



The 2017 Sustainability Network Environment & Economy Fellowship (SNEEF) program was a big success.

We'll be doing it all again next summer and by late fall 2017, we'll post an update here.

For now, we're happy to share highlights from the summer of 2017!

Six York University FES grad students were matched with five ENGOs that had been through the Economic Literacy Project workshop series.

Brianne Meikle & Freshwater Future: Lake Erie Algae: Is Agricultural Policy Aligned with Government Policy? Supervisor: Nancy Goucher, Manager of Partnerships.

Algal blooms in Lake Erie basin have negative economic, social, recreational and ecological impacts including temporary lost access to drinking water sources. While much has been done so far to reduce agriculture's impact on water, this research looked at the alignment of agricultural policies with other Canadian and Ontario government policies that have reduced to some extent phosphorous loading. The research identified the acts and action plans whereby Ontario and Canada have committed to protecting the Great Lakes, the concerns surrounding algal blooms and the ways in which agriculture contribute to them. A review the economic policy and financial incentive programs that farmers benefit from was also undertaken as there is concern that the impact of these funds is not being properly monitored. More engaging economic analysis of related payments to farmers and the monitoring of the environmental impact of these was hampered by an inability to access government and farm data. The research points to a need for greater cohesion between agricultural and environmental policies if commitments and targets to restoring Lake Erie are to be fulfilled.

Sohrab Pathan & Friends of the Greenbelt Foundation: Stormwater Management: The Battle Between Grey and Green Infrastructure in Mount Albert Ontario. Supervisor: Thomas Bowers, Research Manager, Friends of the Greenbelt Foundation.

The Town of East Gwillimbury wants to improve its stormwater management system and related infrastructure. The research focused on an economic feasibility analysis that compared the life-cycle cost of a stormwater management system that is built with the green infrastructure (e.g. rain gardens) and a conventional system (i.e. grey infrastructure/retention ponds) in Mount Albert, Ontario. The research also considered the feasibility of building a model for a specific community in the GTA Greenbelt but concluded that data is lacking. When data from other communities was examined, it was found that either green infrastructure or grey infrastructure can be cost effective based on the number of rain gardens and the low, medium, and high cost assumptions for both grey and green infrastructures. With high number of rain gardens and low cost assumption, grey infrastructure is more economically feasible option for storm water management system and with medium and high cost assumption green infrastructure is the more economically feasible option. With low number of rain gardens,

green infrastructure is more economically feasible option for all low, medium, and high cost assumptions.

Warren Dusek & the Toronto Region Conservation Authority: Ecosystem Services, Natural Capital Valuation and TRCA Infrastructure Projects. Supervisor: Daniel Brent, Planner, Environmental Assessment Planning, and Beth Williston, Associate Director, Environmental Assessment Planning.

Literature within the last five years was examined and an overview of the current theory was created including sections on translating theory into practice, valuation methods, decision-support tools, compensation protocols and models and recommendations specific to the TRCA. Valuation is unavoidable but it does not need to occur solely in economic terms and other methods of valuation can supplement economic valuation methods, or in certain cases, supplant it. Problems with the current theory include scale, scope and phase of the ecosystems service, relying on individual's perceptions and feedback to value services and translating valuation theory into practice. Several valuation approaches (revealed-preference, stated-preference, cost-based and benefit transfer) and their resultant methodologies were examined to demonstrate several ways that ecosystem services can be economically valued. The research also considered the decision-support tools and models (InVEST, ARIES, and LUCI) that aid ecosystem service and natural capital valuation.

Elise Mackie & the Toronto Region Conservation Authority: Watershed Protection Through Ecosystem Services Assessments. Supervisor: Ryan Ness, Senior Manager Watershed Planning, Reporting & Strategy.

TRCA is looking to incorporate Ecosystem Service (ES) assessments into an emerging watershed management framework. The research examined various ES assessments and demonstrated that the protection and restoration of green space is economically beneficial, and thus supported the move by cities towards sustainable development and green infrastructure. In a few cases, ES assessments indicated their research helped protect and restore green space during urban development. When ES assessments faltered, stakeholders often failed to understand the value of the local ecosystem goods and services and thus did not necessarily link natural areas and their personal well-being. A few times, development incorporating green infrastructure occurred in part due to the findings of an ES assessment. ES assessments often consider the value of green infrastructure over grey infrastructure for flood mitigation (eg. constructed wetlands or bioswales) though sometimes in combination with grey infrastructure. Although ES assessments are commonplace in many regions, few are utilized in the larger realm of city planning to help protect and restore natural areas which provide essential goods and services.

Natália Britto dos Santos and the Toronto and Region Conservation Authority (TRCA): Incorporating ecological economics into The Living City Report Card. Supervisor: Ryan Ness, Senior Manager Watershed Planning, Reporting & Strategy.

The Living City Report Card is a regional environmental sustainability report for the Greater Toronto Area (GTA) that track six theme areas (carbon, air quality, water, waste, land use, and biodiversity). After concluding the 2016 report, TRCA and partners intended to update the report card framework, and the overall goal of my internship was to explore whether and how ecological economics frameworks and methods could be incorporated into this update. My first step was to do a literature review and annotated bibliography about ecological economics methods that have been used in urban areas, finding some interesting cases in North America, Europe, Australia and Israel. Based on the literature review, I produced a summary bulletin about ecological economics applications in urban areas, which TRCA intends to circulate among municipalities as an introduction to the topic. Finally, I wrote a recommendations memo on how TRCA and its partners could integrate ecological economic analysis into future versions of The Living City Report. The two major recommendations were: (1) to consider different values (such as ecological/biophysical, economic and socio-cultural), suggesting some integrated valuation methods and/or composite indices that could be included in The Living City Report to support this goal; (2) to use spatial-analysis integrated with biophysical, economic and/or socio-cultural indicators to understand spatial variation among the GTA, which is essential to adequate planning and environmental management to local needs. In summary, this project will contribute to TRCA's discussions about the updated framework for The Living City Report Card.

Andrés Jiménez Monge & Ontario Nature: The Economic Case for the Expansion of Protected Areas in Ontario. Supervisor: Dr. Anne Bell, Director of Conservation and Education.

Canada was the first industrialized nation to ratify the Convention on Biological Diversity that aims to conserve at least 17% of terrestrial ecosystems with a well-connected system of protected areas, by 2020. Yet, with only 2 and a half years to fulfill this goal, the country, and the province have only reached approximately 11% of the territory under some level federal and provincial protection. The research environmental and ecological economics principles demonstrated that the protection and Expansion of protected areas are economically beneficial and a good business. The research helps identify key recommendations, values, principles and economic data that would support the efforts to expand the protected area systems in Ontario among decision makers. The economic case for protected areas focuses on improving access, connection and usage of natural resources, boosting local economies associated with resources and generating new emotional connections with nature. In addition to the benefits from ecosystem services, investments in protected areas bring jobs and other long-term economic benefits, often to rural, economically underdeveloped communities. Establishing protected areas in partnership with Indigenous peoples provides a means of advancing shared conservation objectives while simultaneously advancing reconciliation. Future research opportunities should explore the relationship of economically and perverse subsidies with funding opportunities for protected areas.