ABSTRACT.

The Rio Bravo/Grande, serves like border line between Mexico and the United States, and the allocation of its waters makes through the Treaty of International Waters, signed between both parts in 1944. This document provides the legal frame for the distribution of waters of the Rio Bravo/Grande in the section that includes from Fort Quitman to the Gulf of Mexico. At the moment the water management in the river basin has been disordered, and it requires new elements that allow to establish a new ordering of the hydric resources. It requires to have data bases of quality that can take advantage of making a reliable planning, and to take advantage of the gained experiences reordering in other river basins, like in the States of California, Texas and Arizona in the United States and next of the Lerma-Chapala, in Mexico. Where the application of economic instruments like the water bank, they can work like strategies to confront the situations of shortage and distribution of the water between users. The support of the institutions of binational cooperation will be of vital importance in the future of the river basin, where the creation of a Binational Basin Council can get better results in the integral management of the river basin.

Introduction.

The hydric resources in the world represent a challenge in their management, and when we refer transboundary water, the problems are increased, since frequently the users are on different scales in complete competition by this resource reaching situations from conflicts by the distribution of the water between countries. The basin of the Rio Bravo/Grande is not the exception to the scenes, because the water of this region has connotations of great relevance in the socioeconomic development for the population that lodges this river basin in both sides of the border, as well as for the conservation of the great existing biodiversity throughout the channel of the Rio Bravo/Grande.

The river basin of the Rio Bravo/Grande it is being center of attention of innumerable investigators and specialists due to the different conflicts that have arisen surroundings to the management from the water. It is clear that the exigency to manage the availability to the access and use of the transboundary water is an arduous work, that requires conciliation between the natural availability and the interests that the States keep, although at no moment must be lost the point that the water will be key in the stability and prosperity of the future of the region.

Situation of the River basin.

The border zone that shares Mexico and the United States presents/displays a particular set of challenges in the economic aspects, environmental, social and institutional. Throughout the border it is possible to be observed that it is a region of great dynamism but with the characteristic of being heterogeneous, compared non single with other regions of Mexico, but also in the American side, since the growth of this north area of Mexico has been impelled by the North American market, and it has not been made within a regional strategy that considers the disparities of each country as well as the limitations of the natural resources of a river basin that has semi-arid climatic conditions.
The growth of the cities in the American border has been reason for the demographic increase of the Mexican side, being created the calls "cities mirror", that although they have favored the economic interchange between both countries, the differences of capacities in the handling of the own natural resources in special the hydric ones are evident.

In addition it is to add that the drought by which it has crossed the border zone, the controversies by the advantage of the water in the region, developed by the deficit deliveries from water to the United States on the part of Mexico, it has caused which the attention is centered in developing a binational strategy integral for the reordering of the hydric resources, of medium-long term.

It can be spoken that the supply of water in the region is affected by diverse factors, in figure 1 are those that have affected directly:

**Fig. 1 Mexico-US Border Issues**

![Figure 1](image)

The fast population increase is the variable that has demanded an economic growth for the population, it has taken to cause an environmental deterioration in which non single the superficial hydric resources have been affected, but also the aquifers have shown signals to begin collapse stages. Yet it, the semi-arid conditions of the river basin and the droughts have complicated that are fulfilled the international obligations that are had between Mexico and the United States as far as the distribution of waters of the Bravo-Grande River.

**Binational Legal Frame.**

Two treaties exist that regulate the distribution and use of waters of the Rio Bravo/Grande. First, Treaty of the Convention for the Equitable Distribution of Waters of the Bravo/Grande, signed in 1906. It establishes that the United States must give to Mexico 74 million cubic meters for agricultural use in the Valley of Juarez. This agreement includes the strip from Juarez City to Fort Quitman.
The treaty mentions that in case of an extraordinary drought or serious accident in the system of irrigation of the United States, the amount of water will be diminished that must be given to Mexico, in the same proportion that the one that is given in agricultural territories of United States.

Later, both countries signed the 3 of February of 1944 the Treaty of International Waters that it includes from Fort Quitman to the Gulf of Mexico, for the distribution of waters of the Río Bravo/Grande, Colorado and Tijuana. The objective of the treaty is to allow a better use of international waters, and it forces both parts to supervise that the water assigned to each one is used for agricultural aims. It is to mention that the chapter of the Río Bravo/Grande includes 9 articles, of which article 4° stands out due to the importance of its contents regarding the distribution of water front this river.

The Treaty of 1944 assigns waters of the Río Bravo/Grande of the following way:

<table>
<thead>
<tr>
<th>MÉXICO</th>
<th>ESTADOS UNIDOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>All waters from the Alamo and San Juan</td>
<td>All water from Pecos, Devils rivers, Goodenough spring, Alamito, Terlingua, San Felipe and Pinto rivers.</td>
</tr>
<tr>
<td>2/3 thirds of the flow from the Conchos, San Diego, San Rodrigo, Escondido, Salado and Arroyo las Vacas.</td>
<td>1/3 third of the flow from the Conchos, San Diego, San Rodrigo, Escondido, Salado and Arroyo las Vacas. (the flow can not be minor than 431,721,000 cubic meters each year, in 5 years periods)</td>
</tr>
<tr>
<td>One half the flow the main channel of the River Bravo among Fort Quitman and Falcon Dam.</td>
<td>One half of the flow the main channel of the River Bravo among Fort Quitman and Falcon Dam.</td>
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The Treaty maintains that when it is not possible to fulfill the water delivery, due to conditions of extreme drought or to serious accident in the hydraulic systems of the Mexican affluents, the deficit could be paid in the following cycle with water of such tributaries. This treaty has been the most contemporary instrument in the regulation of the hydric resources between both countries, and although the controversy exists if Mexico owes water or not, as well as the definition of extraordinary drought, the treaty has turned 60 years of use already, within which diverse problems in water subjects have been provoked, that they have been originated by the great dynamics that has the region.

It is little probable that changes to the treaty in a foreseeable future are formulated, nevertheless the mechanism of minutes has been used for the change of its conditions and terms. The decisions of the International Boundary and Water Commission (IBWC), are expressed in minutes, signed by commissioners of both parts and not disputed by any of the governments in the term of 30 days, will have the validity of the treaty. It is through this process that both governments have negotiated the solution of disputes and solved subjects of the hydric arrangement that they were not anticipated when the treaty was signed 60 years.

Perspective of Integral Management of the Water of the Río Bravo/Grande.

The present situation between Mexico and the United States as far as the distribution of waters of the Río Bravo/Grande, it has prevailed in an atmosphere of cordiality and cooperation between both countries, which has been shaped in treaties and drafts through the CILA, nevertheless, these legal instruments, must stay updated to avoid frictions in the interpretations. Also the commission must be modernized agreed to the dynamics of the river basin, this with the objective that the institution in charge to take care of the transboundary subjects, provide appropriate solutions, and that allows a suitable distribution of the water between countries.

Adopting measures of short term is of vital importance, before advancing to the medium and long term, since it would be and obstacle for the development of a binational integral plan for the arrangement of the superficial and underground hydric resources. Next some measures set out that are preponderant in the management of the river basin.

Quality of the Flow of Information.

Like part of the measures that are of quick execution it is to improve the quality of the information flow on the sources and uses of the water for its use. Here it is important to mention that greater efforts must focus towards underground waters, where the IBWC/CILA has had an excellent paper in the generation of data bases of the transboundary aquifers, nevertheless, the efforts have not been sufficient, and although in the same Treaty of 1944 it is not contemplated to the distribution and use of underground waters, it is necessary to carry out an evaluation of the transboundary aquifers in the short term, with the purpose of increasing the knowledge of these water sources, even that can serve to develop binational agreements for its use.

Droughts.

In order to confront the droughts, it is necessary to count on plans that diminish the effects of these meteorological phenomena by each part, and also that establishes rules for the distribution of the water during these stages. The present process of decentralization of the National Water Commission on the part of Mexico, in order to advance towards Institutions of River basin, it can facilitate the development of these actions, since there would be one greater entailment between the regional chiefs in charge of each country for the formalization and pursuit of these plans.

It is to recognize the Plan of Contingency established in Mexico to revert the conditions of water shortage, stressed by the drought, and this way to continue with the obligations of delivery of water with United States.
This Plan embraces 34 actions, with an investment of about 500 million dollars, however it is of vital importance that measures of this type, be part of a regional plan for an efficient use of the water, where it exists the evaluation and supervision of both parts.

**Binational Water Bank.**

As an instrument that can allow not to use water in a certain moment, or to care water of another area, a bank of waters with Binational character can be an alternative that provides a way to distribute the water in a more efficient way among users of the basin by means of an offer system and it demands of this resource among users of both countries, integrated as blocks of urban, industrial and agricultural centers. Under the outline of the bank of the water the priority would be the optimization of the use of the resource and the economic value obtained by this.

The banks of water have demonstrated to be an effective mechanism to foment transfers and to promote the conservation because they are coordinated by the government and they have fixed prices. The banks are also more acceptable from the political point of view than the private markets not regulated, due so that banks of water work, salespersons and buyers should have the security that the water will be transformed to a monetary value, with the support of a title of rights of water.

Among the examples of exemplary results they are counted the Bank of Water for the Drought of California, instituted in 1991. The state operates the “bank” that in fact is rather a warehouse wholesaler. In times of drought, the bank allows that the “dry” areas buy water of those “humid” to certain prices for the market.

In Mexico the position of operation of the bank of the water is beginning for the basin Lerma-Chapala, that which will generate experiences that should be taken advantage of in the basin of the Río Bravo/Grande together with the experiences of United States in California.

**Creation of a Binational River Basin Council.**

Since the measures of planning surroundings to the hydric resources destined to conserve the water in both sides of the border are not integral, since divergences exist among the abilities that each country grants to the officials of the state governments to apply the classification plans and conservation of the water. A form to guarantee that the state and federal governments of both sides of the border participate still on in equality in the planning process would be that a Binational Basin Council was created, which carried out the planning of the water supply in the border region of the Río Bravo/Grande. The Council could carry out evaluations of the anticipated level of water supply in the river basin in next fifty years, as well as to develop to studies on availability and demand of water for both national economies in the two coming decades, with the intention of establishing a true economic development where well-being to the population is generated but considering the potentials and limitations of the hydric resources with which they count not to continue with the scheme of present growth.

It must exist in the Council representing of the federal governments, state and local, as well as an active participation of the citizens of both countries in the decision making.

With the approval of the new National Water Law in Mexico, and the consequent decentralization of the National Water Commission, it is opened the way to the creation of Basin Organisms. Which will have faculties to decide the regional hydric policy, this would allow a better integration of the binational basin council with the states that conform the American side basin of the Río Bravo/Grande, since each one of it is authorized to decide on its hydric resources.
Tools of Dynamic Simulation.

A planning form can be through the use of models of dynamic simulation, which provide elements that facilitate the understanding of the results and consequences of recommendations or solutions settled down in the minutes through prospective scenarios that allow visualizing the future of the basin under some action. These instruments can give a mutual understanding of the obtained benefits or that they can be obtained by both parts when taking to end actions that they give solution to problems related with volumes of water, or of nature of given quality or poured to the beds.

Having a technical tool of dynamic simulation, it would minimize what understands each other for agreements it win-loses to agreements it win-wins, settled down in technical foundations that provide bigger elements in the taking of decision to reach the outlined objective.

Conclusions.

If we used the metaphor of Albert Utton, of a foot in a shoe in which the population that depends on the Rio Bravo/Grande is an increasing foot, and the water was the shoe that surrounds, it protects and it allows the foot to grow and to prosper, we could predict that in this century, the shoe will begin to tighten, -is indeed what it has happened in some parts of the river basin - the foot already is suffering the pain where the bad management of the water has been increasing the demands of users agricultural, urban and industrial.

This can be one more a warning of many than they have been cried out; if the correct ordering of the transboundary water between Mexico and the United States is not undertaken the future in next, an era of conflicts that will demolish all the antecedent of cordiality and good will that has been had in the negotiations among countries.

Given the important nature of the subject of the water in the border zone of the Rio Bravo/Grande, it must be recognized that the investigation around the transboundary water management policies, it must take into account that the political action is quite often a action or adaptation to social or natural crises, instead of being strategic operations guided by a rationality.

As Mexico and the United States responds to these new challenges it will determine if this century will be of stability in the management of the water, or he will be one of frequent crises and conflicts in the Binational relation.
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