SECURITY ALARM: ENVIRONMENTAL ISSUES IN WORLD CITIES

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The Oxford Illustrated defines 'secure' as, "*...untroubled by danger or fear...reliable...*". About 'security', it says, "*...secure condition or feeling... safety against espionage, theft or other danger...*". And 'security risk' is defined as, "*...conditions or persons whose presence threatens security*".

We Canadians have never been content to value only an ever increasingly higher standard of living. We've always shared a profound awareness of and appreciation for our unique quality of life - peace, shelter, abundant food, clean water, forests, fresh air and security. Now however, we must recognize more than ever the differences between 'big' and 'great'. For although our environment and economy have provided and sustained the things we cherish, vanishing primary resources and polluted air, water and earth are forcing us to reconsider the degree to which these, the 'best things in life', are truly free.

I've been invited today to contribute to a discussion about the challenges facing our large cities and to mark the consequent emerging security issues. It's a pleasure to be part if this important dialogue.

I'd like to describe for you what I see as some of the more critical among these issues - however the challenges are so enormous and complex that they seem too daunting when we try to tackle them all - the task is too great!! So, with your indulgence, I'll outline only the broad urban picture on the global side and pay more attention to Canada. And while I'll touch on most of the more critical environmental issues, by way of example I'll then focus on one we can all relate to here in Canada - water - in more detail. I'll then describe some responses that are underway, and some we might consider. First, I'll talk a little about water, and a little about cities.

WATER

More than 70 per cent of our world is covered with water - that's why it appears blue in photographs taken from space. However, less than one one-hundredth of one per cent is fresh and readily available in lakes, rivers and shallow wells. Canada, with 14 per cent of the world's lake water, nine percent of river flow and only less than one-half of one per cent of global human populations, is relatively water-rich.

Early in Canada's history, as our towns became cities, municipalities provided water supplies and later waste water treatment - to domestic, commercial, industrial and institutional customers - paying for these services from the municipal tax base and transfers from other levels of government. To varying degrees, some municipalities continue this practice today. Over time, an increasing number of municipalities now meter their water supplies and charge for water services in proportion to the quantities of the services used. Even so, Canadian households generally use twice as much water as Europeans but pay only half as much for it[1].

So the very perception of the abundance of water has contributed to its under valuation and inefficient use. We are the world's second largest consumers of water and still we have several regional shortages, particularly in the Prairies and southern Ontario. And because of factors such as unrestricted use, increasing populations, inadequate delivery systems and low water prices, one in five municipal governments in Canada reported problems with water availability in 1991[2].

And as we all know, these complaints become insignificant in the context of the global water reality. I'll come to that later.

CITIES

First, let's talk about the other side of the equation - cities, large cities, mega cities. My Oxford Illustrated defines 'climacteric' as, "*...constituting a crisis, occurring at a period of life at which vital forces begin to decline"*, and it defines 'explosion' as (among other things), "*...sudden marked increase*". As I speak, a climacteric burst of consumption by a single species is overwhelming the skies, earth, water and all other life forms on planet earth. Five point five billion humans are multiplying at an explosive rate, and our efforts to fulfill our wants and needs are stripping the earth of its biotic capacity to produce life. And by the year 2000, more than half of these people will live in urban areas - cities.

Lester Brown, in the 1995 edition of his annual **State of the World** report[3], says that *every living system on earth is in decline*. In the last five years, it has been increasingly recognized that this decline is in no small way due to the form and function of our expanding urban regions - they generate by far the largest quantities of pollutants, and they're the primary markets that fuel resource depletion, even in remote areas of the world. These patterns of over-use, pollution and waste not only undermine the natural capital of the local, regional and global ecosystem, but they diminish the capacity and scope of current and future policy makers to make significant progress toward sustainability.

And that's only part of the bad news. Before taking a closer look at water and cities I'd like to pull back from that picture, look at some of the other issues that impact the security of large cities, first here in Canada and then globally, and then I'll relate the water issues to this broader context.

CONTEXT

What are some of the other challenges facing Canadian urban areas?

Three that directly impact the natural environment are:

1. Urban Sprawl - even though there is considerable and growing evidence that urban sprawl is the most expensive land-use pattern on earth in terms of its negative social, economic and ecological consequences, this development of low-density suburban areas rather than higher-density core areas is still hotly debated in Canada.

2. Vehicle Transportation - this issue impacts on extraction of non-renewable energy resources, land-use consumption for roads and parking, economic development, urban sprawl, air and water pollution, noise and visual intrusion, congestion, and other issues. (Just to touch on the energy issue as one example of disincentives to sound environmental practices, we talk about energy conservation as a desirable goal, while we've the second lowest energy taxes on earth, and while subsidies to the energy sector are estimated at $4 billion annually[4].)

3. Air Pollution is a huge urban environmental challenge - sulfur dioxide, nitrogen dioxide, ground level ozone, carbon monoxide and suspended particle matter from vehicles, residential heating and commercial and industrial processes are closely interrelated with land-use and transportation policies. Coordinated efforts, far beyond the existing jurisdictional boundaries of municipal, provincial, national governments are urgently needed. To quote Canada's Summary Report of last month's Conference of the Parties to the Framework Convention on Global Climate Change, "*Considerable work will be needed interdepartmentally, interprovincially, and with stakeholders to move ahead on both international and national fronts*."[5]

Other Canadian urban issues of serious importance - and not unrelated to environmental degradation - are:
• all aspects of Health; • Urban Crime; • Child Poverty (Canada ranks third among industrialized countries in the rate of child poverty[6]); • Disillusioned Canadian Youth; • Insufficient Participation of half of the Population (there are profound inadequacies in the role and participation of women in all aspects of urban affairs - urban management, employment equity, safety, planning, environmental decision-making, health, and resource conservation, for a few examples); • Hazardous Waste Management; • the preservation and development of Green Space and natural areas; and finally a huge issue, • Housing - the economics, safety, social equity, health, design, energy efficiency, and resource consumption used in construction, renovation and demolition of housing.

Lest we think these Canadian urban challenges are not serious, that they don't have security implications, or that dealing with them is discretionary in the current economic climate, let me touch on some of the mind-boggling urban realities in other parts of our tiny globe before I focus our imaginary zoom lens back down to Canada's water issues. The massive dimensions of compelling social and environmental issues in the world's mega-cities are almost impossible to fathom, yet all of them have grave security warnings for us in Canada - some examples are:

• Size - by the year 2000 - four and a half years from now, there will be 21 cities with populations of over ten million human inhabitants[7] - a management nightmare, even if there were *no* other crises;

• Poverty and homelessness - one out of every five human beings on earth - 1.4 billion people[8] - do not have adequate food, clothing, or shelter. (In Cairo, a million people live in *cemeteries*[9]. And this appalling tragedy is not confined to developing nations - between three and five million people in the U.S. have no permanent homes.)

• Children - Forget intrinsic value - even the most narrow minded definitions of sustainable development include some concept of future generations. However the economic, social and environmental conditions of huge numbers of the world's children put them at serious risk for ill health, malnutrition and physical and mental disability. (The number of street children in Nairobi *increased* from 16,000 in 1989 to 25,000 in 1993[10].)

• Air Pollution - Industrial pollutants, hazardous waste dumps, vehicle exhausts, pesticides, polychlorinated biphenyl's (PCBs), carbon monoxide - the list goes on. (A city health officer in Mexico City reported in December, 1994 that breathing the air is equivalent to smoking 40 cigarettes a day.)

• And I must mention the Globalized Economy - unbounded transnational corporations are huge players in the uneven distribution of wealth and all its consequences. 47 of the 100 largest economies in the world are corporations, not countries[12], and the results of the economic and social inequity of their bottom line policies are nowhere more evident than in the world's megacities. These global corporations have until recently taken little environmental responsibility, neither have they participated in insuring even basic levels of human security. In my view this is a key factor in any examination of why mega cities are becoming structurally dysfunctional.

I see a recurring theme making itself evident here - there is a powerful interdependency among the social, economic and environmental factors that characterize our cities. And the urgency of the situation is nowhere more evident than in the area of a most urgent issue - security:

• The magnitude of global human Insecurity is staggering. Violent Crime has doubled in the last two decades and property crime has tripled[11]. Drugs, financial crime, war, and religious and ethnic strife are all escalating alarmingly. The increasing erosion of nation-states and international borders, the rise of tribal and regional domains, refugee migration, scarcity of resources, overpopulation and the unchecked spread of disease all contribute to the growing pervasiveness of unprovoked and irrational crime.

It is tempting to despair, but we must not. For there are at least two items of good news that make NOW the right time to accelerate our commitment to addressing these issues:

The first is that in response to massive water, air, land and solid waste pollution, and in the face of the economic consequences of diminishing resources that can be extracted, mined and harvested, even the most recalcitrant representatives of governments, financial institutions, industry and business are starting to acknowledge that we are *not* engaged in merely a colossal commercial challenge (if I hear the term, 'global competitiveness' one more time, I think I'll scream), but rather in an unprecedented transformation of our basic values and beliefs. Specifically, we're learning that in order to create and/or maintain *life on earth*, let alone a profitable business, we must incorporate the basic reality of biology - that we live within an enclosed ecosphere - planet earth, and the planet's capacity to provide the biological resources which sustain life is finite. If our instincts prompt us to compete for a place in the global community, these same self interests now prompt us to ensure that we have a global community to compete *for*.

I'll come to my second good news item in a minute - but first, one more factor in my sobering digression into global context, the one that brings us back to my chosen example issue, WATER.

One out of every three of the men, women and children on earth have no access to adequate sanitation or water distribution systems - in other words, they live without safe water. In the developing world, 95% of urban sewage is discharged untreated into surface waters. The diseases directly and indirectly attributable to contaminated water (for example, diarrheal diseases, malaria, malnutrition) are killing a hundred times more people than all other forms of pollution combined[13].

We might put this another, more positive way. Access to safe drinking water and sanitary disposal of human waste will achieve substantial health improvement around the world, including a 55% reduction in child mortality, with its consequent drop in birth-rate[14]. Well designed investments in water and sanitation bring socio-economic, educational and nutritional benefits. By reducing illness they improve productivity and the ability to learn. And the upward spiral continues. Better knowledge brings more decision-making power, and greater earning power. The whole community benefits.

About now you may say, "*you said at the beginning of your remarks that 70% of the planet is covered with water - if that's so, why the shortage?*" The reason is, that while domestic use contributes enormously to water *pollution*, it is not the worst culprit in *drawing* of the resource. Only 8% of the freshwater drawn globally is for domestic uses. Agriculture (69%) and industry (23%) are withdrawing and polluting earth's freshwater at an alarming rate, and these demands are growing - industrial 1982 withdrawals are expected to double by the year 2000. And logging and agriculture add sediment and organic matter, adversely affecting every aspect of our freshwater - from habitats of river organisms to fishing grounds.

The primary source of freshwater is precipitation - refilling lakes and rivers, wetlands and reservoirs, and flowing into the ground water aquifers. Deforestation, human settlement, and unsustainable farming practices have caused changes in precipitation - drought in some areas and floods in others. Global warming is predicted to effect these conditions even further.

So there *are* acute water shortages in many parts of the world, and they will require solutions that are costly, technically difficult and politically sensitive. The international security implications are enormous. At least half of the world's river basins are shared by two or more countries. Multi-national cooperation is required, and that's not easy. The North China Plain, the Middle East and North Africa will have water shortages that reach crises proportions in this decade. In the U.S., water shortages have reached serious enough proportions that in California and the Mississippi, folks are starting to look longingly at Canada as a resource.

In fact, there are those who saw in the NAFTA exercise an attempt to force Canada to make water (among other things) available for negotiation. Canada's position is that NAFTA does not require Canadian water to be available and it is not on the table for discussion. For now.

And you may have heard of a plan to pipe water from Hudson's Bay to the Mississippi. I'm told a man named Tom Keirens (not the one you think) from St. John's NFLD., has a scheme to dam up the northern part of James Bay - after a number of years the salt water would be flushed out,

James Bay would become a huge reservoir to be pumped into the systems flowing into the Great Lakes, over the divide between the Mississippi basin and the Great Lakes basin and ultimately into the Mississippi system. Apparently there is a natural flow (diversion 3200 cu ft/sec) from the southern point of Lake Michigan to the Illinois River. A few years ago someone in Quebec wrote a book supporting it - I believe it was Robert Bourassa. The current Federal Government position is that they would not even consider it. Stay tuned.

These examples are just to illustrate that Canada is not immune to the global strife over scarce resources. And although we are relatively water rich, it is becoming widely accepted that water will be the most important fluid of the twenty-first century[15].

Now my second piece of good news: Canadians are doing some remarkably innovative things about urban issues. Let me touch on a sample few that address water:

1. Canada's Great Lakes The presence of toxic substances, the severe destruction of physical habitat, the massive introduction and continued expansion of non-indigenous species and over-fishing represent the greatest threats to the water quality and fishing economy of the Great Lakes. Attention is now being focused on these changing conditions, in the form of (for example):

- the Lake Ontario Greenway Strategy, about to be released by the Toronto Waterfront Regeneration Trust;
- the International Joint Commission's Remedial Action Plans (RAPs). (Metro Toronto and Region's RAP, *Clean Water, Clear Choices*, was just released. It'll be fascinating to watch the implementation of its over fifty recommendations...) and
- last week, David Crombie, the 'tiny perfect Waterfront Commissioner' in charge of Toronto's Waterfront Regeneration Trust, began a five week, 325 km trek along the brand new Waterfront Trail. It's the world's largest urban park.

So the Great Lakes are getting Canadian attention.

2. Canada's Cities are developing and implementing Conservation Measures to significantly reduce the energy consumption required to collect, treat and distribute water in municipalities.

- Montreal has established an Aquatic Plant Water Filtration System and uses ultra-violet treatment techniques as an alternative to chemicals for waste water treatment[16].
- Metropolitan Toronto hopes to reduce its water use by up to 23% by the year 2011. The city implemented a water efficiency strategy in 1993 and saved $500,000 in operating costs in its first year alone.
- Ottawa is privatizing it's water - RMOC is forward looking in full cost pricing of water - so is Edmonton, so is Waterloo and many other Canadian Municipalities.

3. Canadians are active in International Forums:

- The first UN Conference on human settlements, HABITAT I, was held in 1976 in Vancouver. It concluded with some visionary objectives. One was for, "*all life to have access to potable water*". However, we're as far away as ever from its realization - limited financial resources and population expansion have precluded measurable success.

  The preparatory committees are now underway for HABITAT II, **The City Summit**, to be held in Istanbul, Turkey in June of 1996. Since HABITAT I was sponsored and hosted by Canada, we are expected by the international community to play an important role in this meeting.

If Canada could use its position to ask *one* question at the HABITAT II, it might be - in the context of urban areas, what progress has been made towards 'clean water for all'? - what have we accomplished towards purity, supply, potability, treatment - how large does water figure in current UNCHS priorities? And most important, how are we addressing the security implications of the water crises that are looming?

4. Canada is Identifying Urban Strategies:

One example is

- The Federation of Canadian Municipalities (FCM) is just completing a mammoth project called CURE - Canadian Urban Research on the Environment. The International Development Research Centre (IDRC) is a supporter, as is the Organization for Economic Cooperation and Development (OECD). When released (I'm told within days), it will comprise, on diskette, a comprehensive compendium of Canadian municipal environmental initiatives and directory of environmental contacts.

So the two pieces of good news are, first, the hope of an emergence, world-wide, of a new value system that reflects the reality of earth's finite resources, and second, here at home, Canada is engaged in implementing policies and programs that address urban water issues as well as other environmental challenges.

Priorities for Canada and her Cities

Among the priorities that we might consider:

1. Continue and increase the Technology Research & Development and Inventory - the things we don't know about our relationship with water and the effects of our current practices is astounding;

2. Full Cost accounting, valuation and pricing - part of the reason we take water for granted is that we have little idea as to the its actual cost - factors include scarcity of supply, ease of distribution, and costs of collection and treatment before it goes back into the ecosystem. In some places (e.g. some of the municipalities that make up Metropolitan Toronto) we're still giving discounts for quantity - actually rewarding consumption. Full cost pricing is the best way to convince consumers (especially in industry) to participate in conservation;

3. Improve Communication - let's coordinate information and get it into the right hands (and minds), let's engage the Media... one profile-raising example:

- How about an annual 'State of Canadian Cities Report? Modeled on Lester Brown's highly regarded and broadly used State of the World annual and using the OECD/FCM's Ecological Cities Project as a key resource, it could (for example) assess urban conditions and track progress toward objectives, inform Canadians and the world of Canadian successes and practices that improve the conditions in our cities, provide performance reports on our use of water and other critical factors making up our quality of life, and would be a useful tool to export Canadian products, services, technologies and expertise...

4. Let's collaborate more on Technology and Expertise Transfer and Sharing - exploit Canada's excellent communications technologies to disseminate information across Canada and around the world about water conservation, treatment, fishing, habitat, as well as urban management strategies, for just a few examples...

5. Let's support an Ecosystem Approach to the environmental challenges facing our cities - the Royal Commission on the Future of the Toronto Waterfront has as good a definition as I've found. My favorites among it's eleven principles: Decision making should:
- include the whole system, not just part of it;
- be based on natural geographic units such as watersheds, rather than political boundaries;
- emphasize the importance of species other that humans and of generations other than the present;
- understand that humans are part of nature, not separate from it; and my *favorite* favorite,
- be based on an ethic in which progress is measured by the quality, well-being, integrity and dignity it accords natural, social and economic systems.

6. Let's focus on Effective Decision Making - develop mechanisms to ensure that the right people are in the room - those who have not only the motivation, but also the responsibility and mandate to act - those who are accountable.

7. Let's include in all Labour Negotiations the issue of (for one example) the use, in industrial processes, of persistent toxic substances that may eventually find their way into the water.

8. Let's increase the number and breadth of partnerships that encourage International Cooperation - hundreds of arrangements contribute to developing partnerships and changing international law that now gives little guidance to shared water and waste water management. The UNEP is forming Regional Seas Programmes to protect coastal seas, there's the London Dumping Convention, etc. In Canada we have, among other instruments, the International Joint Commission - it has it's challenges, but it and other international multi stakeholder partnerships MUST succeed. If they don't, I submit that it is not over dramatic to suggest that water could replace oil as a trigger for international disputes and economic upheaval.

Conclusion

There is endless evidence that the issue is critical, and there are mountains of policy options, program outlines, partnership funding techniques and collaborative jurisdictional models to study, consider and debate. Some of these I touched on today, others I'm certain each of us here could add to the list. A wide range of activities has been initiated - yet on a per capita basis, the demands we place on our diminishing water capacities are increasing. This is a recipe for decline in our unique and treasured quality of life - our peace, health, abundant food, clean water, forests, fresh air - and security. A decline for ourselves, our children, indeed all life on earth, well into the next millennium.

I guess the point I'd like most to make is, the rubber hits the road in our urban regions - we mustn't wait for solutions from elsewhere - our provinces legislate our cities, but they're facing the same fiscal constraints that our national government is facing - maybe more so, as

diminishing federal transfer payments combine with diminishing provincial tax revenues to squeeze them from above and below at the same time.

I know that it is a high priority of the IDRC, CMHC, the FCM , CIDA, OECD and others on the national and international level to see that their excellent work is *actually applied* to the critical issues it identifies and addresses.

My challenge to us, is to think about how the work of these and other agencies and academia could be coordinated and integrated, and brought more assiduously to the citizens, business, industry, and local governments across Canada and around the world. We've got the tools now - the FCM's *Canadian Urban Research on the Environment (CURE)* Project, the OECD's *Ecological Cities Project* and the CMHC initiated FCM supporting report, *Canada's National Overview of the Status, Challenges and Opportunities in Developing Urban Sustainability*.

Our objective, wonderfully illustrated throughout the literature, in the media, and in the evidence around us, is clear:

> ***A renewed commitment to doing what it takes to achieve efficient use of and care for our precious water makes not only environmental and economic sense, but our continued security - indeed the very existence of life on earth depends upon it.***

It's time to accelerate the changes in our values and beliefs away from perceptions like:
- consumption equals success, cars equal status, owning my own single family dwelling equals independence;
- humans are separate from (and superior to) other life forms and the planet itself;
- changes in my behavior are not required, because science and technology will solve my problems and
- NIMBY - not in my back yard - I oppose measures that, while they may serve a broader global interest, they pose an imposition on my community.

Instead, let's coordinate our efforts in order to:
- build constituencies and promote partnerships;
- empower local decision making;
- apply innovative management techniques to overlapping jurisdictional challenges;
- help to eliminate duplication and gaps in regulations, services, policy and implementation;
- develop trust among the stakeholders; and most important,
- let's contribute all this to cities around the world who desperately need our help.

It seems we in Canada have sufficient institutional mandate. Some examples: - IDRC is charged with water resources management and urban environment management, not to mention the Agenda 21 Unit; CMHC with carriage of HABITAT; FCM is a natural on the cities' side. I think we're ideally suited as the catalyst, to facilitate the design and implementation, of a new partnership vehicle to integrate the initiatives and concepts outlined here. Starting with water and cities, starting with Canada, and starting now.

Thank you.

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