North American Commission for Environmental Cooperation

Comisión para la Cooperación Ambiental de América del Norte

Commission nord-américaine de coopération environnementale

NEWS RELEASE

Highlights from

The North American Mosaic: A State of the Environment Report

The following are a few of the most important conclusions from this report, the first of its kind surveying the North American environment:

- **Natural disasters becoming more frequent, more expensive**

The number and cost of natural disasters—worldwide and in North America—have increased enormously. The list of events is long: the Mississippi flood of 1993, the Mexico City earthquake of 1985, the ice storm in eastern Canada and the northeastern United States in 1998, and such costly and sometimes lethal hurricanes as Camille (1969), Gilbert (1988), Hugo (1989), Andrew (1992), Pauline (1997), and Floyd (1999).

The cost is mounting—1998 was the single most costly disaster insurance year on record—not only because of the increased frequency and severity of natural disasters, but also because of the growing tendency of people to live in high-risk areas. Government post-disaster aid and property insurance that covers extreme weather probably contributes to this trend.

North American governments are beginning to step up programs to better inform the public of natural hazard risks and to reduce the risk of loss of life, injuries, economic costs, and destruction of natural and cultural resources. Land-use planning that designates low-risk uses for areas that are most vulnerable to natural hazards is an effective method for mitigating impacts, but the practice is far from routine. At a time of growing populations and deregulation, it is harder to stop development in areas that are only occasionally flood-prone.

- **Poor are hit hardest by environmental problems**

Income and social inequality, combined with environmental and other pressures, undermine the sustainability of societal structures, disproportionately affecting people on the lowest social and economic rungs. In a number of aboriginal communities, notably in the Great Lakes basin and in the Arctic, wild foods form an important part of the diet and the local economy and are fundamental to the culture. Some of these foods are now so contaminated by pollution that they are unsafe to eat or pose a significant health risk. Across the continent, forest clearcutting, unsustainable resource extraction, industrial pollution, and over-fishing often take the greatest toll on low-income communities.

- **Transportation follows unsustainable trend**

Nearly 90 percent of US and Canadian households, and more than 30 percent of Mexican households, own automobiles. In the last 25 years, Canada's population has increased by 50 percent, but the number of automobiles has doubled. Only a few large cities have extensive public transportation systems, so more than 80 percent of all commuting trips in Canada and the United States are by private automobile. Transit use (as measured by passenger-kilometers) remains static at less than five percent of motorized travel in urban areas of Canada. In the United States, the total passenger-kilometers by transit, rail, and intercity bus has dropped by half since 1970.

- **Soil erosion declines but threat of drought rising**

Soil loss through erosion by wind and water is decreasing on the whole in North America due to better conservation practices and programs. Between 1982 and 1997, total erosion on all cropland in the United States decreased by 41 percent, from 3.08 billion tonnes in 1982 to 1.81 billion tonnes in 1997.

In Canada's prairies in the mid-1990s, annual soil loss by both wind and water was estimated to be about 177 million tonnes. Soil erosion control practices, such as forage crop rotation, the planting of winter cover crops, windbreaks, and contour cultivation have helped slow soil loss and promise to continue to do so in the future. Canadian polling in the early 1990s found 42 percent of farms practiced crop rotation using forage. As a result of implementing reduced tillage, together with declining use of summer fallow, the risk of wind erosion in the prairies dropped by 30 percent between 1981 and 1996.

Each year, Mexico loses 150,000 to 200,000 hectares of agricultural land due to erosion and conversion to other uses. An estimated 37 percent of Mexico's land is affected by water erosion and 15 percent by wind erosion.

About 10 percent of North America experiences drought in any given year. Drought conditions are frequent in northern Mexico, a condition that makes this area vulnerable to desertification when land-use activities are not appropriate. If droughts become more severe, as predicted due to climate change, the northern and central parts of Mexico—about 48 percent of the country—would be highly vulnerable to desertification.

Although soil erosion is declining in many parts of North America, on balance, more soil is still being lost in agricultural areas than is being regenerated naturally. Part of the problem is a lack of humus because of a heavy reliance on chemical fertilizers rather than on traditional fertilizers and soil amendments, such as manure and compost, that help maintain soil structure.

- **North Americans "fishing down the food chain"**

The Gulf of Mexico receives excess nutrients from soil runoff carried by the Mississippi River, which drains 40 percent of the continental United States. These nutrients contribute to conditions that cause a "dead zone" due to insufficient dissolved oxygen in the bottom waters. In 1998, the dead zone off the Louisiana coast was smaller than it had been in the five years following the 1993 Mississippi flood, but it still measured 12,432 square kilometers.

Chesapeake Bay, the largest estuary in the United States and one of the most productive in the world, also suffers from excessive land-derived nutrient enrichment that contributes to anoxic or "dead" bottom waters. A large part of the nutrients come down the Susquehanna River, and most of them originate from intensively farmed cropland and livestock production. Nutrients have been reduced by cooperative efforts among federal and state governments and NGOs, but population growth and increased land development threaten to reverse the trend.

About 60 percent of world fish stocks are currently either over-fished or fully harvested. As the most desirable species—including salmon, cod, halibut, and swordfish—decline, some believe that we are now "fishing down the food chain," in many cases catching the food needed to rebuild depleted species.

The United States is the fifth-largest fishing nation—its catch representing five percent of world totals. Mexico ranked eighteenth in 1993 statistics, and in 1992, the value of Mexico's fish catch contributed 1.0

percent to its gross national product, although it has since increased in importance. In 1996, the fishing industry contributed 0.35 percent of Canadian GDP, down from 0.75 percent in the early 1960s.

Although aquaculture production provides more fish and seafood to the market, critics contend that it will not stop the decline in wild fish stocks. Fish farms exert their own pressures on coastal ecosystems. Constructing "farm" infrastructure can harm or destroy coastal vegetation. Waste products can raise nutrient levels in the water. And there is concern that diseases in farm-bred fish could spread to wild species. Interbreeding with indigenous species and fish farm escapees also raises questions about biodiversity, especially if the farmed fish have been genetically altered.

Since 1986, conservation measures prompted by consumer demand for dolphin-safe tuna (tuna caught in the presence of dolphins but without serious injury to them) have led to a dramatic reduction in the number of dolphin deaths in the eastern tropical Pacific Ocean. Annual dolphin deaths have dropped to fewer than 2,000 in 1998 from more than 133,000 in 1986.

- **Freshwater species more vulnerable to extinction**

Freshwater species are more vulnerable to extinction than marine species because, as with land species inhabiting oceanic islands, physical barriers prevent them from escaping to new ecosystems when their own become destroyed or degraded.

North America, the United States in particular, has a diversity of freshwater species of global significance. The US contains the world's greatest diversity of freshwater mussel species, but more than 65 percent of these are threatened or extinct, and 48 percent of crayfish species are at risk.

Amphibians have long been recognized as the "canaries in the mine"—keenly sensitive indicators of wetland ecosystem health, since they spend time in both aquatic and terrestrial environments. Environmental pollutants have adversely affected many amphibian populations. A range of surveys, involving scientists, private citizens and school children, are under way to ascertain the extent of these impacts.

- **Global warming-induced rise in sea level would threaten Florida, Louisiana, North Carolina, among other areas worldwide**

Even relatively small changes in average temperatures can result in many more extreme climate and weather events. At the beginning of the new century, observers point to the disappearance of mountain

glaciers on all continents, the receding polar icecaps and increasingly early appearance of free water in the Arctic.

In the initial phases of global warming, portions of the United States and southern Canada may experience lengthened growing seasons. Over the longer term, however, scientists warn that there will come a dramatic point beyond about 1.5ºC of warming, where crop yields would start to decline rapidly.

If the sea level rises as expected (1.5 meters at the low end of the predicted temperature increase, as much as 3.5 meters with more extreme warming), storms and flooding along coastal areas will become much worse, causing property damage and loss in the billions of dollars.

At the higher end of the predicted temperature change, the rise in sea levels would be sufficient to permanently flood low-lying regions such as southern Florida (up to perhaps 50 km north of Miami), the Mississippi delta in southern Louisiana (up to perhaps 100 km upstream from New Orleans), and coastal North Carolina.

Low-lying islands like Cozumel would all but disappear. The effect on already impressive tides in places like the Bay of Fundy would be dramatic. In addition, a warmer climate will alter the range and transmission of vector-borne and contagious diseases such as malaria and dengue fever.

- **GDP revisions needed to measure "true cost" of development**

There is an urgent need to develop mutually compatible economic, social and environmental goals and policies across the three-country region, the report says. This includes revising GDP and other indicators of economic progress to better measure the true costs of development.

In 1997, a team of ecologists and economists calculated the value of the Earth's ecosystem services, mainly by calculating how much it would cost to replace natural services with ones constructed by humans. They came up with a value of at least $33 trillion annually, or 1.83 times the global gross national product of $18 trillion.

There are opportunities to cooperate in developing core "sustainability" indicators for measuring and monitoring trends. And the quality and comparability of the data generated by these indicators can be improved to produce information that is more useful and that can be better managed, analyzed and distributed.

Meanwhile, many government programs and fiscal policies work against the goal of sustainable development, the report says. Foremost among these are "perverse subsidies" that undermine sustainability by encouraging high consumption.

"The fossil fuel industry, hydroelectric power and water provision programs still benefit from major subsidies," the report says. "Low energy costs that do not reflect the real environmental costs of developing, distributing and using these resources exert underlying, unseen pressures on the North American ecosystem.

"Likewise, publicly subsidized infrastructure developments, including roads, dams and industrial parks have resulted in environmental damage that is not officially tabulated."

- **Canada and the United States are world's largest per capita water users**

Canada has about half of North America's renewable freshwater resources. On a per capita basis, this is 10 times more that of the United States and 20 times that of Mexico. However, 60 percent of Canada's water flows north, while 90 percent of the population lives in the southern part of the country, within 300 kilometers of the US border. Canada has developed more water diversions than any other country in the world, primarily to generate hydroelectricity.

Residents of the United States and Canada are the world's largest per capita water consumers (using about twice as much per person as Mexicans) and demand is growing, especially in some very dry areas. For example, dramatic population growth is predicted to continue in the dry interior of the western United States—Las Vegas is the fastest growing city in the nation—and may increase by more than 30 percent by 2020. But the heaviest demands on freshwater resources come from agriculture and thermoelectric power generation, which together account for about 80 percent of water withdrawals.

A large share of irrigation water is pumped from underground sources created by the accumulation of small amounts of rain over many centuries. The Ogallala Aquifer that underlies the Great Plains, for example, is one of the largest aquifer systems in the world, with water resources equivalent to Lake Huron. The rate of water table decline in this aquifer peaked at one meter per year before slowing in recent years, but depletion is still faster than recharge.

Groundwater is becoming a particularly important US-Mexico border issue. Growing populations and vulnerable groundwater supplies suggest an urgent need for coordinated, equitable, binational strategies. The report says the lack of comprehensive, cooperative management for transboundary groundwater resources promises to become one of the most pressing challenges of the next century.

One encouraging trend is that, after increasing between 1950 and 1980, water withdrawals for offstream use in the United States declined between 1980 and 1995. Although demand for irrigation water is high, withdrawals were reduced by the use of better irrigation techniques, increased competition for water, and a downturn in the farm economy. Increased reliance on demand management tools has also resulted in greater efficiency of use. Despite a 16 percent population increase from 1980 to 1995, the United States withdrew two percent less water in 1995 than in 1990, and nearly 10 percent less than in 1980. Total freshwater consumptive use, however, was six percent more in 1995 than during 1990.

The percentage of population with access to treated drinking water has been increasing and over 94 percent of water for human consumption in Mexico has been disinfected.

In Canada, the untreated sewage wastes of about 1.6 million people are still released into water bodies, although the percent of people serviced with at least primary wastewater treatment rose from 85 percent in 1991 to 93 percent in 1994.

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