

# Is Climate Change Already Affecting North American Waters?

*At the invitation of the 7th World Water Forum, held in April 2015 at Daegu & Gyeongbuk in South Korea, Member of Parliament and former Minister of the Environment of Canada Stéphane Dion reported on the North American waters situation as a participant in the Inter-Regional Day Panel on climate change adaptation. The following is a synthesis of his remarks.*

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The world's waters are in trouble. Ocean acidification, depleting aquifers, dried up rivers and lakes, and toxic pollution are threatening the life-giving resource. Fish stocks are being depleted and agricultural land lost to expanding desertification. Some areas are plagued by droughts, others by floods. Poor water quality remains the largest cause of human health problems. Some 768 million people have no access to safe drinking water, 2.5 billion have no access to basic sanitation, 1.3 billion have no access to electricity.

What about North America? Mexico's water scarcity crisis is on a scale like that of few other countries. But what to say about water-rich United States and Canada, which together have the highest freshwater footprint in the world? Ask Californians!

The evidence is in: the global water difficulties have reached North America. And climate change is exacerbating the problem.

North American waters are warming up. About 70 percent of glaciers in Western Canada could disappear by the end of the 21st century. The US National Oceanic and Atmospheric Administration (NOAA) has found that Canada's ocean temperatures, from coast to coast to coast, are almost 4 degrees Celsius above normal. The Arctic Ocean is rapidly acidifying because sea ice loss is increasing the uptake of atmospheric CO<sub>2</sub>. Ocean acidification is also affecting shellfish-rich areas in the Pacific, Atlantic and Gulf of Mexico.

According to NOAA's *Third National Climate Change Assessment Report for the United States*, released in May 2014, heavy precipitation events have been on the rise in that country since 1960. Munich Re, the world's largest reinsurance firm, has found that North America is experiencing a nearly fivefold increase in extreme weather disasters over the past three decades, and that the climate change-driven sea level rise is making storm surges more destructive. Climate-driven disasters include more severe thunderstorms, heavy precipitation, flash flooding, hurricane activity, heatwaves, droughts and wildfires.

A growing number of scientific bodies, including the National Science Foundation, confirm that the ongoing drought in California is likely to be the worst in a thousand years and worsened by human-caused climate change. According to NASA, climate change is likely to make droughts and extreme drying the normal conditions for the US Southwest and Central Plains.

Water scarcity on one hand, and high-intensity storms, cyclones and floods on the other: all this has and will continue to have severe economic consequences. The drought is impacting hydropower generation and has cost California thousands of jobs. The insurance cost of property covered by the US National Flood Insurance Program is already ballooning, a trillion dollar bubble! According to the US Federal Emergency Management Agency (FEMA), almost 40 percent of small businesses never reopen their doors following a flooding disaster.

As Oxfam said: "*Extreme weather, extreme prices.*" The Central Plains produce about 40 percent of the world's corn and 10 percent of its wheat. California is a huge fruit and vegetable producer. As water withdrawals far outstrip replenishment, a major water supply disruption would send price shockwaves throughout global agricultural markets.

Some North American jurisdictions have begun improving their water-related policies and practices. There has been some progress on sewage and water treatment, acid rain, lead overflow, industrial pollution, mercury emissions, smog and other pollutants. Per capita water consumption is down, although still much too high. But these improvements cannot be taken for granted. We thought that Lake Erie had been saved but blue-green algae blooms are escalating again – as they are in countless other water bodies.

When Governor Jerry Brown imposed the first mandatory water restrictions ever on California residents, businesses and farms, he said: "*We're in a new era*". He was right. North America must now adopt more appropriate policies and practices for every stage of the water supply chain. The fifteen new desalination plants proposed along the West Coast, from Los Angeles to San Francisco Bay, are only a stopgap measure: desalination technology is energy-intensive, very expensive and environmentally problematic.

North America must move away from water-intensive agricultural practices, increase resource-use efficiency, reduce waste and pollution, adopt appropriate technologies, implement equitable water tariff policies and establish design and other incentives to get consumers to conserve and preserve water as much as possible.

We need updated building codes, coastal protection planning and green infrastructures to reduce the impacts of flooding. We need recycle-ready plumbing in new residential construction. Municipalities need to invest in smart water meters and upgrade their water efficiency and quality programs.

In most parts of the United States and Canada, fresh water is still taken for granted. That has to change: we have entered a new era.