From conflict to co-operation

How one Western professor is resolving world water conflicts

By Rob Aldred, BA'89

Many conflicts exist worldwide over shared water. (Photo taken near Alem Kitmama, Ethiopia. Courtesy of World Health Organization).

Here is the bad news: the world's supply of renewable fresh water is in danger. The good news, according to Professor Slobodan Simonovic of the Institute for Catastrophic Loss Reduction located at the University of Western Ontario, is that the world has enough water.

"The problem is how we manage the water on a global scale," he says.

Simonovic, with support from the United Nations Educational, Scientific and Cultural Organization (UNESCO), has developed a software program to help solve water-related conflicts. It's called the Conflict Resolution Support System (CRSS).

"The clear message is the need for something like this is tremendous," says Simonovic.

"We have approximately 265 watersheds being shared by more than one country and that means that conflicts are arising in every possible form," Simonovic warns.

"These problems in many cases are causes of wars. People are fighting around water."

Canadians do not seem to talk about water much, perhaps because it has the third highest amount of renewable fresh water in the world, behind only Brazil and Russia. But the stark fact is that the unprecedented threats facing the global supply of fresh water will almost certainly lead to more and deadlier conflicts erupting over this precious resource.

Consider that in the past 100 years, the world's population has tripled, but our consumption of water has increased six-fold.

While demand for water soars, supply is becoming more and more fragile. The International Panel on Climate Change predicts global warming will bring an increase in the frequency and magnitude of droughts in the 21st century.

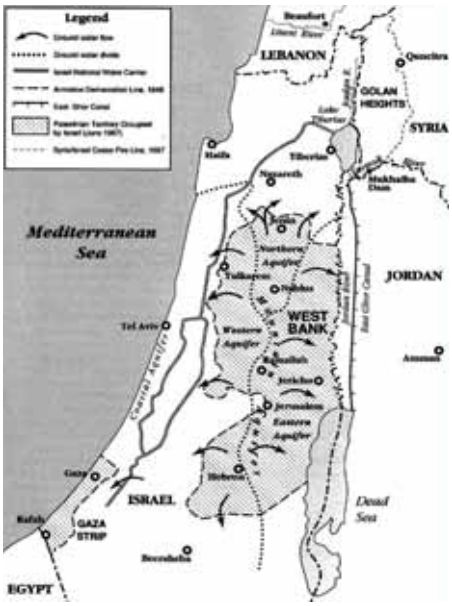
The past half-century alone has seen more than 500 conflicts over water, seven of which have involved violence.

From 2004 to 2006, at least 250 people were killed as Somali warlords battled over water wells and pasture lands. Villagers name it "The War of the Well."

In January 2005, more than 20 Kenyans were killed and 2000 displaced after a Maasai farmer accused a Kikuyu leader of diverting a river to irrigate his farm.

Water is not only a military target; it can also be a military or political tool. In 2004, the United States halted two water development projects to punish the Palestinian Authority for their failure to find those responsible for killing three members of a U.S. diplomatic convoy in October 2003.

Simonovic, whose expertise is resource management, was thrilled to



Map of water sources in the West Bank shared by Israelis and Palestians.

get the opportunity through UNESCO because he knew his software would be distributed free of charge.

"I use the word democratization of technology. I use it on purpose because that is where the state of the art technology is being put into a form that assists the people who need that technology the most. This is completely open," Simonovic says.

The software works by taking on the role of moderator and information clearinghouse. Two parties involved in a water conflict can tell the program the details of the present conflict they face and their plans for future resource management. The software can then run simulations on proposed water use and tell the parties how the water supply will be affected. Different compromise solutions can then be quickly analyzed and modified if necessary. The goal is to assist politicians who are not trained in the complexities of water resource management to craft compromise solutions.

Léna Salamé, project coordinator for the Division of Water Sciences for UNESCO in Paris, says Simonovic's knowledge-sharing approach to water conflict resolution is what makes his software so valuable.

"We feel that the only way to address current and future challenges related to the management of water resources is to encourage and develop the skills of concerned stakeholders in doing so. The best investment is in education and capacity building and this software is part of such an investment, Salamé says.

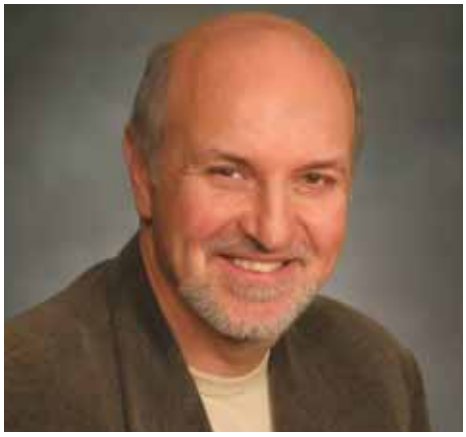
The current version of the software deals with three categories of water-sharing problems.

"The first kind of conflict is how the resource is used in two different locations or two different countries. The worst case scenario is User A can take all the water and leave none for User B," Simonovic says.

"The other conflict is the conflict where you have different types of users. You have for example water being used for hydro power generation on one side; and irrigation or municipal water supply on the other side. So now you have a conflict that has some technical parameters. For hydro power you should have the reservoir as full as possible to make more energy; for water supply you would like to release the water from the storage to meet the demand."

"The third type of conflict is the conflict when we have a user on one side and some impact like flooding. Depending on how you release the water for irrigation or water supply, you affect the level of flood protection for the other user."

Simonovic beams with pride when asked if he had received any feedback about his software from UNESCO or world leaders.



Slobodan Simonovic

"The fourth world water forum was organized in Mexico City and last year UNESCO decided to prepare 1,500 copies of the software for possible distribution at the forum. The forum usually gets delegations from countries all over the world - so ministers and other officials discuss water issues. It gets about 4,000 or 5,000 people, including high level politicians. They said that all 1,500 copies were picked up within three hours of the beginning of the forum. So they were positively surprised and sorry they didn't produce more."

"How often do you make an impact like that?"

Research growth critical to Western's health

By Paul Mayne

Whether it is imaging, wind engineering and high-performance computing or international business, demography and philosophy of science, when it comes to research Western is among the best in the country.

Ted Hewitt, Vice-President (Research and International Relations) shared some of the university's research triumphs recently at the Senior Alumni speaker series, highlighting Western's position among the Top 10 research universities in the nation.

"In Ontario I would argue, definitively, that we'd be #2," says Hewitt, noting the University of Toronto's stranglehold on research activities and dollars. "But there are some areas where we are best in the world."

Last year, Western research reached $225 million, one-quarter of the university's total for operations and capital ventures. While top tier schools such as Toronto, Montreal, McGill, Alberta and B.C. lead the way, Hewitt says there is no reason Western can't be right on their coat tails.

Western is seventh in the country as far as infrastructure funding, while in Ontario it is second, behind Toronto, in research funding, he said. While funding from CIHR and SSHRC are where they should be, Western needs to focus more on NSERC (Natural Sciences and Engineering Research Council), says Hewitt.

Along with the Insurance Research Lab for Better Homes, formerly known as the Three Little Pigs project, Hewitt expressed excitement for the soon-to-be opened Biotron.

The Biotron will be the largest climate-controlled facility of its kind in the world and is years ahead if its time, says Hewitt.

"No one else in the world is doing this sort of research the way we will be doing it," he says of the $28-million, 30,000-square-foot facility opening later this spring. "We have no competitors when it comes to this."