a citywide law that reduces the use of a disposable, toxic, or non-renewable product category by at least fifty percent in seven years.

Action 6 Implement "user-friendly" recycling and composting programs, with the goal of reducing by twenty per cent per capita solid waste disposal to landfill and incineration in seven years.

URBAN DESIGN

Action 7 Adopt a policy that mandates a green building rating system standard that applies to all new municipal buildings.

Action 8 Adopt urban planning principles and practices that advance higher density, mixed use, walkable, bikeable and disabled-accessible neighborhoods which coordinate land use and transportation with open space systems for recreation and ecological restoration.

Action 9 Adopt a policy or implement a program that creates environmentally beneficial jobs in slums and/or low-income neighborhoods.

URBAN NATURE

Action 10 Ensure that there is an accessible public park or recreational open space within half-a-kilometer of every city resident by 2015.

Action 11 Conduct an inventory of existing canopy coverage in the city; and, then establish a goal based on ecological and community considerations to plant and maintain canopy coverage in not less than fifty per cent of all available sidewalk planting sites.

Action 12 Pass legislation that protects critical habitat corridors and other key habitat characteristics (e.g. water features, food-bearing plants, shelter for wildlife, use of native species, etc.) from unsustainable development.

TRANSPORTATION

Action 13 Develop and implement a policy which expands affordable public transportation coverage to within half-a-kilometer of all city residents in ten years.

Action 14 Pass a law or implement a program that eliminates leaded gasoline (where it is still used); phases down sulfur levels in diesel and gasoline fuels, concurrent with using advanced emission controls on all buses, taxis, and public fleets to reduce particulate matter and smog-forming emissions from those fleets by fifty per cent in seven years.

Action 15 Implement a policy to reduce the percentage of commute trips by single occupancy vehicles by ten per cent in seven years.

ENVIRONMENTAL HEALTH

Action 16 Every year, identify one product, chemical, or compound that is used within the city that represents the greatest risk to human health and adopt a law and provide incentives to reduce or eliminate its use by the municipal government.

Action 17 Promote the public health and environmental benefits of supporting locally grown organic foods. Ensure that twenty per cent of all city facilities (including schools) serve locally grown and organic food within seven years.

Action 18 Establish an Air Quality Index (AQI) to measure the level of air pollution and set the goal of reducing by ten per cent in seven years the number of days categorized in the AQI range as "unhealthy" or "hazardous."

WATER

Action 19 Develop policies to increase adequate access to safe drinking water, aiming at access for all by 2015. For cities with potable water consumption greater than 100 liters per capita per day, adopt and implement policies to reduce consumption by ten per cent by 2015.

Action 20 Protect the ecological integrity of the city's primary drinking water sources (i.e., aquifers, rivers, lakes, wetlands and associated ecosystems).

Action 21 Adopt municipal wastewater management guidelines and reduce the volume of untreated wastewater discharges by ten per cent in seven years through the expanded use of recycled water and the implementation of a sustainable urban watershed planning process that includes participants of all affected communities and is based on sound economic, social, and environmental principles.