ENVIRONMENT

WINTER CITIES

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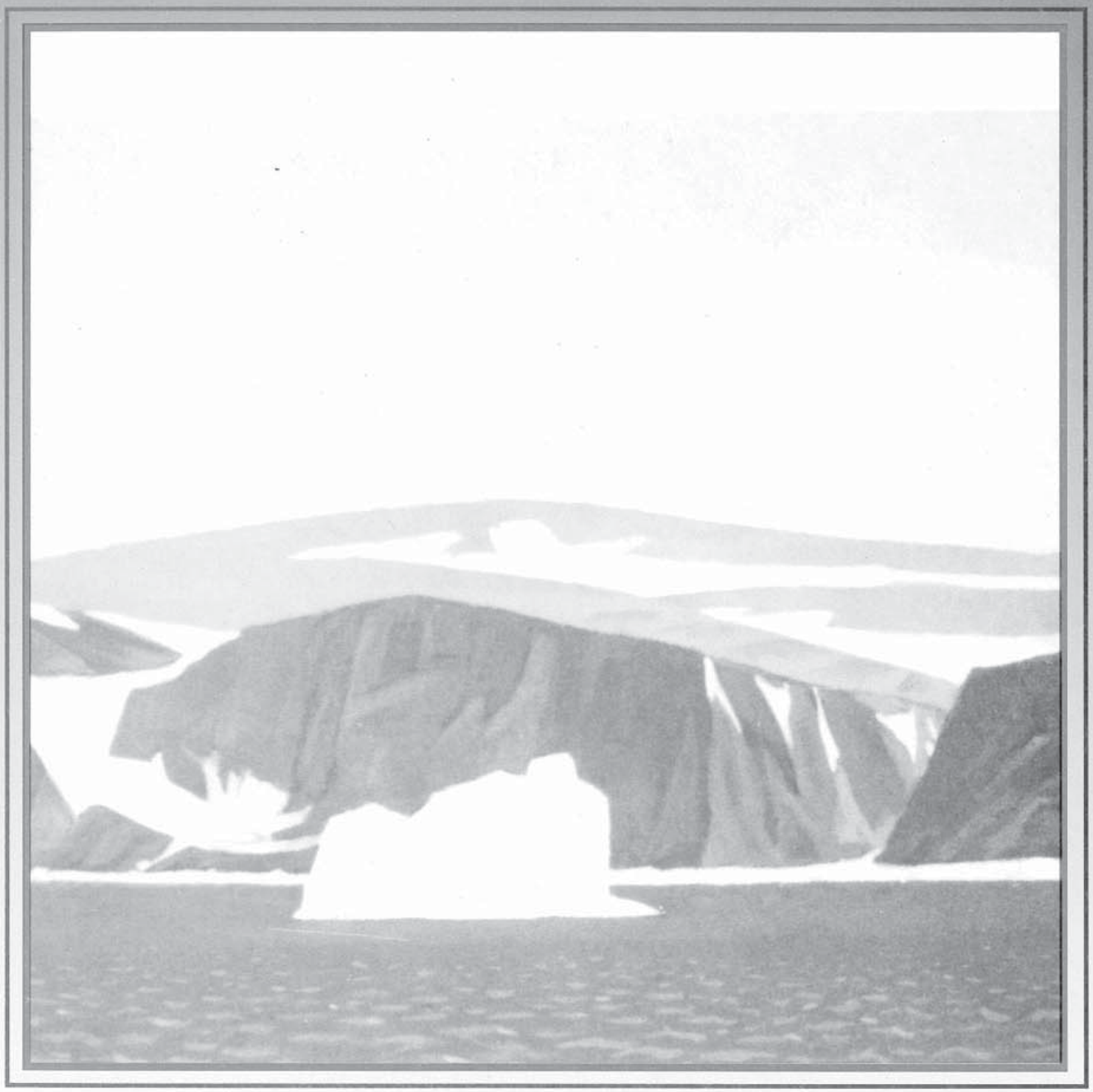

Vivre en harmonie avec l'hiver

Living in harmony with winter

After Sapporo, Shenyang, Edmonton and Tromsø, it is now the City of Montréal's privilege to organize the 5th International Winter Cities Biennial, to be held from January 17 to 21, 1992.

In the heart of winter, Montréal will become the setting for a major multi-faceted event where the realities of winter take center stage for five (5) days, during a **conference of mayors** from northern cities, **a forum of experts,** an **exhibition,** an **international competition** seeking innovative ideas, and a program of **cultural and sports activities.**

The forum, sponsored by the 5th International Winter Cities Biennial, invites academics, professionals, promoters and public officials to engage in a broad debate, which will yield practical recommendations and concrete solutions for "Living in Harmony with Winter."

The 5th Biennial Forum Advisory Committee has selected the very current topics of: the **Environment, Urban Planning,** and **Outdoor Fitness Activities** as the main subjects of this inquiry and debate.

Well-known speakers and experts from Europe, Asia and North America will lead the plenaries (opening and closing sessions) and the workshop discussions.

Don't miss this historic rendez-vous in Montréal, winter city par excellence.

5th International Winter Cities Biennal

Register now!
Registration before October 15, 1991
$550.00 (Can.) + tax
Registration after October 15, 1991
$650 + tax

5e BIENNALE INTERNATIONALE DES VILLES D'HIVER

MONTRÉAL 1992

5th INTERNATIONAL WINTER CITIES BIENNIAL

MONTRÉAL 1992

IWCC International Winter Cities Commitee

NICC NORTHERN INTERCITY CONFERENCE COMMITEE

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PUBLISHER'S MESSAGE

WHAT IS A WINTER CITY?

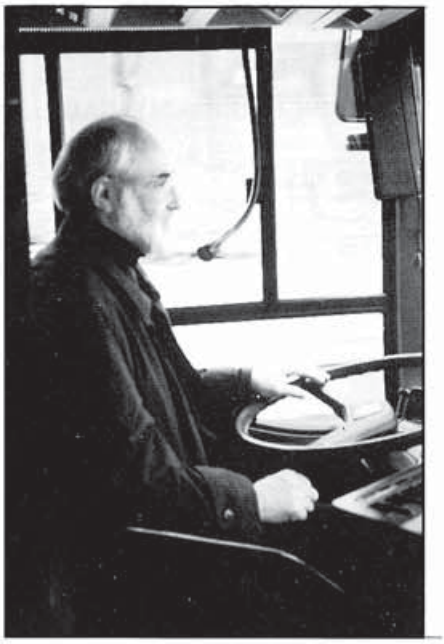
A winter city is a multi-season community from 50 citizens to 6 million. In my opinion, winter livability springs naturally from development that stems from the unique history, culture and climate of the community as opposed to universality and uniformity of response. Climate doesn't limit the existence of cities so much as it individualizes the type of urban adaptation. Each city has its characteristic play of weather set off against its special landscape; its culture evolves over time, fostered by the collective memory of our individual social experiences. On the other hand, universality and uniformity are trends that obliterate historical roots, regional realities and uniqueness of place and breed all forms of prejudices because they value the norm. Eventually this leads to anonymity and powerlessness.

We are told we are part of the global village. I prefer to see a globe of villages, building on the uniqueness of each town or city or community. Thinking globally and working locally is one of the slogans we use in the Winter Cities Association. We advocate being mindful of the global consequences of our actions but we must honour the expression of local needs, visions, resources and limitations. Our aim must be sustainable development which has been defined as "seeking to meet the needs and aspirations of the present without compromising the ability to meet those of the future." Sustainable development places economic growth within the natural limits of the environment and emphasizes diversity and quality over uniformity and quantity.

All of us have focused on progress, the bottom line and economic success in order to build up and accumulate things. Now we must alter our attitudes and re-align our thinking with what people need and the resources we have to meet their needs and the limits placed on us by geography and climate. If we deny our geography and its influence on us by adopting the fashions, architecture, transportation and even food of another climate, it compromises our integrity. The Winter Cities Association gives focus to the northern geography which unites all of us in the circumpolar world.

Quality of life is important to us all but rarely do we ask what development does for people's health. People require open areas and parks that can be places of refreshment for the soul and offset the compactness and density of cities. Rather than being wind-swept, barren areas, parks can be community gathering places. Trees act as a buffer from the wind, sheltering the community, recycling car emissions, counteracting soil erosion, holding moisture in the soil, cooling the air in summer and providing shelter for urban birds and animals. Trees are not frivolous aesthetic expensive additions to community development, they are essential just as all landscaping should be.

We constantly deny our geography through our designs. As an urban designer, I must consider: Were the materials produced in an environmentally friendly way? Is the building energy-efficient? Is it properly sited? Does the design reflect the regional history and culture? There is strength in diversity if we use it to identify ourselves and to find our common concerns. We must not let our pride of place separate us but rather unite us in our mutual regional adaptation to winter and in our search for sustainable development.



Winter Cities provides a northern network for exchanges of ideas, people, problems, solutions, information and expertise and a voice for sustainable development. One of the reasons we join together in associations like the Winter Cities Association is to keep our ultimate goal in mind and learn from each other not only the technology of sustainable society, but also the consequences of everyday life that will force us to demand action by politicians, consumers and all citizens. We want not only to enhance the adaptation of winter cities but also to learn how to sustain ourselves without denying future generations the richness that nature has given us. If we are a thinking people, we cannot separate the immediate from the eternal but the synergy of people cooperating has the magic to perform miracles.

Harold A. Hanen
Publisher
WINTER CITIES MAGAZINE

THE ENVIRONMENT

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AN HONOURED CITIZEN DIES

ROLAND MICHENER, Canada's popular former Governor General and a friend of the Winter Cities Association, died in August at the age of 91. Michener served in the RAF in World War I, and went on to serve as Speaker of the House of Commons with John Diefenbaker as Prime Minister. Later, Lester Pearson appointed him to the post of High Commissioner to India, where he earned the respect and admiration of many, before assuming the governor generalship in 1967. At age 82, he climbed his first mountain, the 9,843 foot peak in the Rockies, Mount Michener, named in recognition for his service to Canada.Roland Michener was a keynote speaker in the Winter Cities Forum '89, and his support of the Winter Cities Association will be sorely missed.

LETTERS TO THE EDITOR

Dear Editor:

It's a letter from Moscow, my name's Sergey, I'm a scholar of the Moscow State University, the Chair of economic geography of the world. Urban Studies are a subject of my specialization, that's why once I've discovered an issue of "Winter Cities" magazine. The same idea of your Association is of a great interest for me so I've succeeded to find more information about WCA, partly about your activity in the USSR (I mean WCA's Bratsk contact). I think that possibilities for cooperation with Soviet Union are tremendous..."

Sergey S. Skatershikov,
U.S.S.R.

Dear Harold:

In a profile on Jane Jacob, it was mentioned that she was going to evaluate a report on "Seniors and Mobility in Winter". Has this been published? or reissued?

If it is available, please let me know. Recent WC on tourism first rate as always.

Joseph Amisano,
U.S.A.

Dear Mr. Hanen:

I wish you have been well and happy since last time. While I didn't write letters to you since I have been appointed advisor, I never fail to read the newsletter "Winter Cities News" sent regularly to me, a WCA member, with much interest.

Naokazu Sato,
Japan

If you have a comment or concern, the Editor would like to hear from you. Please write:

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NEWS NEWS NEWS NEWS NEWS NEWS

WHAT'S IN A NAME

"Winter Palace"

The name conjures up images of ice crystals reflecting sunlight, immense sparkling turrets acting as prisms, - intercontinental cuisine ?

In fact, Winter Palace is a restaurant on the forty-third floor of the Sheraton Centre in downtown Toronto.

The connection? The restaurant boasts a panoramic winter view of the city for a good part of the year, and the cuisine is seasonal.

According to a review in the Financial Post, patrons are treated like northern royalty, too.

So the name, Winter Palace, isn't so off the mark, after all.

FUN AND SUN IN SWEDEN

A study tour of community-scale renewable energy projects, research labs, and technology exhibition centres was held in August.

The two-week tour in Sweden and Finland, sponsored by the Minnesota Energy Council, included a visit to a production plant for highly-insulated building components, and exhibits on solar, wind, and biomass energy technology. There was also a seminar conducted on board a ferry while crossing the Baltic Sea.

Both Finland and Sweden have major initiatives to develop renewable energy resources.

CLIMATE: SATISFACTION

In a survey of Canada's three largest cities, climate was found to be one of the most important factors in the level of satisfaction experienced by residents.

The survey, conducted by Thomas E. Muller, under a grant from the Social Sciences and Humanities Research Council of Canada asked 1,205 residents of Montreal, Toronto, and Vancouver which aspects of their city's infrastructure, amenities and facilities were important to their satisfaction.

In Muller's conclusions, he writes, "...there is a strong indication that satisfaction with a city's recreational amenities and its climate have a strong influence on whether or not residents will find happiness in the city where they live, work, and play."

Muller suggests that planners devote more attention to amenities that improve the physical environment and moderate climate.

A PRIZE FOR NORTHERN WATER CLEANING STRATEGY

David Schindler received $150,000 (US) from the Stockholm Water Board for his efforts to improve environmental policy in the United States and Canada.

Schindler, a scientist and professor of ecology at the University of Alberta in Edmonton, supervised experiments involving polluting and cleaning 46 lakes in northwestern Ontario, Canada. His tests showed that phosphorous, more than any other nutrient, was the key factor in the death of a lake, causing it to suffocate because of decaying plants.

The experiments, started in the 1960's, convinced the governments of Canada and the United States that the use of phosphorous had to be controlled.

The experiments also provided proof that heavily polluted lakes could be brought back to normal.

SOVIET GREENS

For thirty years, there has been a Greenpeace equivalent in the Soviet Union. Calling themselves Drujina, or Knights of Majesty Nature, they have fought illegal hunting and industrial pollution, often sacrificing lives.

Drujina started as a volunteer activist group protecting animal life in the woods around Moscow. Since being legalized three years ago, the movement has expanded to include all aspects of environmental protection.

Recent targets include a nickel factory in Norilsk, an oil-processing plant in Grozny, and an aluminum plant in Nadvoistsy.

Drujina first informs the factory administration that they will enforce the laws being broken by illegal dumping of industrial waste. If no action is taken, Drujina appeals to the media and embarks on a program of vandalism against the offending plant. A favorite tactic is to collect the illegally dumped waste and return it to the factories by the truckload.

Volunteers are now publishing a newsletter for distribution in North America, with the hope of generating funds to further Drujina's cause.

CREATING CRACKS IN THE ICE

This summer, a nuclear powered icebreaker, the Sovetskiy Soyuz, embarked on two history-making voyages.

The first voyage took passengers from Murmansk,

in Northern Russia, across the North Pole to Nome, Alaska, marking the first time any sailed across the Arctic Ocean via the North Pole.

The second journey travelled the Northeast Passage, from Provideniya, in Siberia to Murmansk. Although Russian icebreakers have ensured fairly steady commercial traffic, this is the first passenger voyage of the Passage since its discovery in 1879.

Both voyages offered briefings by historians, geologists, glaciologists, and other scientists in a 100 seat lecture theatre, as well as two hours of helicopter flying time for each passenger. Passengers, with the benefits of a wide range of facilities, enjoyed a once-in-a-lifetime chance to view the frozen north and its wildlife in all its splendor.

HOT TOPIC

Winter Sports Market Suffers From Bad Weather
1990 Declared World's Warmest Year
Maine Marvels at Hot January
St. John's Records Twice Average May Snowfall
Tropical Storms More Intense
Coral Reefs Bleached.

What do these things have in common? Global warming, or the Greenhouse Effect. It is being blamed by some for recent climate chaos.

Global Warming was the topic of a June '91 international conference, "Cities and Global Change", convened by the Climate Institute and the City of Toronto. Speakers from around the globe discussed how urban areas will be affected by, and will contribute to, global change.

The Greenhouse Effect was also discussed, as an environmental concern, at Winter Cities Forum '91 held in Sault Ste. Marie.

The mass media has latched on to the topic and there are few people who have not felt the effects of the publicity.

Not all experts agree that global warming is a problem. There is a segment of the scientific community that supports the idea that the world's climate is only taking a natural course, that these fluctuations are normal.

The evidence on one side is irrefutable, that whatever the cause, St. John's Newfoundland had polar bears, and an ice pack extending 240 kilometres out to sea in May; and Maine had mosquitoes in October, and temperatures of 26 degrees C in January; and the Soviet Union had a bumper wheat crop in 1990 because of a longer growing season; and an early spring and sudden frost killed fruit crops in the Shenandoah Valley in Virginia.

Also there can be no dispute that our lifestyles, and our use of fossil fuels is pumping carbon dioxide, methane, and other gases into the atmosphere.

If it continues, the possible effects could be devastating, resulting in lost habitats due to rising oceans, croplands turning to desert, and an increased incidence of skin cancer.

With both sides still being debated, and the evidence still being examined, only one thing is definite -- Global Warming remains a global hot topic.

BIGGER AND BETTER

Hokkaido has broken its own record again as 2.1 million visitors attend the 1990 Snow Festival.

Since the snow festival began 40 years ago, every year has been bigger than the last.

Last year's festival displayed 348 snow and ice sculptures, the centerpiece being a smaller replica of theMassachusetts Assembly Hall, built by the Defense Force in recognition of the Hokkaido-Massachusetts sister relationship. It took 112,000 cubic feet of snow to complete.

It makes you wonder what they are planning for the next Snow Festival.

COLD COST OF LIVING HIGH

Statistics Canada reported that the highest median incomes were found in the Yukon and the Northwest Territories.

The information was taken from 1989 income tax returns, and puts both territories at a median income of $33,500. That means that half the population earns more and half earns less.

Considering that the Yukon and Northwest Territories also have the highest cost of living, it would seem only fair that they earn enough to pay for it.

CHASING THE COLD MARKET

Alberta Economic Development and Trade plans to participate in the Arctic Science Conference and Technology Exhibition in Bremen, Germany, September 24-17, 1991.

All the major procurement people from the Antarctic participating countries are expected to be there, giving Alberta Economic Development and Trade an opportunity to show off their technology.

Alberta has a century of experience in developing resources to cope with harsh conditions and is planning to meet as many of the Antarctic buyers as possible during the conference.

BUILDING A PAPER GLACIER

It appears that people have finally come to terms with winter, and are leaving a trail of paper to prove it.

Evidence of the long-awaited acceptance of the uniqueness of our climate comes in the form of various conferences, seminars, and meetings, in steadily growing numbers. Most of these discussions attract an international audience, and some are recorded on paper and made available to interested parties.

To add to the growing list, there is a Preliminary Meeting for the 5th Northern Intercity Conference Report , the Summary Proceedings from the Third Northern Regions Conference, and the proceedings of Winter Cities Association Forum '91 in Sault Ste. Marie.

MORIYAMA SCHOLARSHIP

Raymond Moriyama, world renowned architect and long-standing supporter of the winter cities movement, has founded an annual scholarship fund for graduates of the University of Toronto School of Architecture and Landscape Architecture.

The interest from Moriyama's $10,000 Toronto Arts Award for Lifetime Achievement will be awarded annually to a graduate architect or landscape architect from the University of Toronto School.

ANTARCTIC PRESERVATION AGREEMENT SIGNED

Thirty-eight Antarctic Treaty Nations have signed a pact banning mining in the Antarctic for at least 50 years. An original pact required all treaty nations to agree to end the ban after 50 years. This clause had to be changed to require a 75% agreement before the United States consented to sign the pact.

This now means that if 26 treaty nations agree at the end of the 50 years, the mining ban will be extended.

JAPANESE DEVELOPERS WORK IN CANADA

The Japanese Company of Kenchiku Shiryo Kenkyusha Co. Ltd. has submitted plans for a full resort to be situated in southeastern British Columbia, Canada.

The Tokyo based company, with the aid of the Vancouver consulting firm of Pheidias Project Management Corp., plans a year-round ski resort on three glaciers in the Purcell Mountains. It features accommodation for 6,500 and lifts to carry skiers to heights of 11,000 feet - making it the largest and highest resort of its kind in North America.

The proposed site is known for its avalanche danger, and steps have been taken to reduce and possibly eliminate that danger.

RENEWING OLD TIES

As the world gets smaller, a greater understanding of other cultures becomes inevitable, and cooperation begins.

It was in this spirit that Vladimir Boyko and Vladimir Suprun of the Soviet Union arrived in Calgary, as part of the Programme of Cooperation between Canada and the U.S.S.R. on the Economic and Socio-Cultural Development of the Native Peoples of the North.

The Soviet visitors presented a lecture on political culture and political values in the Soviet Union in modern times and the present state of affairs of the peoples of the Soviet North. In turn they toured the Canadian Native

peoples Morley and Sarcee reserves and contrasted it with a taste of some of Calgary's more unique exuberant free-enterprise expressions.

In the same spirit of understanding and cooperation, the Sami population of several remote communities along the Finnish-Norwegian border prepared gifts of food and clothing for the Sami communities of the Soviet Union's Kola Peninsula.

The Nordic Sami, were recently able to make contact with their Soviet relatives and are anxious to re-establish bonds of cooperation. They have already established a student exchange programme.

With continued international efforts, all of the world's north will reap the benefits of cooperation and understanding.

SIBERIAN SOLUTIONS

The average number of Canadians that die from excessive cold is 108-as opposed to Canadian deaths from storms, floods, earthquakes, and other natural events at 17. Two-thirds of Canadians suffer from the winter blahs and SAD (Seasonal Affective Disorder).

With the northern climate come special health problems. Don't despair, however, because the Research Institute of Medical Problems of the North has been successfully working to reduce illnesses more commonly found in the northern regions. The Institute, in Krasnoyarsk, Siberia, believes that extreme northern conditions decrease the body's protective functions, resulting in an increase in the aging and disease processes.

Through studies conducted in communities of the northern territories of the U.S.S.R., the Institute found that preventative lifestyles throughout the year reduced the incidence of sickness and disease. Prevention comes in the form of environmental protection, good diet, improved work and recreation patterns, and adequate sport facilities. A daily dose of vitamins doesn't hurt, either.

It is the aim of the Research Institute of Medical Problems of the North to promote a healthy populaion primarily through prevention, creating living conditions that safeguard people from disease.

OLD DIRT TAKES ON NEW LIFE

Recycling is a world-wide concern, and with an entrepreneurial spirit, it is growing into a profitable concept.

In Sapporo, Japan, the city operated Compost Manufacturing Plant has been converting the city's sewage into high quality compost since 1983, and in January, new facilities began converting one-third of the factory's product into pellet form, found by some users to be easier to apply to fields.

The city is currently taking nine thousand tons of dried sewage (representing 15% of Sapporo's total sewage) and converting it into three thousand tons of compost annually.

Meanwhile across Canada, municipalities are finding some solutions to the lack of new dumpsites.

The Ontario government subsidizes municipalities that provide homeowners with composters. Over 90 towns and cities have used the program to deliver 300,000 composters.

Some municipalities, however, are considering large scale composting, collecting yard waste and household food scraps at the curb and depositing it into a large composting plant.

The movement has spread across Canada and Envirotech Alberta Inc., based in Edmonton, has plans of its own. They have obtained the North American rights to a German technology using infrared heat to dehydrate sludge without destroying it, safely recycling the material. It can then be sold for fertilizer or landfill.

Several other companies, most contracted by government, are finding their niche in the business of recycling, converting old tires into flower pots and playground surfaces, and turning wood chips into soil enhancers and furniture.

Japan and Canada are only two examples in a world newly awakened to the concept of garbage as a resource.

4,000 YEARS ON ICE

Hikers in the Similaun Pass in the Tyrolean Alps between Austria and Italy found some excitement in September when they discovered the body of a Bronze Age Man preserved in a glacier.

Scientists are touting the find as the most significant one in recent years, rivaling the "Bog Men" of England and Scandinavia because of its estimated age of 4,000 years, and its well-preserved state.

The "Ice Man" was found fully clothed and was clean-shaven and tattooed. The skin and internal organs were remarkably intact, preserved in the bacteria-free ice of the glacier since 2,000 B.C.

The body was removed from the site and transported to the University of Innsbruck in Austria along with several artifacts also found near the body, including a leather quiver full of arrows, a bronze axe, and a wooden backpack.

The items found with the "Ice Man" led the scientists to speculate that he might have been a miner in search of copper. It is estimated that he was about 5 feet tall and between 20 and 40 years old when he died.The discovery provides a rare opportunity for scientists to examine clothing and how it was worn and other aspects of the lives of prehistoric people.

Using modern technology, scientists hope to glean information about chemicals left by tattoos, genetic variations, diet and diseases of early Bronze Age man.

Bad weather prevented further probing of the site, but scientists are hoping to return next year, when the weather is warmer. They are also excited by the prospect that melting glaciers may reveal even earlier specimens if the warming trend continues.

THEME INTRODUCTION

Meeting the Challenge

The problems posed by the present state of the environment around the globe are enormous in both number and magnitude, especially in the northern regions.

Winter city dwellers face unique challenges in relating positively to the environment, with transportation, energy use, sustainable development and quality of life being prominent concerns in achieving balance, and solutions designed for temperate climates don't necessarily fit a winter setting.

At Winter Cities Forum '91, held in Sault Ste. Marie, Canada, a number of speakers and attendees discussed environmental issues as they relate to the circumpolar regions, in an effort to ease the crisis through communication and idea sharing.

We have assembled a sampling of papers presented at Forum '91 for this issue in what is meant to be a representation of present thinking in the search for a healthier northern human habitat.

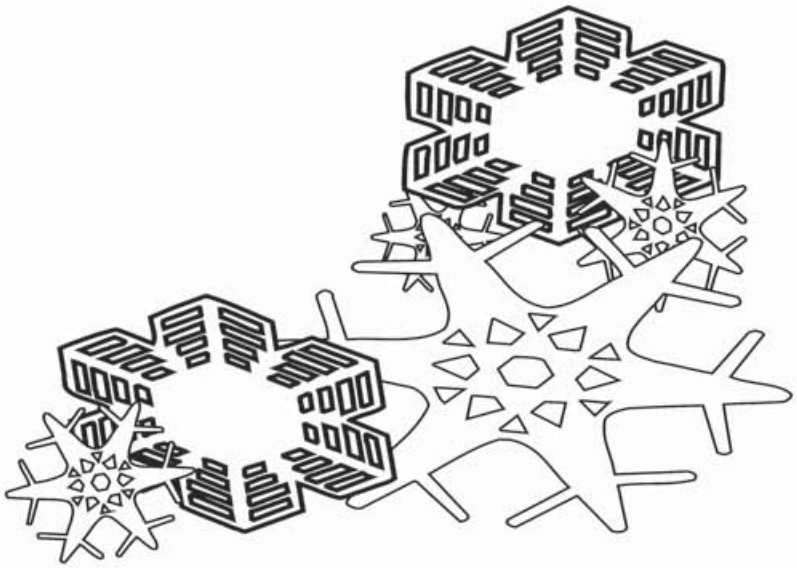
Like any massive housecleaning chore, cleaning the environment can only be accomplished by first opening our eyes to the magnitude of the task ahead and then assessing the actions that must be taken to meet the challenge.

The Mayors' and Chiefs' Network is a positive step in reaching that goal. Established at the conference, it undertakes to open the lines of communication and promote idea sharing between those people in a position to act. We congratulate all the concerned parties and applaud their willingness to tackle the job.

We must keep in mind, however, that while a dialogue must continue, action is the only thing that will conquer the problems we face. Only by expanding the vision and dreaming a bigger dream of clean winter communities can the challenge be met.

Sincerely,

Karen Ashton
Editor



SUSTAINABLE HOUSING FOR A COLD CLIMATE

Concern over the global environment has been growing steadily in recent years, particularly since the release of the 1987 report by the World Commission on Environment and Development. Cold climate countries, such as Canada, contribute disproportionately to environmental stresses because of higher per capita consumption of energy, water and other resources, and higher generation of related air, water and soil pollutants.

Canada Mortgage and Housing Corporation (CMHC), the federal government's housing agency, has undertaken a serious examination during the past two years of how Canadian housing can be made more sustainable. A very broad approach to the issue has been taken, and environment, economic, health and social issues are being considered together.

The production and operation of residential developments in Canada have a significant impact on the environment. Canada's total energy usage, for example, is the highest per capita of any country, and 50% higher than that of Sweden, which has a similar climate and sparse population. Therefore, at least some of this consumption is attributable to non-sustainable aspects of our lifestyle. Approximately 20% of our total energy consumption is for the heating, cooling and operating of housing, and the indirect or embodied energy from the construction, renovation and demolition of housing may account for an additional 5-10% of total energy usage.

Canadians rank second after the U.S. in water consumption per person, which is 80% more than in Sweden. Only 44% of Canadian communities are served by some form of sewage treatment. As well, Canadians produce on average 2 kg of solid waste per person per day, the highest in the world. Construction is responsible for 16%, of which approximately one fifth is from new homes.

Urban sprawl has meant that transportation has now become the most significant source of air pollution in cities. Approximately 50% of the best quality agricultural land in Canada is within 160 km of major urban centres and may eventually be threatened by development.

Housing does not only cause environmental problems, it also suffers the consequences of such problems. Soil gases from landfills and contaminated sites infiltrate houses. Our houses are increasingly built and furnished with synthetic materials, and as they are increasingly well sealed indoor air pollution can be a real problem. Our dependency on the electrical grid leads to vulnerability during times of power shortage. As well, in the future the effects of rising sea levels from global warming could be devastating.

Approximately 20% of our total energy consumption is for the heating, cooling and operating of housing

Bringing about changes in Canadian housing poses some unique challenges. Housing plays a particularly vital role in Canadian economy, representing one million person-years of employment per year and 5% of our gross domestic product. If the true environmental costs were factored into energy and resource prices, this would have a large impact on the Canadian economy. Since homeownership is the largest single source of equity for most Canadians, homeowners may be unwilling to undertake "green" capital improvements when current interest rates make payback periods excessively long, and the "not-in-my-backyard" syndrome may be a major obstacle to urban intensification.

Regional building practices have evolved in response to vastly different climate factors, to the local availability of materials and energy sources, and also to historical traditions and socio-cultural values. The housing industry, generally conservative and demand-driven, is highly decentralized, involving a large number of small contractors.

CMHC has developed a broad range of criteria to which sustainable housing must respond successfully: reduction of energy use by a variety of means, development of energy-autonomy for homes, reductions in peak energy load demands, maximum use of renewable energy such as solar energy and ground heat, maximum use of recycled, recyclable and renewable materials, reduction of water consumption and wastewater production as well as solid waste production. A very useful concept which will facilitate the achivement of these multiple criteria was learned from mistakes Canadians made during the energy crisis of 1970. Canadian researchers developed a solid understanding of the inter-relatedness of building components - a "systems" approach to building science.

The greening of the Canadian housing industry will not become a reality unless such changes can be seen to be economically feasible. Housing must be affordable for the consumer. Concepts of housing units in keeping with family sizes, designing for optimum use of interior space and building sites, adaptability of housing space, and self-help to reduce capital, debt service and maintenance costs must appeal to the consumer. Market potentials for innovation should exist, and trade potential overseas should be created. Applicability to the existing stock is essential, in that new housing currently represents less than 2% of the total stock per year.

CMHC and other agencies are conducting research on how Canadian housing may be designed and built in the future. CMHC is nearing completion on a project entitled Energy Intensity of Building Materials and Techniques which is examining the embodied or indirect energy associated with building materials. Such embodied

energy includes the energy expended in the extraction of raw materials, primary processing, secondary manufacturing, component assembly, site construction and eventual demolition. The embodied energy in a building appears to equal ten to thirty years of operational energy. One interesting observation arising from this work is that Canadian wood frame construction is generally a low-energy technology, suggesting a bright future for this technology both domestically and abroad, as enviromental issues become more important.

CMHC has initiated a supplementary materials project entitled Building Materials Options, which is further evaluating current and alternate building materials from the dual perspectives of environmental impacts associated with material production and also pollutant offgassing which may negatively affect indoor air quality.

The subject of emerging building technology is vast. One example of a rapidly evolving area is that of advanced glazings. "Superwindows" can involve low emissivity glazings, inert gas-filled units, and in the future switchable electrochronic glazings, silica aerogels and vacuum units. Since windows are the single largest source of heat loss in most houses, these improvements have the potential to greatly improve the performance of cold climate housing. This will likely revolutionize the feasibility of passive, and probably active, solar systems. At the other extreme is the example of residential exhaust fans, which have been found by CMHC to be only 3% efficient, and where much work needs to be done.

In addressing both global and indoor environmental issues, designers and builders will need to develop a greater familiarity with an increasingly vast array of materials and equipment. In addition, they will need to ensure that innovative and traditional products perform well together and under specific real-world climatic and jobsite conditions. This will require an increased knowledge of building science, backed up by improved access to more sophisticated research data and computer modelling.

Canada has already demonstrated international leadership in residential energy efficiency through the development of the R2000 Program by Energy, Mines and Resources Canada and the Canadian Home Builders' Association. CMHC and other agencies are aiming to further Canada's ability to build environmentally-sound housing in several ways.

In addressing both global and indoor environmental issues, designers and builders will need to develop a greater familiarity with an increasingly vast array of materials and equipment.

A data base of energy usage patterns for typical Canadian housing is being assembled, the Environmental Impact Study for Housing: CO2 Emissions. A project on the Rationalization of Residential Energy Systems is examining opportunities for a more integrated approach to the use of energy in the home. Much valuable work has been undertaken on the use of passive solar energy and on improved ground source heat pumps and CMHC has developed graphic tools such as "Grapheat" and "Graphshade" to aid designers with these concepts. A proposed project to be initiated in 1991 will look at the theoretical limits of energy efficiency.

A project on Residential Water Conservation is documenting possible reduction strategies. A project entitled Demonstration of Alternative Waste Management Techniques in Residential Construction is underway. Various moisture control strategies are being studied, as is the appropriate selection of low-offgassing materials and other ways of ensuring clean air in the home. The recent "Grow Home" at McGill University, and other such projects, illustrate possibilities in design of modest-size houses. Made-to-Convert Housing, Reclaiming the Attic, Advances in Basement Technology, The Development of a Life Cycle Costing Model, and The Rural and Native Demonstration Program of Self Help Housing are other projects CMHC has undertaken which relate to the goal of sustainable housing.

These projects only address the issue of the sustainable house; sustainable communities are also necessary. Trends of the future may include: smaller lot sizes, fewer cars per household and greater use of public transit, walkways and bicycle routes; integrated recycling programs; more ecological use of yards; greater retention of storm water, better use of infrastructure; more diverse populations and tenures; greater control of air and water pollution; greater preservation of natural habitat and waterways. These coming changes will have numerous implications for designers and builders. Since most Canadian cities are "winter cities", neighbourhoods and buildings will need to be designed to create favourable micro-climates for the extremes of winter, as well as the extremes of our continental summers.

Regulatory reform will need to become another element of a sustainable approach to housing, as demonstrated by the Affordability and Choice Today Program. Consumers will need to be educated on the environmental impacts of their housing choices.

CMHC feels that it is in a unique position to "put all the pieces together" and to demonstrate an integrated approach to these issues. CMHC has therefore proposed for 1991-1992 a design competition for prototype sustainable houses, accompanied by extensive information transfer.

Terry Robinson
Senior Researcher,
Research Division,
Canada Mortgage and Housing Corp.

ENERGY MANAGEMENT

Ontario Hydro believes there are some solid prospects in the north to better manage electricity demand. Terms such as "sustainable development", "integrated management" and "land-use conflicts" capture our continuing need to get beyond the cycle of boom and bust economies and balance the north's use of natural resources with its quest for prosperity. Canada is in a time of increasing world competition, a downturning economy and shifting social priorities. Northern communities remain too vulnerable to global market upheavals and it is apparent that solutions for the north must be found within, rather than be imposed from without. The sustainable northern economy will be one that is community-based and community-driven and energy will continue to be vital to these communities.

Conservation offers real potential for economic, environmental and personal benefits

It is here that Ontario Hydro and municipal utilities have a role to play. Electricity use is critical to the northern economy, given the colder climate, longer winters, dependence on resource industry and lack of gas as an alternative fuel. The north is therefore a net importer of power generated in Southern Ontario. Any reduction of electricity waste is significant to northern development. Throughout this decade, Ontario Hydro will be spending more than $3 billion to pursue greater conservation to save at least 3,000 megawatts of power during the next ten years. To achieve our target, we have developed a broad menu of conservation programmes, including promotion of low-flow showerheads and energy efficient lighting. Hydro is working with industry as well; for example, energy-saving variable speed drives, high efficiency motors and energy-efficient lighting are parts of INCO's programme of energy saving and Abitibi-Price in Thunder Bay, with the assistance of a $6.7 million grant is installing energy efficient equipment in its new paper recycling plant. In the future, Ontario Hydro's system will be strained by a growing demand for electricity as estimates indicate a two percent growth every year for the next 25 years. The system is aging and a moratorium on nuclear power has been declared by the Ontario Government. It is essential, therefore, that all electricity customers try harder to conserve.

As a pilot project, Ontario Hydro will be spending about seven million dollars over the next two years to make the town of Espanola the most energy efficient town in Northern Ontario. In the process we'll be discovering how the experiences of customers in Espanola can be applied to other communities. Ontario Hydro is counting on this project to save 2,000 kilowatts of electricity; if this concept were applied to all small communities in Ontario, potential savings would be 900 megawatts over 10 years - the capacity of a Darlington-sized nuclear reactor. Conservation services in Espanola will be carried out by general contractors; together with local schools. Hydro will provide training to all participating contractors. Teams of conservation specialists will provide free energy audits to 2,000 homes and businesses and each hydro customer will receive at least one conservation measure such as energy-efficient light bulbs and insulation blankets for water heaters. Air sealing, window and door caulking, pipe wrapping and similar measures will be paid for by Hydro; bigger ticket items will require a shared contribution. The aim is to get 80% of the homes and businesses to participate.

Retrofitting for conservation will create a good market for energy efficient products, one that northern contractors will be able to tap right across Canada and the world. Expertise in "cold-climate energy management" could contribute to the growth of a new industry in the north which is dependent on the ingenuity and ability of northerners and not on their resource base.

A greater participation and broader integration of energy efficiency is going to be needed from all sectors of society

Ontario needs more conservation and the energy equation cannot be one-sided; a greater participation and broader integration of energy efficiency is going to be needed from all sectors of society. Finally, conservation is not the total answer to a secure energy future. That's why Ontario Hydro continues to pursue a variety of energy options including proposed development of the Moose River basin and a commitment to nine more private power developments in the north.

Conservation offers real potential for economic, environmental and personal benefits, not only for the north, but for all of Ontario; it is an opportunity which cannot be wasted.

Dane MacCarthy
Vice-President,
Energy Management,
Ontario Hydro

THE RAMIFICATIONS OF SUSTAINABLE DEVELOPMENT ON THE GLOBAL ECONOMY

Sustainable development can apply to any economy - centrally planned or free enterprise, local as well as internationally coordinated. The only successful economies of the twenty-first century will be those which have truly adopted the concept of sustainable development.

A thorough understanding of the economic implications of sustainable development is particularly important for winter cities, since their economies are often built on the utilization of resources whose practices have often been non-sustainable. Extraction and harvesting has often gone on at non-sustainable rates, and resources often simply transported south. Often little attention has been paid to the future and to economic opportunities for our children and our children's children.

Rather than following the "Limits to Growth" approach of the1970's, the U.N. "Brundtland" report, Our Common Future, concluded that increased economic activity on a global scale is a requirement for solving the environmental crisis. But it must be sustainable, not destructive, growth. The report defines sustainable development as: "development which meets the needs of the present without compromising the ability of future generations to meet their own needs."

The key messages of the Brundtland report help to explain what sustainable development really means. First, that environmental problems interconnected amongst themselves are also interconnected with the economy. Our economy had assumed that resources and the ability to absorb waste were unlimited. We regarded resources as almost free and didn't include replacement costs. We used land and air as a free dump and didn't take into account hidden costs of health care, and cleanup and remediation costs. The economy supported our polluting habits and we lived off the earth's capital rather than interest. But now we know that pollution is in fact expensive, prevention is much cheaper.

The second message is that solving environmental problems doesn't mean abolishing industry, but rather requires a healthy industry and a healthy economy to be able more easily to afford to make the hard decisions required. People living at more subsistence levels take almost any steps, even environmentally destructive ones, in order to survive.

The third message is that a healthy economy requires a healthy environment. Major environmental problems adversely affect an economy.

The final message is that we must change our approach from an after-the-fact "react and cure" one to an "anticipate and prevent" one.

In the definition of sustainable development as given, it is important to note that development means improvement of the quality of life for everyone who lives on this planet, while "meeting the needs" is used in the narrow sense of meeting essential needs. "Without compromising the ability of future generations to meet their own needs" means that we enable them to have at least the same level of enjoyment of resources without placing reliance on systems or technologies that have not yet been invented.

A thorough understanding of the economic implications of sustainable development is particularly important for winter cities

Implementation of sustainable development will require participation by all people and all sectors - government, industry, services, unions, educators, homemakers, etc.

In a sustainable society, service and education sectors will be our primary economy, reuse of extracted resource will be our secondary economy, and resource extraction and primary manufacturing will be relegated to third position.

Implementation of sustainable development will mean a rebalancing of relative costs to bring it about that things that do minimum environmental damage are low in cost, and conversely damaging activities and products will be high in cost. Thus market factors will begin to bear on the environmental imperative.

The Brundtland report encourages the use of market-based approaches. Along with its advocacy of regulations, it notes that there are strictly economic incentives and benefits for businesses that are innovative in terms of conservation and efficiency.

The required changes cannot be implemented by governments alone, but require cooperation by everyone. Some changes particularly relevant to Winter cities include: 1) that the price of renewable resources include all costs associated with renewing the resource, including the future cost of inflation. 2) that the price of non-renewable resources include all costs associated with research and development of an alternative equal resource.

Winter cities can be leaders in this economic and environmental revolution. Sustainable economies have a healthy future, non-sustainable ones will fail.

Colin F. W. Isaacs
Environmental Consultant

SUSTAINABLE DEVELOPMENT IN NORTHERN COMMUNITIES

Sustainable development is a new term to describe an old belief which many industrialized societies have forgotten. Aboriginal peoples' view of the environment is based on sharing and respect. This view is best summarized by the quote "We do not inherit land and its resources from our ancestors. We borrow it from our children." Fundamental to sustainable development is the need to use resources and the environment in ways that do not limit opportunities for the future generations.

Global Sustainable Economic Development - Sustainable economic development of the north cannot be achieved in isolation. Canada's environmental policy must be formulated on both the national and international

The three major environmental problems threatening the north are Arctic contamination, ozone depletion and the green house effect.

A key operational concept of sustainable development is interdependence. Poverty in the Southern Globe effects the north;security threats in the south threaten northern security; environmental degradation in either region affects the globe. A destructive environment has no respect to borders.

Critical Northern Environmental Issues environmental problems threatening the north are Arctic contamination, ozone depletion and the greenhouse effect. Although the two territories contribute very little to these major environmental threats, their results will be felt first in the Arctic.

Projects and social/economic conditions outside of the north's and Canada's boundaries will continue to demand that the desired internal development opportunities of the north be accomplished in a balanced manner. This can be accomplished if all opportunities undertaken in the north that influence the north's environment, be it Territorial Park or gold mine, are based on a common and consistent set of guidelines.

The North as a Model -The Northwest Territories is a full participant in the circumpolar world. Our people and our government are leading actors in many of the aspects which shape international polar activities. The Government of the Northwest Territories participates in the Canada/USSR Arctic Science Exchange. This program has shown that the G.N.W.T. is well ahead of the USSR in developing Northern construction.

The G.N.W.T. also plays an important role in environmental issues. The G.N.W.T. is part of the Canadian delegation to the Convention on International Trade of Endangered Species of Wild Flora and Fauna and is a member of the International Union for the Conservation of Nature. We are active in international efforts to prepare a Circumpolar Conservation strategy. Canada's Polar Bear Management program was praised as a leading international example of wildlife management at a recent conference on sustainable development in Zimbabwe. Yet, the federal government has given no recognition to the North and the role it plays in enhancing Canada's leadership role in sustainable development.

Sustainable Development in Northern Communities - Engineering sustainable economic development in small northern communities is as perplexing a problem as is creating stable employment in communities so far away from the mainstream of Canada's economy.

Canada's north is a remote hinterland. The Yukon and Northwest Territories encompasses an area of 3.9 million square kilometres covering 40 percent of Canada. The two territories are home to 79,000 Canadians living in some 100 communities. The majority of he Northwest Territories are aboriginal Canadians who are served by nine official languages.

These communities need not be destined to perpetual subsistence! If they are given a greater resource base from which to work, a resource base over which they have control, then, it is possible to create viable sustainable economies in Canada's small northern communities.

Land Claims - I know more than one solution is required to ensure sustainable development in the North. It is my belief however, that if communities are given a resource base which they can control, there could be an economic turnaround. My faith in this solution is supported by the positive experience the Inuvaluit had when their comprehensive land claim was settled by the Liberal government in 1984.

The major obstacle to this theory is the current federal government. To be blunt, this government doesn't give a damn about Canada's north. It has just cancelled a Dene and Metis Comprehensive Claim Agreement-in- Principle, that has taken over twenty years to develop.

Settlements consist of both cash and land transfers to native organizations allowing for both resource ownership and control. Control is essential to alleviate the current situation of dependence, while resource ownership is necessary to fund development initiatives. Ultimately, control and ownership of resources could lead to enhanced self-sufficiency and sustainable developments for residents of small northern communities.

Conclusions - The Canadian Arctic occupies over 40 percent of Canada's land mass. Stretching from Alaska across Northern Canada to the Atlantic Ocean, the Arctic is a special region in the Canadian context. It represents Canada's heritage and its future, and as such, should be preserved and protected.

We must act responsibly in developing the Arctic's resources for the benefit of southerners, Canadians, and the world. This means that we can no longer take the North for granted. The environmental integrity of our Arctic regions must be protected.

The emerging threats to the Arctic environment are real and have the potential to destroy the very essence of Arctic life. Immediate actions are necessary to stop and reverse the changes now.

It is not too late, but Canadians face major challenges in responding to the threats: to eliminate pollution; to protect sensitive areas; to manage the use of natural resources for future generations; and to ensure that the environment is the first consideration in any decision about development.

Ethel Blondin
(M.P. Western Arctic)

OPPORTUNITIES AND OBSTACLES FOR SUSTAINABLE NORTHERN ENTERPRISE

The key to successful northern development is the possession of a northern perspective. This will eliminate any temptation to assume that developmental models suitable for southern are also appropriate for northern conditions.

This must be coupled with a capacity to maintain a vision: to nourish the conviction - the faith - that economic development can proceed in harmony with the natural environment and the aboriginal way of life; that Indian First Nations are capable of taking control of their land and government, and meeting the challenges of development thereon.

This is particularly important in view of the obstacles which Northern developers must overcome: the reluctance of outsiders to invest, the impediments of distance, faulty communications, the absence of business infrastructure, the tardiness of government approvals processes and even overt expressions of animosity on the part of some institutional spokepersons. Yet northerners, native and others, bring some attractive assets to the table. Among others is the inventiveness and local knowledge of the Aboriginal people themselves, invaluable in industrial design processes which anticipate the manufacture of items suitable for employment in the northern environment.

This kind of knowledge is sufficiently valuable to warrant investment status, and receive legal protection and fair renumeration. This special knowledge may be applied, for example, in the design of outdoor vehicles, clothing, hospitality, and the appropriate exploitation of wildlife resources.

This will require the kind of "vision" which inspired the creation of Air Creebec. Given the vast area of northern Quebec, and its sparse and scattered population, dependable air service tuned to the requirements of the inhabitants, was too important to leave in the hands of others. Yet the Cree people had to acquire the requisite technical and managerial skills. The solution was to write an agreement with an appropriate existing air transport organization which would develop the capacity of the Crees ultimately to emerge in full control of all aspects of Air Creebec.

The Minister of Transport at the time, Mr. Mazankowski, had the "vision" and awarded the permit. Not only do the James Bay Cree now totally control Air Creebec; Air Creebec is one of the largest air carriers in all of Northern Ontario and Quebec.

Trans Arctic Shipping now seeks to provide the same kind of service on James Bay to move goods by barge to James Bay Communities in Quebec and Ontario. Yet obstacles remain. Bay Street often regards native northern developers as it would Third World supplicants. The lenders know neither the north country nor their compatriots.

Provincial governments are slow to employ their procurement policies in such a way as to stimulate northern enterprise. They should take a page from the book of the Northwest Territory Government. Northerners ought to be intimately and extensively and powerfully involved in the planning and development boards whose decisions affect their lives. They ought to be able to ensure that development is sustainable in economic and environmental terms, a test which megaprojects such as the power developments in northern Quebec and Manitoba, often fail to meet. Whereas these projects fail to sustain a major workforce in the north, those such as Air Creebec. With an appropriate "vision" the obstacles will be overcome and the people will flourish.

The convening of the Winter Cities Conference demonstrates the strength of that vision.

Chief Billy Diamond

COMMUNITY BASED SUSTAINABLE DEVELOPMENT INITIATIVES

The Peterborough Committee on Sustainable Development was established in October of 1988. In part, it was a response to a challenge by Michael Bloomfield, the Executive Director of the Harmony Foundation of Canada, that Peterborough could become "a model of sustainable development".

Peterborough, Ontario is a community of roughly 63,000 people about 85 miles north and east of Toronto. It sits in the middle of one of the most beautiful lake districts in Ontario. Economically, it has a traditional manufacturing base, including such industries as General Electric Canada, Outboard Marine Corporation and Quaker Oats of Canada, but the economic base has become more diversified in recent years, with the attraction of such companies as Ethicon Sutures and Kendall of Canada (a manufacturer of medical supplies). The present growth situation is expected to continue as pressure mounts from the "Golden Horsehoe" to the east of Toronto, and as a four-lane highway route linking the city with the 401 nears completion. In other words, the City is facing some hard decisions regarding the nature of its future development, the relationship between development and the environment, and a growing understanding that economic growth must be sustainable, along with a growing sense of the necessity for inter-generational equity.

The Committee on Sustainable Development comprises of representatives from business and industry, from the Business Improvement Area, the local Chamber of Commerce,

Land-use intensification has many advantages for municipalities. It not only limits sprawl, it also makes more efficient use of municipal services, including public transit.

Otonabee Region Conservation Authority, the Labour Council, the Ministry of Health,the Ministry of the Environment, Parks Canada, the Ministerial Association, Trent University, Sir Sandford Fleming College, the Board of Education, the Directors of Utility Services, and from City Council. To the best of my knowledge, we are the first community in the country to establish such a committee.

Some interesting themes are emerging from our discussions. In the topic area of land use, for example, we are looking at the benefits of higher density development as an alternative to urban sprawl. This objective of land-use intensification is one of the "directions for change" listed in the Ontario Round Table's Challenge Paper.

Land-use intensification has many advantages for municipalities. It not only limits sprawl, it also makes more efficient use of municipal services, including public transit. Such a radical departure from conventional land-use patterns is bound to be controversial. This underscores the need for public consultation and discussion, to help develop a shared understanding of the positive and negative implications of land-use intensification at the local community level.

Transportation is a second issue with environmental implications that directly concern municipalities. The Round Table Challenge Paper refers to rapidly increasing vehicle use in southern Ontario, consumption of vast amounts of land for roads and parking and high levels of energy consumption, and air quality problems such as photochemical smog and acid rain.

A third area of municipal environment responsibility is water quality. Under the provincial government's Municipal - Industrial Strategy for Abatement, known as MISA, municipalities will bear a large portion of the responsibility for controlling industrial emissions into municipal sewer systems.

However, industrial emissions are not the only problem or perhaps even the most serious local problem. Storm water run-off washes urban contaminants into storm sewers, which feed into the Otonabee River and other water bodies. Measures designed to reduce run-off and remove contaminants include on-site detention ponds on some industrial and large commercial and residential properties so that contaminants found in the first flush of stormwater can settle out before the water is discharged to the storm sewer system.

When we talk about the principle of sustainability at a local level, I think it is useful to look at this from three points of view: productive sustainability, social-economic sustainability and aesthetic sustainability.

Additional measures under discussion include revegetation of open space, and substitution of concrete and asphalt surfaces, like parking lots, with permeable surfaces that allow water to seep into the ground.

The fourth area of municipal environmental responsibility is the protection and enhancement to the natural environment. The continued success of our economy depends on respect for nature for spiritual and moral reasons that are beyond materialism and human self-interest.

A fifth area of municipal environment responsibility is solid waste management - or, more appropriately, reduction, reuse, and recycling, followed by disposal. Waste must be viewed as "secondary resources." At the same time, we must shift from non-renewable to renewable resources,

(Continued on page 19)

CAPITALIZING ON SUCCESS

THE SUCCESS STORIES BANK: POSITIVE STEPS TOWARDS SUSTAINABLE DEVELOPMENT

The overall concept of sustainable development is simple: But it is difficult for most people to understand clearly what sustainable development means when applied to real problems in real places.

The overall concept of sustainable development is simple: "development which ensures that the utilization of resources and the environment today does not damage prospects for their use by future generations." (Our Common Future). But it is difficult for most people to understand clearly what sustainable development means when applied to real problems in real places. Sustainable development is a long-term, societal goal, like social justice, which can take centuries to fully and truly define. Action to address current and emerging social, economic and environmental problems cannot wait for years while philosophers develop that definition. Achievement of a sustainable system will involve many building blocks, addressing the millions of actions and decisions taken by all of us, in order to ensure that what we do is environmentally sound. Like we have done relative to the long-term goal of social justice, sustainable development will be built through many small steps and we will learn from these steps what really works and what leads to a more sustainable society and environment. We need to find out what works, and then capitalize on these models to move towards a more sustainable future.

The Success Stories Bank is a growing database of innovative environmental initiatives pointing the way to sustainability within business, industry, governments and communities across Canada. It was established by State of Environment Reporting at Environment Canada to serve Canadians and the international support of informed decision making. Our mandate is to make practical environmental information more accessible, to encourage the adoption of more sustainable practices, and to help us all understand what is required to make sustainable development a reality in everyday life.

Each story registered in the Bank demonstrates that environmental, economic and social interests can be integrated. They come from all across the country and from many different types of activity. Some of our currently registered stories include: a chemical exchange program in Edmonton, better management in a caribou herd in northern Manitoba, an environmental awareness program for employees of a pulp and paper company in Nova Scotia, a composting program in Peel Region and more. In every case, the initiative is an improvement over standard practice and is a step towards a more sustainable future. There are basically four categories of stories within the database:

Story Example #1: Managing resources in a way that enhances their sustainability - Since 1982 the Beverly-Kaminuriak Caribou Management Board has looked after the caribou herds that feed the people in the Keewatin and Great Slave Lake area of the Northwest Territories and in northern Saskatchewan and Manitoba. The cooperation of governments and native people in the preservation of herds at optimum levels, minimization of the industrial activity, and public education on caribou management has resulted in the successful maintenance of a valuable resource.

Story Example #2: Anticipating and preventing environmental problems - Stora Forest Industries Limited of Nova Scotia used a four month, $400,000 employee awareness program to come up with an overall environmental policy of the company. The program was designed to make each employee aware of today's environmental issues, involve them in forming the company's overall environmental policies and show how everyone has an impact on the environment. The company felt it was important to look at improving practices and to discuss how it is taking positive steps to address environmental concerns. For example, Stora's Woodlands Department designed portable bridges to be used on small streams and waterways to protect fish habitats and is working closely with wildlife biologists to study the effects of Woodlands' operations on fish and wildlife habitats.

Story Example #3: Waste reduction for profit - The Canadian Waste Materials Exchange is a government and industry effort to make creative use of waste and save companies' money. It and other regional exchanges function on the principle that waste from one process can serve as a raw material for another. For example: a popcorn manufacturer arranged (through the CWME) to supply a local pig farmer with up to six cubic metres of waste per week instead of paying for its disposal. The CWME publishes and distributes a bi-monthly bulletin to over 4,000 companies that lists industrial wastes as being sought or offered in Canada.

Story Example #4: Working together for common social and environmental benefits - In an effort to cut down on the amount of yard, kitchen and other household

SPECIAL PULL-OUT SECTION !

WCA UPDATE

WINTER CITIES ASSOCIATION NEWSLETTER ISSUE NUMBER 4 • OCTOBER 1991

Winter Cities Forum '93 To Be Held North of 60 Degrees In Yellowknife, Northwest Territories

Come to Yellowknife and see how we have learned to adapt and harmonize with our climate. Informative sessions, workshops, trade show, demonstration tours, and networking are but a few events you may participate in at the Winter Cities Forum '93 being held in Yellowknife, Northwest Territories, March 22 - 26, 1993. Pre and post activities that you could participate in are events such as cross country skiing, snowshoeing, ice fishing, craft demonstrations or a dog slide ride under the Aurora Boralis.

The Yellowknife Winter Cities Society has been incorporated with the following community oriented people forming the Board of Directors: President - Stephen Hurst, 1st Vice - Art Christensen, 2nd Vice - Debbie Jepson, Secretary - Eileen Dent, Treasurer - Maxine Avery and Directors Marvin Robinson, Ed Andrews, Kay DaCorte and Gail Cyr. Our office is located at City Hall and is manned by Executive Director - Judith Venaas.

Yellowknife, located 966 km north of Edmonton is situated on the west shore of Yellowknife Bay on the north arm of Great Slave Lake. Our average snowfall is 135 cm and the average mean temperatures are -29 degrees C in January, -25 degrees C in February, -18 degrees C in March and -7 degrees C in April.

Yellowknife is named after the Yellowknife Dene who moved into the area in the early 1800's and was basically a fur trading area until gold was discovered in 1896 by miners on their way to the Klondike. It was not until 1930 with the discovery of Pitchblend on Great Bear Lake, the improvement of transportation and the discovery of visible gold in 1934 that further development took place. By 1944 gold production ceased entirely, but a new rush started after the war when Giant Yellowknife Mine opened and expansion continued after the completion of a hydro-electric power station on the Snare River in 1948. In 1953, Yellowknife became a Municipal District and in 1967 was named the capital of the Northwest Territories thus bringing the Commissioner and his immediate staff to Yellowknife in 1967.

Credit to Bruce Sekulich

The City has continued to grow as a mining, transportation, communication and administrative centre while retaining the feel of a small friendly northern community. Today we have a population of approximately 15,000 people and boast a unique mix of entrepreneural businesses and opportunity, therefore making us the service and supply center for the Western Arctic.

Winter Cities Forum '93 will consist of sessions, workshops, a trade show, social events and lots of our great northern hospitality. Plans are well underway with our theme and program, funding and marketing committees in place and working like little beavers!! If anyone has any thoughts on what you would like to see on the program, are interested in participating in the trade show or in presenting a paper, we would love to hear from you.

An invitational letter is scheduled to be mailed the end of September, if you wish to be on our mailing list drop us a note and we would be delighted to keep you informed of our progress. Our mailing address is Box 62, Yellowknife, N.W.T., X1A 2N1. Phone (403) 920-7257, Fax (403) 920-7258.

If you are planning to attend Winter Cities In Montreal watch for the Winter Cities Forum '93/City of Yellowknife booth and say "Hello".

We are looking forward to other residents who experience winter conditions to come and share their experiences with us. See you in March 1993!

Welcome To Our New Affiliate-Kautokeino County In — Norway —

It is a pleasure to welcome this group of winter city enthusiasts. Kautokeino is the only municipality which has defined itself as "Sami". Eighty-five percent of the population have Lapp as their native tongue. The municipality builds on Sami culture and social structure and the natural resources form the foundation of its economy.

Kautokeino is the largest municipality in the country with its 9687 square kilometres of plain scenery. It has a scattered settlement pattern, except for the two centres Kautokeino and Maze. The Finnmark Plains provides an aesthetic treat for those who travel here. Trout and char bite willingly in the hundreds of lakes, and you can hike alone for days with no other company but the mosquitoes and midges. The Finnmark Plains is an adventure that those who have been here would never be without. The Plains are varied and manyfold and the flora anf fauna is without comparison in its wealth of species this far north towards the Arctic Ocean.

In the wintertime, you may go skiing or drive a snow mobile in a very well extended net of tracks or join in reindeer activities. Quite a few people choose to ski to one or more of the mountain inns, where you may also spend the night.

All year round, the Plains is an attractive area for all who would like to see a piece of untouched nature.

Until recently, reindeer, agriculture and utilization of the surrounding land have been the foundation of the Kautokeino population. Many new jobs have been created through activities within the industrial, trade, travel and service sectors during the last years. Reinprodukter Al (Reindeer Products Ltd.) is one of the major generators of industrial employment and is furthermore the central plant for reindeer slaughtering in North Norway. The Biddjovagge mines extract gold and copper, and have become an important employer in the county. The county provides other natural stone resources, which in the future may yield substantial income to the inhabitants.Kautokeino's cultural life is varied, rich and unique. The Sami and Norwegian cultures meet on weekdays, at festivals and celebrations. The cultural life fortifies Kautokeino's position as a Sami cultural centre. More than 80 voluntary associations and organizations take part in the cultural work. The facilities of a sport's hall and sport's field, in addition to cross country

tracks and a jumping hill offer a rich variety of physical activities. The House of Culture in Kautokeino earned the North Norwegian Architectural Award in 1987. It provides space for many activities, including the Sami Theatre, a library, and a leisure-time club. In Maze, artists can rent premises and equipment at the municipality's art workshop.

The Easter Festival in Kautokeino, the most extensive Sami culturalmuster today, includes reindeer races and "Joik" concerts (chant in monotone), and has become known around the world.

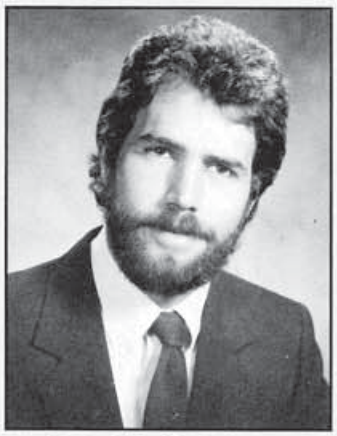
Kautokeino County is a county rich in culture and winter experiences and we look forward to sharing those experiences with them. Welcome to the network of Winter Cities Association affiliates.

— Newly Elected Members of the Board —

Dr. Larry L. Neal, Associate Professor in Recreation and tourism Management at the University of Oregon. He has lectured, consulted, written (over 100 books, monographs, articles), served in numerous elected and appointed posts, locally, regionally, nationally and internationally. Specific to winter cities, he initially served on a task force and think tank group for the Edmonton Winter Cities Forum '88, spoke on Tromso '90 and helped coordinate the Leisure/Tourism stream for Sault Ste.Marie Forum '91.

Since his election to the Board at the Annual General Meeting in May, Larry has been very active promoting the Winter Cities Association among his many leisure/recreation contacts. A major promotion was done in conjunction with WCA head office in Calgary.

Dr. Larry Neal



Patrick Coleman

Patrick Coleman, AICP, is a planner with U.P. Engineering and Architectural Associates Inc., a full service consulting firm based in Houghton, Michigan. Originally from Minneapolis, Minnesota he has worked for the past 13 years in Michigan's Upper Peninsula.

Patrick was instrumental in the innovative winter adaptations Houghton City has undertaken.

As a newly elected member of the Board, Patrick has agreed to take on the responsibility of increasing membership among architects, planners and municipalities in his area.

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Membership includes a subscription to WINTER CITIES MAGAZINE!

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Naokatsu Kumagai

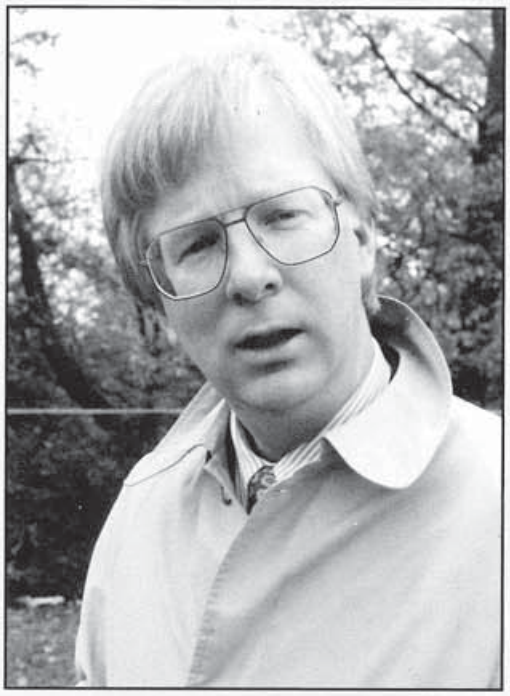
Naokatsu Kumagai, Professor, Hokkaido University of Education. He does research mainly on urban landscape design and is deeply interested in winter cities' urban landscapes and urban designing.

He was in charge of various designing works for the Sapporo Olympic Winter Games 1972, planned and designed the Sapporo Science Centre and is now designing for a new bridge on Toyohira river "Sapporo Munich Great Bridge", Eco-Color design for "Sapporo Romanet" streetscapes and other works.

Naokatsu is our first Board member from Japan and we look forward to working with him to further the WCA network in that part of the world.

David Phillips, Senior Climatologist, Canadian Climate Centre, Environment Canada. David has been employed with Environment Canada's weather service and its predecessor for more than 24 years. His work activities relate to the study of the climate of Canada and to promote awareness and understanding of weather and climate in Canada. David describes himself as an applied climatologist - someone who uses climate data and information to solve economic, social and environmental problems. Weather and health is his special interest.

His publication record includes several books, papers and reports on the climate of Canada, including several essays and biographies in The Canadian Encyclopedia and a new book The Climates of Canada. He is well-known to many Canadians as the originator of the best-selling Canadian Weather Trivia Calendar and the author of the regular "Weather-wise" column in Canadian Geographic. David frequently appears on national radio and television as a commentator on weather and climate matters.



David Phillips

Welcome to all our new Board members and we all look forward to working with you towards our goal of an increased network of Winter Cities Association members.

Winter Cities and Snow and Wind Institute Join Forces

In the August meeting of the Canadian Snow and Wind Institute it was approved unanimously that the Snow and Wind Institute, formally registered under Ontario Corporations Laws, be constituted and accepted as an affiliate organization of the Winter Cities Association.

The Winter Cities Association has confirmed the affiliation and we welcome them aboard and look forward to a long and productive relationship.

waste going to landfill, the Region of Peel in Ontario is promoting a home composting program. The region organizes the transfer of discarded, 45-gallon, plastic drums from local companies to a public works yard. There, the drums are converted into home composters by non-profit organizations such as the Boy Scouts or Rotary Club. The composters are distributed to the public on a first-come, first-serve basis. By diverting 700,000 kilograms of waste to back-yard composters each year the Region is saving about $40,000.

Anyone who has a new initiative or a traditional way of doing things which they believe is a positive step towards sustainable development can apply. To qualify for registration in the Bank, candidate stories should be a significant advance over common practice, and be a role model for action. All applications are reviewed and undergo scrutiny by our staff and other experts before registration in the database. To date the Bank has over one hundred stories finalized or prepared for final review. No one story is perfect - over time behaviour will change and better ways will be found. However, the Bank will endeavour to hold the leading edge stories of environmental practice.

Returns on Investments: The Bank has served over five hundred clients in the past year. It will continue to provide this service to business and industry, governments of all levels, film makers, the press, universities, schools, environmental organizations, individuals and others within Canada and the international community. To date our clientele have been accessing the Bank largely to improve their own practices and decision making, or to improve their services to their own clients. Others have used this information to develop new courses and training programs, support research, promote positive action through conferences, radio programs and films.

The Success Stories Bank is a forum for information exchange - sharing those experiences which build upon sustainability. The firms and communities with stories registered in the Bank are all prepared to share their experiences with others who wish to know more about what has worked for them; this in itself is a catalyst for action. For example, the Halifax Metropolitan Authority found some stories of use for blueprints for recycling program proposals. Another client from Quebec City, interested in a composting program which draws upon the talents of the Boy Scouts in Peel Region is now planning to implement a similar program in his community. The Success Stories Bank endeavours to provide ideas and the resource people required to make change happen.

Dr. Ted Manning
Environment Canada,
Sustainable Development Branch

(Community Based Sustainable Development Initiative ...Continued from page 17)

renewably managed, so that we can "live off the interest" rather than drawing down our finite "natural capital."

When we talk about the principle of sustainability at a local level, I think it is useful to look at this from three points of view: productive sustainability, which refers to the use of natural resources such as soil and water so that their long-term productivity is not impaired; social-economic sustainability, referring to the establishment of an economically viable community; and aesthetic sustainability, referring to the maintenance of the community's natural and cultural heritage. In consideration of all of these, there is a call for a distinction between wants and needs and a re-examination of the relationship between consumption and satisfaction.

In closing, I would like to quote from a speech made in 1854 by Chief Seattle, the Dwamish Indian Leader after whom the city of Seattle, Washington was named, to an assembly of tribes who were preparing to sign a treaty with the White Man, in this case the United States Government. This, in part, is what he said:

"How can you buy or sell sky, the warmth of the land? The idea is strange to us. If we do not own the freshness of the air and the sparkle of the water, how can you buy them? Every part of this Earth is sacred to my people. Every shining pine needle, every sandy shore...is wholly in the memory and experience of my people. The sap which courses through the trees carries the memory of the Red Man."

Sylvia Sutherland,
Mayor of Peterborough, Ontario

(Panel Debate ... Continued from page 20)

Bill Cameron: It might be time to move the cameras around and let other people ask some questions.

Chief Mercredi: May I respond to the insinuation that was made by Mr. Zimmerman, that you can't turn back the clock. I think he missed the argument that I'm making here. Our culture is as valid now as it was before European contact. If we had the power, the resources to develop our land and be able to sustain ourselves, we would produce a substantially different society. We don't have a sense of property that says you can have exclusive rights to this land. I'm not saying that ours is a superior point of view, but the values that produced the environmental destruction are not values that all Canadians share; these are corporate values. People with a different cultural point of view have a valid reason to try their perspective and to apply it in their best interests.

PANEL DEBATE

IMPLEMENTING SUSTAINABLE DEVELOPMENT IN THE NORTH

Moderated by Bill Cameron
(Via Satellite)

Panel Members: Adam Zimmerman, Chairman and C.E.O. of Noranda Forest Inc.
Chief Ovide Mercredi, Manitoba Regional Chief, Assembly of First Nations
Monte Hummel, President, World Wildlife Fund of Canada
Jim Collinson, Assistant Deputy Minister of "State of the Environment Reporting Service"

Adam Zimmerman: To paraphrase Chief Diamond: the North has two immense disadvantages - weather and distance. Some of the advantages are obvious and some are mis-stated. The resource endowment is generally thought to be the prize advantage of the North. I think the potential of these resources is perhaps overstated. I suspect that perhaps there are not the untold riches that people would like to say there are.

The other two places where there are many northern cities are Scandinavia and Russia. I know about Scandinavia and how that has developed. Not only did they have the endowment of water power and trees, but also the hardships of wars which made them learn to fend for themselves, build their own equipment, and raise their own technology and I think that is why a lot of Northern Scandinavian cities are much better fixed than some of ours. However, there are things that can be done and the one I would like to see focused on most is what Chief Diamond raised: the brains of the North and the wisdom of how to live there, both of which exist. Probably some of the technological knowledge has to be imported. The dilemma of that one is you train people for jobs that aren't there. So, Mr.Chairman, that's my understanding of what the North has to cope with.

Monte Hummel: Sustainable development to me means nourishing the human spirit while maintaining a healthy natural environment. There is no future for people here in the North if what is being done in terms of developing is done at the expense of the environment. To me this would mean: 1) Making sure that when we do exploit Northern resources we do so responsibly. 2) Sound environmentally sensitive development of the land and water base and land use practices must be supplemented with an adequate network of protected areas such as parks, wildlife reserves and other conservation lands and waters. 3) Northerners must define their own future, building new alliances amongst groups who may not have been cooperating in the past, and doing so within the limits of what the natural environment can sustain. My vision of sustainable development does not mean no more logging, mining, or hydro developments in the North.

In conclusion, it would be very useful and positive if we could spend a lot less time defensively blaming outsiders for the North's problems. We need to show the world that the North can do things quite differently from the South - in a way that respects the natural environment. What we have to do is to manage human use of the natural resources and the demands we put on the biosphere in general. And that means responsibly managing ourselves.

Jim Collinson: What the federal government has embarked upon is trying to come up with information that will be available to all and provide a basis for better decisions. We're putting together a draft environmental indicators report and I say "draft" because we know it's not right; we're not going to have environmental indicators overnight. The report will be circulated and discussed for probably a year or two. In addition we're going to be developing "satellite accounts". It's just a way our numbers will be handled so that our gross national product, our economic model will have some environmental factors worked into it. And finally what we call "resource depletion accounts" which come back to resource capital and what we are doing to it. Our normal approach in economics is to try to bring everything to what it is worth today. The problem is that it doesn't take into account our children and their children, and so on.

But global warming is sneaking up on us. Even if it may be twenty years before, say, the prairies have more precipitation, but greater drought because there's greater evaporation. There are things perhaps that can be done to avoid that. And then it comes down to what we as individuals can do. An individual can sit back and say that what he does will be only a drop in the bucket. But if a couple of billion people do something it makes a big difference. As far as Indian self-government is concerned - the kind of information required for decision-making is not going to be affected greatly by who makes the decisions, but by the reliability of the information available. Also, Broughton Island, alone is not going to improve the quality of food they're taking out of the ocean because some of the pollutants are coming from Northern Russia. We're in a global situation and we have to recognize that.

Adam Zimmerman: I can't imagine anybody being an opponent of it. I guess it's population. The Indians basically had it right because they lived in a balanced, fundamentally no-growth society. But you can't turn back the clock; you can't rewrite history. And the fact is, the population growth is coming on at a hell of a pace. The demands of society are taking up too much property; are screwing up the environment and unsettling the natural way of doing things. So my answer to you, Bill, is population.

(Continued on page 19)

BUILDING FOR THE FUTURE

RECYCLING: THE CHALLENGE FOR THE 1990'S

Introduction: It will not surprise anyone when I say recycling will be one of the most important influences on all sectors of industry in the next decade, due to heightened awareness, responsibility and involvement on the part of consumers. It is only through testing the boundaries of what is possible and feasible that we will discover what limits there are to what can, should and will be reduced, reused and recycled.

Background: Recycling is not a new concept in North America. There are bountiful examples of conservation and recycling in the daily lives of our ancestors, the pioneers. All sorts of goods were saved to be used again. This was not motivated by awareness of long-term implications of disposing of solid waste, but by the realization of limited supplies, the need to conserve and reduce costs. Henry Ford forced his suppliers to deliver car parts in wooden crates that served second lives as the flooring of Model T's, but not because he was an environmentalist, but because he was thrifty. The Depression of the 1930's made all North Americans conscious of how, and how many times, a thing could be used.

The trend to product convenience began after World War II. As affluence increased and citizen's lives quickened, marketers were pushed to create time- saving and disposable products, enhancing personal freedom and freeing individuals from drudgery. Few gave thought to the ultimate impact of a society driven by convenience. Large quantities of products were carelessly tossed into garbage cans whose contents ceased to be the householders concern and responsibility, once on the curbside.

Recycling and Winter Cities: First a brief story of a generator failure in a small northern town. With the town in darkness the utility president tried in vain to restore power. Finally he called an engineering professor who walked in gave the generator a single tap and the lights went on. Next day he billed the utility for $1001. When asked to explain, he said it is one dollar for the tapping and $1000 for knowing where to tap.

This story applies to successful recycling. The key is knowing where to tap. A successful recycling project needs to answer a real need, to provide a real solution, and serve a useful long-term role. Northern businesses must do detailed analysis to ensure their location is a good fit with a recycling need.

C.P. Forest Products chose Thunder Bay because it was one of our largest mills, accessible by rail, road and water, and close to large northeastern and central U.S. metropolitan areas for newspaper sources.

Northern cities as sites of both mills and woodland operation bases must play a role in communicating forest management practices with the aim of sustainable development, to ensure that recycling efforts develop meaningfully.

For the start-up of any recycling operation the following considerations are important: financial costs; employment - recycling will mainly replace, not create new jobs; timing - if demand exists now will it still be there five years from now? Will recyclable materials be available and affordable?

The smartest decisions will be made by people who know the present and future capabilities and limits of their communities, facilities, products and markets, and are willing to test the bounds of what is possible.

Those who know "where to tap", providing imaginative long-term solutions, will emerge as the leaders in recycling.

A successful recycling project needs to answer a real need, to provide a real solution, and serve a useful long-term role.

Cecil Flenniken,
Chairman and C.E.O.,
Canadian Pacific Forest Products Ltd

AIR POLLUTION IN WINTER CITIES

Many Northern communities have developed around mining and pulp and paper operations and consequently have had a history of local air pollution problems that have reached severe conditions in some cases. Such conditions have made these communities less attractive for developing tourism, recreation and less attractive places to live. However, during the past decade, industrial pollution control has been applied on a very broad scale with the more severe conditions, particularly with regard to air pollution, having been virtually eliminated. This has resulted in almost a reversal in pollution problems. While air quality in northern cities has improved, in the southern cities, increased population and greater use of automobiles, particulary for commuting, have resulted in more pollution.

Sulphur dioxide concentrations in the atmosphere have been brought under control in all parts of the country. The Federal and Provincial Environment Ministers have agreed to the first phase of a national NOX/VOC management plan designed to reduce ozone concentrations in the areas of non-compliance. While the controls
will be directed to the areas of concern to as great a degree as possible, some of the regulations such as those for automobiles must be applied on a national basis. Therefore, air quality in areas currently not experiencing ozone prob- lems will be ensured to remain in this high quality condition as a spin-off from the controls needed to bring the more polluted southern cities into ozone compliance.

Overall, the Air Quality in the Winter cities of Canada is generally good and with current control plans it is ensured to remain that way well into the future even if there is considerable
growth in populations and use of automobiles.

The challenge is for Winter cities to exploit the high air quality and proximity to other quality natural resources in terms of attracting permanent residents and industries, promoting tourism and recreation, and in conducting these programs in ways that maintain the natural environmental quality.

The City of Sudbury represents an important example of the

(Continued on page 26)

THE DIFFICULTY OF RECYCLING IN A NORTHERN CITY

One of the problems in recycling in a northern city is that there are no hard and fast solutions to the problems which thus require a creative approach depending on the situation.

The city of Ottawa first became involved in recycling through pilot projects in the early 1970s; a definite trend towards increasing waste generation and higher tipping fees - in the early 1980s, these were $2.00 per ton and are now $6.00 per ton - led to a re-examination of recycling as a means of reducing wastes. To achieve economies of scale, Ottawa introduced its programme in July 1987, in cooperation with the neighbouring cities of Nepean and Gloucester. By 1988 the amount of waste taken to the landfill had declined to the 1983 level and by 1990 an even higher percentage was being recycled, though with time it becomes increasingly difficult to increase the proportion.

One of the problems in recycling in a northern city is that there are no hard and fast solutions to the problems.

The blue box programme is limited in what it can collect, about 10-12% of residential wastes being recycled in 1988. 103,000 households out of a possible 155,000 were serviced initially, but this figure did not include high-rise or low-rise apartments or townhouses; the inclusion of the latter two residential categories increased the number of households to the current figure of 130,000. Newspaper, cans and bottles are collected. In 1989 a pilot project using basement depots in 18 high-rise apartment buildings was started; problems experienced included a lack of space in sprinklered storage rooms for newspapers. One solution was to provide steel containers for newspapers, cans and glass that are picked up by overhead loading trucks. The depot-type approach does not appear to have resulted in a decrease in per capita waste collection for recycling compared with that from single-family dwellings.

In October 1989, a pilot programme for collection of corrugated cardboard was started, collecting from light commercial generators, largely in the downtown area, that put out 12 bags of garbage or less weekly. In the first year 120 tons were collected which represented 16% by weight and 30% by volume of the total garbage collected; however, participation from businesses was lower than expected.

A leaf collection and composting programme was started in 1989; in the first year, 1,500 metric tonnes of leaves, which would otherwise have gone into landfill, were collected and the amount rose to 2,000 tonnes in 1990. A high quality usable compost is produced that is used by the city and the composting process is a valuable educational tool for children. Christmas trees were also collected at depots opened after Christmas. In the first year, 4,500 trees of an estimated 40,000 sold in the city were collected; in 1990, the number rose to 9,400 and in 1991 to 15,000. Last summer a composting programme was introduced; 10,000 backyard composters were sold at a reduced price to encourage people to reduce the other 20-30% of organic household waste. Another 5,000 composters will be purchased this year and if these are sold, a further 5,000 will be purchased in the fall.

A leaf collection and composting programme was started in 1989; in the first year, 1,500 metric tonnes of leaves were collected and the amount rose to 2,000 tonnes in 1990

Textile collections have been tried in specific city neighbourhoods at the request of the main charities who wanted to cooperate in an organized collection of textiles. Experience proved that there is relatively low participation in this type of programme compared with the blue-box, perhaps because clothing is only disposed of on an occasional basis. In future, textile collection may be operated periodically as part of a city-wide sweep or through a central depot.

Winter weather presents certain difficulties in the operation of the blue-box programme. Since the blue boxes must be set out between 7 pm at night and 7 am on collection day, overnight snowfalls can bury the box. Snow, gravel and salt can get into the box, resulting in the newspapers freezing to bottles or cans. It is important, therefore, that newspapers be bundled and placed on top of the box. Snowbanks present difficulties since the driver may not be able to see the box if it is placed behind the bank; alternatively, the driver risks losing articles from the box and even injury, if he is forced to climb over a snowbank. There are requirements that the residents place their garbage at ground level as close to curbside as possible. The blue boxes become more brittle in cold weather and rough handling, such as the action of the driver in throwing the box on to the sidewalk, can cause breakage. The extent of the problem is not known and will require further study; generally about 800 boxes a year are replaced but it may be that lost or stolen boxes are a bigger problem. Since drivers are require to separate all items before placing them in the truck, badly packed

Winter weather presents certain difficulties. Snow, gravel and salt can get into the box, resulting in the newspapers freezing to bottles or cans

boxes, in which there may be broken glass, present further hazards, especially if snow makes it difficult for him to see what is inside the box. Finally, the narrowing of streets due to snow accumulation can be a safety hazard for the driver because he is often driving on the "wrong" side of the truck and his visibility might be reduced.

Other recycling programmes experience winter difficulties. Carts and trucks, used for high-rise recycling, require a level surface. With winter snow and ice, they can be difficult to find; the pick-up vehicles may have difficulty manoeuvring in confined spaces and on ice-covered ramps.

In the first year of leaf collection, leaves were collected in bags or were picked up at curbside by vacuum trucks, the former proving to be the more efficient method. However, debagging the leaves took too much time and in winter, it is difficult to start the composting process. This year leaves were collected in reusable plastic bags and debagged at curbside; though some householders complained about the expense of buying the bags and apparent waste, this method permitted composting to begin in November. Once the temperature in the compost rises, the process can be kept going all winter, even snow on the pile acting as an insulator.

Backyard composting in winter is feasible if there is enough material - a minimum of one cubic metre - and if the process is started soon enough. However, summer in Ottawa is long enough that organics can be kept outside in plastic bags in the winter and added to the pile when warm weather starts; a usable product can be produced within three months.

One matter of major concern to winter cities is that they tend to be farther away from markets for recycled products and this may affect their view of the economics of recycling. Tipping fees are often set unrealistically low and northern municipalities must look at the actual cost of operating and monitoring landfill sites and of choosing a new site when necessary. In Ottawa, the cost of collection and disposal of garbage is about $80 per ton and of recycling, exclusive of subsidies from the Ministry of Environment, about $132 per ton. If tipping fees were $100 per ton, one could argue that by recycling, $100 in disposal costs had been avoided. There is no simple solution to location in respect to markets but northern municipalities may achieve greater bargaining power by joining with other municipalities, which may not be nearby but may be enroute to markets. Also, innovative local markets may exist in private enterprise, especially in smaller communities that will not generate much material, an example being the use of shredded newspaper as animal bedding.

On matter of major concern to winter cities is that they tend to be farther away from markets for recycled products.

Allison Rothchild,
Acting Waste Management
Co-ordinator, Ottawa

ECONOMIC REALITIES OF MUNICIPAL RECYCLING IN NORTHERN COMMUNITIES

Recycling fits perfectly into the theme of this conference because it illustrates the fundamental changes that we must make in our society to ensure our common, sustainable future.

Laidlaw is the third largest waste management services firm in North America, collecting trash, operating landfills and offering recycling services, and has been able to be a leader in recycling innovations in northern communities. We implemented

We have begun recycling gypsum wallboard and waste paint, have launched a yard waste composting system and collect used motor oil

the first "blue box" curbside recycling programme in the continent in Kitchener in 1981 and we are the first, and so far only, recycler to offer twenty year fixed price contracts to buy old newspapers from community recycling programmes. Laidlaw will be supplying 350,000 tons of recovered paper each year to two of Canadian Pacific Forests Products mills, one in Ontario and one in Quebec. We have begun recycling gypsum wallboard and waste paint, have launched a yard waste composting system in Rockville, Illinois and collect used motor oil in three Ontario communities. In addition to these innovative programmes, we continue to implement traditional curbside programmes and are moving into recycling wastes generated by the commercial sector - schools, offices, hotels and a variety of other institutions.

Laidlaw's principles for the evaluation of recycling are first, that it is becoming an expected, essential public service and second, that, to assess the true cost of waste management, all elements, including environmental and social impacts, must be accounted for.

Can Recycling Work in Northern Communities?

Recycling is already working in many northern communities, such as in Edmonton, Ottawa and even in remote towns in British Columbia, the Yukon and Alaska. However, there are obstacles - many northern communities are rural, raising issues of providing service in a low density area and many are farther from markets for recyclable materials. However, there are several trends that encourage recycling; these include the increasingly stringent environmental controls on waste management that will increase costs and on resource extraction that favour increased use of recycled materials, the improvement in markets for newspapers, steel cans and plastics, the opportunity to backhaul recyclable materials into the region for reprocessing and the increase in the practice of composting to serve local end markets.

Should Recycling be done in Northern Communities?

To assess the economics of recycling, it is important that the cost-effectiveness of methods of waste disposal be correctly identified. Disposal costs are incorrectly accounted for. Many communities operate dumps for free or at nominal cost so that their operating costs come out of general taxes. True disposal costs are high, and will continue to increase, if environmental and social impacts and accounting for environmental compliance are included. Since disposal costs are kept artificially low, disposal often looks more economically attractive than recycling; further, there are many other subsidies, such as tax policies and depletion allowances, that encourage the use of virgin resources. Environmental costs of using virgin resources are not considered nor are the reductions in energy, water and pollutants that result from using recyclable materials.

Recycling can also be viewed as an economic development tool for

True disposal costs are high, and will continue to increase if environmental and social impacts are included

our communities and it is clear that people want to participate in recycling - to do their part in preserving the environment.

Will Recycling Grow?

There are several things that can be done to make recycling more significant in our communities. The real costs of disposal versus recycling can be made more explicit and as operating experience continues to grow, costs will continue to decrease. Tightening environmental standards, holding manufacturers accountable for the impact of their products and shifting the tax burden from investment and income to consumption and disposal, will promote recycling. Development of the recycling infrastructure, and of regional, large-scale, as well as local, small-scale markets will also assist. Finally we can work to improve leadership on this issue since there has historically been a lack of leadership in government, industry and the public at large.

The growth of recycling in northern communities is an excellent step towards sensible, long-term sustainable development. Recycling means using local renewable resources rather than depleting virgin stocks. Developing markets for recyclable materials helps our economic development goals and improves the economics of recycling. In fact, the question is not whether or not recycling is economically viable but whether or not we can afford not to recycle.

Richard Reilly,
Director of Recycling Systems for
Laidlaw Waste Systems

TURNING WASTE INTO GOLD

The title of this talk was chosen by the conference organizers not by the author. The author likes the title; reminds him of the alchemists' search for the "philosophers stone" to turn lead into gold. But if the listener came here with the idea of getting rich quickly burning biomass waste, he will be disappointed. He will rather hear about the working reality of the Chapleau Co-Generation company.

The Problem: In the lumber industry 38 percent of the biomass removed from the forest after one takes the finished lumber and useful wood chips, is left over as waste - bark, shavings, sawdust and solid waste. This is surely unacceptable to an environmentally responsible society.

This is not meant to be critical of the lumber industry, and actually some of this is utilized as heat for lumber drying, or sawdust in particle boards or pressed fireplace logs, etc. Even so, a great proportion is simply burnt in teepee burners - a complete waste and a source of air pollution. Some is landfilled with potential leachate problems.

The Ministry of National Resources (MNR) estimates that 2 million green tonnes of unutilized wood waste is produced annually in Ontario. This is probably understated; the Chapleau unit alone uses 100,000 tonnes annually. The use of teepee burners masks the enormous amounts actually wasted.

An Answer: Chapleau Co-Generation, Canada's first independent wood fired cogeneration facility is a working demonstration of an answer to the wood waste problem. It may not be the answer because a more valuable use for this material may be found. At Chapleau burning 100,000 tonnes of wood waste produces 50 million kilowatt hours of electricity and 100,000 BTU's of steam for drying lumber, all the electricity and heat for the town and its three lumber mills - at 27 percent of the allowable provincial standard for emissions. All of this was formerly burned in teepee burners showering the countryside with particulate pollution. By displacing an equivalent quantity of coal-fired generation by Ontario Hydro we reduce acid rain emissions. Burning renewable biomass does not add to the carbon dioxide load and hence to the "greenhouse" effect. The disposal of sawdust in landfill releases methane, a more potent greenhouse gas than carbon dioxide.

Chapleau Co-Generation, Canada's first independent wood fired cogeneration facility is a working demonstration of an answer to the wood waste problem

The plant employs twenty people and injects one and a half million dollars into the local economy with noticeable spin-offs. There's been an increase of traffic of salesmen, suppliers and contractors. Most of the payroll is spent locally helping local businesses to be able to upgrade.

All of this co-generation (the combined production of power and heat) with its environmental and economic benefits is accomplished without touching any new or virgin resources. As long as we maintain proper forestry management this energy generation can go on in perpetuity - truly "sustainable development".

What Does it Take to Make a Co-Generation Project?:

Briefly, in Churchill's words: "Blood, sweat and tears". But this is the usual lot of pioneers. The basic concept is simple: We have a big woodstove with a tea kettle sitting on it whose steam blows against the blades of a turbine. But, of course, the stove is seven stories tall burning 15 tonnes per hour. The tea kettle operates at 900 pounds per square inch and produces 75,000 pounds per hour of 750 degree fahrenheit steam. Our eleven foot long turbine produces 10,000 horsepower to drive our seven megawatt generator.

The process is simple in concept but in practice our biggest problem is that wood waste is "garbage". It is wet with an average of 50 percent water content, it comes in sizes from fine sawdust to long stringy, sticky bark, to 16 inch diameter log pieces. It is full of sand, gravel, rocks, scrap iron, etc.

Whatever it Takes:

Although we have mostly existing, proven technology, our pioneering status forces us to be flexible and innovative. Our operating principle is: "We solve our problems - Whatever it Takes". An example will illustrate that.

In April 1986 we met with Ontario Hydro to establish a date and time for Hydro to gear up to receiving power from us. We set October 24 at 12:00 hours as the target, and we were determined to meet the target. Our plant was still an empty shell without most of the equipment. Several weeks before our target the engineer came and said the water treatment plant was not working and we had no boiler water. Ontario Hydro has thousands of gallons of boilerwater and the Thunder Bay station was prepared to let us have some at cost. The problem was the deironized water could only be handled in stainless steel tanks. We contracted a fifty foot milk tanker and truck to do it. Despite our best efforts, our start up was 14:00 hours on October 24 - two hours late!

We Have the Technology:

Applying the "whatever it takes" principle overcame most of our problems, but we have another favorite saying:

"We have the technology". And we do. We can turn the lumber industry's garbage into safe, clean, reliable electricity for the power grid.

Our aim is for a complete "zero discharge" plant - to use industry's waste and produce nothing but saleable products with negligible impact on the environment. We have not been able to find a use for our wood ash yet, but we are looking. At present we landfill it. This is completely safe since it is totally inert and leachate from it is of drinking water quality.

We already are at zero discharge for waste water. All our waste water is evaporated in our wet ash scrubber, which does double duty. It cleans the fly ash to 27 percent of the allowable standard for stack emissions, and disposes of all our water waste thus eliminating the need for a sewage system. We have no sewage discharge into our river. We saved the capital cost of a sewage system and save the environment at the same time. Yes, we have the technology and people from all over Canada and the world are coming to see it and be trained at our plant.

Our aim is for a complete "zero discharge" plant - to use industry's waste and produce nothing but saleable products with negligible impact on the environment.

Green Power, Green Rhetoric and Green Action:

We call the electricity we generate "Green Power" because it is renewable and environmentally friendly. We have millions of tonnes of wood waste in Ontario. Every small sawmill town in the north could have a co-generation plant.

The reason why this is not the case is that this process is not profitable. It's good for the environment but not, as yet, for investors. Most energy from waste developments operate on a "tipping fee" basis. The producers of the waste pay so many dollars per tonne to dump their waste at the plant. In industries other than the lumber industry, this tipping fee is much larger that the revenue received from the sale of electricity. In the lumber industry there are numerous teepee burners providing low cost tipping fees for disposal of waste. If these were shut down, enforcing pollution regulations, the lumber industry in its present shape could not afford to pay higher tipping fees to co-generation plants.

Ontario Hydro pays a private producer of power at its "avoided cost" rate. That is, at the rate it would have cost Hydro itself to produce the power within its vast economies of scale. This theoretically ensures the cheapest power for consumers but it does not take into account the environmental costs. This philosophy is comparable to saying unleaded gasoline can be sold only if it can be produced as cheaply as leaded gasoline, or recycled paper can be used only if it is cheaper than regular paper.

When will "green action" replace "green rhetoric", at least as far as electrical generation is concerned? We could develop the potential "green power" resources of Ontario by increasing the buy back rate by as little as 15 percent, which would increase consumer rates by considerably less than 1 percent.

We have the resources, the vision, the people and the technology to make green power a reality throughout the North.

We have the resources, the vision, the people and the technology to make green power a reality throughout the North. All we need is the political will to make it happen.

We call on politicians to put policy decisions and legislation in place to allow it to happen - so we can make "green power" a reality and really turn waste into gold.

William Ivey,
President of Chapleau Co-Generation Limited

(Continued from page 21)

benefits of environmental protection. The air quality has been dramatically improved over the last two decades. Aggressive municipal planning and development has led to a greatly diversified economy that involves tourism and recreation for which high quality environment is a necessary ingredient to their success. There are other examples such as the Rainy River and parts of Lake Erie where improved environmental quality has supported diversification and development of recreational activities.

Dr. Thomas Brydges,
Acting Director of Environment Canada's Acid Rain Co-ordinating Office

INNOVATIONS

Keeping Tabs

A twenty page newsletter on sustainable development initiatives and publications is now available through Canada's Intergovernmental Committee on Urban and Regional Research (ICURR)

The newsletter surveys eight upcoming international conferences dealing with sustainable development and lists organizations, documents, and reports.

ICURR has published this newsletter as part of their Sustainable Development and the Urban Environment Project, which is ascertaining and monitoring the initiatives of Canadian municipalities in this area.

For more information, contact ICURR, 150 Eglington Avenue East, Suite 301, Toronto, Ontario, Canada - M4P 1E8; Telephone: (416) 973-5629 or Fax: (416) 973-1375.

Clean Water By Computer

A computer system developed by a Uppsala University team with the backing of Sweden's National Environmental Protection Board can pinpoint the effects of some substances on the aquatic ecosystems and can even offer countermeasures.

The system maps out the ecological effects of mercury, phosphorous, and radioactive caesium on lakes, seacoasts, and rivers. Data regarding other substances can also be fairly easily added to the software.

In the past, important ecological connections were missed when assessing actions meant to clean bodies of water, sometimes resulting in the opposite effect. The system is designed to lessen that possibility.

The system also assesses the environmental aspects of a decision using less time and money than previously required.

Getting Heat From The Cold

Phase change occurs when a substance changes from a solid to a liquid or from a liquid to a gas and vica versa. When a substance heats up to a temperature where it begins to melt, for instance, it absorbs heat and when it cools to the point it begins to solidify, it releases heat.

After 20 years of trying, engineers may have found a way to harness the heat absorption and release that accompanies phase changes.

The system works only for cyclic activities, such as skiing, that keeps the body temperature fluctuating, activating the phase-change material into absorbing and then releasing heat.

Entrepreneurs are now coating or impregnating fabrics with paraffin or polymers (both substances that undergo phase change at temperatures similar to the human body's temperature), producing a heating and cooling effect. The fabrics are now being used for cold weather apparel such as ski wear, longjohns, socks, and hats.

Its effects may not be readily noticed by the wearer, and performance data is hard to find and verify at this early stage.

Many other companies are producing a variety of other industrial products containing phase change material.

Frisby Technologies Inc., in Freeport, New York, is selling tiny phase change capsules that, when mixed with antifreeze, improve the performance of antifreeze. In Japan, manufacturers of construction materials are selling gypsum board treated with phase change material which store and release solar heat.

Some research scientists predict that phase change material will soon be used for a ever increasing number of products, including protection from heat for firefighters, citrus trees, and computer chips.

Canada A Japan Success

Hoshi-no-Furu-Sata Ashibetsu, a semi-public corporation in Ashibetsu, Japan, has developed a new type of park based on a Canadian theme.

They have recreated the world of "Anne of Green Gables" and have succeeded in drawing an attendance of over 180,000 in the first four months of operation.

This is only one of several existing and planned theme parks on the Japanese island of Hokkaido.

A Twist On Wine Coolers

Icewine has definitely caught the attention of wine lovers everywhere.

Ontario's Inniskillin Wines won a Grand Prix d'Honneur in France with the only icewine entered into the competition.

All twelve icewines entered in New York state's InterVin International competition won gold medals.

Icewines, rare and expensive dessert wines, are

made from grapes left on the vine until the temperature drops below -8 degrees C. The grapes must be pressed while still frozen, producing a thick juice. The yield is only about 10% of what unfrozen grapes would give and the risks are big -- which explains the $40 per half-bottle price tag.

The price doesn't seem to daunt wine connoisseurs, however. Quite often the wine is sold as quickly as it is produced, and Vineland's Schmidt has even begun taking a 25% deposit from purchasers wanting to reserve a bottle for the next vintage.

All this excitement about icewine has helped the rest of Canada's wine industry realize an increase in demand, as well.

Vineyard tours in Canada's Niagara Penninsula have also benefitted from a dramatic increase in tourism profit.

All of this helps to put Canada on the map of great wine producing countries.

Vacuum Cleaning the Streets

A telescoping heavy duty vacuum cleaner for city streets has been developed by the Cologne Waste Management Department in close collaboration with a design team for Mercedes Benz and Unimog. Unlike previous models, the innovative design allows cleaning in tight spaces, it removes dirt from driveways and around parked cars. The street vacuum fleet will be used to clean the 2,200 miles of city streets. In winter, the "Cologne Model" can be converted to spreading and snow removal tasks.

Maintaining Affluence with Effluents

A new suburban community under construction in Sydney's northwest suburbs will be the first in the country to be fitted with dual water supply systems. A treatment plant now on the drawing boards will have capacity to provide up to 300,000 residents with recycled water for their gardens and toilets. Families are expected to cut their water consumption by using the blue-tinted effluent, which will be pumped back into the system. Each home in the new subdivision will be fitted with two sets of pipes, one for fresh drinking water, the other for recycled waste water.

The treatment plant will be built over several stages at a cost of $ 120 million, in tandem with the development of the Rouse Hill community. The first stage is expected to be on line by the end of next year. The plant will treat waste water to a level where it can be reused to water gardens, wash cars and flush toilets. State environment minister, Tim Moore, says this type of usage accounts for up to 20% of each household's water consumption. An environmental impact statement prepared by the developers is now under discussion in the state parliament. The government favours the idea and the $120 million water treatment system could become a key element of the state's water management policy.

We have provided a sampling of the Conference Proceedings from Winter Cities Forum '91 held from January 21-25, 1991 in Sault Ste. Marie, Ontario, Canada.

The theme of the conference was Sustainable Development and the 172 pages of literature contains material from a wide range of speakers, not covered in our magazine.

If you are interested in receiving a complete copy of the proceedings they are available for a price of $50.00.
To order send cheque or money order to:

Winter Cities Association
1933 - 5 Street S.W.
Calgary, Alberta
T2S 2B2

MUNICIPAL MEMO

Mayors' and Chiefs' Network

As the Chairman of theMayors' and Chiefs' Network, I extend an open invitation to you to become involved during the 1993 Winter Cities Forum being hosted by the City of Yellowknife.

The prime objective of this Network is to coordinate efforts in the areas of research allowing the sharing of studies, papers and analysis amongst municipalities thereby avoiding unnecessary duplication of efforts.

Our efforts to date have concentrated on discussing how this Network will work and be administered.

I look forward to seeing you at the 1992 Winter Cities Forum in Montreal and encourage you to participate in our Mayors' and Chiefs' Network in 1993 in Yellowknife, Northwest Territories.

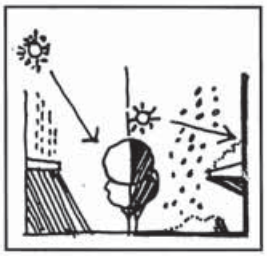
Ms. Pat McMahon
Mayor of Yellowknife

Ottawa Incorporates Winter Design Features

The Urban Design Policy Report for Ottawa reflects the growing need for special accommodation of winter when planning the future of cities. Not only does this report have various mentions of multi-seasonal use, but it also has a section devoted to adapting urban design elements to the seasons.

The discussion that prefaces the Microclimatic Conditions chapter states:

> Microclimatic effects are localized patterns of win precipitation, sunlight and temperature caused by regional climate factors acting upon buildings and spaces. Microclimatic conditions change seasonally, daily, even hourly.
>
> Because the composition of buildings and open spaces has a significant effect on microclimatic conditions, particularly in outdoor public activity areas, the design of buildings and spaces requires a full consideration of climate factors,their inter-relationships and seasonal changes. Control of microclimate effects is particularly important in the Central Area, due to the heights of buildings and concentrations of people.
>
> The objectives and policies in this section promote the use of urban design techniques for adjusting microclimate factors to create places suited to the requisite range of human activities. For example, a potentially undesirable microclimate may require the redesign of parts of a building and/ or landscaping forms to mitigate the effect on pedestrians.



Pedestrians and cyclists can comfortably tolerate only a limited range of microclimatic conditions, and can compensate only by adding or subtracting layers of clothing. Generally, the worst conditions occur in the winter, when low temperatures and high wind velocities make even otherwise pleasant places difficult to use. The modulation of such conditions lengthens the out door activity period, accommodates a wider range of users, and increases the degree of animation of exterior public spaces. In the creation of any activity space which is to be usable beyond the summer season, optimal conditions are a warm, calm, bright space where there are choices an individual can make to adjust to the various conditions.

Microclimatic conditions, whether cyclical, like the sun's movement, or random, like winds, are universally experienced by urban dwellers and are therefore significant to urban design. As long-term constants, they are integral to the design of viable and lasting city form.

The chapter sensitively addresses elements such as wind conditions, season-responsive urban forms, accommodation of proposed pedestrian activities, winter visibility, and moderation of temperature.

This is one of the most comprehensive treatments of winter issues in urban design to come about and we can only hope there will be more in the future.

For more information, or a copy of the policy report, contact:

Mr. Patrick Chen,
Senior Urban Planner,
Community Planning Branch,
Planning and Development Department,
111 Sussex Drive,
Ottawa,Ontario
K1N 5A1

Canada Green Plan Update

Indian and Northern Affairs Canada has published an action plan covering the next six years, as part of Canada's Green Plan. Replete with photographs, the report is identified as the first of a series of accounts of constructive plans and action in the North. Copies of "The Arctic Environmental Strategy: An Action Plan" are available from the Department of Indian Affairs and Northern Development, Ottawa, Ontario, Canada K1A 0H4.

ACS Regional Development Program

The Association for Canadian Studies has committed $10,000 annually to projects under its Regional Development Program. The target area for the 1992 - 1993 program is the North. The ACS is defining the area as broadly as possible, to include the northern reaches of the provinces as well as the Yukon and the Northwest Territories.

Further information is available from the Regional Development Committee, Association for Canadian Studies, C.P. 8888, Succursale A, Montreal, Quebec H3C 3P8

Studying the Economic Potential of Winter Cities

The Winter Cities Association in conjunction with the Calgary Winter City Committee and the Calgary Economic Development Authority has begun a special project focusing on the economic potential of recognizing and responding to the realities of winter.

The project, funded in part by the Government of Canada and the City of Calgary, plans to assemble a directory, listing Calgary businesses that provide resources, services, and products dealing with the winter climate, as well as to create a strategy for developing the full potential of winter resources.

Harold Hanen and Tang Lee will oversee the project, with administrative assistance from Eva Jackson. Project Manager, Carlos Gasca will coordinate the assignments with the other group members, Guangzian Chen, Lena Verhappen, Mackin Oxendale and Debbie Elicksen.

It is anticipated that the work of the research team will reap many benefits, including a library containing a wide variety of books, reports, periodicals, conference memoranda and a collection of other material pertaining to the business of winter.

Other aspirations include an extended international Winter Cities network and workshops to help implement the strategy in other regions.

Project representatives look forward to discussing their progress at Winter Cities Forum '92 in Montreal and presenting their completed material at Forum '93 in Yellowknife.

Watch for project updates in future issues of Winter Cities magazine.

(Continued from page 28)

The first ever textbook from a major international publisher in the subject area of winter cities leisure, recreation, parks, cultural services and tourism, is being proposed. Any readers who have a "story to tell" or a case-study to present about any of these subjects, is asked to correspond with the co-editor:

Dr. Joseph Levy,
Department of HPER,
4700 Kelle Street,
York University,
North York, Ontario, Canada
M3J 1P3.

If you do not write, but know of others in your community that do (e.g. newspaper or magazine editors, columnists, sports writers, cultural arts reporters, etc.) please extend this invitation to them. The format for the text, featuring authors from throughout the world, is still fluid. The editors welcome new and innovative perspectives and will quickly inform you as to whether your contribution might fit into this text. Publication date is slated for Spring of 1993.

BOOK REVIEWS

The University of Calgary offers CLOTHING FOR OUTDOOR ACTIVITIES, *(a report compiled by the Outdoor Pursuits Program, Faculty of Physical Education.)*

This is a detailed overview of available clothing choices and their effectiveness on the user. It takes into account the maintenance of heat balance as well as the practicality of use while investigating a variety of fibres, fabrics, designs, and treatments and coating of fabrics.

The text starts out as readable, but slowly slips into academic language, making it difficult for the average reader to make sense of some of the explanations.

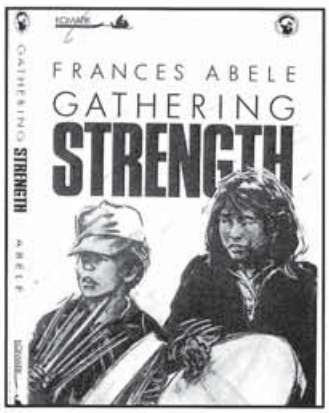
The diagrams accompanying the text may act to counter the difficult style, as they simply illustrate the principles being explained.

The content appears to be well researched, and common sense acts as a basis for most conclusions, although the depth of support for those conclusions extends beyond common knowledge.

Clothing For Outdoor Activities may be a beneficial read for anyone choosing to spend extended periods outside, but offers very little to the average person-on-the-street.

The following is an excerpt from Keith J. Crowe's review of **GATHERING STRENGTH,** *(by Frances Abele, published by The Arctic Institute of North America)*

The degree of success of the northern economy, settlement and settlement of Native claims will depend upon the performance by Native people in managerial roles that are being created. Frances Abele's book on training for employment in the Northwest Territories is therefore a timely addition to the literature on vocational education as it concerns Native people, particularily those of the North. The book is a study of various training programs for Native workers conducted in the Northwest Territories during the 1980's. Seven programs, each implemented by a separate agency, were studied over a period of six years, and during the central two years a small group of young Native people were trained on the job with the research team.



In her preface the author invites constructive criticism, and in accepting that invitation, two things come to mind - what the book says and the way it says it. With respect to the first consideration, the book is full of useful insights, observations and recommendations, all based on solid research and the synthesis of material of enormous scope. Some of the premises, however, particularly the definition of Native trainees as the experts in the field of program design, require qualification, and while the book emphasizes the cultural factor along with funding and economic development, more could have been said about the role of cultural perspective as it affects motivation to learn, perform and stay with a job.

As for the way in which the books tells its tale, I found Gathering Strength hard to read. For a book intended primarily for Native, non-academic readers, such terms as "systemic", "holistic" and "auspices" seem inappropriate. Inventions such as "targetting to", "in-depth" and "Inuit specific" detract from the quality of the book, and only a journalist could love a paragraph beginning with "Understanding why this situation exists....". The report by Angus Lennie, with its mixture of varying levels of formality and its northern flavour, seems more faithful to the opening premise than the rest of the book.

The layout of pages and the organization of material in the book can best be discussed together. The space between paragraphs is narrow, and this visual difficulty is exacerbated by the extreme length of some paragraphs. Ideas and information are repeated and belaboured, and items are sometimes listed without numbering, indentation or other devices to help the reader. The choice and order of the parts of the book are confusing. It would have been better to let the preface and the introduction do their jobs, let each chapter speak for itself without internal summaries, cross-references and apologia, move the facts section in with the appendices, and summarize the book at the end, if at all.

Despite my criticism, I found that this book made me think deeply, especially about the one-way nature of education and most other cultural and economic forces in the North. While this process appears inevitable, it is ironic that just as Native people are adopting the outlook and skills necessary for survival in industrial society, that society is being forced to recognize its own destructive power, and in seeking a new order of things, looks longingly at the kind of ecological balance enjoyed by the old Native cultures.

No single book can comprise the elements of the northern dilemma, but through her systematic study of one vital, current topic, Frances Abele has been able to provide a useful reference book and a thought-provoker.

I recommend Gathering Strength to all those involved in the training of Native people for employment and to all who have an interest in the well-being of Native Canadians, North or South.

(Continued on page 27)

Contributors

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