

# Binational Rio Grande Summit



Cooperation for a Better Future

Cooperación para un Futuro Mejor

## Cumbre Binacional del Río Bravo

### **SPEAKER RECOMMENDATIONS BINATIONAL RIO GRANDE SUMMIT NOVEMBER 17-18, 2005**

#### **Topic: Legal and Institutional Aspects**

#### **Speaker: Glenn Jarvis, Region M Water Planning Group**

#### **Recommendations:**

- The Minute 309 conservation projects funded by the North American Development Bank to modernize and improve the technology of irrigation districts in the Rio Grande Basin and other available funding sources should be supported and given priority.
- The conservation irrigation projects currently underway through the Bureau of Reclamation for improvements to the irrigation systems of irrigation districts in the Rio Grande Basin in the United States should be supported and implemented.
- In addition to other activities in Mexico along the named tributaries in the 1944 Treaty, water saved in irrigation conservation projects in Mexico should be dedicated to ensure deliveries to the Rio Grande pursuant to the 1944 Treaty under Article 4B( c ) and Minute No. 234. This serves the interest of both Countries.
- For purposes of clarity, the IBWC should approve a Minute setting out the definition of “extraordinary drought” as that term is implicitly defined in the second subparagraph of Article 4B(d) as an event which makes it difficult for Mexico “...to make available the run-off of 350,000 acre-feet (431,721,000 cubic meters) annually.” It is a drought condition when there is less than 1,050,000 acre feet annually of run-off waters in the watersheds of the named Mexican tributaries in the 1944 Treaty, measured as water enters the Rio Grande from the named tributaries.
- Accounting of water between the United States and Mexico pursuant to the 1944 Treaty shall be consistent with the 1906 Convention which provided that Mexico waive any interest or claims to waters downstream from its delivery point of waters delivered by the United States pursuant to the 1906 Convention to Fort Quitman, Texas. That is, all water measured at Fort Quitman, Texas, is 100% allocated to the United States. Flows in the Rio Grande between El Paso and Fort Quitman, Texas, including return flows from each country, is 100% owned by the United States.

- The United States and Mexico shall reinforce the powers and duties of both Sections of the IBWC pursuant to Article 24 (c ) which provides, among other things, for the enforcement of the Treaty and other Agreement provisions that “each Commissioner shall invoke when necessary the jurisdiction of the Courts or other appropriate agencies of his Country to aid in the execution and enforcement of these powers and duties.” This refers to the general authorities and duty granted by the treaty to the IBWC Commissioners to carry into execution and prevent the violation of the provisions of the 1906 Convention and the 1944 Treaty.
- For better water management in the Lower Reach of the Rio Grande, downstream of Anzalduas Dam, both Countries shall reaffirm operational policies that Mexico will continue to take its share of waters through the Anzalduas canal diversion at the Anzalduas Dam; and any water diverted from the Rio Grande below Anzalduas Dam shall be accounted for at the Anzalduas canal intake which shall include accounting from any diversions from the proposed Brownsville Weir Project storage. That is the Anzalduas diversion point shall be the accounting point measuring waters to which Mexico is entitled to under the 1944 Treaty and occasioned by releases from Amistad and Falcon Reservoirs. These amounts due Mexico may be enhanced by storage behind the Brownsville/Matamoros Weir Project. In other words, the Mexico share of water downstream of Anzalduas Dam is to be fixed at the Anzalduas canal intake and accounted for at that point including the benefit of storage at the Brownsville/Matamoros Weir Project.
- Regional water planning by stakeholders in the Rio Grande watershed should be endorsed. Texas has endorsed this concept in its 1997 legislation (SB 1) and Mexico is likewise acknowledging the concept. Therefore, meetings directed toward coordination of watershed plans should be encouraged and implemented between Texas’s Region E and Region M, and their counterparts in Mexico, together with associated interested governmental authorities and agencies.

The focus of these meetings supported by each Country (and the states therefore), shall be to coordinate their respective long term water plans based upon commitments arrived at by consensus, made by stakeholders and interested parties in each Country.

Initially, this may include only Mexico, and the Rio Grande watershed in Texas. However, this should, and can, include interests above Fort Quitman, Texas in the Rio Grande Basin. This is necessary because in the future those responsible to respond to the water needs of their respective citizens who rely on the Rio Grande for their needs must plan together. These needs cannot be responded to without *everyone* on both sides of the Rio Grande working together.

- TWDB’s Regional Planning Groups on the Rio Grande in Texas (Region E and M) have endorsed and support restoration of the Rio Grande below Fort Quitman, Texas. Interests in Mexico should also support the Rio Grande restoration for the benefit of citizens in both countries.

## **Topic: Binational Basin Management**

**Speaker: Dr. Polioproto F. Martinez Austria (CONAGUA)**

**Current Challenges: Toward Comprehensive Water Management**

### **Recommendations:**

Suggests that the main problems for potable water service is the lack of an adequate system of development indicators, deficiencies in coverage, high investment requirements, physical water losses, insufficient metering of consumption, insufficient updating of the census of users, inadequate reading system and long-term planning.

Among the challenges to be overcome are:

- Development of binational information systems.
- Non-integrated basin development.
- Lack of mechanisms for cooperation on water quality, groundwater, and environmental protection.
- Deficient binational communication:
  - Misunderstandings
  - Cooperation problems.
- Insufficient investment.
- Need to strengthen binational institutions.
- Coordination of research and development centers.

Modernization of irrigation districts is needed to improve their efficiency and to be able to reduce the binational asymmetry caused by U.S. farm subsidies.

**Speaker: Wayne Halbert, General Manager, Harlingen Irrigation District, Adams Gardens Irrigation District**

### **Recommendations:**

- There should be an annual accounting of the water situation with some trigger points that require certain actions.
- There needs to be an awareness that over development of the resource is a reality and that means that within the plans for development, terms of the treaty and a plan for compliance needs to be present.
- We don't want to change the treaty.
- To ensure compliance with water deliveries during the five-year cycle, trigger points need to be set up that become more aggressive the further into the five-year term. Better definitions of terms and better reporting of current situations need to be made with predetermined goals so that all understand where we are at any given time.
- Both sides should work together to urge the respective countries and international entities to assist in water conservation projects.
- Grass root participation at specific annual meetings should be encouraged. IBWC from both sides will have more credibility if local input is encouraged.

**Speaker: Luis de Jesus Lujan Peña, President, Central Water and Sanitation Board of the State of Chihuahua (represented by Humberto Silva Hidalgo)**

**Recommendations:**

To ensure that demand for public urban use in the region is met will demand not only an effort but rather a change in the way hydraulic resources are managed, which will unquestionably require continuing with resolute and respectful participation (as has been the case until now), but in a more incisive way by the user actors and the governmental authorities of the Rio Grande basin, as well as corresponding federal agencies.

There exist zones toward the interior of the Basin where the use of surface water to satisfy the public urban sector is imminent, since the current source (groundwater) is in a full state of overexploitation and in some cases also in a state of water quality degradation. In contrast, there exist zones where the most recommendable is to prospect for and begin the use of their subterranean hydraulic resources, complementing in this way the current surface water supply.

With the above premise, the following actions, among many others, have been identified, that are considered to be able to assist in the search for solutions to the water problem in the Basin:

- Undertake necessary and detailed studies that will permit the understanding of the hydrologic functioning of the basin through a comprehensive systemic focus that has the objective of finding areas of opportunity for realizing local actions that resolve problems that are also local. The sum of these actions and specific localized resolutions throughout the basin will bring benefit to the system in its totality.
- To seek to achieve in the realm of that which is possible, a balance in the Basin with regard to the use of surface and ground water resources among the Mexican states, thereby permitting the development of each one of them without causing effects between them.
- That the Federal Regulating entity in water matters, establish an optimum water resource management policy with the participation of the States, finding a way that all of us benefit.
- Since agricultural use is the biggest water user (approximately 88%), it will be necessary to continue with the programs of sustainable water use in this sector, that will allow volumes to be available to be used in other sectors, in this way assuring the continuity of regional development. It is advisable that the freed up volumes be used locally, thereby assuring the most efficient use of the resource.
- The policy of local use of water, applicable in the majority of cases, avoids the transfer of water over long distances where there are significant losses of volumes of water that this practice involves in arid regions such as the Rio Grande Basin.
- Strengthen programs that have the function of increasing public awareness about the prevailing need to make sensible use of water, seeking with this to establish a possible mechanism to control demand.

**Speaker: Dan Hardin, Texas Water Development Board**

**Recommendations:**

- Water conservation measures should continue to be implemented as practicable.
- Permitted development should be tied to assurance of available water supplies.

**Speaker: Luis Rendon Pimentel (CONAGUA)**

**Recommendations:**

- Balance the secure water supply in the dams with the concessions of the irrigation districts.
- Promote the Program of Adjustment of Water Rights and resizing of the irrigation districts.
- Modernize the distribution systems and make technical improvements to plot irrigation, in exchange for which the volume of water saved will reduce the volumes granted through concessions.
- Increase the surface area of profitable crops.

**Speaker: C. Allan Jones, Director, Texas Water Resources Institute, Texas A & M University**

**Recommendation:**

- Reduce per capita water demands without limiting economic growth.

**Speaker: Roberto Aurelio Sencion Aceves (CONAGUA)**

**Recommendations:**

- The monitoring should include not only the phenomena that take place in the subsurface but all of those that comprise the hydrologic cycle, given the close relationship between surface water and groundwater.
- The strategy for sustainable management is: to have active public participation, demand management, modernization of irrigation, changes in land and water use, reuse, artificial recharge, pricing policy, legal structure, among others, combined in a management plan adapted to the specific aquifer.
- It is recommended that the entities that share transboundary aquifers carry out hydro-geological studies of their respective portions and undertake periodic joint analysis of the transboundary geo-hydrological aspects of interest and include in the management plan the criteria for distribution of the groundwater resource with restrictions oriented toward preventing the generation of negative effects in the neighboring country.

- The slowness with which aquifers respond to the efforts that are directed toward them allows a more flexible management of groundwater than in the case of surface water, giving in this way to each country greater freedom to use its portion of the aquifer as long as it does not generate negative effects on the neighboring country.
- A joint monitoring and measurement program is necessary as much to evaluate the response of the aquifer system to the adopted management plan, as well as to identify the transboundary effects that could occur.

**Speaker: Ali Chowdhury, Texas Water Development Board**

**Recommendations:**

- Expand the southern Gulf Coast model into Mexico to cover areas on both sides of the Rio Grande to determine pumpage effects on the flow of the Rio Grande and water quality in the aquifers.
- Continue geochemical and isotopic work to better characterize and quantify leakage from the irrigation canals, and estimate the amount and quality of brackish water available for desalination.
- Determine the amount of groundwater lost through evapotranspiration.

**Speaker: Daene C. McKinney, Center for Research in Water Resources, University of Texas at Austin**

**Recommendations:**

- Conventional segment-specific approaches to water management planning in the Rio Grande/Bravo Basin are inadequate. Recent drought conditions have made this abundantly apparent. Unexplored hydro-physical opportunities exist for expanding the beneficial uses of water in the basin to better satisfy an array of water management goals. These include making agriculture more resilient to periodic conditions of drought, improving the reliability of supplies to cities and towns, and restoring lost environmental functions in the river system.
- We recommend a comprehensive, outcome-neutral, model-based planning effort to illuminate strategies to reduce future conflicts over water throughout the entire basin. In order to achieve this, system-wide analytical capability needs to be elaborated to produce greater benefits in the basin. Advanced water resources database and planning models are being created to represent the entire basin. These tools can be used to evaluate scenarios for improving the management of the limited water available in this system, particularly those opportunities that bridge across management units and jurisdictional boundaries.
- In order for water management improvements to be adopted they must be both physically viable and provide mutual benefits to stakeholders throughout the system. This requires elaboration and understanding of the hydrologic dynamics in the basin such that the tradeoffs associated with a range of management strategies can be clearly illuminated.

- Sets of future water management scenarios must be developed that respond to the needs and objectives of the basin stakeholders in each segment and each country. Various stakeholder communities in the basin, including water users, planning agencies, environmental organizations, universities and research institutes, and local, state and national government officials, must be engaged to construct realistic scenarios for improving the benefits that can be derived from the fixed water endowment in the basin.
- These scenarios can be evaluated for hydrologic feasibility using a basin-wide model and simulation exercises. Modeling is necessary to understand how these options will affect the entire system and how they can be crafted to maximize the benefits and avoid unintended or uncompensated effects. The definition of scenarios should proceed in an iterative and adaptive manner along with expanded data access and improved modeling capability.
- Those water management improvements that can only be achieved at the expense of current water beneficiaries should be excluded from consideration. Particularly interesting are those broad-scale opportunities that have the potential to produce the largest benefits, but which have escaped the more regionalized water planning that characterized the basin because they would require cooperation across jurisdictional or water management boundaries. It is fundamental to consider only those scenarios that could be achieved without changes in the current water allocation structure in the basin, including treaties, compacts and water rights.
- The “winning scenarios” should be subjected to economic feasibility analysis, and, finally, legal and political feasibility analysis. The scenario development, hydrologic modeling, economic and institutional analysis can result in technical recommendations to policy-makers on both sides of the border with the potential to improve water management in the basin.

**Speaker: Carlos Rubinstein, Harlingen Regional Director/Rio Grande Watermaster, Texas Commission on Environmental Quality**  
**Recommendations:**

- Recommendation that by January 1<sup>st</sup> of each year each country will provide the other an assessment of waters in storage at the International Reservoirs and how these are allocated for use in the coming year (i.e., amount held in reserve for Municipal demands, amount allocated for irrigation, amount unallocated, etc.). The information shall also include the projected maximum amount of water that will be used during the irrigation season and where possible, from which reservoir.
- Recommendation that by October 1<sup>st</sup> of each year Mexico will provide to the US an assessment of waters in storage in Mexico’s internal reservoirs and how these are allocated for use in the coming year (i.e., amount held in reserve for municipal demands, amount allocated for irrigation, amount to be moved to downstream reservoirs, amount allocated for treaty compliance, etc.)

- By February 1<sup>st</sup> of each year each country shall provide the other the projected release schedule(s) for the irrigation season. The information shall include an identification of volume allocated for irrigation, projected release rates and schedules, anticipated draw-down in the reservoirs and any planned movements of water from upstream reservoirs to mitigate draw-down in downstream reservoirs. This data exchange to continue monthly until the end of the irrigation season, to account for modifications in projected volumes to be used, release rates and impacts from either wet or dry weather that contribute to modified projections.
- Recommendation that the Rio Grande Watermaster make available to the US Commissioner a monthly recap of available reserves and allocation for specific uses of US waters held in the International Reservoirs for use by Texas water right holders in the Middle and Lower Rio Grande.
- Recommendation that the US and Mexican Sections of IBWC confer monthly on waters available in the basin to identify excesses due to favorable weather patterns that can be utilized to mitigate any in year and within cycle water delivery shortages.

**Speaker: Jaime Collado, Instituto Mexicano de Tecnología del Agua**

**Recommendations:**

- Continue the measurement of the main hydrologic variables: rain, surface water flow and evaporation in dams.
- Improve the accuracy of uncertain information, such as aquifer recharge and evapotranspiration.
- Expand the systematic collection of hydrologic variables that are infrequently measured such as the volume of snow, quality of the water, and an accounting of the aquatic fauna.
- Put at the disposal of the public of both countries, on the internet pages of IBWC, the measured hydrologic data and the inferred information.
- Establish solid practices to estimate the reduction of water resources (controllable volume of water and availability for use) based on climate change and population growth.

**Speaker: Kenneth Rakestraw, Acting Principal Engineer, United States Section, International Boundary and Water Commission (USIBWC)**

**Recommendations:**

- My recommendation is for **annual or more frequent meetings** between the two Governments, convened through the International Boundary and Water Commission, to include the following:
  - 1) A review of conditions in the Mexican portion of the basin, to include rainfall and reservoir inflow records and trends for the previous year



- 2) A review of reservoir storage conditions in the Mexican portion of the basin to include plans for the annual allocation to Mexican users and those designated for delivery to the United States via Mexico's six Treaty tributaries
- 3) A review of the status of deliveries to date in the current five-year cycle and the outlook for the remainder of the cycle

**Speaker: Carlos Escalante (UNAM)**

**Recommendations:**

- The Rio Grande Basin is characterized as being a hydrologic region with a high level of variation in the availability of water resources, which generates unemployment, migration, conflicts among water users, and abandonment of lands.
- Water planning should equitably address the needs of the public and productive activities as well as preventing and, if needed, correcting the resulting environmental impacts.
- The proposed plan for all the Rio Grande Basin must address the occurrence of drought since, on average, it occurs every 7 years and lasts 4. Nevertheless, as has also been made evident, considering it on this scale is not convenient; for this reason, the unit of study should be the municipality. This guarantees that the actions in drought mitigation plans will be accepted by the municipal governments themselves. On the other hand, it is also evident that even though the municipalities studied are adjacent, the effects of water scarcity are different so it becomes very necessary to determine the different levels of vulnerability to this phenomenon.
- Given the impossibility of increasing the availability of water resources due to the low natural availability in the region, and the high economic and environmental costs of importing water from other regions, the main actions necessary in the future must focus on demand management; for this reason, water must be rationalized among different uses. In this sense, a relevant aspect to employ in the process of hydraulic planning is the average precipitation deficit rather than the annual median since when the latter does not present itself, there is a tendency to compensate by overusing the available sources. Thus, the hoped for availability of water, via precipitation, will be more conservative.

**Speaker: Alberto Peralta Rosas (CONAGUA)**

**Recommendations:**

Utilities in the border pay little attention to water conservation and reuse, low service coverage, preventive maintenance deficiencies and rehabilitation of infrastructure, administrative deficiencies (lack of technical personnel and low profile of incumbents).

**Principal Strategies:**

- Encourage significant investment in infrastructure.
- Promote private sector participation.
- Permanently record and update the census of water users.
- Effect 100% measurement of consumption.
- Progressively eliminate subsidies for service.

- Permanently apply the standards for extractions and discharges.
- Need to develop a water market.
- Transfer and develop cutting edge technologies in irrigation districts.
- Create state water commissions and regulatory agencies.
- Purchase of water rights from organizations to irrigation users.

In the states and municipalities, through their laws and/or regulations, obligatory use of treated wastewater should be established for activities that do not require potable water quality:

- Golf courses
- Irrigation of parks, medians, cemeteries, green areas and ornamental plants
- Recharge of natural and artificial lakes.
- Fire hydrants.
- Car washes.
- Public works projects.

**Speaker: David J. Eaton, University of Texas at Austin**

**Recommendations:**

- The IBWC/CILA should adopt a Minute to establish as its joint responsibility to collate together each 5 years existing water and wastewater infrastructure plans for each of the sub-regions of the Basin to create a document: “Water Development Plans for the Rio Bravo/Rio Grande.” Such an effort would **not** represent a new study. It would collect and report already existing regional and local plans. The reporting through a single document about water infrastructure needs of the entire basin could help each state and each local institution make a case for the investment it needs. It is easier and more effective all states and all local users to seek together for joint investment on behalf of both nations simultaneously, rather than for each locality to grasp on its own for funds in competition with each other.
- The IBWC/CILA in cooperation with BECC/NADBank, CNA, and EPA and the Mexican and U.S. states should convene a meeting or set of meetings of any interested water users to be trained in the use of any and all existing “models” that can be used to operate existing water infrastructure or plan for future use of water. By making models available and providing such training sessions, the IBWC/CILA would help to improve the human capital of water infrastructure managers along both sides of the border.

**Topic: Environment and Water Quality**

**Speaker: Hector Arias, World Wildlife Fund**

**Recommendations:**

- Improve the governance of the Rio Grande/Bravo by including it in the IBWC/CILA agreements of the Fourth Group: Environmental Issues.
- Issues: freshwater biodiversity loss, environmental flow allocation, integrated river basin management

**Speaker: J. Alfredo Rodriguez, Centro de Investigación sobre Sequía del Instituto de Ecología**

**Recommendations:**

- The frequency and probability of recurrence of drought events indicate the need to continue with planning and water resources administration programs undertaken during wet climatic periods.
- The term “drought” should be studied and officially accepted by both countries. Its denial only undoes its application during the next drought.

**Speaker: Wayne Belzer, Texas Clean Rivers Program for the Rio Grande, United States Section, International Boundary and Water Commission (USIBWC)**

**Recommendations:**

- The key to finding and recognizing water quality issues is to build a network of monitoring stations to track and identify pollutants in the basin. The Clean Rivers Program collects water samples throughout the Rio Grande and the Pecos River, but that only accounts for less than half of the entire basin. The development of a water quality monitoring network throughout the basin would help identify problems sooner as well as track the sources of the issues to the source. This network would need to exist not only in Texas but in New Mexico and Mexico as well.
- The majority of the problems currently in the river are high bacteria and high salt content. Increased treatment of wastewater and changes in agricultural practices could alleviate these issues and greatly increase the quality of the river in the Rio Grande.

**Speaker: Carlos Gonzalez Vicente, CONAFOR**

**Recommendations:**

- Regarding determination of zones eligible for the payment of hydrologic environmental services, there is a need to continue refining technical criteria that reduce inequities in the process and at the same time optimize the assignment of financial resources.
- The zones that have been determined to be eligible should be subject to a dynamic process of improvement and updating, given that there is information developed with greater accuracy or detail and better technological tools.

**Speaker: Fred Nibling, United States Bureau of Reclamation**

**Recommendations:**

- Formation of a Bi-national Science Advisory Council (BSAC) to address the management of invasive species issues for the entire Rio Grande Basin.
- Organizational structure: The BSAC would be organized similarly to the Bi-national Aquatic Weed Task Force in the Lower Rio Grande Valley or alternatively, the Binational Rio Grande/Rio Bravo Ecosystem Workgroup (BREW) in the upper border reaches, but its work would be organized on a basin-

wide basis. The reasoning is that invasive species are but a symptom of larger over-reaching (basin-wide) problems such as nutrient enrichment; these types of problems are best addressed by groups organized to that scale.

- The **role** of the BSAC would be the following:

1) Advise - The BSAC would provide technical expertise and make recommendations on invasive species issues to a bi-national council of policy makers comprised of relevant agency representatives charged with management of the Rio Grande water resources.

2) Early Detection and Rapid Response – The BSAC would coordinate bi-national interagency survey activities to monitor the introduction new invasives or the spread of those already documented. The committee would coordinate rapid response actions in an attempt to eradicate newly discovered invaders and prevent their establishment.

3) Research and Demonstration – The BSAC would insure that all research and demonstration activities are coordinated with bi-national partners and other scientists on both sides of the border. The BSAC would utilize the diverse strengths and resources of its bi-national partners and encourage joint, invasive species research and demonstration projects to share new developments in invasive species management technology.

4) Public Education and Outreach - The BSAC would also provide a technology transfer plan which would involve development and synthesizing of the invasive species control and information sharing strategies and tactics developed in an international context. This program would a) develop a bilingual public information plan; b) develop shared public involvement in invasive species control demonstration projects; c) foster an environment and shared attitude conducive to the application of synergized control methods; and d) provide a bi-lingual multi-media public information program for better understanding invasive species, the problems they pose, and their methods for control. The results would be shared with both the U.S. and Mexican agencies and general public. This program would serve as a model for use throughout Latin America where invasive species infestations are occurring in various sectors and environments.

**Speaker: Roberto Rangel Martinez, Biologist, Universidad Nacional Autónoma de México**

**Recommendations:**

- Continue with the observations regarding the presence and development of invasive hydrophytes and/or aquatic weeds.
- For any measure to control aquatic weeds, the hydraulic behavior should be taken into consideration.
- In cases where a drastic decline is recorded in flow and depth in the river channel, it will be a limiting factor for some control methods.
- Undertake research as a pilot project for the control of submerged weeds (*Hydrilla verticillata* and *Heteranthera dubia*) with copper-based herbicides.

- Implement the control of submerged weeds in accordance with the results from the pilot project.
- In accordance with the results of the previous stages, formulate a control method in the upper part of the Rio Grande basin.
- In particular regarding the submerged weeds, there are encouraging results for their control by biological means especially as represented by the herbivorous triploid carp.

**Speaker: Ernesto Reyes, Wildlife Biologist, U.S. Fish and Wildlife Service**

**Recommendations:**

- Restore and provide a native riparian buffer strip along the Rio Grande River on both sides of the border to provide more wildlife biodiversity and minimize soil loss, urban water runoff, agriculture pesticides, herbicides, and fertilizer runoff.
- Eliminate dump sites close to the river that could contribute to water and air pollution. Contamination of ground water and burning of trash where sparks go over river and start fires on National Wildlife Refuge tracts and private lands that burn habitat. Also, habitat in Mexico along the river is lost due to trash fires. Include an educational/public awareness component in addition to enforcement.
- Enact Legislation to regulate borrow pit development close to the river, which causes soil erosion, loss of land and habitat, and increase of sediment into the river. These borrow pits should include native vegetative buffer strips and required minimum distance from the river. Inactive borrow pits should be reclaimed and restored with native vegetation.
- Address tire dumps along the river that poses a fire and contaminate hazard to people and wildlife. Look at infrastructure that can process tires for other use. Tire dumps and disposal are a big problem along the border.
- Establish a Binational Group between Texas/Mexico to develop a management plan to address sustainable management of the Rio Grande Basin and water quality, quantity, and sustainability.
- Provide Binational environmental education on conservation, water contamination, water use, recycling, biodiversity, and impacts of humans to the environment/human health issues. Public awareness of how individuals, communities, businesses, and industry can contribute to a high quality environment.
- Protect, conserve, and restore native habitat and connect fragmented native habitat in the Rio Grande Basin on both sides of the river to provide economic, health, ecological, and recreational benefits to improve the quality of life in local communities. Ecotourism alone (does not including hunting and fishing) contributes over \$100 million to the local economy.

**Speaker: Alfonso Martinez, Universidad Autónoma de Nuevo Leon**

**Recommendations:**

- To re-establish the health of the basin, it is necessary to reduce pressure on ecosystems, implementing more sustainable systems of production. Likewise, many of the degraded areas cannot recover even when the original causes of the deterioration do not persist so that it is the work of all of us to rehabilitate them. To restore the ecosystems and recover their biological diversity is vital to generate the richness and quality of life for future generations.

**Topic: Finance**

See Work Group Recommendations