



COFFEE BREAK: Water Availability Scenarios of our US-Mexico International Basins

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Brief Summary

SPEAKERS

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The Forum convened to discuss the future of water scenarios in the Rio Grande and Colorado River basins.

If you were to see the future in the short term, 5 to 7 years, how would you describe the situation in the Rio Grande and Colorado River basins?

Water projects are needed to alleviate the surface water deficits foreseen, as well as groundwater projects. The availability of water is very uncertain now including the lack of water storage. Population demand is growing, too. The challenge is large, and it keeps on growing, compounded by technical, management and equity issues since it is not feasible to compare both sides of the border. There must be internal discussion among the basin states involved and then the dialog elevated to the bi-national level.

In the Colorado basin, there is no indication that the drought is abating. Agreements to reduce water use have not been enough to help so the need to continue negotiations remains. Also, to diversify sources. But actions so far have been inadequate, and we must find ways to reduce our consumption of water from the eastern Colorado.

Recent storms were not expected but we can assume that dry conditions will prevail in the Colorado River basin, just by extrapolating long-term warming temperatures. Even the language is changing with “aridification” entering the vocabulary. California and the six states of the basin are coming to agreement with the Bureau of Reclamation to stabilize the levels of

Lake Powell and Lake Mead. Lake Powell would be kept at a level to reliably produce hydropower and Lake Mead to serve human health and safety.

What is the impact that we could expect in the economy, social and physical dimensions?

There is a need for engineers who know about hydrology and about law, the environmental and social impacts. The universities are not producing these cross-sectional capabilities. There are competitive advantages for industry to locate on the border, too, further compounding the demand for water. Water is the number one issue with the Mexican government now, even above infrastructure and public health. Citizen actions have already occurred in the case of the Juarez Water Board in 2009 and two years ago with civil unrest over water resulting in arrests and even death.

There is enormous dependence on the Rio Colorado water in Baja California. Only a small portion comes from groundwater that is recharged by the Colorado River, so the problem compounds when the river is not producing. The agricultural sector uses 77% of water, industry 8%, energy 3.8% and the public sector 5.3%. One of the social impacts of the drought is that these sectors will compete with agriculture. Industry produces comparable economic benefit to agriculture but uses much less water. As a result, there could be a social transformation of agricultural communities and changes in law that favor urban areas over agriculture with senior water rights.

After visualizing short- and long-term scenarios, what are the top recommendations? What can wait? Not wait?

One way is to change crops to less water-intensive varieties. Some farmers will simply leave the business rather than make the transition and the investment to more advanced technologies. For example, a pressurized drip system can cost \$5,000-\$6,000 per hectare, beyond the means of some producers. But pressurized systems can raise efficiency of water use from 45% to 90%. Still, for many farmers this will not be possible. Mexico says that water is for the people, but producers are not as generous, thinking that the water is theirs.

A priority is to speed up adaptation of technical advances. We have been talking about this for twenty years now and the innovations made in that time have not been applied aggressively. It is up to the universities to lead in the technical, social, economic, and environmental areas. It is a paradigm shift in demand management.

Diversify water sources and store rainwater runoff. In 20 years, we may be able to sustain ourselves. Think about the basin as a unit but participate in it as a society. Desalinization, reuse, rainwater capture - these are the policies to pursue now. Even less efficient methods like

flood irrigation can be significantly improved by automation such as flood gates opening and closing as needed during the day. Sustainability could be worked into curriculums in engineering as well, integrating the social, environmental and equity aspects of water use and bringing the voices of under-represented communities into our decision-making processes.

Q&A - What perspective exists for increased ground water in Valle de Mexico in the near future?

There is an over exploitation of the aquifer, an average drawdown of more or less one meter per year. It will be necessary to reduce usage to stabilize the aquifer, especially the 70% used by agriculture.

Q&A - What about the use of recycled water?

It can be injected into the groundwater for indirect reuse or directly from recycling. A strategy of conscious overuse gives us a buffer when we must cut back. If we are super-efficient in our use, there is no room for error when we have to cut back. In Chihuahua, treated wastewater has been used for irrigation for 25 years now. But regulatory compliance in Mexico makes it difficult to use it for other purposes. In the US, this is regulated at the state level. It has not been possible to stabilize water markets for this reason, due to regulatory variability for how the recycled water is used.

Q&A - What about water markets?

In California, purchased water rights gave the money to the farmers, but there was no compensation for the farm workers who were displaced. Water markets do not provide benefits to all the affected parties, especially the most vulnerable.

Q&A - In the US, there is talk about reducing demand especially in urban areas. Is this applicable in Mexico? How is multi-disciplinary work involved in this for those that are doing everything already?

Demand management is a necessary public policy. Supply management is not synonymous with improving efficiency in the different sectors. There are many “edges” to water policy that require a multidisciplinary approach and experts in each discipline are needed. For example, new industry uses water for itself but also brings along workers who are consumers, too. This requires us to consider what industries are appropriate, given our water situation, because now job creation is highly attractive. All of these issues are interconnected. We have 19th century laws with 20th century infrastructure with 21st century hydrology for a future that is way too different.