International Perspectives in Water Resource Management:

The Paraná River Watershed

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The University of Iowa’s IIHR Hydroscience & Engineering (formerly the Iowa Institute of Hydraulic Research) offers a multidisciplinary course that focuses on the global nature water resources management. “International Perspectives in Water Resource Planning” is a three-week study abroad course that encourages interdisciplinary participation (including students and faculty from the host region) to study the effects of major water resource projects on society and the environment. The constant interaction with a diverse group of students, researchers, practitioners, and government officials encourages critical thinking while fulfilling the increasing need for a better understanding of cultural diversity and global situations for decision making. To date, this course has traveled to India (1998), Taiwan & Japan (1999), China (2000), Eastern Europe (2001), and Argentina & Brazil (2003). This paper summarizes overall course organization, activities, and student reactions with emphasis on the 2003 Argentina course.

INTRODUCTION

“The University of Iowa course “International Perspectives in Water Resource Planning” was created in 1998 as an initiative of IIHR- Hydrosience and Engineering’s director, Dr. V.C. Patel. IIHR is a world-renowned research center in fluid mechanics, water resources engineering, and hydrology. This course seeks to provide in-depth exposure to technical, historical, cultural, social, economic, environmental, and ethical issues and complexities influencing major water resource projects in countries outside of the United States. Since 1998, the course has studied water planning in India (1998), Taiwan & Japan (1999), China (2000), Eastern Europe (2001), and Argentina & Brazil (2003) (Jain, 1998; Shrier et al., 2003). Travel costs are subsidized by the IIHR, which alleviates economic hurdles that face many students interested in study abroad programs. IIHR relies on its extensive international alumni network for logistic support. This year’s course was organized and led by Prof. Pedro J. Alvarez (U. of Iowa - IIHR), Dr. Angel Menendez (INA, Argentina), and Dr. Claudio Baigún (IB-INTECH, Argentina). Several other faculty from IIHR and host institutions also participated.

By exposing students to the international and multi-faceted issues surrounding the management of major water resources projects, IIHR seeks to increase student’s sensitivity and awareness of global issues and to enhance their understanding of international processes and decisions. By emphasizing the importance of both the technical and cultural aspects of water resource planning, the course gives students technical experiences while helping them to better grasp the cultural context that influences many resource management decisions; an element more common in the liberal arts than in engineering sciences. Thus, to reinforce the interdisciplinary goals of the course, the program itinerary includes technical lectures and site visits, as well as activities meant to present the unique cultural characteristics of the host region. For example, the most recent program to South America included tours of the Itaipú Dam, one of the seven modern wonders of the world, and of Iguazú Falls, one of the seven natural wonders of the world.
Buenos Aires: Days 1, 2, 3, 11, 12, 13, 15, 16 & 17
Tour Delta del Tigre, Meetings: University of Buenos Aires, Water National Institute (INA), Visits: Palacio San Martín, estancia, Soccer Museum; Attended: tango show and soccer game

Santa Fe: Days 4 & 5
Seminar at Facultad de Ingenieria y Ciencias Hidricas (FICH), View of Parana alluvial valley, Boat tour of the Parana river

Posadas: Days 6 & 7
Visit Yacyretá Dam and “Ruinas Jesuiticas”

Iguazu: Days 8, 9 & 10
Visits: Iguazu Falls and Itaipu Dam

Colonia: Day 14
Boat trip on the Rio de la Plata, Colonia city tour, Visit Plaza de Toros

Students are assigned group projects that are based on their experiences abroad. This year’s projects included (1) a comparative analysis of the Mississippi and Paraná watersheds, (2) a research proposal for further comparative study of the Mississippi and Paraná rivers to support ecological engineering goals and to learn about the future or past of one river by studying the other, (3) the creation of a course website (http://www.iihr.uiowa.edu/education/international/argentina/index.html), and (4) the writing of an article presenting the unique aspects of this course. This article is based on information gleaned from a post trip survey of students and faculty from Argentina and US institutions.

One aspect separating the IIHR program from other study abroad courses is the diversity among participants. This year’s participants included students and faculty from environmental, civil, and hydraulic engineering at the University of Iowa, the University of Illinois, Colorado State University, Argentina, Brazil, Costa Rica, Japan, Nicaragua, Romania, Turkey, and Venezuela. This year’s course also included graduate students in Urban and Regional Planning from both the United States and Argentina. Diversity and soft skills are further emphasized in the University of Iowa program with the sponsoring of a group of hydraulic engineering students from the host country who accompany the group for trip’s entirety. The constant interaction allows for an experience similar to longer cultural immersion programs, but with a condensed timeframe more manageable for time-constrained engineering students and faculty.

This experience not only benefits students and faculty from the United States, but can have a dramatic impact on the international students and faculty that interact with the IIHR group. For example, this was the first experience for many of the Argentine and Brazilian students to actually meet a person from the United States. In post trip surveys, Argentine students credited the course for dissipating many of their previously held negative stereotypes regarding people from the United States. One Argentine student wrote, “Without doubt, the best part was the interaction with other students, and the good relationships within the group helped to break down certain prejudices I previously had.”

2003 COURSE: THE PARANA RIVER WATERSHED

The 2003 course to the Paraná River watershed of Argentina, Brazil, Paraguay, and Uruguay provided students a unique perspective on international water resource planning along one of the world’s great rivers. The Paraná, with average flow similar to the Mississippi River, is 1,600 miles long being the second in size to the Amazon in South America. The course provided a kaleidoscope of experiences with the Paraná by exposing the group to the river from a multitude of perspectives. By foot, the group was given access to the inter-workings of the great dams at Yacyretá and Itaipú. Walking through the massive Itaipu structure and standing inside the dewatered unit at Yacyrta gave the group a new respect for the enormous scale of the two projects. The group was also impressed by the diplomacy involved with the international projects, Yacyretá is shared between Argentina and Paraguay and Itaipú divides the electrical output between Paraguay and Brazil.

Just as the dams emphasized the power of sound engineering and technological advance, Iquazú Falls highlighted the incredible force of nature unbridled. 275 waterfalls spanning 2.7 km-wide are fall 70 m in a breathtaking spectacle designed as UNESCO World Heritage Site. The majority of the group listed walking throughout the scores of waterfalls at Iquazú as one of the three most enjoyable and valuable experiences of the course.
The majestic Iguazú Falls viewed from the Brazilian side

The group noted the admirable regional environmental protection initiatives consisting in the formation of the natural parks on both Argentinean and Brazilian sides of Iguazú falls and of a modern specialized research center at the Itaipú dam focused on environmental actions contemplating the fauna and flora inventories, reforestation, handling and administering the use of the impounded hydraulic resource and its protection belt.

Argentina’s capital Buenos Aires, megalopolis of 11 millions inhabitants located at the Rio de la Plata confluence with the ocean, fascinated the group by its elegant and active environment, the warmth of its people, and the variety of attractions. Meetings of the American students at the University of Buenos Aires and INA, facilitated a bidirectional flux of information on water resources management. Lectures were provided by both sides followed by discussions within smaller, specialized groups on focused areas of interest that sparkled exchange of publications and ideas for future collaborative plans.

By boat, the group toured the wealthy Buenos Aires suburb of El Tigre, where the river housed the famous Argentine crew teams, and saw firsthand how the river provided the food many people depended upon as well as serving as the kitchen, bathroom, and laundry for many along the river’s banks in the city of Paraná. The poorly kept and low quality buildings along the river in Paraná were a stark contrast to many of the grand structures along the Delta del Tigre, these obvious differences raised the issue of the influence of stakeholders in political decisions affecting the river and its inhabitants.

The issue of stakeholders and their political capital in water resource planning in Argentina was made clearer by the recent flooding in Santa Fe, located to the east of the Paraná River. Just before the students’ arrival to Argentina, over 50,000 people had been evacuated from the provincial capital of Santa Fe that was inundated by the worst floods in the colonial city’s history. A levy that would have prevented the tragedy had not been completed, apparently because it would have obstructed a golf course’s view of the river. This tragedy provided students a very real example of the high potential for social impacts and political aspects of water resource management.

CONCLUSIONS

Being able to work alongside people from diverse backgrounds has become a necessity for graduating students entering the global workforce. Where “International Perspectives in Water Resource Planning” excels is in the constant interaction between diverse groups of students. Living beside fellow engineering students from other countries provides a greater understanding of different cultures and perspectives than is possible on a typical short-term study abroad experience.
In the post trip survey, 98% of the participants, both Argentine and those from US institutions, listed social interaction as the most valuable element of the course and many credited this interaction with significantly increasing their understanding of key issues. “Both the students and faculty were open, knowledgeable and always available for us. Most of what I learned about environmental issues was gained from discussions with Argentine faculty and students.”

“International Perspectives” is valuable in addressing and offsetting the clustering of people with similar backgrounds that is common on university campuses despite “diverse” student populations. The program format is essential to increasing cultural sensitivity about water resource planning and to better the cultural and political contexts influencing resource management decisions. The IIHR course is a successful example of one university’s attempt to provide students with the soft skills and real life experiences needed for success in an increasingly global workplace.

REFERENCES


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