The Need for a Multinational Climate Change Adaptation Plan

Patricia Galvao-Ferreira, Faculty of Law, University of Windsor, patricia.galvao@uwindsor.ca
Kevin Berk, Faculty of Law and Great Lakes Institute of Environmental Research, University of Windsor, berkk@uwindsor.ca
Antonia Hristova, Faculty of Law, University of Windsor, hristova@uwindsor.ca

Background

Climate change is a global problem with local sources and local impacts. The Detroit River-Western Lake Erie Basin is already experiencing impacts of climate change. Indicator reports prepared for this project provide a clear base of evidence for this reality.

Recent trend data show an increase in annual average atmospheric temperature in the Western Lake Erie Climate Division that has "had and will continue to have various impacts on the region, such as changes in local ecosystems and amplified extremes in regional temperature" (Maher and Channell, 2019a). Similarly, an overall increase in annual precipitation has been observed in the Western Lake Erie division since 1951. As indicated by Maher and Channell (2019b), "such changing trends in precipitation have had and will continue to have various impacts on the region, such as increased runoff and flooding." Precipitation is also a key driver of Great Lakes water level fluctuations, together with evaporation and runoff. More importantly, it is crucial to note that "high water levels can cause flooding, property inundation, and coastal erosion, while low water levels can lead to negative impacts on shipping and navigation, seasonal recreation, and coastal wetland habitats for birds and fish" (Maher and Channell, 2019c). Additionally, changes in ice cover can lead to changes in evaporation rates, which in turn have implications for lake levels and precipitation amounts. Ice cover also affects shipping and navigation, as well as seasonal recreational activities on the lakes. Data from the Great Lakes Environmental Research Laboratory (GLERL) demonstrates a downward trend in ice coverage on Lake Erie since the 1990s (Maher and Channell, 2019d).

These changes are not expected to slow down or be reversed in the immediate future either. Richter's report on Climate Change Adaptation in Windsor, Ontario indicates that by 2050 the average annual temperature in Ontario will increase by 2.5℃ to 3.7℃, from the 1961-1990 baseline (Richters, 2019). In the face of these trends, the Cities of Windsor and Detroit have each committed to take action to both mitigate and adapt to the threat that climate change poses to their citizens.

Windsor was one of the first municipalities in Canada to embrace climate adaptation planning, with City Council and the City administration approving the 2012 Climate Change Adaptation Plan. The Plan established both short-term and long-term adaptation actions. The City of Windsor has successfully implemented their Climate Change Adaptation Plan with almost all actions completed or underway. On 19 November 2019, the City of Windsor joined hundreds of municipalities across Canada approving a climate change emergency declaration (Garton, 2019). In addition to steps to adapting to climate change, "the City of Windsor is taking steps to help the global effort to reduce greenhouse gas emissions" evidenced through actions such as tracking corporate and community emissions and establishing the City of Windsor's Community Energy Plan (2017) which aims to contribute to climate change mitigation efforts, create economic advantage, and improve energy performance by reducing per capita use and per capita C02 emissions by 40% by 2041 (Richters, 2019).

Similarly, Detroit has created a municipal action agenda to fulfill its commitments to mitigate emissions and to adapt to the impacts of climate change. Detroit is a member of the Climate Mayors – a bipartisan, peer-to-peer network of mayors working to demonstrate leadership on climate change, with standards based on the Paris Climate Agreement (Heeres et. al., 2019). In June 2019, Detroit released a Sustainability Action Agenda – "a strategic roadmap to address key sustainability issues to create a city which all Detroiters can thrive" focusing on the outcomes of healthy, thriving people; affordable, quality, homes; clean, connected neighborhoods; and an equitable, green city (Heeres et. al., 2019). The City is a signatory to the Chicago Climate Chapter and aims to reduce community-wide greenhouse gas emissions by 30% by 2025 from a 2012 baseline. To adapt, Detroit has committed to reducing the volume of untreated combined sewer overflows (CSOs); doubling the acreage of green infrastructure; creating neighborhood-scale, green infrastructure projects; incorporating green infrastructure in street redesign and greenway projects, and integrating climate change impacts in hazard mitigation planning (Heeres et. al., 2019).

Although individual cities in the Detroit River-Western Lake Erie Basin have demonstrated leadership on climate adaptation, for the most part this action has been done unilaterally. Yet the transboundary nature of climate change poses a threat to the basin's ecosystem health that requires a more coordinated effort between the various regulatory and policy systems on both sides of the border, with a shared vision and strategy.

Such a shared vision for transboundary climate adaptation plans in river basins is exemplified by the European Union's Climate Adaptation Platform, Climate-ADAPT, a partnership between the European Commission and the European Environment Agency (EEA). Climate-Adapt supports European countries in adapting to climate change by helping users to access and share data and information on i) expected climate change in Europe; ii) current and future vulnerability of regions and sectors; iii) EU, national and transnational adaptation strategies and actions; iv) adaptation case studies and potential adaptation options; and v) tools and support adaptation planning (Climate-ADAPT, 2019).

Climate-Adapt has recognized the cross-border nature of most direct and indirect impacts of climate change in European river basins, with associated hydrological, social and economic interdependencies. In response, Climate-Adapt recommends that countries with shared basins should "establish contact with neighbouring countries to inform about the adaptation process and areas of concern with regard to cross-border impacts and identify approaches for coordination over different political, legal and institutional settings." (ClimateAdapt, 2019).

A study of lessons learned and good practices of climate adaptation strategies in transboundary basins, conducted by United Nations Economic Commission for Europe (UNECE) and the International Network of Basin Organizations, has underscored how transboundary cooperation helps to share costs and benefits of adaptation and to ensure synergies and linkages between various adaptation strategies at local, regional, and national levels. Transboundary climate adaptation cooperation thus increases the efficiency and effectiveness of climate adaptation in a basin (United Nations, 2015). Some examples of transboundary climate adaptation plans in Europe are BaltAdapt, a transnational climate adaptation plan for the Baltic Sea Region, and the Danube River Basin Climate Adaptation Strategy. A similar transboundary initiative is needed for the Detroit River and western Lake Erie.

History and Status

The lack of a transnational climate adaptation plan in the Great Lakes Basin or in other basins in the region like Detroit and Western Lake, is not due to lack of recommendations. Since at least 2003, the International Joint Commission's (IJC) Great Lakes Water Quality Board (WQB) has been publicly stressing the need for climate change plans in the Great Lakes Basin (see WQB, 2003). This example is particularly notable because the IJC is an independent advisory body to both the Canadian and American governments, created by the Boundary Waters Treaty signed by each country in 1909 (Boundary Waters Treaty). The IJC thus represents a crucial starting point for binational environmental action in the Great Lakes Basin. In 2003 the WQB published a report stating the risks posed by global warming in the Great Lakes:

> *A change in climate could lead to alterations and impacts on environmental quality (air, water, soil, sediment); surface and ground water quantity; ecosystem health and functioning; human health; the "built" environment (sewer and treatment plant capacity); and socio-economic systems, including agriculture, forestry, fisheries, recreation, tourism, energy, transportation, and manufacturing* (WQB, 2003).

Following from this acknowledgement, the WQB went on to recommend that the Canadian and American governments invest in creating binational adaptation measures to assist with the Great Lakes Basin's resilience to climate change (WQB, 2003). Unfortunately, no comprehensive plan was agreed upon coming out of this report, with only *ad hoc* measures being adopted under existing IJC programs.

As scientific evidence of climate impacts in the Great Lakes Basin became more available, the WQB emphasized the need for a comprehensive binational climate adaptation strategy again in 2017, when the WQB's "Emerging Issues Working Group" released the following recommendation:

> *The Federal Governments of Canada and the United States should demonstrate global leadership by jointly developing, in cooperation with other governments and organizations across the Great Lakes basin, a Binational Approach to Climate Change Adaptation and Resilience in the Great Lakes. Such an approach would include a shared vision, coordinated action, creation of a network to share science, information and knowledge, including Métis, First Nations and Tribal traditional ecological knowledge if offered, and the commitment of adequate funding to carry out these objectives* (WQB, 2017).

The recommendation from the WQB further stated that the United States and Canada should "negotiate and develop a Binational Approach to coordinate and advance strategies that support climate change adaptation and increase ecological resilience in the Great Lakes ecosystem region, with a particular emphasis on safeguarding Great Lakes water quality" (WQB, 2017). However, despite this strong recommendation, once again no concrete binational climate change plans have been put into place in the Great Lakes Basin.

Management Next Steps

Although the recommendations of the WQB have not been followed, they represent a concrete starting point for the implementation of a multinational climate change plan in the Great

Lakes Basin, or in some of the ecosystems in the region. Perhaps the greatest strength of the recommendations is in how they set out what such an arrangement should look like in the region. In dissecting the quote above from the WQB's 2017 recommendation, one can determine that such an agreement would require four elements:

1. A shared vision
2. Coordinated action
3. Creation of a network to share science, information and knowledge, including Metis, First Nations and Tribal traditional ecological knowledge if offered
4. Commitment of adequate funding to carry out these objectives (WQB, 2017)

These recommendations are especially useful in the context of this indicator report project. First and foremost, this project, which includes cooperation from both sides of the border, has in itself established a network to share science, information, and knowledge on a transboundary level. Additionally, the network of partners that this indicator project has created can be said to demonstrate a shared vision for environmental protection of the region. Our hope is that this project will stand as an example of the possibility and necessity of continuing such a network on an even larger scale. Additionally, we hope the indicator project demonstrates the existence of an emerging shared vision for coordinated climate adaptation work across borders which has been contemplated as necessary to achieve the goals of the WQB recommendation. The UN study noted, based on successful initiatives, that transboundary cooperation on adaptation usually starts at a technical or expert level, while later positively influencing broader cooperation, including at a political level.

Although this indicator can provide guidance and evidence for the feasibility of implementing the WQB's recommendations, the recommendations themselves also provide great context regarding the next steps following completion of the project. Establishing a multinational plan goes beyond having a shared vision or sharing information and knowledge. As the WQB's proposed plan stated that coordinated action and commitment of adequate funding will also be necessary to create such a plan. From a policy perspective coordinated action could take a number of shapes – be it at the municipal, state/provincial, or nation to nation levels.

The municipal level is a particularly promising avenue to begin this multinational work. As described above both the City of Windsor, Ontario, and the City of Detroit, Michigan, are independently working on climate change adaptation plans. Additionally, other cities in the region, particularly the City of Toledo, Ohio, have demonstrated a willingness to take strong steps to protect the lands and waters of the region. The Federation of Canadian Municipalities have funded a project to support regional-scale action and collaborative learning in the Columbia Basin Boundary Region in April 2019, showing the potential of this coordination on one side of the border. Cooperation and coordination of the individual climate change plans of these cities could be a strong avenue by which to begin a multinational climate change adaptation regime in the region.

Beyond the municipal level, the obvious avenue for the implementation of a multinational plan would be through the cooperation and coordination of the federal governments of Canada and the United States, along with the Indigenous Nations in the region, under the IJC guidance. This possibility seems unlikely at the moment, however, as the United States federal policy currently does not make climate change a priority, as evidenced by their withdrawal from the Paris Agreement. Although this might make a federal agreement unlikely in

the near future, a great possibility exists at the state/provincial level. This possibility manifests itself in The Conference of Great Lakes St. Lawrence Governors & Premiers ("GSGP"), which includes the ten governing bodies around the Great Lakes including the states of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin, as well as the provinces of Ontario, and Quebec. The purpose of the GSGP is to protect the economic and environmental interests of the Great Lakes Basin. Despite this organizing purpose, the GSGP is not currently implementing any coordinated plan to address the threat of climate change to the Great Lakes. This organization then, presents a strong opportunity as a binational body which could facilitate a multinational climate change plan.

Research/Monitoring Needs

This current project thus represents proof that there is a network of groups in our region with the experience and willingness to work cooperatively to tackle the threat of climate change. However, additional work needs to be done to assist and ensure that the partners to this project can coordinate and synthesize their work on climate change. In this way, the documenting of ecosystem health and community organizing done by this project can serve as a starting point to coordinated action on a climate change plan in the region.

It is additionally essential that the recommendation of the WQB is not lost for many years as the 2003 recommendation was. We must monitor how the Parties to this IJC recommendation and what steps are taken to implement it.

References

Climate-ADAPT, 2019. https://climate-adapt.eea.europa.eu (accessed 7 February 2020).

Dasgupta, A., IPCC 1.5° Report: We Need to Build and Live Differently in Cities. https://www.wri.org/blog/2018/10/ipcc-15-report-we-need-build-and-live-differently-cities (accessed 7 February 2020).

Detroit River-Western Lake Erie Basin Indicator Project, 2019. http://web2.uwindsor.ca/softs/keyindicators/index.htm (accessed 7 February 2020).

Great Lakes Water Quality Board, 2003. Climate Change and Water Quality in the Great Lakes Basin. https://legacyfiles.ijc.org/publications/C210.pdf (accessed 7 February 2020).

Great Lakes Water Quality Board Emerging Issues Work Group, 2017. Climate Change and Adaptation in the Great Lakes. https://www.ijc.org/sites/default/files/WQB_CCAdaptation_ProjectSummary_20170110.pdf (accessed 7 February 2020).

Garton, R., 2019. Windsor Declares Climate Change Emergency. *CTV News Windsor*. https://windsor.ctvnews.ca/windsor-declares-climate-change-emergency-1.4692487 (accessed 7 February 2020).

Howrani Heeres, J., Killeen, N., Palazzolo, E., 2019. Detroit's Leadership in Establishing Municipal Greenhouse Gas Reduction Targets and an Action Agenda to Address Climate

Change. http://web2.uwindsor.ca/softs/keyindicators/indicators-reduction-targets.pdf (accessed 7 February 2020).

Maher, E., Channel, K., 2019a. Atmospheric Temperature Changes in the Western Lake Erie Climate Division. http://web2.uwindsor.ca/softs/keyindicators/indicators-temp-change.pdf (accessed 7 February 2020).

Maher, E., Channel, K., 2019b. Precipitation Changes in the Western Lake Erie Climate Division. http://web2.uwindsor.ca/softs/keyindicators/indicators-precipitation.pdf (accessed 7 February 2020).

Maher, E., Channel, K., 2019c. Lake Level Changes in Lake Erie. http://web2.uwindsor.ca/softs/keyindicators/lakelevel.htm (accessed 7 February 2020).

Maher, E., Channel, K., 2019d. Changes in Ice Cover in Lake Erie. http://web2.uwindsor.ca/softs/keyindicators/icecover.htm (accessed 7 February 2020).

Prieur-Richard, A., Walsh, B., Craig, M., Melamed, M.L., Colbert, M., Pathak, M., Connors, S., Bai, X., Barau, A., Bulkeley, H., Cleugh, H., Cohen, M., Colenbrander, S., Dodman, D., Dhakal, S., Dawson, R., Espey, J., Greenwalt, J., Kurian, P., Lee, B., Leonardsen, L., Masson-Delmotte, V., Munshi, D., Okem, A., Delgado Ramos, G.C., Rodriguez, R.S., Roberts, D., Rosenzweig, C., Schultz, S., Seto, K., Solecki, W., van Staden, M., Ürge-Vorsatz, D., 2019. Global Research and Action Agenda on Cities and Climate Change Science. https://citiesipcc.org/wp-content/uploads/2018/09/Research-Agenda-Aug-10_Final_Short-version.pdf (accessed 7 February 2020).

Richters, K., 2019. Climate Change Adaption in Windsor, Ontario. http://web2.uwindsor.ca/softs/keyindicators/climate-change.htm (accessed 7 February 2020).

United Nations, 2015. Water and Climate Change: Adaptation in Transboundary Basins: Lessons Learned and Good Practices. https://www.unece.org/fileadmin/DAM/env/water/publications/WAT_Good_practices/ece.mp.wat.45.pdf (accessed 7 February 2020).