

# DISCOVER A WATERSHED: RIO GRANDE/RIO BRAVO A BINATIONAL COLLABORATIVE APPROACH TO WATER EDUCATION

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## ABSTRACT

*By nature, every watershed has elements that make it similar to all other watersheds, yet each is unique in its geographical scope, history, cultures, and tensions. The differences among water users are heightened when combined with the differences in values and needs among countries sharing a river. A local decision intended to solve an ecological dilemma may have deep-rooted social, political, cultural, and environmental ramifications that resonate internationally. Thus, water education principles are a useful starting point, but distinct, relevant education specific to each watershed is necessary. We believe that education must include all stakeholders within the watershed.*

*The Rio Grande/Rio Bravo constitutes 2,000 km of the 3,000 km border between the United States and Mexico. However, these countries are not separated by this once courageous river, they are linked by the life it has brought to this highly populated watershed and its ecosystems, towns, agricultural areas, and industries. This collaboration between the U.S. and Mexico to educate citizens of the Rio Grande/Rio Bravo Watershed may serve as a reference for all water users across shared rivers, and hopefully, as a starting point for new watershed education initiatives.*

*The Discover a Watershed Series is a broad watershed education program of The Watercourse and International Project WET (Water Education for Teachers) designed for anyone interested in learning about rivers and watersheds. Each project in the series contains three core components researched and developed specifically for an individual watershed: publications, education events, and support services.*

*The series published Discover a Watershed: The Everglades Reference and Activity Guide for Educators in 1996, and Discover a Watershed: Rio Grande/Rio Bravo (English and Spanish editions) in 2001. Works in progress include The Columbia, The Colorado, The Missouri, and an overview book, The Watershed Manager Educators Guide. Other watersheds are now under consideration.*

*Herein we will discuss the development experience of Discover a Watershed: The Rio Grande/Rio Bravo, which was developed by establishing transboundary partnerships with water resources leaders and educators from Mexico and the United States, in a commendable binational collaborative effort sponsored by a private U.S. citizen. This presentation will include a review of lessons learned during the development of this project as well as recommendations for future transboundary education initiatives.*

## 1 INTRODUCTION

The need for environmental education is increasingly being recognized worldwide and water education has a major role to play in it. Our common future is tightly bound to water. The

global water crisis must be addressed through greater public involvement at all socio-economic levels, among all water users, and across all borders. Sustainability can only be achieved as a result of cooperation and commitment to education. Good will is not enough. Knowledge and understanding are required as well.

In this regard, International Project WET, an innovative, not for profit, water education program for teachers, has proven to be highly useful and relevant for water managers, educators, and citizens from different countries. One of main tools that International Project WET is developing is the *Discover a Watershed Series*. Here, we will describe the development of *Discover a Watershed: Rio Grande/Rio Bravo*, a binational project between International Project WET and The Mexican Institute of Water Technology (IMTA).

Mexico and the United States share a border of about 3,000 km in length. Out of these, about 2,000 km correspond to the Grande/Bravo River. The total land area of this watershed reaches 920,389 km<sup>2</sup> distributed among eight states: Colorado, New Mexico and Texas in the United States, and Chihuahua, Durango, Coahuila, Nuevo Leon and Tamaulipas in Mexico. The Rio Grande/Rio Bravo Watershed encompasses a rich, diverse mix of ecosystems, geography and geology features, climate, hydrology, cultures and history.

Thus, the Rio Grande/Rio Bravo is often referred to as the border which separates Mexico and the United States. Two different countries that speak different languages and even call the same river by two different names, "Grande" and "Bravo." Nevertheless, they are not really separated, but linked, by a once majestic river that brought life to ecosystems, towns, agricultural areas and industries, from its birth in the San Juan ridge in Colorado to its mouth in the Gulf of Mexico.

On both sides of the river, hydraulic infrastructure has been built to regulate its regime and supply water users; natural conditions of the watershed have been modified, perhaps too much; its waters have been polluted; conflicts for water use are increasing; water management is regulated by an international treaty dated 1944, which requires updating; for almost a decade, the basin has severely suffered water scarcity. It seems that the once courageous river has been tamed.

This complexity requires understanding and cooperation, but we need education to change the way we think and the way we behave. The responsible management of natural resources should be taught to people of all ages, but mainly to children and youth, who are about to face, and hopefully solve, many environmental issues in this fragile world. Only through the knowledge of the true state of the whole watershed, will we be able to reconcile differences. Here the reason and aim of the project *Discover a Watershed: Rio Grande/Bravo* arises, which was dedicated to children by its sponsor, Ms. Valerie Gates, as follows: "May their knowledge and informed decisions reclaim the vitality of our indispensable rivers."

In order to remark the special, astonishing places, found in this awesome watershed, as well as its amazing beings and great people, it was decided to use the metaphor of a *string of pearls* to refer to these wonderful places and their inhabitants, joined by the thread of the Grande/Bravo River. This string of pearls shall be preserved. The reader can discover each of these pearls from the Great Sand Dunes, to the New Mexico Pueblos, the Petroglyph National Monument, the Big Bend National Park, the Santa Elena Canyon, the wetlands of Cuatrociénegas in the middle of the Chihuahuan desert, or Cumbres de Monterrey National Park. Maps and pictures are provided to facilitate learning.

The book also includes several "river voices". Different water users were interviewed and their thoughts and feelings about the river are shown as river voices. Nevertheless, not only the current water users were considered. Water voices from the past can also be found on this book. The rivers of the Rio Grande/Rio Bravo watershed have been perceived differently by people from various cultural, historical and economic settings. For instance, we can read about the

discovery of the Rio Bravo by the Spaniards and how they were about to die of thirst before finding it. Likewise, the Puebloans voices show how they viewed the river as a source of life and as a spiritual and natural force. An activity called One River, Many Voices, was written to teach about the different values, attitudes and beliefs about the Rio Grande/Rio Bravo along the time.

## 2 PROJECT DEVELOPMENT

During the three years required to accomplish this project, started in 1999, International Project WET partnered with the Mexican Institute of Water Technology (IMTA) to establish an egalitarian transboundary relationship with water resources leaders, educators, students, and citizens throughout Mexico and the United States during the research, development, and publication of Discover a Watershed: the Rio Grande/Rio Bravo in English and Spanish.

The goal was to develop a publication encompassing two main parts: a reference section, with in-depth information appropriate for anyone interested in learning about this amazing watershed, and an educators section, containing activities to be conducted with students from sixth grade through university. The methodology used to achieve this goal was the following:

1. As a first step, a binational leadership team was integrated with representatives from each of the eight states comprising the watershed. This team help to coordinate the whole process and traveled throughout the basin in order to have first-hand, current information and provide support and resources to the main researchers and writers. The leadership team was also responsible for selecting peer nominated teachers from their respective states, which were invited to participate in the writing process of the educational activities included in the guide.



Leadership team at the Rio Grande/Rio Bravo headwaters in Colorado

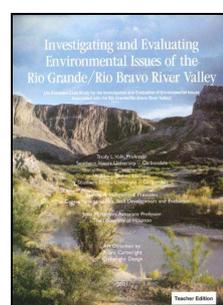
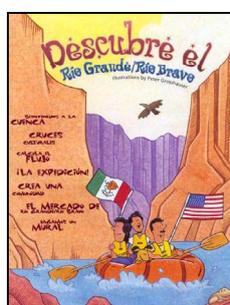
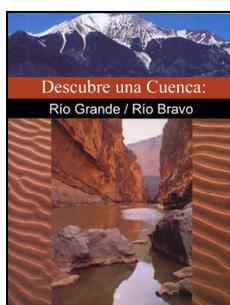
2. A binational “Writing Workshop” was conducted in El Paso, Texas, where more than sixty Mexican and American teachers, selected by the Leadership Team, were brought together and generated hundreds of ideas and activities to build up the educators section of the book.

3. From the ideas and materials generated at the Writing Workshop, first drafts of activities were generated and field tested by educators and students throughout the watershed. Activities were designed to be thought-provoking and challenging for students to exercise decision making and critical thinking skills.



Rio Grande/Rio Bravo binational “Writing Workshop”. El Paso, Texas, 1999.

4. Based on the field tests, the final activities were selected and improved.
5. The reference section was completed and a draft of the book was reviewed by the leadership team and by specialists. The final version was translated to Spanish.
6. In order to celebrate the publication of the Discover a Watershed: the Rio Grande/Rio Bravo, the same educators and specialists who participated in the writing workshop, at the beginning of the project, were brought together again to participate in a workshop held on December 2001 in South Padre Island. Attendants could see the fruits of their work and cooperation and strengthen the binational network already arisen among them.
7. In addition to the publication of Discover a Watershed: Rio Grande/Rio Bravo in English and Spanish, the project also comprised the development of the activity booklet Discover the Rio Grande/Rio Bravo for children ages eight to twelve, as well as the book Investigating and Evaluating Environmental Issues of the Rio Grande/Rio Bravo River Valley to help educators teach students how to investigate water-based environmental issues.



Spanish editions of Discover a Watershed: Rio Grande/Rio Bravo and Discover the Rio Grande/Rio Bravo booklet, as well as Investigating and Evaluating Environmental Issues of the Rio Grande/Rio Bravo River Valley

The English and Spanish editions of the book are now available and workshops for teachers are being offered within the watershed. These workshops are often combined with Project WET or ¡Encaucemos el Agua! (Project WET-Mexico) workshops, with broader scope.

### 3 LESSONS LEARNED

The work with educators throughout the Rio Grande/Rio Bravo Watershed exemplifies a very positive experience. Their passion for the area and dedication to increasing awareness of the significant and major issues confronting all of the watershed is outstanding.

As a result of this positive experience, further projects arose. International Project WET and The Mexican Institute of Water Technology are currently developing *Discover a Watershed: The Colorado*. New components, like the involvement of undergraduate students from both

countries in the writing, as well as an outdoors expedition along the whole river for those students, were introduced. With this publication, the two transboundary watersheds between Mexico and the United States will have available the same educational, solid and updated materials, in a hope of a better understanding and management of the water issues we face.

On the other hand, The Mexican Institute of Water Technology is also developing *Descubre una cuenca: el Lago de Pátzcuaro*, as an educational component of a big restoration project for the closed basin of Patzcuaro in the State of Michoacan, funded by the Gonzalo Rio Arronte Foundation.

One key element we found was to have our binational network of water resources managers, educators, specialists, and funders firmly connected and in place before beginning any work. Another key element, that made this project easier was the commitment, passion and vision of its funder, Valerie Gates, who hold an active role in the whole project, traveled through the watershed, met the participants and work along with them.

International Project WET will continue to approach diverse visionary public and private sponsors to support the vital work being done in the Discover a Watershed Series.

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