

IISD Programs


# Water

Combining world-class science  
and policy for freshwater  
management



International Institute for  
Sustainable Development

# Why We Are Needed



Smart management of fresh water and its benefits—from irrigation to fish habitat—is critical for life, livelihoods, energy and food.

Throughout the world, from Lake Winnipeg in Canada to Lake Chao in China, our freshwater supplies are at risk from overuse, pollution, invasive species and water demands outpacing supply, all compounded by the increasing impacts of climate change.

In response, IISD champions responsible management of whole watersheds. We focus on policy and programming solutions for governments, civil society and industry that protect and enhance the natural environment, and also improve socioeconomic well-being. We conduct economic analyses and hydrologic assessments so that governments

can consider different options before they make final decisions. And we support the management of watersheds across national boundaries, bringing together all relevant sectors and stakeholders.

Our policy work is informed by scientific research conducted at IISD Experimental Lakes Area. At this one-of-a-kind outdoor laboratory in Northwestern Ontario, we conduct safe experiments on whole lakes to research the effects of pollutants on fresh water in a way that no other research site in the world can, resulting in groundbreaking findings.



# How We Are Effective



We help governments at all levels recognize the benefits of watershed-based bioeconomies and convert them into effective policy.

**Watershed bioeconomies are based on renewable, plant-based materials.** We explore how previously under-utilized plants that act as water filters can be harvested sustainably and converted into new sources of clean energy, plastics, chemicals and fertilizers, while also removing nutrients from our water.

**Good science is essential for effective policy.** IISD Experimental Lakes Area has a legacy of revealing major threats to water supplies. Its 48-year history of pioneering whole-lake experimentation and its continued research on what is currently affecting fresh water, now directly inform IISD policy

recommendations on the most effective approaches to safeguard our water.

**As water flows across borders and sectors, our work stretches internationally.** We have established ourselves as experts in large-basin management, addressing complex nexus issues such as the interactions between water-energy-food, or watersheds and climate change. We conduct technical and policy analyses to help stakeholders work together to plan for pressures such as climate change, demographic changes and resource extraction.





# Our Achievements

## Three examples:

**Our watershed bioeconomy** work has influenced local governments in Canada and the United States to manage land and water to turn waste into valuable products. The implementation of the approach has led to the removal of 15.7 tonnes of nutrients (nitrogen and phosphorus) from the Lake Winnipeg watershed. In 2015 alone, it yielded 30,000 GJ of heat energy from a new, innovative, locally sourced, renewable form of energy: pellets made from cattails and grasses from the Lake Winnipeg watershed. We are now beginning to implement these pellets as a viable form of renewable energy and expand the project nationally.

**IISD Experimental Lakes Area** has exposed its freshwater lakes to numerous threats throughout its existence, and most recently has produced groundbreaking, thought-provoking research on the effects of estrogen and climate change on lakes and freshwater fish.

**Our international work** led us to Pakistan, where we assessed the vulnerability of the country's water sector to the impacts of climate change. We analyzed water supply and demand to understand different scenarios for 2050, conducted policy analyses to understand future effects on three key sectors (energy, agriculture and health) and highlighted urgent gaps to help the government address climate change resilience in Pakistan.

**More information:**

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