

SPECIAL INITIATIVES

Environmental Financing in China Initiative

PHASE I (AUGUST 2001-DECEMBER 2002)

In the fall of 2001, the U.S. Environmental Protection Agency provided the Wilson Center's China Environment Forum with a grant to: (1) gather information on the state of financing for environmental infrastructure in China and (2) identify a Chinese partner with which U.S. entities could work to explore opportunities for developing sustainable systems of environmental financing in China. In December 2002, the China Environment Forum, together with the National Committee on U.S.-China Relations, led five U.S. experts (listed below) to China for a series of workshops focusing on municipal finance, particularly the use of municipal bonds. The team held seminars in three Chinese cities (Beijing, Shanghai, and Hangzhou), meeting with a wide range of central government officials from the Chinese State Development and Planning Commission, Ministry of Finance, Ministry of Construction, State Environmental Protection Administration, State Council Development Research Center, in addition to other municipal government representatives.

Delegation Participants and Workshop Presentation Themes

Al Appleton—From February 1990 to December 1993 Mr. Appleton served as the commissioner of the New York City Department of Environmental Protection (DEP). As DEP Commissioner, Mr. Appleton was also the director of the New York City Water and Sewer System—the largest in the United States—and a member of the Municipal Water Finance Authority. During the workshops in China, Mr. Appleton discussed how his department utilized various financial measures to modernize New York's sanitation system and bolster environmental protection of water resources while lowering costs to the city.

Angela Chen—Dr. Chen is an executive officer for the Iowa Department of Natural Resources, supervising the Energy Planning and Technology Transfer (EPTT) programs. In her presentations in China she discussed the Iowa Facilities Improvement Corporation, which issued a bond to obtain capital for energy efficiency improvements in state agency facilities. The projects funded by the initial bond issue realized 106 percent of projected energy savings, resulting in annual energy expenditure savings of \$1,511,056, and the bond was retired early. The newly installed energy efficiency equipment also considerably reduced CO₂, SO₂, and NO_x emissions in Iowa.

Robert W. Doty—Mr. Doty is founder and president of the American Governmental Financial Services Company (AGFS), a private firm located in Sacramento providing financial advisory services to state and local governments. Drawing on three decades of experience in building legal and financial capacities in municipal financial markets, Mr. Doty gave presentations on risk mitigation, focusing on U.S. regulatory and legal requirements as they relate to municipal bond issues.

Hyman Grossman—Mr. Hyman has 40 years experience in municipal debt markets, primarily as a credit analyst. In 2000, he won a lifetime achievement award from the Municipal Forum of New York, the largest and most prestigious organization of municipal finance professionals in the United States. Mr. Grossman's presentations in China drew on his experiences at Standard & Poor's, where he helped establish credit rating criteria for U.S. municipal issues and public finance in more than 10 countries, including China, Japan, Israel, France, and Germany.

W. Bartley Hildreth—Dr. Hildreth is the Regents Distinguished Professor of Public Finance at the Hugo Wall School of Urban & Public Affairs and W. Frank Barton School of Business at Wichita State University. In Kansas, he serves on the five-member board that issues all of the state government's non-transportation revenue bonds, including those that enable sub-state governments to access revolving loan programs for water and pollution control facilities. In his presentations he focused on tax issues and pooling mechanisms utilized by U.S. and Canadian bond issuers.

PHASE II ENVIRONMENTAL FINANCING STUDY TOUR IN WASHINGTON, DC (JULY 28-AUGUST 1, 2003)

Building on the foundation of the December trip, in the spring of 2003 the China Environment Forum began setting up phase II of this environmental finance initiative, which involves bringing a small group of Chinese to the United States for further study of municipal financial tools. Currently, many municipal-level infrastructure projects in China are financed grants or loans from the central government, or through various creative means including Build-Operate-Transfer (BOT) schemes. None of these forms of financing can meet the demand of Chinese localities for a sustainable source of significant funds with which to construct environmental and other types of infrastructure. The cheapest form of financing used in the United States—municipal bonds—is severely circumscribed in China because the central government prohibits sub-sovereign units of government from issuing bonds or otherwise taking on debt.

The arguments in favor of creating a municipal bond market in China are compelling and can be expected to gain ground as the limitations of the current system become more apparent. Already there is significant unmet demand for more and better water supply and wastewater treatment, district heating, solid waste collection and disposal, energy supply, local and regional transportation, and education and social facilities. While there is little chance the central government will permit Chinese municipalities to issue general obligation bonds in the near future, it has permitted limited use of a mechanism somewhat similar to a U.S. industrial revenue bond. For this reason, the July 28-August 1 U.S. study tour will focus primarily on municipal revenue bonds, as they are most relevant to the Chinese officials. The tour will devote some time to bond pooling mechanisms and the U.S. EPA's revolving fund following the expression of significant interest in these topics at the December workshops.

The Chinese delegation will be led by the China Environment Forum's primary partner, State Development and Reform Commission's (SDRC) Academy of Macroeconomic Research. All of the participants were selected by the Woodrow Wilson Center as high-level experts who will be able to utilize the information provided once they return to China, and who also can help educate U.S. officials and professionals as to the state of environmental financing in China. The affiliations of the six Chinese study tour participants are:

- Institute of Spatial Planning & Regional Economy, SDRC
- Division of Finance, SDRC
- Development Research Center (State Council)
- Department of Planning & Finance, State Environmental Protection Administration
- Tianjin Municipal Government

Agenda for Washington, DC Study Tour

The Chinese delegation will spend one week (July 28-August 1) in Washington, DC. During this time, they will meet with a variety of experts from around the United States to learn more about the U.S. municipal finance system. The core themes are:

- 1) *Risk mitigation*: The current Chinese system is driven more by administrative control rather than reliance on a comprehensive legal system. Our participants are very interested in all issues of regulation and other measures that can minimize the risk of default.
- 2) *Structuring a bond issue*: Various elements an issuer of a municipal revenue bond must take into account.
- 3) *Case studies and comparisons*: A number of presentations will provide case studies of how various U.S. (and other) entities issue bonds. Some speakers will compare sub-national financing mechanisms in the United States and other countries.

Final Report

The final report will summarize the information presented in the two study tours and highlight some opportunities for U.S.-China cooperation in the area of municipal finance. The report will be available in fall 2003 at the China Environment Forum Web site: www.wilsoncenter.org/cef

Navigating Peace: Forging New Water Partnerships

U.S.-China Water Conflict Resolution Water Working Group

In 2002, the Wilson Center's Environmental Change and Security Project received a grant from the Carnegie Corporation of New York to create three water working groups to promote policy research and the exchange of ideas in three areas: (1) balancing water as an economic and social good; (2) future of conflict and cooperation over scarce water resources, and (3) water conflict resolution in the United States and China. ECSP's China Environment Forum is responsible for the third water working group.

WATER IS FOR FIGHTIN'

The contentious nature of managing water resources is summed up aptly in a quote attributed to Mark Twain: *'Whisky is for drinkin' and water is for fightin.'* While whisky is not the libation of choice in China, water is certainly a resource over which Chinese government bureaus, provinces, cities, villages, and farmers fight.

Conflicts and problems over water have increased in number and severity throughout China over the past 20 years as a result of burgeoning water demand, inefficient use of existing resources, and increasing levels of water pollution. While the Western press has frequently reported on conflicts over large-scale water projects in China—from the Three Gorges Dam to the south-north water transfer project—ignored are the inter-provincial and smaller scale water conflicts that are actually more ubiquitous and impact more people.

The United States also faces growing water conflicts—such as disputes arising out of the damming of the Colorado and Columbia rivers, the intergovernmental and interagency conflicts stemming from the project to restore the Florida Everglades, and unsustainable drawdowns to quench the thirst of growing southwestern cities. In addition to water quantity disputes, cities, farms, industries, and land developers increasingly clash with the U.S. Environmental Protection Agency (EPA) over limits to water use as part of enforcing the Endangered Species Act and steps to toughen water quality standards.

Seekin' Solutions

In the United States, state-level water courts are usually the arenas for intra-state water use conflict resolution, while interstate conflicts are adjudicated by the Supreme Court or investigated by a Supreme Court appointed Special Water Master. These court cases can last years or even decades, so beginning in the 1980s, disputants began turning to alternative conflict resolution methods in water and other environmental conflicts. Professional environmental mediators and associations, water basin commissions, nongovernmental organizations (NGOs), and community groups have become involved in creating solutions and prevention mechanisms for water conflicts.

Environmental laws in China increasingly allow victims of pollution and natural resource degradation to seek compensation in the courts. Larger water disputes among local governments are often resolved by the central government in an ad hoc fashion. Mediation techniques are commonly used in marital and civil disputes and arbitration centers address business disputes, but no formal institute or private organization exists to provide third-party mediators for environmental disputes. Notably, policymakers and researchers in China currently are evaluating the utility of water markets and clarifying water rights as ways to prevent conflicts.

While governmental and nongovernmental sectors in the United States are experimenting with institutions, regulations, and other mechanisms to encourage alternative methods of solving conflicts, both the United States and China need to seek stronger water conflict resolution institutions that produce: (1) faster resolution of water conflicts, (2) more creative, satisfying and enduring solutions, (3) reduced transaction costs, (4) improved working relationships among public, private and citizen stakeholders, and (5) increased stakeholder support for government water management and protection programs.

EXPLORIN' WATER CONFLICT RESOLUTION IN THE UNITED STATES AND CHINA

In light of common water challenges, ECSP created the U.S.-China water conflict resolution working group within the Navigating Peace: Forging New Water Partnerships initiative. This water working group (WWG) aims

to promote information-sharing, facilitate debates, present policy options, and, most importantly, build networks on common water conflict problems, which could help lay a foundation for increased cooperation between the United States and China on water issues.

For example, while the federal and state governments in the United States have considerable experience in dealing with water use and water rights disputes in arid regions, they increasingly face water quality conflicts stemming from agricultural runoff and population pressures. China has been dealing with severe water quality conflicts much longer and could offer important insights to their U.S. counterparts while benefiting from American expertise in mediation and integrated water basin management.

This WWG is made up of eight individuals (four from each country) and over the course of 18 months they will be participating in three study tour meetings. At each study tour location—Tucson, Arizona (February 2003), Beijing, China (November 2003), and Washington, DC (January 2003) the group will meet with government agencies, legal experts, NGOs, and researchers who specialize in water and natural resource issues to explore water conflict problems and resolution strategies in both countries. In pairs, the group will produce four research papers to be published later in a book. Wilson Center staff will use research and discussions from each of the tours to create a 40-page policy brief, which will be distilled into smaller 16- and 2-page briefs and distributed to policy communities in the United States and China.

The water working group team includes (full bios available at Web site): Elizabeth Birnbaum (American Rivers), Irene Brooks (International Joint Commission), Michael Eng (U.S. Institute for Environmental Conflict Resolution), LIU Hongxia (Yellow River Conservancy Commission), MA Jun (Sinosphere Corporation), Jay Stein (Stein and Brockman), WANG Xuejun (Beijing University), and YU Xiubo (WWF-China and Chinese Academy of Sciences).

TUCSON STUDY TOUR OVERVIEW

The U.S.-China WWG has already held their first study tour in Tucson, Arizona (2-5 February 2003). A short summary of the Tucson meetings is included below and a longer version of this summary is available on the ECSP China Environment Forum Web page at www.wilsoncenter.org/cef.

U.S. Institute for Environmental Conflict Resolution

WWG member Mike Eng organized and led a session at the U.S. Institute for Environmental Conflict Resolution (USIECR), which facilitates the mediation of environmental conflicts involving federal agencies, state governments, NGOs, and non-federal corporations. Their ultimate goal is to help disputants arrive at constructive, fair, longer lasting solutions. The Institute's small professional staff has built a roster of 220 mediators ("neutrals") and a network of professionals who have had some role in either mediating or carrying out conflict assessments for 100 environmental disputes in nearly 40 states.

The Institute mediators first make a conflict assessment to determine the "ripeness" of the conflict for mediation and to prepare, rather than push, the parties. The Institute is involved in "upstream" initiatives that seek to avoid environmental conflict. For example, neutrals on the Institute's roster have helped mediate revisions of federal public land-use plans (which include water protection and use issues) in order to involve all parties and avoid protest and litigation later.

After years of disputes between federal, state, and city agencies, as well as community and industry groups over Everglades restoration, four major agencies (U.S. Army Corps of Engineers, Everglades National Park, U.S. Fish and Wildlife Service, and the South Florida Water Management District) invited USIECR to conduct a conflict and mediation assessment. The 20-year conflict centered on disputed analysis and interpretation of hydrology modeling results for predicting impacts on endangered species, Everglades national park, and flood protection. Without some consensus on the hydrological analyses, no water management decisions could be made to restore the Everglades. Because trust was very low among the four key agencies, the Institute performed a conflict assessment and proposed options for moving forward the process of mediation. The mediation focused on the Interim Operating Plan—one small part of the larger dispute over the restoration plan. After 12 months the parties agreed to an interim plan and asked the Institute to do another assessment on the advantages and disadvantages of bringing in other stakeholders.

Interstate Water Conflict Discussion

WWG member Jay Stein set up a discussion on interstate water conflict resolution, in which he talked about how western water law formed the basis of interstate water compacts. Over time, some compacts have prevented conflict—the Rio Grande compact has been successful, because water proportion is not fixed but based on percentages, relative to rise and fall of water level. Other compacts have failed to mitigate disputes—the Colorado River compact (which strictly apportioned water not between states) but according to lower and upper basins, was designed during a very wet period and the river's flow has never quite been as wet. Tom Maddock, a hydrological expert at University of Arizona, added that one of the biggest problems with the Colorado and other river compacts is that most do not account for excessive groundwater withdrawals. Surface water in the west is governed by prior appropriation, while groundwater is governed by reasonable use—if you own the land you can use the water; both doctrines do not encourage conservation and both reduce water out of a stream. Many western water users ignore the interconnected nature of surface and groundwater, which makes conflicts among river compact states inevitable. Another stress on water compacts has been the emergence of federal environmental legislation, particularly the Endangered Species Act, which requires states to make water diversions in order to protect a threatened species.



Desert Mesa in the Southwestern U.S.

Owen Olpin was the Special Water Master for a long-standing water dispute between Nevada, Wyoming, and Colorado on the North Platte River. In 1945 after an 11-year court case, the river was equitably proportioned, but over time confusion ensued, because the court ruling was not sufficiently comprehensive (e.g., groundwater issues were not addressed). Thus, in 1986 Nebraska brought a court action against the other two states and Mr. Olpin was appointed to the case, which took 15 years to resolve. Mr. Owen noted that while it is best for states to negotiate their own solutions to water conflicts, it is important that the Special Water Master system exists for those cases that are too complex for the parties to settle.

Arizona Department of Natural Resources

Kathy Jacobs of the Arizona Department of Natural Resources described challenges facing the water management structure in Arizona and water conflicts in the state. Arizona water rights are determined by the prior appropriation system and groundwater is seen as owned by the public and its link to surface water is not acknowledged. This latter oversight has led to drawn out water rights court cases in Arizona. To resolve conflict over excessive groundwater pumping in 1980 Arizona passed a farsighted piece of legislation—the Groundwater Management Act. The Act established Active Management Areas, which by clarifying groundwater rights and permits and setting long-range management goals help to prevent future water conflicts in Arizona's water scarce areas.

Udall Center for Studies in Public Policy

Established at the University of Arizona, the Udall Center for Studies in Public Policy sponsors policy-relevant, interdisciplinary research that link scholarship with decision-making. In the Center's southwest water program, researchers focus on how water conflicts in the region can be improved through public participation. In addition to researching the root causes of water conflicts, the Center has helped bring together a broad range of stakeholders to solve problems in river basins. The Udall Center has facilitated dialogues between U.S. and Mexican stakeholders within the San Pedro Basin, which has led to the creation of a strong watershed organization. In the Verde River Basin Center staff have not only been working with a committee of elected officials on involving more stakeholders in river management dialogues, but also on understanding hydrological linkages between ground and surface water. Another project key to the southwest water program is SAHRA—a collaborative effort of research institutions that promotes sustainable management of water resources in semi-arid regions through stakeholder-driven research,

aggressive public outreach and education initiatives to disseminate and apply scientific knowledge. SAHRA and the Udall Center have done some preventative conflict resolution work by: (1) joining Mexican and U.S. scientists for collaborative research to share water management tools, and (2) building a water education curriculum on both sides of the border. SAHRA aims to increase hydrologic literacy in order to positively impact water policy and water resources management.

Tohono O'odum Native American Reservation

During a visit to the Tohono O'odum Native American Nation, community activists Daniel Preston and Julie Ramone-Pearson provided an overview of the ongoing conflicts to secure water rights for the nation. As little as two generations ago rivers flowed enough in this desert nation to build dams and irrigate land—today, however, the nation is running short of water as the city of Tucson, large pecan farms, mines, and other development have diverted rivers and overdrawn groundwater. In response, Julie Ramone-Pearson formed an association to protect and clarify water rights of the nation. After countless court cases in the 1960s and 1970s the Southern Arizona Water Rights Settlement Act (SAWRSA) of 1982 was created to clarify specific water allotments of Native American nations. The Tohono O'odum Nation has not completely accepted SAWRSA, which requires the dismissal of ongoing water lawsuits to solidify water rights. The nation has been studying the advantages and disadvantages of accepting the proposed allotments and is still negotiating among themselves and with the federal and state governments on how to increase the water allotments.

University of Arizona

Robert Glennon, a water law expert at the College of Law, provided the WWG with a succinct overview of the intergovernmental conflicts in the west where state water law is based on the rule of capture—if you can pump, it is yours to use indefinitely provided it is beneficial. Federal regulations on clean water and protecting endangered species have encroached on state water rights regimes. He also profiled a major conflict between Arizona and California over Colorado River water. California's overdrafts have led Arizona to claim its full water allotment through the construction of the Central Arizona Project. Another large water conflict is brewing throughout the United States over the massive unregulated extraction of groundwater.

Edella Schlager, a professor in the School of Public Administration and Policy, spoke about Colorado's decentralized administration of the prior appropriate doctrine. Unlike other states, in Colorado if one appropriates water and puts it to a beneficial use that right is secured by simply announcing it, telling neighbors or putting up a sign. Enforcing the prior appropriation rights was only necessary in cases of a conflict and Colorado had special water courts in each basin to adjudicate water claims. The lack of regulation on water transfers has created many water conflicts in Colorado. However, many of these conflicts are settled through informal bargaining in water courts—a referee is brought in to help the parties negotiate an agreement recognized by the court. If the parties fail to agree they can appeal to the State Supreme Court.

Bonnie Colby, a professor in the College of Agriculture and Life Sciences, discussed how a well-defined water market—as exists within the Truckee Basin in Nevada—can promote regular trades and mitigate water conflicts between competitive agricultural and urban uses. Only six such functioning water markets exist in the western United States, while in most other areas water trades are sporadic, complicated, case-by-case transfers. Such “thin markets” often put agricultural sellers at the mercy of cities, which have greater influence in determining the price. Creating strong water markets not only demands a lot of new public policies and regulations, but also careful thinking and dialogue to promote trust among future traders, who today view each other as competitors.

Tucson Water

For decades Tucson has been dependent on groundwater. Because such supplies are not sustainable, the city worked to capture Colorado River water. Hydrologists at Tucson Water viewed the switch from a ground water to a surface water system as a purely technical matter. This change happened overnight in 1992 and sparked a tremendous conflict when Tucson citizens suddenly found brown, poor tasting water coming from pipes. The public uproar not only pushed Tucson Water to return to groundwater, but also led this municipal agency to broaden its view of water management to initiate a broad public outreach campaign. After surveys of various types of blended water at community events, Tucson Water reintroduced surface water to the city through recharge and recovery in 2001.