Centre for Environment
UNIVERSITY OF TORONTO

TRUN Consortium Meeting: Transboundary Water Management
Monday September 13, 2010

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1. Introduction

On behalf of the TRUN Consortium, The Centre for Environment and the Office of International Relations, University of Toronto invited faculty members and key administrators from the TRUN consortium for a one day meeting, on Monday September 13, 2010 at Hart House, University of Toronto. **Lorna Jean Edmonds**, Assistant Vice President, International Relations, University of Toronto and **Donald A. Jackson**, Interim Director, Centre for Environment, Professor, Department of Ecology and Evolutionary Biology, University of Toronto co-hosted the event, with **Murray Clamen**, Secretary, International Joint Commission, facilitating the discussion among the invited guests.

This event was supported by direct and in-kind contributions from the Centre for Environment and the Office of International Relations, University Relations, University of Toronto, each participating institution that attended this event and the TRUN secretariat.

2. Purpose

The purpose of this meeting is to work collectively through the TRUN network, to define one or two signature projects of importance to both Canada and the United States, which engage both faculty and students in the area of 'Transboundary Water Management'.

3. Background

3.1 TRUN

TRUN, which stands for 'Transborder Research University Network' was established in 2007 to facilitate collaboration among 13 research universities in the Great Lakes Region (Ontario and New York State). The aim of TRUN is to expand and support cooperation among research universities along the borders of Ontario and New York State through development of collaborative academic and research initiatives. Occasionally, research institutions from outside this region, specifically from Michigan State, have participated in TRUN events. The TRUN Secretariat is led by the Office of International Relations at York University, Ontario and the University at Buffalo, SUNY.

3.2 Participants

Representatives from the following academic institutions were in attendance.

- Buffalo State College, SUNY
- McMaster University
- Queen's University
- Rochester Institute of Technology
- University at Buffalo, SUNY
- University of Guelph
- University of Michigan
- University of Toronto
- University of Waterloo
- University of Western Ontario
- Wayne State University
- York University

3.3 Problem Statement

Water was identified by the TRUN consortium as a priority for scientists, students and policy makers, and industry on both sides of the border following the last TRUN meeting at the University of Western Ontario in May 2010. This was due in large part to the significant current and recent events in the area of global and local water management and the importance that the national, state and provincial governments are placing on this critical resource issue. Keeping bilateral and international relations in mind, it is safe to say that the problems concerning the integrity and future of the Great lakes will continue to grow.

The imperative is for new, progressive and sustainable social, cultural, technological and organizational ideas and innovations; ones that have far reaching value to society locally and internationally. This is a significant challenge to universities, policy makers and industry. It is also a priority to graduate from universities and colleges the next generation of innovators and leaders who will spearhead transformational change in this area of regional and indeed global significance.

There are a number of leading national, transborder and international agencies and organizations involved in water related issues and many of our faculty are members. A key problem noted, however, is that although they may be involved in these agencies, many of the academics engaged in research and training, water-related industries, and governments across our Ontario and New York State borders, in which the Great Lakes water system is of significant mutual interest are not working directly together on issues related to water generally or the Great Lakes system specifically. While clearly there are opportunities for faculty to pursue networking opportunities through the existing associations and meetings it was recognized that such a localized network is not currently in existence, nor are there plans to establish one. Further, there are very few opportunities for student engagement in the networks that do exist. Accordingly, it was proposed that a way forward could be to create opportunities focused on student engagement across the disciplines and among the academic institutions along the New York State and Ontario borders with involvement of the public and private sectors. This approach could be potentially catalytic in fostering:

- transborder communications and mutual understanding of water issues,
- new collaborations that lead to working together, and
- new ideas and innovations of local to international value and impact.

Further, the opportunity to develop skills in diplomacy, design and entrepreneurship along with core knowledge, critical thinking and problem skills would strengthen this talent base.

3.4 Opportunity through TRUN

The TRUN consortium seeks to use its network to work collaboratively to foster and sustain positive bilateral relations in both a public relations and academic context. More specifically, this goal could be realized by the creation of one or more joint programs or events, such as a conference, symposium, summer institute or the emergence of new ideas not yet considered.

4. Key Discussion Points

4.1 Areas of Interest

The following areas of interest were expressed as current and potential research areas under the overall umbrella of 'Water Resource Management'.

- Urban Watershed Research
- Water Quality Analysis
- Monitoring of Emerging Contaminants
- Governance and Policy Strategy
- Ecosystem Restoration
- Data Management
- Climate Change
- Contaminants
- Invasive Species
- Water Conservation
- Ecosystem Services
- Nexus between Water and Energy

4.2 Mechanisms

The following mechanisms were expressed as of interest:

- Graduate, undergraduate student involvement
- Interdisciplinary courses
- Cross-border student exchanges
- Student run initiatives
- Virtual research and virtual classroom, cross-border
- Overseas exchanges
- Cross border supervision of graduate students
- International challenges, events and competitions for new ideas and innovations

4.3 Two projects ideas were identified to pursue in the coming year (2010/2011).

4.3.1 Research Challenge: The Great Lakes Watershed: Our Shared Future

- **Combined with research on scenario modeling and data mining on baseline information about the Great Lakes Watershed**

The notion of water as a business and economic opportunity is prevalent today in both Canada and the USA. However, the general concept of water as an opportunity may be considered more broadly, so as to involve all sectors of American and Canadian society in an overarching framework, or strategy, for water policy. The need for such a strategy has been expressed repeatedly by the administrators (at all levels of government), academics, non-governmental organizations, industry, and professional associations. A North American strategy recognizes the communal aspects of important watersheds along our borders, and the integrated nature of Canadian and US economies.

The TRUN consortium, along with Wayne State University and the University of Michigan were interested in advancing the notion of developing a North American strategy for water by engaging students across the disciplines and borders in such a challenge, but in the first instance focusing on a regional strategy around the Great Lakes water system. The outcome of such a challenge proposed, however, could potentially lead to a North American movement for a North American strategy and perhaps even an international challenge. An event like this would also be a venue for involving the

private and broader public sectors. Appendix C provides a short summary of the brief and broad outline of what could be envisaged in terms of timing, intent and structure of a challenge that would be further developed by this working group.

Leading up to this initiative would be the opportunity to conduct research that builds scenarios and baseline information that can define and monitor a future water strategy. This would be in part quantified by our understanding of boundary conditions – i.e., the upper and lower limits of water availability (from a natural perspective) and the requirements for this resource (incorporating social and ecological concerns). These conditions are explored in detail in a number of technical modeling exercises already extant in the literature, or underway within the research community represented by TRUN. A series of workshops and related events implemented in advance of the Challenge tentatively planned for 2012 would begin the process of utilizing this knowledge to explore future scenarios of water use, providing a way forward to defining a truly regional and even pan-North American strategy for water and setting a strong foundation upon which to carry out the Strategy Challenge.

Irena Creed (University of Western Ontario) and **Warren Mabee** (Queen's University) from Ontario and **David Blersch** (University at Buffalo, SUNY) and **Charlotte Roehm** (Buffalo State College, SUNY) from NYS volunteered to take ownership of the "Future of Water Challenge and Scenarios" project. **The University of Western Ontario**, London, Ontario, has offered to host the next meeting. Others who expressed interest to collaborate on this project are:

- Dawn Bazeley (York University)
- Slobodan Simonovic (Western Ontario)
- Nik Katopodes (University of Michigan)
- Lino Grima (University of Toronto)
- Charles (Ken) Minns (University of Toronto)
- Tony Vodacek (Rochester Institute of Technology)

4.3.2 Water Program for graduate and undergraduate students with a possible focus on the Water/Energy Nexus leading to

- **Summer Research Institute for undergraduate and/or graduate students**
- **Professional Masters**
- **Sister Watersheds Proposal (see Appendix for proposal, York University)**

Participants noted that there are numerous transborder agencies and organizations that have proven effective over extended periods of time, including those directed at water-related issues (e.g. IJC). However, mechanisms are lacking that afford graduate and undergraduate students from these same geographic areas the opportunities to interact and study with one another. Opportunities were discussed to determine potential vehicles for achieving such interactions among students from the TRUN consortium plus Wayne State University and the University of Michigan. Possibilities discussed ranged from the small-scale level of joint supervision of graduate students to student exchanges between research groups to more structured teaching events. Some specific ideas are presented. Their rate and ease of implementation may vary depending on their degree of complexity. The small-scale exchanges are likely to being the easiest to develop although initiatives requiring greater development time, such as a Summer Research Institute, may provide quite different and valuable opportunities.

Various universities have developed "study abroad" programs for their undergraduate and graduate students and further development of such types of programs might be represented through a Summer

Research Institute that could focus on one or more water-related themes. Such an event could operate from a fixed or a variable location from one year to the next, but collaboration among schools would be developed to allow formal academic credit for all students participating. The University of Toronto "study abroad" program participated within the discussion group and agreed to provide further support in developing such an initiative.

Professional Masters degrees have proven an effective approach to advanced education and programs as several represented schools were noted. Developing such a program focused on the issue of water could be examined further. The multi-institutional and bi-national nature of the group involved will require more complex arrangements; however, as considerable benefits may accrue it was viewed as being worth considering if and how such a program may be developed. Such programs can potentially be cost neutral or even generate revenue.

There is the potential for formal exchanges between schools and jurisdictions. Although this could occur on an ad hoc basis, it could be encouraged and facilitated through a program-oriented option. An example of such an approach is the "Sister Watershed" approach of York University which provides the opportunity to exchange small groups of students between schools to examine watersheds in a comparative manner and is presented in more detail in Appendix D.

Carol Miller (Wayne State University) and **Donald Jackson** (Centre for Environment, University of Toronto) have volunteered to lead and coordinate the "Graduate Programs" project. **Wayne State University**, Detroit, Michigan has offered to host the next meeting. Others who expressed interest to collaborate on this project are:

- Dawn Bazeley (York University)
- David Blersch (University at Buffalo, SUNY)
- Irena Creed (Western Ontario)
- Charlotte Roehm (Buffalo State College, SUNY)
- Nik Katopodes (University of Michigan)
- MP Stevens ((University of Toronto)
- Yvette Ali (University of Toronto)
- Stephen Brown (Queen's University)
- Glen Van Der Kraak (University of Guelph)
- Jonathan Bulkley (University of Michigan)
- David Mbugua/George Arhonditisis (University of Toronto)

5. Recommendations and Next Steps

Upon circulation of the Meeting Summary Report, the above mentioned project leaders will move forward with plan to host next working group meeting to begin development of the collaborative project. **The suggested time frame for this will be to meet within 8 weeks of delivery of this report**. The host institutions will send out meeting invitations as per noted groups above. As details of the projects are further decided, funding opportunities will be reviewed.

6. Conclusion

This meeting resulted in the establishment of two subgroups to lead the development of two key initiatives and a plan to meet again in the very near future. Thank you to everyone for making this meeting productive and enjoyable.

Appendices

A. Meeting Agenda

Date: Monday September 13, 2010, 9:30 am
Location: Hart House, Debates Room, University of Toronto
TRUN Consortium Meeting - Transboundary Water Management

9:30 am	Arrival; Light Breakfast and Refreshments
10:00 am	Welcome Remarks: Lorna Jean Edmonds, Assistant Vice President International Relations, University of Toronto Introduction of the Meeting Chair; Don Jackson, Interim Director, Centre for Environment, University of Toronto
10:10 am	Don Jackson, Welcome Introduction of Meeting Facilitator; Murray Clamen, Secretary Canadian Section of the International Joint Commission
10:20 am	Presentation: Murray Clamen – 'International Joint Commission and Transboundary Water Issues: The Road Ahead'
10:30 am	Roundtable Introductions
11:15 am	Coffee Break
11:30 am	Group discussions: Interests, Ideas, Priorities, and Resources for Collaborative Event on Transboundary Water Management
12:30 – 1:15 pm 1:15 – 1:30 pm 1:30 – 3:00 pm	Working Lunch Break: regrouping of tables Facilitated Discussion: • Identification of Key Sectors, common areas of interest and Strategies for Engagement of students and faculty • Resource requirements and potential • Identification of leaders for key initiatives • TRUN Internationally - potential • Communication Strategy • Next Steps
3:00 pm	Wrap up and next steps
3:20 pm	Closing Remarks and Meeting Adjourned.

B. Participants

Participants (In attendance)

- Ali, Yvette, Director, Professional & International Programs, University of Toronto
- Atkinson, Joseph, Professor and Director of Great Lakes Program, University at Buffalo, SUNY
- Bazely, Dawn, Professor, Director, Institute for Research and Innovation in Sustainability, York University
- Blersch, David, Director, ERIE Program, University at Buffalo, SUNY
- Brown, Stephen, Department of Chemistry, Queen's University
- Bulkley, Jonathan, Director, Center for Sustainable Systems, University of Michigan
- Chan, Luke, Associate Vice president- International affairs, McMaster University
- Clamen, Murray, Secretary, Canadian Section of the International Joint Commission (IJC)
- Creed, Irena, Professor, Departments of Geography and Biology, Canada Research Chair in Watershed Science, The University of Western Ontario
- Mbugua, David , Post Doctoral Appointment, UTSC
- Edmonds, Lorna Jean, Assistant Vice President International Relations, University of Toronto
- Grima, Lino, Semi Retired, Professor, Centre for Environment, Dept. of Geography, University of Toronto
- Hewitt, Ted, Vice-President, Research & International Relations, The University of Western Ontario
- Irving, Carol, Policy Analyst, Office of the Associate Vice-President International, York University
- Jackson, Donald, Interim Director, Centre for Environment, University of Toronto
- Katopodes, Nik, Civil and Environmental Engineering, University of Michigan
- Mabee, Warren, Assistant Professor, School of Policy Studies, Queen's University
- Marlin, Susan, Associate Vice-Principal (Research), Queen's University
- Miller, Carol, Professor and Chair, Dept. of Civil and Environmental Engineering, Wayne State University
- Minns, Charles (Ken), Professor, Ecology and Evolutionary Biology, Scientist Emeritus, Fisheries and Oceans Canada, University of Toronto
- Roehm, Charlotte, Assistant Professor and Research Scientist, Department of Geography and Planning, Great Lakes Centre, Buffalo State College
- Simonovic, Slobodan, Professor, Department of Civil and Environmental Engineering, The University of Western Ontario
- Mary-Priscilla (M.P.) Stevens, Director, International Programs and Partnerships, Faculty of Arts and Sciences, University of Toronto
- Shear, Harvey, Professor, Department of Geography, University of Toronto, Mississauga, University of Toronto
- Taylor, William, Canada Research Chair in Limnology, Department of Biology , University of Waterloo
- Thacker, Emma, Assistant, Programs and Partnerships, Centre for Environment, University of Toronto
- Van Der Kraak, Glen, Professor, Department of Integrative Biology; Associate Dean for Research in the College of Biological Science, University of Guelph
- Vodacek, Tony, Associate Professor, Digital Imaging and Remote Sensing (DIRS) Laboratory, Rochester Institute of Technology
- Workman, Donna, Manager, Programs and Partnerships, Centre for Environment, University of Toronto

Participants (Regrets)

- Adams, Barry, Professor, Civil Engineering, University of Toronto
- Arhonditisis, George, Assistant Professor, Geography and Planning, University of Toronto
- Boyd, Donald, Vice President for Research, Rochester Institute of Technology
- Damiani, Laurie, Director, International Initiatives, Cornell University
- Diamond, Miriam, Professor, Department of Geography, University of Toronto
- Hofmann, Ron, Assistant Professor, Department of Civil Engineering, University of Toronto
- Howard, Ken, Professor of Hydrogeology, Director of the Groundwater Research Group, University of Toronto
- Hurley, Adele, Director, Program on Water Issues, Munk Centre for International Studies, University of Toronto, University of Toronto
- Karney, Bryan, Professor, Civil Engineering at the University of Toronto, University of Toronto
- Todd Latham, Publisher, Water Canada Magazine
- White, Rodney, Academic Advisor, Centre for Environment, Professional Development Programs, University of Toronto
- Wood, John, Associate Vice Provost for International Education, Office of International Education, University at Buffalo
- Zafar, Adeel, Director, UNU, Institute for Water, Environment and Health, Chair, UN- Water, United Nations University

C. Possible Starting Point for a Framework for the TRUN Water Signature Project

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1. **Possible Topic: The Great Lakes Watershed: Our Shared Future**

2. **Challenge**
   - Challenge Development of a regional strategy and approach to water/wastewater research and policy development leading to effective management.
   - Opportunity: to engage students and faculty from TRUN and related universities to become involved in thinking about a regional and perhaps even a North American strategy for water with an initial focus on the Great Lakes watershed.
     - How can research from across the disciplines be harnessed more effectively to tackle the challenge of maintaining water quality within the Great Lakes to ensure adequate supply well into the future?

3. **Objective:** To develop a regional water/wastewater strategy and creative innovations that can be submitted and showcased during the event.

4. **Event**
   - An event that brings together a showcasing of innovations and a process for developing/negotiating 'ONE' water strategy for the Ontario-New York State region or for North America (TBD).

5. **Structure**
   - Proposed Date: late Summer 2012.
   - Selection of teams from each participating institution:
     - Interdisciplinary teams in technological, social, cultural and organizational innovation.
     - Undergraduate and/or graduate compete internally at each TRUN and related university participant and best team goes to final event hosted at one of the TRUN institutions or related agency (TBC).
   - Approach: As an illustration only, but could propose something like a UN style event
     - Teams come together each representing 'their' innovation/solution with the objective of having a series of events and meetings throughout a one or two week period where all teams learn the various skill sets needed to 'try' to establish one overarching strategy (e.g. diplomacy, design, entrepreneurship).
     - There would be a series of planned UN style meetings and then the predictable side bar negotiations ongoing throughout the two week period leading to a unified approach or strategy.

Sister Watersheds at TRUN - Transborder Research University Network http://wings.buffalo.edu/intled/trun/
Dawn Bazely, IRIS (Inst. for Research and Innovation in Sustainability), York University

The Sister Watersheds student education and training opportunities proposal is based on the Sister Watersheds project, directed by Professor Ellie Perkins, Faculty of Environmental Studies, York University (2002-2008). This was a collaboration among academic researchers, students and environmental education / community development NGOs working in São Paulo, Brazil and in low-income neighbourhoods around the York University campus in Toronto, focused on watershed governance (see www.baciasirmas.org.br and www.yorku.ca/siswater). Students from Brazil and Canada visited each other's watersheds in a series of student exchanges.

The approach of the Sister Watersheds project was subsequently adopted in the SWiM project – Sustainable Water in Mongolia. http://www.irisyorku.ca/projects/swim/
This project ran for one year, funded by the Association of Universities and Colleges of Canada. The project came out of a co-operation agreement between York and the National University of Mongolia which provided for student exchanges between the two universities. We settled on a project about Human Security and Water. The three York University graduate students which spent 3-months in Mongolia, wrote the following about their experience:

Water Governance in Mongolia -- A Case Study
by Paul Marmer, Korice Moir, and Roberta Hawkins

> "As available freshwater resources become increasingly scarce, new or improved forms of governance that protect these vital resources are needed. As a nation emerging from a transition to democracy and a free market economy, Mongolia, with its inherently arid environment, faces challenges in protecting its dwindling water resources. Following the collapse of the socialist era in Mongolia during which the state claimed control over resources, governance of natural resources in Mongolia was left in a vacuum. The interests and well-being of the country's large pastoralist population were at odds with increasing and sometimes deleterious industrial demands on water resources that remain largely unchecked. This project aimed to investigate resources in Mongolia through a human security approach. Water governance was investigated using several methods and methodologies (e.g., participatory rural appraisals (PRAs), surveys, interviews, workshops) and addressed a variety of key issues including pastoralism, mineral mining, gender, and ecological restoration. Governance of water resources to ensure their sustainable use requires collective management among local communities and collaboration between academics, government, NGOs, and socially and environmentally responsible industries, as well as an integrated perspective, linking environ- mental, social and economic issues."

The Sister Watersheds TRUN programme would provide a framework and mechanism for graduate and undergraduate students doing independent study courses (Honours theses, independent reading grad courses etc.) from across universities to visit another TRUN university (across the border). They would learn about the watershed of the host institution and compare it with the watershed at their host institution. With the assistance of their faculty advisor, they would plan a study comparing and contrasting watershed-based issues and governance. This could compare rural-urban issues within the watershed, unsettled land claims (First Nations-Native), contamination, riverbank edge hardening, restoration and management etc. etc. The goal is to allow the student to incorporate interdisciplinary aspects into their paper. A key part of this activity would be to connect with local NGOs, government organizations, citizens and industry in learning about the watershed. TRUN could establish a travel fund that provides a small amount of travel support. Students benefiting from this could provide a video or power point presentation for the TRUN website.