

Report for 2002OR7B: Remote Collaborations: Lateral Learning in Transboundary Water Conflicts

- Other Publications:
 - Wolf, Aaron T.; Kerstin Stahl; Marcia F. Macomber 2003. Conflict and Cooperation within International River Basins: The Importance of Institutional Capacity. *Water Resources Impact*, in press. (also available on the Universities Partnership for Transboundary Waters Website: <http://waterpartners.geo.orst.edu>)

Report Follows:

Title: Remote Collaborations: Lateral Learning in Transboundary Water Conflicts

Problem and Research Objectives:

One critical hindrance to sustainability in long-term water management is the fact that, as water use intensifies so too does the potential for conflict between users. Conflicts over shared, or transboundary water resources occur at multiple scales, from sets of individual irrigators, to urban versus rural uses, to nations that straddle international waterways. Transboundary waters share certain characteristics that make their management especially complicated, most notable of which is that these basins require a more-complete understanding of the political, cultural, and social aspects of water, and that management is dependent on extremely intricate awareness of the decision-making process. The transboundary nature of water and its high potential for conflict are often overlooked aspects in training and education programs for water resource management practitioners.

The objective of this project was to promote dialogue among local and international scholars regarding the transboundary nature of water, and to design an international education and research program as a means for universities around the world to collectively contribute to building capacity to address and manage conflict within the institutions which govern water both within Oregon and abroad.

Methods, Procedures, and Facilities:

This project utilized two forums for dialog to draw linkages between local and international settings of transboundary water dispute. The first forum, a one-day seminar entitled: *Water Resources in Transboundary Settings: Lessons from Around the World*, offered opportunities for lateral learning among Oregonian and international experts. The second was a two-day planning workshop for an international consortium of transboundary waters expertise, the Universities Partnership for Transboundary Waters. The workshop facilitated the creation of three programs, designed to provide specific information, education, and training needs for transboundary water management practitioners, students, and scholars around the world and in Oregon.

Activity 1: SEMINAR: Water Resources in Transboundary Settings: Lessons from Around the World
The seminar was held on May 15, 2002, at Oregon State University. The morning session, entitled *Communicating Science: Lessons from the Klamath Basin*, featured presentations on local level transboundary water management issues, and was hosted by the Geological Society of America. The afternoon session, entitled *Conflict, Cooperation, and Dispute Resolution in International River Basins*, featured presentations on international transboundary water management issues, and was hosted by the College of Science and the Center for Water and Environmental Sustainability.

The seminar was open to the OSU community and featured the following presenters:

Douglas F. Markle, Fisheries & Wildlife, Oregon State University
Michael Milstein, The Oregonian Newspaper
Denise Lach, Center for Water and Environmental Sustainability, Oregon State University
William S. Braunworth, Agricultural Administration, Oregon State University,
Peter J. Ashton, University of Pretoria
Michael E. Campana, University of New Mexico
Ashim Das Gupta, Asian Institute of Technology, Thailand
Alexander López Ramírez, National University of Costa Rica
Anthony Turton, University of Pretoria, South Africa
Patricia Wouters, University of Dundee, United Kingdom

Aaron Wolf, Oregon State University

Activity 2: WORKSHOP: Planning Workshop for the Universities Partnership for Transboundary Waters
Participants at the workshop:

- Identified gaps in water conflict information in four focus areas:
 - 1) information resources and outreach;
 - 2) coordinated research; and
 - 3) graduate and professional transboundary waters curricula.
- Defined the mission and scope of the Universities Partnership for Transboundary Waters
- Established activities, priorities and next steps for three programs – Education & Training, Outreach & Information Resources, and Coordinated Applied Research
- Established curricular areas for professional and graduate training and education

Participants included: Dr. Peter Ashton and Dr. Anthony Turton, University of Pretoria, South Africa; Dr. Ashim Das Gupta, Asian Institute of Technology, Thailand; Dr. Jan Lundqvist, Linköping University, Sweden; Dr. Patricia Wouters, University of Dundee, United Kingdom; Dr. Alexander López Ramírez, National University of Costa Rica, Costa Rica; Dr. Michael Campana, University of New Mexico, United States; Dr. Aaron Wolf, Dr. Mary Santelmann, Dr. Steve Lawton, Dr. Cherri Pancake, Ms. Marcia Macomber, and Ms. Lisa Gaines, Oregon State University, United States.

Principal Findings and Significance:

The principal findings drawn from the *Remote Collaborations: Lateral Learning in Transboundary Water Conflicts* project build on the recognition that the water crisis emerging around the world is essentially a governance crisis, how to ensure water is equitably and sustainably used. Water governance occurs at multiple levels, addresses how decisions are made, and who participates in the decision making process. Effective transboundary waters governance requires institutions, which provide a forum to bring stakeholders together to find joint solutions to meet water needs for humans, the economy, and the environment. These solutions must be both technically feasible and politically palatable to avoid conflict. Transboundary waters institutions can thus act as a mechanism to identify crises and resolve potential disputes; before they erupt and become intractable. Supporting and nurturing the development of both existing and future international river basin institutions will be a key ingredient to meeting the goals of human security and sustainable development around the world.

The *Remote Collaborations* participants identified the following capacity needs for transboundary waters institutions:

1. A cadre of transboundary waters champions

As the quality and quantity of water resources diminishes relative to demand, a specialized professional sector has emerged, comprising individuals who have been embroiled in, or tasked with steering past water conflict. These stakeholders include technical specialists and social and political actors, from staff within state agencies for health, water, and the environment, to members of diplomatic corps, to non-profit organizations; to researchers, to state legislators. Together, they constitute a team of “transboundary waters champions”, uniquely tasked with integrating the multiple aspects of water resource management, and harmonizing them across multiple local and national jurisdictions. These professionals have unique needs, not available within the framework of current training programs and

universities. These needs center on the knowledge of skills and strategies to construct water management decisions that result in actions that are both technically and politically viable; and the ability to dialogue with and learn from other stakeholders and their peers, in order to benefit from the successes and failures that have come before them.

2. Specialized interdisciplinary training

To address the transboundary nature of water, capacity building initiatives need to go well beyond the traditional physical approach to management and encourage the incorporation of multiple disciplines, from economics to law to sociology to public health and, especially, to conflict resolution. The traditional structure of most universities and management institutions are simply not organized along these lines. Fragmentation of interdependent water sectors into different colleges and agencies creates communication barriers between managers despite their common mission. What results are water professionals ill-equipped to address real-world water management needs – in particular - the ability to develop collaborative strategies with other sectors and/or nations to distribute limited water supplies among them in an equitable and sustainable manner.

3. Dissemination of lessons learned

Institutional arrangements, such as laws, treaties and river basin councils constitute a developing body of collective knowledge that is shaping the framework of emerging norms for the management of shared waters. Each existing institution represents the lessons learned from its formation and implementation within its own unique geographical and historical contexts. This collection of knowledge has the potential to inform the future and improve upon the past. Few resources exist to disseminate this information to transboundary water stakeholders in a medium which covers the global experience of conflict and cooperation regarding water resources. Such information can help predict and prevent potential conflict over water resources in a number of settings, or to resolve such disputes when they do occur.

4. Visualization tools

Information technology has great potential to provide tools which can assist in the visualization of complex water management problems, in a format which allows multiple issues and interests to be simultaneously represented, queried, and negotiated. The use of Geographic Information Systems, which combine multiple spatial databases containing biophysical as well as socioeconomic characteristics of a watershed, can be applied to facilitate collaborative decisions that affect availability and quality of water within international watersheds. These tools must be shaped in conjunction with transboundary waters decision makers they are targeted toward, to ensure their applicability to real world needs.

Universities Partnership for Transboundary Waters – Oregonian Capacity and Expertise

The two day planning workshop for the Universities Partnership for Transboundary Waters resulted in the development of three programs listed below:

Education & Training – Specially designed courses and curriculum to educate and train a new generation of “transboundary waters champions” building capacity within water-related management institutions;

Outreach & Information Resources – Development and dissemination of information to assist decision makers in determining policies and investments best suited to regional cooperation and sustainable water use; and

Coordinated Applied Research – Multidisciplinary collaborative studies on cutting edge-issues, conducted by international research teams to promote north-south and east-west dialogue and build a common understanding of the global challenge of transboundary waters governance.

Oregon State University expertise will be represented in all three programs, with an initial focus on the following activities:

1. Development of an internet portal for transboundary waters information resources

Each university in the Partnership has developed specialized transboundary waters information resources and databases, and has the capacity to use information technology. OSU collaborators in the Partnership will spearhead an initiative to consolidate regional and sub-national scale databases into a web-based format that is searchable. Examples of searchable web-based information resources useful to transboundary waters stakeholders include:

- freshwater treaties, agreements, and laws
- digital atlas of transboundary river basins
- water conflict dispute resolution negotiating notes
- water conflict & cooperation event database
- indigenous/traditional methods of water dispute resolution
- reports, study abstracts, case studies
- annotated bibliographies of state-of-the art water conflict resolution

2. Hydrodiplomacy Geographic Information System and Decision Support Tools

Geographic Information Systems (GIS) provide an efficient framework to model and evaluate the multiple components of transboundary waters management simultaneously, using spatially referenced biophysical and socioeconomic data accurately depicted with maps. GIS technology can thus serve as an invaluable resource for education and capacity building for transboundary waters stakeholders, and can also act as a platform for negotiation and conflict management, helping groups with disparate world views (culturally or professionally) to collectively visualize common water resource issues, and to identify collaborative strategies to address them. Oregon State University will pool expertise from multiple colleges to develop a data rich web-accessible GIS, while simultaneously training students and practitioners with information technology skills necessary for its operation. The GIS itself is strengthened through its close association with the Partnership's Education & Training program. Applications can be iteratively tested and refined through interaction with students participating in the training and certificate programs to trouble shoot accessibility issues and maximize the GIS's relevance and utility to various user audiences.

3. Transboundary Waters Curriculum Series

The Transboundary Waters curriculum series focuses attention on the linkages between the way water is used and the way it is governed in different transboundary settings. A variety of curricula are offered, ranging in length from one hour to nine weeks, and constructed from four integrated course **modules**: Water & Ecosystems; Water & Economics; Water & Society; and Water & Governance. The first three modules form the basis of the series, and provide an in-depth look at transboundary water issues in three distinct and overlapping utilitarian contexts. The fourth module, Water & Governance, ties the series together by addressing the way shared waters have been, are, and might be managed to achieve or offset balance across political, economic, and ecological divides.

Courses for each curriculum are developed drawing from cross-cutting **themes** within each of the four modules. Example themes include Hydrodiplomacy; Law & Public Policy; Conflict Resolution; and Finance & Administration. To promote identification and understanding of distinctive

transboundary issues, course material includes consideration of water issues in local, regional, and international basins. Students are thus able to survey different geographical settings, and to identify common drivers of conflict and cooperation across multiple spatial scales.

Oregon State University faculty will contribute to courses team taught with faculty from around the world, offering Oregon and United States perspectives on water governance, and pooling expertise from multiple colleges including; Geosciences, Sociology, Bioengineering; Agricultural Resource Economics; Anthropology; Political Science and Speech Communication.

Training and Publications:

Ten graduate students received training in transboundary water conflict through their attendance at the Water Resources in Transboundary Settings: Lessons from Around the World seminar and through direct interaction with participants and through volunteering with workshop logistics.

The following publication resulted from this grant:

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