

Okanagan Invitational Drought Tournament, November 2012

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Nearly two years ago, I was approached by Dr. Harvey Hill and his Saskatchewan-based team from Agriculture and Agri-Foods Canada (AAFC), to be involved in the development of the South Saskatchewan River Basin's iteration of the Invitational Drought Tournament (IDT)—a concept I was unfamiliar with at the time. My role was to develop the climate scenarios for this exercise, in this case an extended drought, using a combination of dendroclimatic (tree-ring) and observed climate data for the Basin.

What is a Drought Tournament you may ask? Well, it's a simulation game, where teams of water stakeholders are presented with a drought scenario. The teams strategize and compete against each other to develop the best drought management policies and innovations to meet their region's environmental, social, and economic needs.

Since its first iteration in Calgary nearly two years ago, the IDT is slowly transforming, with events having been held in Saskatoon and Winnipeg. The latest evolution of the tournament was held in Kelowna, BC, on November 16, 2012, in collaboration with the Okanagan Basin Water Board (OBWB), BC Ministry of Environment, University of British Columbia – Okanagan (UBCO), and FORREX. The objective at this event was to provide a “safe and fun environment” that would stimulate conversation among the players and help them identify the key concerns in an extreme drought situation. Teams were encouraged to develop comprehensive drought management plans that minimized the environmental, social, and economic impacts within the watershed.

Drought Tournament teams strategize and compete against each other to develop the best drought management policies and innovations to meet their region's environmental, social, and economic needs.

The game begins

It's November 2012. Teams are provided with background information about the basin (climate, industries, tourism, geography, communities, water demands, etc.) and a budget. Based on this information and budget, they were able to buy multiple long-term management strategies, from a list, that would be implemented before the onset of the drought within the fictitious Seco Creek Watershed. A few of the long-term strategies included: increased water storage (dam or reservoir), enhanced irrigation for water efficiency, drought education, and development of a drought management plan. The teams were now prepared for the drought!

The date is now April 1, 2021. Teams are presented with the previous winter's (November 2020 through March 2021) climate conditions (precipitation and temperature),

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snowpack levels, and reservoir storage capacity, et cetera. They were also presented with a new budget. This allowed each team to purchase a variety of short-term management strategies, to ensure the environment requirements were met with minimal economic and social impacts to the community during the summer months, when water is low and demand is high. Strategies included predetermined bylaws, regulations, and programs such as no lawn watering, recycling domestic water, restricted groundwater usage, water use restrictions for commercial and industrial users, xeriscaping, agricultural payouts, drought education programs, and drought strategy developments. Teams were also given the choice to be innovative and develop their own bylaws or drought management strategies – this is where the fun began. Innovations included: spawning channel development, reinvestment in infrastructure, lake withdrawal programs, groundwater storage, taxation programs, community engagement activities, and so on. The catch was that each team had to convince the referees of their innovation’s soundness before they could implement it – creativity was the key.

From there, each team’s choices were run through a number of models to determine the environmental impacts (primarily streamflow) and, to a lesser degree of accuracy, the economic and social impacts. A spokesperson from each team presented and defended their management choices and overall ability to address the short- and long-term needs of the community; then, the referees and the competing teams voted on each team. Following the voting process, the climate conditions were presented in the fall, on November 1, 2021, for the previous year (December 2020–October 2021; this allowed the teams to start thinking about next year’s drought management strategies.

The drought prolonged year after year, following the same process as outlined above and the management strategies carried forward into the following years. In the end, the rain came and the drought ended. The teams’ votes were tallied up for each round to determine the overall champion. Team Red chose to stick to the environmental management options and came out on top. Their name will be added to the AAFC Invitational Drought Tournament Trophy and will live on forever.

Participants at the Okanagan IDT included professors, middle school teachers, politicians, researchers, engineers, water planners, biologists, farmers, and local consultants. Overall the participants found the event a valuable learning exercise and recognized the importance in continuing these challenging conversations. It was a great opportunity for all water stakeholders to be faced with these trade-offs that decision makers are confronted with during times of hardship.

What’s next?

An academic version of the Okanagan IDT is planned for the spring of 2013 with the participation of environmental science students at UBCO, Okanagan College, and Thompson Rivers University (TRU). It is also being explored as part of a Grade 8 science water unit class.

FORREX was recently awarded a grant from the Real Estate Foundation of British Columbia to fund a project titled “Developing social and economic indicators for drought preparedness.” In collaboration with AAFC, we will be working with researchers at UBCO and the University of Alberta to identify a suite of economic and social indicators for the agricultural, municipal, industrial, and environmental sectors that accurately reflect potential impacts of extreme drought events and water shortages.



The IDT framework is adaptable to other geographic regions within BC and internationally and also to other sectors, such as forestry or mining, particularly in relation to management decisions associated with a changing climate and a growing population. I'm looking forward to the next iteration of the IDT.

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