

**INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
IDRC**

OCEAN CITIES AND WATER

**Background Paper for Presentation to the
Aquatic/Oceans Research Discussion Group**

**June 9, 1995
250 Albert Street 14th floor Boardroom**

**JENNIFER DICKSON
3 Middleton Drive
Ottawa ON K1M 1B8
TEL: (613) 744-6965
FAX: (613) 744-7346**

Aquatic/Oceans Research Discussion Group

IDRC International Development Research Centre
CRDI Centre de recherches pour le développement international

OCEAN CITIES AND WATER

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, security, shelter, abundant food, clean water, forests, fresh air. 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 to your meeting today to contribute to a discussion about the challenges facing our large cities and the world's water resources. It's a pleasure to be part of this important dialogue.

I'd like to describe for you what I see as some of the more critical among these issues, with particular focus on Canada, and then explore 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 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.

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 (typically 340 litres/day at home in 1991 - up 7% from 1983) 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.

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

CITIES

I'd like to take a few minutes now and talk about the other side of the equation - cities, large cities, even 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 we speak, a climacteric burst of consumption by a single species is overwhelming the skies, earth, water and all 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, 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 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 for two minutes, look at some of the other issues that impact 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 environment are:

- Urban sprawl - even though there is considerable and growing evidence that urban sprawl is the most expensive land-use pattern 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. Caused by factors such as differential tax and subsidy treatment favouring suburban housing and commercial establishment, subsidization of suburban infrastructure and services by regional and provincial governments, and federal and provincial government subsidies on energy through continued emphasis on road building which supports private automobile use, the results include higher per capita production of air and water pollution, dependence on the automobile, erosion of the core areas and pressures on diminishing green space and prime agricultural lands.
- Vehicle Transportation - this issue impacts on for example, 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.

- Air Pollution - 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. Canada is developing a national strategy as part of its commitment to the Framework Convention on Global Climate Change signed at the UNCED in Brazil 1992. At the April Conference of the Parties to this convention in Berlin, a permanent secretariat was established in Bonn, to open in January, 1996. In the meantime, to quote Canada's Summary Report of the Conference, "*Considerable work will be needed interdepartmentally, interprovincially, and with stakeholders to move ahead on both international and national fronts.*"

Other issues of serious importance, and not unrelated to environmental degradation are:

- Health - all aspects - effects of smoking, alcohol and other drug use, exercise, nutrition and other proactive health care, medical and dental insurance...;
- Urban Crime - great debates about reported vs. unreported crime rates, random violent crime, increasing crimes by youth;
- Child Poverty - Canada ranks third among industrialized countries in the rate of child poverty;
- Disillusioned Canadian Youth - fifty three percent of girls and thirty seven percent of boys between the ages of 12 to 18 rate their lives as highly stressful;
- Exclusion 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, resource conservation, for a few examples;
- Hazardous Waste Management;
- preservation and development of Green Space and natural areas; and finally
- 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 challenges are not serious, 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 issues in the world's megacities are almost impossible to fathom, yet all of them have a powerful impact on Canada - some examples are:

* Size - by the year 2000 - four years from now, there will be 21 cities with populations of over ten million human inhabitants - 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) do not have adequate food, clothing, or shelter. In Mexico City, seven million people have inadequate housing. In each of Calcutta and Bombay, three million people live in slums. In

Cairo, a million people live in cemeteries...and this appalling tragedy is not confined to developing nations - New York has 1,8 million people living on welfare, and Los Angeles has had two violent uprisings within thirty years. 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.

* The magnitude of human insecurity is staggering . Violent crime has doubled in the last two decades and property crime has tripled. Drugs, financial crime, war, and ethnic strife are all escalating alarmingly.

* 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.

* Globalized economy - unbounded transnational corporations are huge players in the uneven distribution of wealth. 47 of the largest economies in the world are corporations, not countries, and the results of the economic 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. These are key factors in any examination of why mega cities are becoming structurally dysfunctional.

I see a recurring theme making itself evident here - there is a growing awareness of the interdependency among the social, economic and environmental factors that characterize our cities. And there are two items of good news that make NOW a good time to accelerate our attention to them.

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 and business are starting to acknowledge that we are *not* engaged in merely a colossal commercial challenge (if I hear the word 'competitiveness' one more time I think I'll scream), but rather in an unprecedented transformation of our 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 place in the global community, these same self interests now prompt us to ensure that we have a 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 today's discussion topic, 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. 95% of urban sewage is discharged untreated into surface waters in the developing world. 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. (Paul Hawkin, the UTNE Reader article)

We might put this another 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. Well designed investments in water and sanitation bring socioeconomic, educational and nutritional benefits. By reducing illness they improve productivity and the ability to learn. 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. 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.

Acute water shortages in many parts of the world will require solutions that are costly, technically difficult and politically sensitive. At least half of the world's river basins are shared by two or more countries. International cooperation is required, and that's not easy. The North China Plain, the Middle East and North Africa will have water shortages that reach crisis 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 water to be available, and it is not on the table for discussion. For now.

Mississippi - pipe water from Hudson's Bay - Eric Keirens St. John's NFLD. has a scheme to dam up the northern part of James Bay, and 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. Even now there is a natural flow (diversion 3200 cu ft/sec) from southern point of Lake Michigan to the Illinois River. Someone in Quebec wrote a book about supporting it - was it Robert Bourassa or Daniel Johnson? the Federal Government's current position is that they would not even consider it. Stay tuned.

Now my second piece of good news: Canada and others are doing some remarkably innovative things about cities and our precious water. A few examples:

Great Lakes

The presence of toxic substances, the loss and severe destruction of Canada's Great Lakes physical habitat and the massive introduction and continued expansion of non-indigenous species represent the greatest threats to the Great Lakes ecosystem. These three issues plus a fourth - over-fishing, are consistently identified as the most prominent causes of the decline in the water quality and fishing economy of the Great Lakes.

Since the Great Lakes are an ideal microcosm of the world's growing freshwater challenge, they deserve a closer look.

First - Toxic Substances: While levels of many bioaccumulating chemicals had declined significantly over the past 20-30 years, these decreases are now leveling off and in fact may have increased again during this decade. This is due to two new factors - atmospheric sources are now adding to the problem, and the sediments in the great lakes basin are saturated and therefore slower in responding to these chemicals.

Over 300 man-made chemicals have been observed in the Great Lakes. Among the substances found to be present in significantly harmful quantities are:

- i) Nitrogen - increasing, possibly due to atmospheric or agricultural loads or reduced in-lake losses;
- ii) Chloride levels seem to be increasing where there is wide-spread road salt use, and these levels may be a factor in aiding the invasion and establishment of non-indigenous species;
- iii) the principal bioaccumulating chemicals of concern are polychlorinated biphenyls (PCBs), DDT, dioxin, mercury, chlordane and mirex. While toxic concentrations appear to have decreased in many areas of the lakes, there is evidence to suggest that these concentrations have remained relatively constant over the last several years, after having decreased in the preceding years.

The second threat is habitat loss: Loss of wetlands, permanent deforestation, dams and other watercourse changes, human disturbance of breeding and nesting locations and soil erosion and silting of spawning areas have all contributed to reductions in suitable fish, avian and wildlife habitat. Urbanization and shoreline development have caused a 70 per cent loss in the original Great Lakes wetlands, and a degradation of much of the rest.

Third - Non-indigenous species: Over 100 species of 'exotic' or non-indigenous species have invaded the Great Lakes. The most significant known environmental and economic threats to the integrity of the lakes are attributable to sea lamprey, zebra mussels, purple loosestrife, the zooplankter *Bythotrephes*, the European ruffe and non-indigenous fish species. Numerous native species have been wiped out or supplanted, making current fish communities unstable and difficult to manage. The impacts are profound, have dramatically upset the food web and appear to be both accelerating and expanding.

Although the status of the fisheries varies greatly among the lakes, the impacts of chemical pollution, habitat loss, non-indigenous species and over fishing are persistent problems that must be addressed.

What attention is now being focused on these changing conditions?

Some of the Good news is:

- Lake Ontario Greenway Strategy, is a priority project of the Toronto Waterfront Regeneration Trust. Its mandate is to, "*ensure that waterfront activities and development contribute to ecosystem health by protecting natural and cultural heritage, remediating problem areas and enhancing opportunities for recreation and economic activities.*" This project has just May 1st become a Schedule Three Agency - \$\$ they raise they can keep - not go back to Receiver General

- In 1985, the International Joint Commission of Canada and the U.S. identified 43 sites around the Great Lakes where water pollution is critical and requires immediate action. Remedial Action Plans (RAPs) are being developed and implemented by all the stakeholders interested in the lakes, using a unique, community based, ecosystem approach. Metro Toronto and Region's RAP, *Clean Water, Clear Choices*, was just released, contains over fifty recommendations. It'll be fascinating to watch the implementation of these measures...

- In 1993 the International Joint Commission in its Great Lakes Quality Report called upon society to adopt a clear action plan to eliminate persistent toxic substances (such as chlorine and related compounds).

- Next week David Crombie, the 'tiny perfect waterfront commissioner' in charge of Toronto's Waterfront Regeneration Trust, will begin a five week, 325 km trek along the brand new Waterfront Trail - one of the objectives of the Greenway Strategy. Opening on May 14th, the trail extends from Trenton in the east to Hamilton in the west, at a cost of more than \$20 million from public and private sources. This continuous trail, with a few 'right of way' problems that are being overcome, meanders through 22 municipalities, crosses more than 60 rivers, and will link 160 natural areas, such as wetlands and marshes, 126 parks and promenades, 67 marinas and yacht clubs, hundreds of historic places, and dozens of fairs, museums, art galleries and festivals. It will be the world's largest urban park.

- Conservation measures can significantly reduce the energy consumption required to collect, treat and distribute water in municipalities. Substantial economic benefits can be reaped in terms of avoiding or delaying the need to upgrade or build new water treatment infrastructure - an important and compelling incentive when we consider the pressures to eliminate subsidies for such government services as water and waste water treatment. Some provincial and municipal governments are implementing alternative use and treatment technologies. For example,

In 1993 Metropolitan Toronto implemented a water efficiency strategy, that included (for example) conservation practices, promotion of water saving retrofit devices, public education, endorsement of full user pay concepts in cooperation with the area municipalities, and promotion of the use of water efficient fixtures in all new and re development. That first year the corporation saved \$500,000 in operating costs. Metropolitan Toronto hopes to reduce its water use by from 13% to 23% by the year 2011. It now uses on average 1,475.5 megalitres/day and peaks at 2,383.5 megalitres/day.

- Waterloo Ontario relies on ground water for its drinking water supplies. The city implemented aggressive conservation and efficiency measures in 1988 and by 1993 had achieved more than 8% overall reduction in water use, and industrial users had reduced their consumption by 25% on average.

- Montreal has established an Aquatic Plant Water Filtration System to treat water from a lake so as to make it clean enough for recreation and swimming. One million gallons of lake water per day is pumped through an artificial marsh containing aquatic plants that purify and filter it.

The city also effectively uses ultra-violet treatment techniques as an alternative to chemicals for waste water treatment.

Ottawa is privatizing it's water - RMOC is forward looking in full cost pricing of water - So is Edmonton and many other Canadian Municipalities.

Chicago is using its storm water - It's 1972 plan initiates the building of 130 miles of underground tunnels 18-20 feet in diameter to store storm water until it can be treated - they're well over half way along on this.

- The first UN Conference on human settlements was HABITAT I, held in 1976 in Vancouver. It concluded with a visionary objective "all life requires potable water" - we're as far away as ever - limited - population expansion has precluded any success

The preparatory conferences 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. CMHC has the lead in Canada, along with CIDA, FCM and others. A delegation returns today from PREP COM II, held last week in Nairobi. The delegation had as one of its objectives to encourage HABITAT II to recognize the importance of local authorities in discussions on the future of human settlements.

If the UN could ask 1 question at the HABITAT II, it might be - what progress has been made towards water for all? - what have we accomplished towards purity, supply, potability, treatment - how large does water figure in your current priorities?

- The Federation of Canadian Municipalities (FCM) is just completing a mammoth project called CURE - Canadian Urban Research on the Environment. Some of you already know about it, as 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. The topic areas where information is being gathered include Policy & Legislation, Management, Planning, Monitoring & Reporting, Air, Energy, Housing, Transportation, Education, Health, Waste, International initiatives, and of particular interest here, Waste Water and Water Conservation and Efficiency initiatives.

What can Canada and her Cities do?

- Continue and increase the Science R&D and Inventory - the things we don't know about our relationship with water and the effects of our current practices is astounding:

We need to develop and support better water audit programs - to follow water through the city, or factory, of chemical manufacturing system, or farming area, to know more about quantities and effects of use. The next big environmental issue in Canada will be the Great Lakes - in shore is getting cleaner - but we don't know what chemicals are there or what the long term effects might be, and we don't know what will happen when the sediments become saturated or what to do with the contaminated sediments we have now - there are no readily available technologies as yet - emerging technologies are in their infancy- washing, applying thermal -

- Full cost accounting, valuation and pricing

Water is generally under-priced in Canada, both as a natural resource and as a means for recovering the cost of water supply and waste treatment facilities. Only recently have we begun to approach water from the perspective of demand rather than supply. Part of the reason we take water for granted is that we have little idea as to the actual cost of the water - 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.

- Improve Communication

- coordinate information and get it into the right hands (and minds);
- engage the Media...

- 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 -

- Let's collaborate more on technology transfer and sharing., exploit Canada's excellent communications technologies to disseminate ideas on water conservation, treatment, fishing, habitat...

- 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 11 principles:

- includes the whole system, not just part of it;
- based on natural geographic units such as watersheds, rather than political boundaries;
- emphasizes the importance of species other than humans and of generations other than the present;
- understands that humans are part of nature, not separate from it;
- uses a broad definition of environments - natural, physical, social and cultural; and
- is based on an ethic in which progress is measured by the quality, well-being, integrity and dignity it accords natural, social and economic systems.

- Develop mechanisms to ensure that the right people are in the room: those who have the responsibility and mandate to act - those who are accountable.

- include in all labour negotiations the issue of the use, in industrial processes, of toxic substances that may eventually find their way into the water.

- 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 wastewater management. Despite years of effort, pollution from sewage discharge pipes, runoff from cities, farms, logging and mining operations in estuaries, oceans, lakes and seas are polluting all our fresh and saltwater resources. Most efforts to date don't even consider the major sources of land-based water pollution -

agriculture and industry, who dispose of their wastes in waterways at no direct cost. 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 its challenges, but it and other international multi stakeholder partnerships MUST succeed. If they don't, I submit that it is not overdramatic to observe that water could replace oil as a trigger for international disputes and economic upheaval.

Economy, environment and society - not just related, but interdependent, like a three-legged stool holding up community

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, security, health, social security, abundant food, clean water, forests, fresh air - 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 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 could be coordinated and integrated, and brought more assiduously to the citizens, business, industry, academia 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 the continued existence of life on earth depends upon it.

It's time to accelerate our changing 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 our behavior are not required, because science and technology will solve our problems;

- NIMBY - not in my back yard - we oppose measures that, while they may serve a broader global interest, they may pose an imposition on my community;

And towards goals like;

Let's

- 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
- let's contribute all this to cities around the world who desperately need our help.

It seems we have the mandate - 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 the IDRC is ideally suited as the catalyst, to facilitate the design and implementation, by the Canadian network of stakeholders, 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.

Sources (for example):

A Declaration of Sustainability, Paul Hawkin, *The Utne Reader*, September/October 1993.

CANADA'S NATIONAL OVERVIEW OF THE STATUS, CHALLENGES AND OPPORTUNITIES IN DEVELOPING URBAN SUSTAINABILITY, FCM, 1995.

Canadian Municipal Environmental Directory, First Edition, Prepared by the Federation of Canadian Municipalities through the Canadian Urban Research on the Environment (CURE) Project, 1995.

Conference of the Parties (COPI) to the Framework Convention on Climate Change (FCCC), Berlin, March 27 to April 7, 1995. Rick Findlay, *Summary Report*, Environment Canada, April 10, 1995.

1993 Environmental Scan: Evaluating our progress toward sustainable development, CCME Report, 1993.

Full House: Reassessing the Earth's Population Carrying Capacity, Lester Brown and Hal Kane, W.W. Norton & Company, 1994.

National Round Table REVIEW, Sustainable Communities, NRTEE, 1994.

REGENERATION, Toronto's Waterfront and the Sustainable City: Final Report, Royal Commission on the Future of the Toronto Waterfront, 1992.

State of the World, A Worldwatch Institute Report on Progress Toward a Sustainable Society, Lester Brown, 1994 and 1995.

Women in the City: Housing, Services and the Urban Environment, OECD High Level Conference, October 1994, Jean Augustine, Chair.

WORLD RESOURCES, A Guide to the Global Environment, The World Resources Institute, 1992-93.

The World Transformed, Lester R. Brown, *The Futurist*, May/June 1993.

CONTACTS:	PHONE	FAX
Wayne Bond, Environment Canada	994-6733	
Mark Brostrom, Office of the Environment, Edmonton	(403) 496-5992	496-6747
David Carter, Waterfront Regeneration Trust 9497	(416) 314-9490	314-
Brock Carleton, Dep. Dir. FCM International	241-8484	241-7117
John Cox - works with Jim McNeil - lives in Gloucester was with HABITAT	238-3954 747-9959	
Ron Doering	992-7189	home 237-3080
Duncan Ellison, Canadian Water & Wastewater Ass'n(CWWA)	241-5692	
Rick Findlay, Environment Canada	997-1977	
Dan Friesen, FCM International	241-8484	241-7117
Brian Grover, World Bank, Washington (friend of Don Tate)		
Trevor Hancock		
Jacques Jobin, Dir. FCM International	241-5221	
Virginia MacLaren, U. of T. - International Urban Regional Research		
Ms. Claude Marchand	(416) 973-5629	
Steven Peck, Thompson, Gow & Ass. did some work on the CURE paper		
Donald Tate	953-3478	994-0237
Michael Thorne, Acting Commissioner, Department of Works, Municipality of Metropolitan Toronto	(416) 392-8202	392-4540
Michael Roach, Standing Committee on Fisheries, FCM.		
Mark Roselyn U of T		
Jack Smugler, CMHC	748-2041	748-2302
Kathy Thompson, FCM	241-5221	241-7117
Tony Wagner, Waterfront Regeneration Trust	(416) 314-9490	314-9497