



Ecohealth: Health, Well-Being and Watersheds

“The conversation in public health needs to evolve from health protection to creating safe environments such as healthy watersheds for our communities and future generations.” – Ronald Chapman, Chief Medical Health Officer, Northern Health, British Columbia



“Preventive or proactive solutions for many contemporary health problems need to address the links among environment, health and other factors that determine well-being.”

-Global Environmental Outlook 4

What is Ecohealth?

Ecohealth is intuitive, recognizing that human well-being is an *outcome* of healthy ecosystems. The Network for Ecosystem Sustainability and Health (NESH) and the International Institute for Sustainable Development (IISD) believe that watersheds are particularly important to ecohealth. Watershed management both improves the environmental determinants of health and supports the social determinants of health. Though many people might not realize it, their watershed is a critical part of their culture and the social vitality of their community.





Did You Know?

- The United Nations-driven Millennium Ecosystem Assessment declared that human well-being, key components of which are health and freedom from preventable disease, is fundamentally dependent on ecosystem services.
- Maintaining ecosystem services through watershed management can be vastly cheaper than trying to engineer alternatives.
- When faced with drinking water concerns, New York City spent US\$1.5 billion restoring ecosystem services in the Catskill Watershed instead of building a water filtration plant costing between US\$8 billion to US\$10 billion.
- Watersheds are the foundations for many health-related ecosystem services, such as water purification, water storage, flood protection, food provision, recreational opportunities, income opportunities and cultural values.
- Climate change is a key driver of water-related risk; increases in precipitation intensity and frequency, along with increased temperatures, could result in more water contamination and water-borne disease outbreaks in Canada in the future.¹
- It is estimated that diseases resulting from poor water quality, sanitation and hygiene account for almost 10 per cent of the total global burden of illness.

¹ Health Canada (2008). *Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity*.

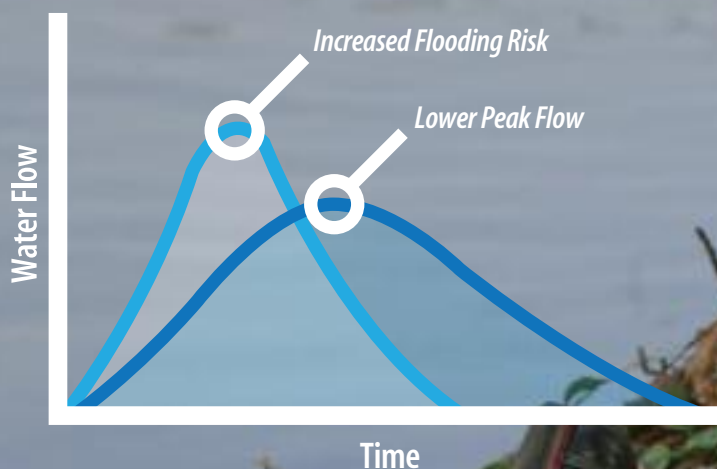
Why Watersheds?

Watersheds are a level of ecosystem that help provide for physical, mental and social human well-being. A well-managed watershed provides its inhabitants with benefits such as cleaner water, increased food and income security (e.g., fishing, farming), employment, recreational opportunities and greater protection from floods and droughts. Managing for health at a watershed scale offers the double dividends of improvements to both social and environmental determinants of health.

For example, storing water throughout a watershed, such as in wetlands, results in a cascade of benefits. In a year with heavy flooding, this storage upstream will reduce peak flows of water downstream. The human health benefits of this reduced flooding can include:

- Less risk of immediate injury;
- Fewer displaced people;
- Less psychological stress;
- Less flooding of farmland, resulting in better income security for farmers and greater food security for all; and
- Better water quality, with less risk of water contamination.

Flood Reduction Through Upstream Water Storage



Key Terms

Watershed: "An area of land that water flows across or through on its way to a particular water body, such as a stream, river, wetland or coast" (Environment Canada).

Ecosystem: "A dynamic complex of plant, animal, and microorganism communities and the nonliving environment interacting as a functional unit. Humans are an integral part of ecosystems" (United Nations Environment Programme).

Social determinants of health: "The conditions in which people are born, grow, live, work and age" (World Health Organization).

Environmental determinants of health: "All the physical, chemical and biological factors external to a person, and all the related factors impacting behaviours" (World Health Organization).

Ecosystem services: The multiple benefits to society provided by the natural ecosystems that surround us (e.g., water filtration, flood protection, recreation).



How Can Ecohealth Be Achieved?

Currently, health and environmental practitioners are largely disconnected from each other. Important synergies between these fields can be increased by integrating the “silos” of health and watershed management.

Watershed organizations are now realizing the value of enhanced collaboration. A 2011 study by NESH and the IISD found that the participating Canadian watershed management organizations have a strong desire to increase linkages with public health.² They see themselves as engaged in health-related activities; although they rarely work with health professionals, they recognize that there are opportunities for increased collaboration.

Ecohealth thinking can improve the efficiency of health care investments by proactively protecting people from threats and improving their day-to-day surroundings and sense of security. Preventive public health through watershed management may in fact be a more efficient allocation of scarce resources than standard health spending.

“Ecosystem approaches to human health is a way to achieve double dividends—we can improve both the environmental and the social determinants of health through watershed management.”

- Dr. Henry David Venema, Director, Natural and Social Capital Program, IISD

² Morrison, K. E., Parkes, M. W., Hallstrom, L. H., Neudoerffer, R. C., Bunch, M. J., & Venema, H. D. (2012). *Ecohealth and Watersheds: Watersheds as settings for health and well-being in Canada*. Network for Ecosystem Sustainability and Health (Publication Series No. 3) and the International Institute for Sustainable Development, Winnipeg, MB. Available at http://www.iisd.org/pdf/2012/ecohealth_watersheds_canada.pdf



Cowichan Watershed Board

The Cowichan Watershed Board (CWB) located on Vancouver Island, British Columbia, embraces the idea that watershed management can improve upon the environmental and social determinants of health, as well as overall ecosystem health, and it is pursuing the projects and partnerships that will enable it to do so.

Two of the CWB's activities relate to traditional cultural foods, shellfish and steelhead salmon. Shellfish harvesting has been restricted in many areas since the 1970s due to concerns about fecal coliform bacteria, paralytic shellfish poisoning, heavy metal contamination and possibly hepatitis. The CWB recognizes that if man-made water pollution were reduced, both wildlife and the residents of the Cowichan Valley would benefit, and the shellfish could once again be eaten from Cowichan Bay.

Like shellfish, steelhead and Chinook salmon are traditional foods of the Cowichan First Nation tribes. The CWB aims to stabilize the populations of these culturally important species by ensuring adequate water flows, spawning habitat and water quality. Cultural values are being emphasized as watershed planning moves forward, as it is recognized that culture is an elemental part of health. The inclusion of cultural, environmental, economic and health concerns into watershed planning by the CWB, as well as the ongoing engagement of health officials, clearly demonstrates the integrated approach of ecohealth thinking.

“Whole watershed thinking is leading to a gradual increase in awareness that healthy ecosystems and public health are strongly linked.”

- Rodger Hunter, Coordinator, Cowichan Watershed Board





Case Study 2

Save Our Seine

The Bois-des-Esprits, a peaceful wooded oasis just minutes from busy downtown Winnipeg, Manitoba, is one of the last intact urban riparian oak forests in Canada, part of the Seine River Greenway and a testament to the will of residents to improve their own community. In the early 1990s, a group of citizens, which became known as Save Our Seine (SOS), took it upon itself to tackle the many health and environmental concerns along the waterway. The group began by hosting annual river cleanups to remove garbage and debris from the river. After a few years, the group expanded its focus, looking beyond the river to the environmental conditions along its banks. One of the goals was to bring about the cleanup of an abandoned shingle plant site, which was leaching creosote, a possible carcinogen, into the river water and soil. It took more than 15 years of lobbying, but in 2008, one of the largest decontamination efforts in Manitoban history was undertaken along the Seine River, the contaminated soil removed, and native habitat restored.

Another key success of SOS was the preservation from development of the Bois-des-Esprits, a 102-hectare parcel of pristine urban forest along the banks of the river.

Over the past 20 years, SOS has also improved the urban segment of the Seine watershed by:

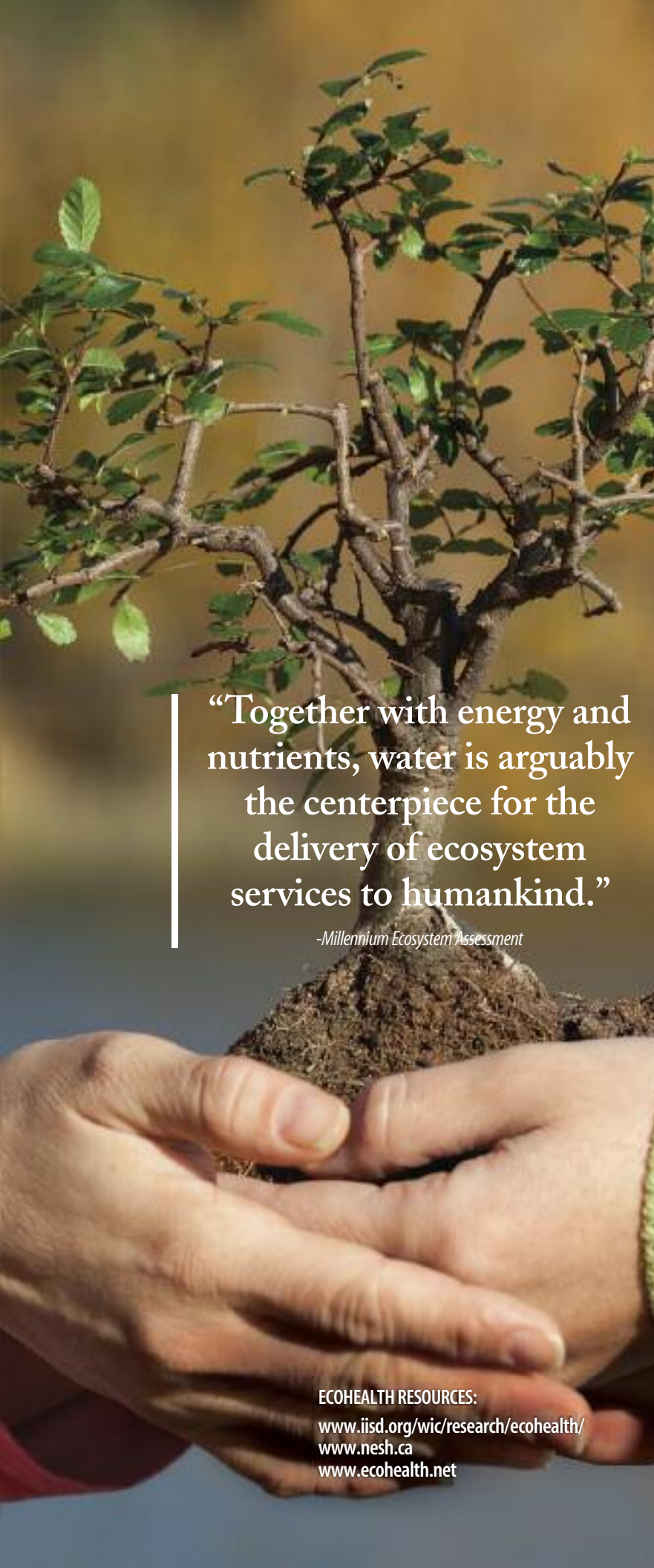
- Hosting annual tree plantings;
- Facilitating development of low-impact trails;
- Advocating to ensure that proposed developments near the river do not compromise the integrity of the river and its riverbanks;
- Monitoring river quality through a school education program;
- Monitoring levels and flows on the river; and
- Convincing the province of Manitoba to implement measures to increase water flows, which are artificially altered at times, to support both canoeing and the health of aquatic life.

In addition to protecting green space and reducing pollution sources, SOS has improved the social determinants of health by:

- Building social capital within the community;
- Giving participants a sense of place and purpose;
- Creating summer jobs for youth;
- Providing education through interpretive events and information, including on the ecological and cultural importance of the Seine River greenway (e.g., the birthplace of Métis leader Louis Riel); and
- Providing exercise and social interaction opportunities through low-impact trails and canoeable waters.

The Seine River has been the rallying point that brought its citizens together to be the river's stewards—and build community pride in the process.





“Together with energy and nutrients, water is arguably the centerpiece for the delivery of ecosystem services to humankind.”

-Millennium Ecosystem Assessment

ECOHEALTH RESOURCES:

www.iisd.org/wic/research/ecohealth/
www.nesh.ca
www.ecohealth.net

International Institute for Sustainable Development

The International Institute for Sustainable Development (IISD) contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change and energy, and management of natural and social capital, as well as the enabling role of communication technologies in these areas. We report on international negotiations and disseminate knowledge gained through collaborative projects, resulting in more rigorous research, capacity building in developing countries, better networks spanning the North and the South, and better global connections among researchers, practitioners, citizens and policy-makers.

IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC), and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations and the private sector.

Water Innovation Centre

IISD established the Water Innovation Centre (WIC) as a new global knowledge hub for water management. It comprises a team of water experts from its staff, associates and networks. Located at IISD's Head Office in Winnipeg, Manitoba, Canada, the Centre's primary focus is the systematic evaluation of water management measures, costs and benefits. WIC's integrated water management policy and practice innovations are designed to have relevance in North America and worldwide.

Network for Ecosystem Sustainability and Health

The Network for Ecosystem Sustainability and Health (NESH) exists to foster a global vision of sustainable, equitable and enjoyable development while maintaining the health and integrity of ecosystems at the local level. NESH informs and guides individuals and organizations in the conception and implementation of sustainable environmental management, health and agricultural programs. NESH also aims to build individual, community and organizational capacity to learn and adapt to a complex, uncertain and rapidly changing global context.

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