The urgency of preventive mediation on water issues: the Bolsón del Hueco aquifer in El Paso (USA)/Ciudad Juárez (Mx).

Dominique de Courcelles

Centre National de la Recherche Scientifique, Centre d'Etudes en Rhétorique, Philosophie et Histoire des Idées, Ecole Normale Supérieure, 15 parvis René Descartes, 69007 Lyon, France
email: dominique.decourcelles@club-internet.fr

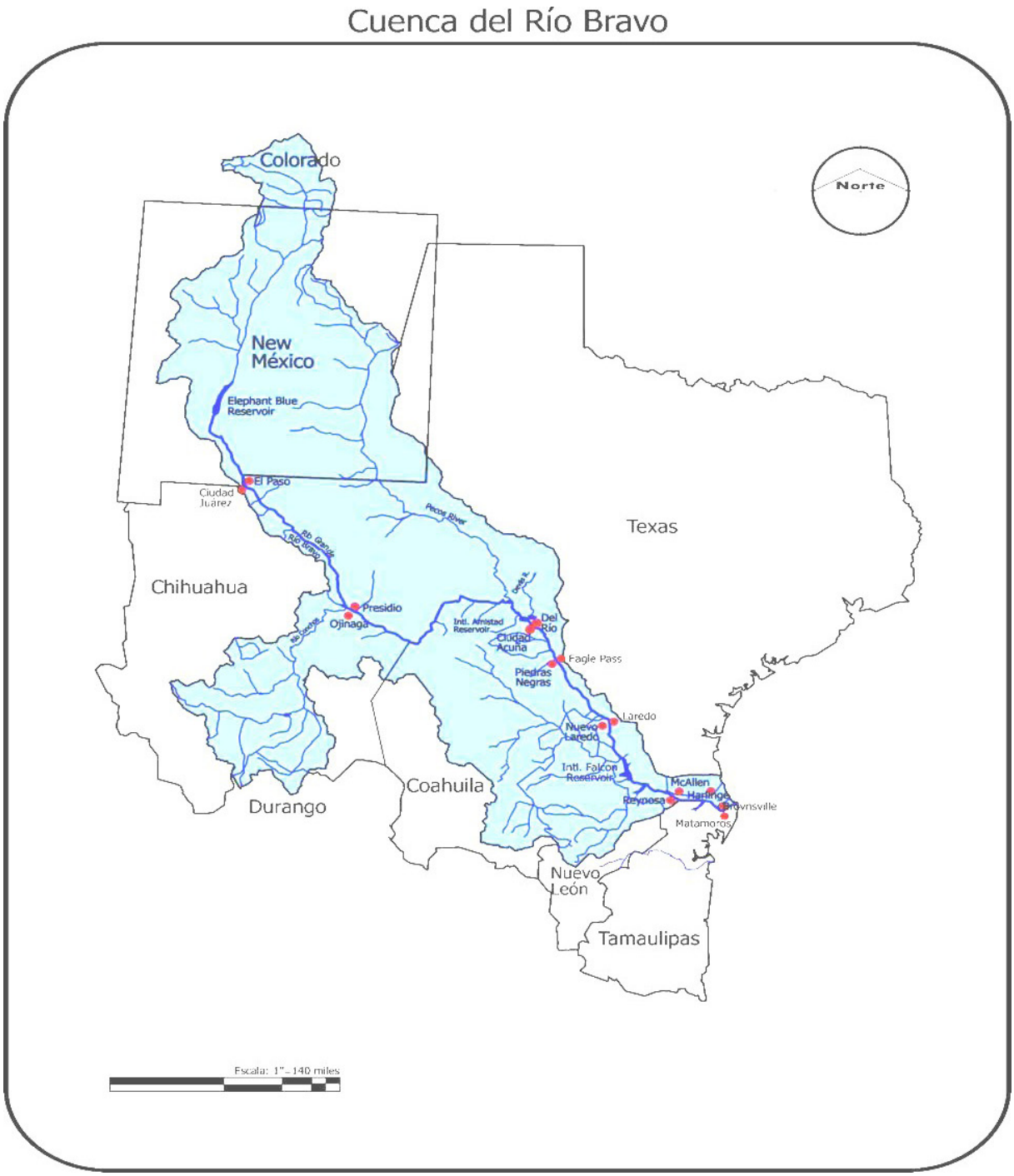
ABSTRACT

The Bolsón del Hueco aquifer forms part of the Rio Grande water system. It starts in the US, extending from New Mexico to the Texas border between El Paso and Ciudad Juárez in Chihuahua, Mexico, and ends 90 kilometers to the south,
Water from the aquifer is used for home use and for industrial purposes. Juárez depends completely on water from the aquifer, while only 50% of the water for the city of El Paso comes from it. Overuse of the aquifer, pollution of the water, and increased salinity are major problems connected to the fact that the Rio Grande, when it reaches Juarez, carries very little water on the Mexican side. Two dams, located in the north, only allow the water flow to meet the needs of farmers in New Mexico and Texas. Today, little water reaches Juárez, and the allotment of water to the Mexicans by the Americans is grossly inadequate. As a result, there are constant conflicts and risks of heightened tensions between the two countries.
Together the border cities Juárez and El Paso form a very large metropolitan area. In light of the increased population on the Mexican side, officials on both sides of the border have sought more cooperation in matters related to the quality and distribution of water. The Paso del Norte Water Task Force was created to promote cooperation on water issues with the International Boundary and Water Commission. Preventive mediation between the two cities should be based on the following goals: to promote an understanding on both sides of the border regarding the importance of water management in Ciudad Juárez and El Paso as one of the major issues of sustainability in the area; to work to ensure that less than 200 liters of water is consumed each day per inhabitant; to encourage dialogue and exchanges about water treatment; to increase sanitation; to optimize natural resources and their just distribution. Preventive mediation could, eventually, contribute to further economic development in this area, which is currently undermined by violence and insecurity, and could help to sustain cooperative efforts between the Americans and the Mexicans on themes other than narcotics trafficking.
Keywords: Ciudad Juárez-El Paso ; Global management of water; Education of the demand; Water treatment of waste and sanitation; Redistribution; Mediation; Etics.

1. INTRODUCTION: THE SITUATION

The Bolsón del Hueco aquifer forms part of the Rio Grande water system. It starts in the US, extending from New Mexico to the Texas border between El Paso and Ciudad Juárez in Chihuahua, Mexico, and ends 90 kilometers to the south, following the course of the Rio Grande. Its total length is approximately 10,800 km² (7,200 km² in New Mexico; 2,400 km² in Texas; and 1200 km² in Chihuahua). In the El Paso/Juárez area, it is between 8 and 13 kilometers wide and more than 60 meters deep. The sandy composition of the bed where the two cities meet across the Rio Grande normally allows the aquifer to function well; however, towards the south overuse has caused a reduction in both the quantity and quality of the water and an increased salinity.
The Bolsón del Hueco is the only reservoir of drinkable water of Ciudad Juárez, which shared by three states New Mexico, Texas and Chihuaha. Water from the aquifer is used for home use and for industrial purposes, for irrigation and municipal needs. Juarez depends completely on water from the aquifer, while only 50% of the water for the city of El Paso comes from it. Overuse of the aquifer, pollution of the water, and increased salinity are major problems connected to the fact that the Rio Grande, when it reaches Juarez, carries very little water on the Mexican side. Two dams, the Elephant Butte Dam and the Caballo Dam, located approximately 150 km and 200 km to the north of Juarez, only allow the water flow to meet the needs of farmers in New Mexico and Texas. The Caballo Dam, a flood control and storage dam begun in 1936 and completed in 1938, was built to provide flood protection for the projects downstream, as well as to store power generation waters for dry season irrigation.

To summarize the importance of the Hueco Bolsón is the following: Ciudad Juárez could run out of Hueco water in as few as 5 years. El Paso could run out of Hueco water in as few as 20 years.



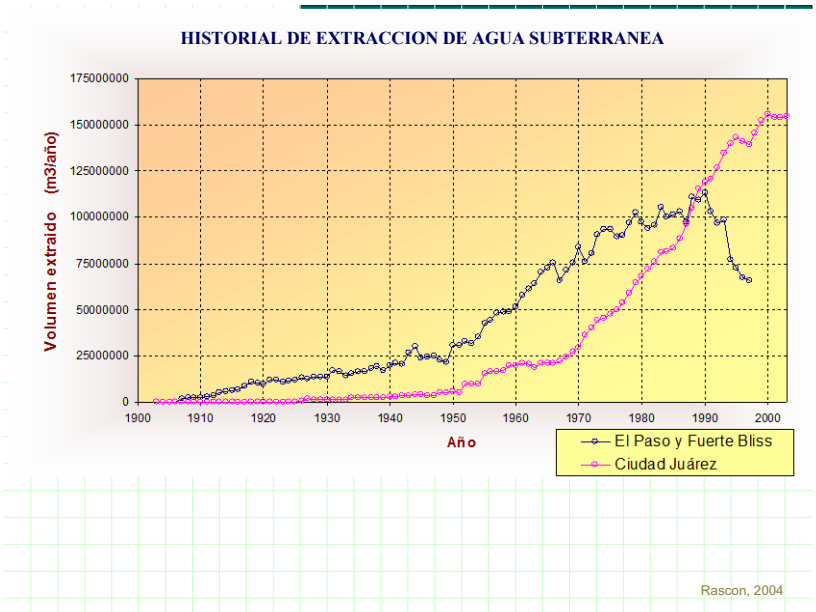
Today, due to severe river drought and the fact that the water supplied by the river is inadequate to meet the needs for water distribution on both sides of the river, as provided for by legal agreements between Mexico and the US, little water reaches Juárez.
Only 60,000 acre-ft./yr. (19.55 billion galons) of Rio Grande water given to Juárez. All Rio Grande water given to Juárez is controlled by farmers. Rio Grande is 40% of el Paso's water supply. The are major supply of water for Juárez. El Paso currently working on was to treat and store water from the Rio Grande.

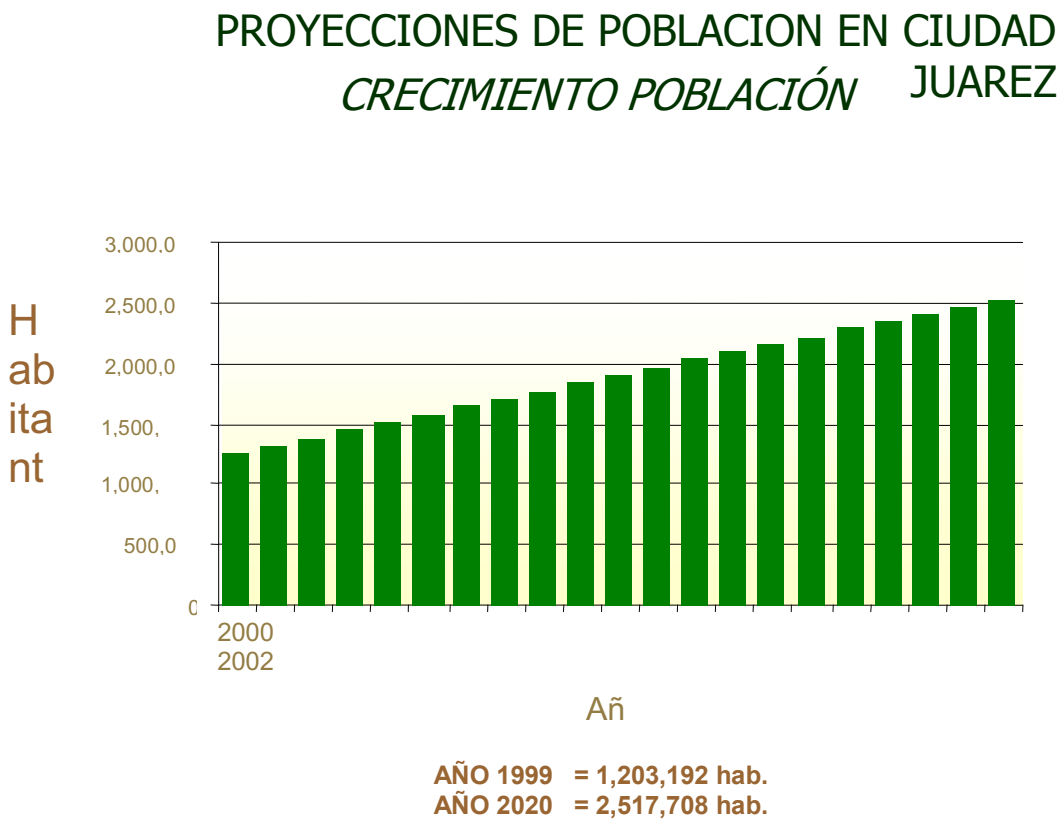
(Fot. Fernando Lozada, 2010)

Not only is the Rio Grande today an inadequate source of water due to droughts, but also the allotment of water to the Mexicans by the Americans is grossly inadequate. As a result, there are constant conflicts and risks of heightened tensions between the two countries.

2. OBJECTIVES: EFFICIENCY AND EQUITY

Together the border cities Juárez and El Paso form a very large metropolitan area. The Valley is experiencing explosive growth, and is home to many of the fastest growing cities in both the U.S. and Mexico. The total population of the Valley has doubled from 1.1 million to more than 2.2 million since 1970. And it's expected to double again by 2030. In light of the increased population on the Mexican side, officials on both sides of the border have sought more cooperation in matters related to the quality and distribution of water. The number of people in Juárez has doubled since NAFTA and increased industry.





(Rene Franco Bareno, 2005)

The Paso del Norte Water Task Force (Comisión del Agua del Paso del Norte), which unites water managers, water users, experts, and citizens, was created to promote cooperation on water issues that affect the future prosperity and long-term sustainability of the aquifer. Along with the International Boundary and Water Commission, the Paso del Norte Water Task Force is working to protect and conserve the transboundary aquifers.
Efficiency: Preventive mediation between the two cities should be based on the following goals: to promote an understanding on both sides of the border regarding the importance of water management in Ciudad Juárez and El Paso as one of the major issues of sustainability in the area; to work to ensure that less than 200 liters of water is consumed each day per inhabitant; to encourage dialogue and exchanges about water treatment; to increase sanitation; to optimize natural resources and their just distribution.
Equity: Preventive mediation on water issues could, eventually, contribute to further economic development in this area, which is currently undermined by violence and insecurity, and could help to sustain cooperative efforts between the Americans and the Mexicans on themes other than narcotics trafficking.

3. RESULTS OF WATER MANAGEMENT COOPERATION

Thanks to binational cooperation, Ciudad Juárez and El Paso are developing together many projects on Water Utilities:
-Project of the three states, New Mexico (Las Cruces), Texas (El Paso) and Chihuahua (Ciudad Juárez): to use the water of the Rio Grande/Rio Bravo to extend the life of the aquifer.
-Project to treat used water.
-Project with El Paso: to re-use treated water.

Junta Municipal de Aguas y Saneamiento, Ciudad Juárez

Future Water Treatment Facilities (Rene Franco Bareno, 2005)

Goals (Junta Municipal de Aguas y Saneamiento, 2008)

El Paso
Three types of water conservation: voluntary, forced, and incentive-based: for example, showerhead replacement program, low-flush toilets, water-efficient washing machines, refrigerated air conditioners over water coolers, etc. New water sources are available to El Paso including the Antelope Valley resource, which could be initiated first.

If both the population and water needs could be controlled, this control alone could sustain the El Paso/Juárez region and could become a reasonable solution to the water problem. For this reason Ciudad Juárez and El Paso are developing cooperative programs of communication to exchange scientific and technical expertise and to establish a individual and collective new water culture.

4. DISCUSSION

How to make the treated water drinkable? There are two options: 1) to build a water treatment facility in El Paso and to treat the water following the international treaty assigned to El Paso and the water assigned to Mexico; 2) to build a smaller water treatment facility in Ciudad Juárez only for Mexico.
In both cases, the autorisation of the CILA/IBWC* is required:
-to negociate the rules for water usage with the farmers;
-to locate the necessary financing.
*The Comisión Internacional de Límites y Aguas/International Boundary and Water Commission is the official organization for communication between the two countries on water issues along the border. In Mexico water management is a federal responsability, whereas in the United States it is primarily a state issue. The CILA/IBWC was the authority for settling conflicts arising over interpretations of agreements of the 1944 Water Treaty. The 1944 Water Treaty stipulates that the CILA/IBWC commissioners from each country must be engineers. The commission conducts mediation and makes recommendations by taking into account opinions from each side of the border, and by taking into account the positions of their respective capitals, and this is key for binational water management and planning.

5. CONCLUSIONS

Despite majors problems that persist in this region, the cooperative management of water, with responsabilities shared between the U.S. and Mexico (El Paso/Ciudad Juárez), is developing a new water culture that practices both efficiency and equity, and is certain to have positive implications for politics, economics, and ethics.

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2003: Drought, population growth, profit and politics are turning water into a very precious commodity in the Rio Grande river basin on the US-Mexico border. And tensions are increasing on both sides - between an impoverished part of Texas and a Mexican city already very dangerously low on water reserves - over who has water, and who is suspected of having it. The dispute stems from the fact that people are legally entitled to more water from the Rio Grande than is actually in the river itself. "The drought that we're looking at, for this area of Texas and New Mexico - and Mexico - is what we call a river drought," said David Crowder, the environment correspondent of the El Paso Times.
http://www.acfnewsource.org/science/rio_grande.html.