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Water resource management is a major concern in Mexico. Building a common understanding amongst the country's diverse populations is a cornerstone in developing sustainable policy. Carlos Guizar shares his experiences in setting up the Water Culture Education Office in Naucalpan Municipality.

## Sustainable Water Management in Mexico: The Educational Approach

by CARLOS J. GUIZAR RIVAS

Water is scarce in Mexico. Recognised by President Felipe Calderon as a matter of national security, water has recently gained priority on the political agenda.

In Naucalpan, a municipality in the centre of the Metropolitan Area of the Valley of Mexico (MAVM), water availability is a consistent problem. Populated by over 900 thousand inhabitants, Naucalpan shares its water resources with 58 municipalities and 16 delegations of Mexico City, inhabited altogether by approximately 19 million people. The municipality contributes almost 1 percent to the national GDP and 9.5 percent to that of its state.

**Any sustainable water policy in Mexico has to take into account huge income differentials among the population.**

During the last 300 years, the MAVM has experienced steady, but largely uncontrolled growth. This has had adverse effects on the area's water resources. Supplied by underground aquifers, rivers, and springs, water often has to travel more than 100 kilometres before entering MAVM. Add to this the cost of overcoming the various altitudes in the region, and water sup-

ply becomes a costly service. Take, for instance, the Lerma-Cutzamala System. A combined piping system that carries water from the Lerma River Basin and the Cutzamala River to the MAVM, it uses 102 pumping stations to overcome physical challenges related to altitude, consuming four thousand KWh and incurring a bill of roughly \$63 million per year.

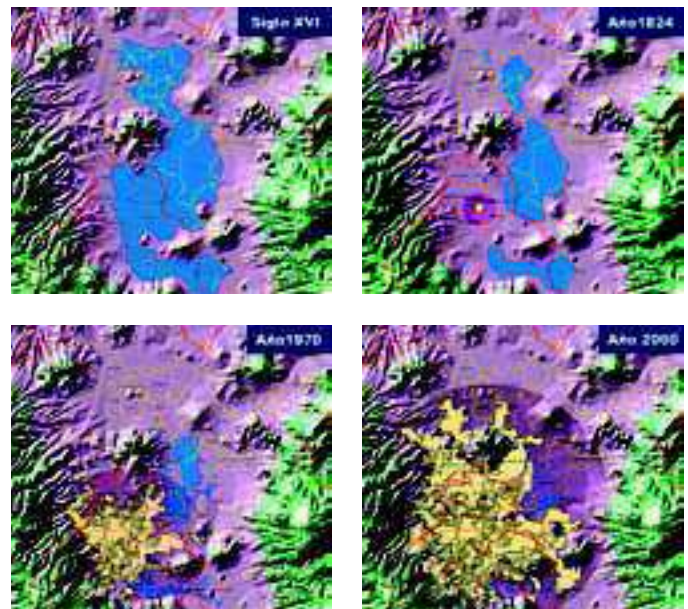
These costs are largely invisible to Naucalpan's inhabitants. Heavily subsidised according to level of income and residential area, water is provided cheaply by public corporations. Thirty to forty cubic meters cost the consumer only 246 Mexican Peso (or \$24). Still, many consumers allow the bills to accumulate because they know that by law water supply cannot be cut, as in the case of electricity and telephone services. At least thirty-five percent of overall water supply revenues are lost, either because people do not pay their bills or because water is lost through leaks in old and poorly maintained infrastructure.

One way to tackle inefficient water use is to increase knowledge on the consumers' side. In 2006, the President of Naucalpan, Jose Luis Duran, asked me to lead the Water Culture Education Office. Looking at the organisation's previous actions, I found that their interventions had not been comprehensive or applicable to all segments of the population. Any sustainable water policy in Mexico has to take into account huge income differentials among the population. While Naucalpan is home to some of the wealthiest residential districts in Latin America, it is also characterised by extreme poverty. Thus, I had our team rearrange the individual programmes according to the living conditions in the municipality.

We came up with four new approaches: First, it was time to realign the team's vision and to create commitment. Second, we would change the strategic perspective so as to include all inhabitants into our work, no matter their social or economic background. Third, we agreed it was essential to promote payment of water services. Fourth, setting up a working network

with international organisations such as the World Health Organization, the World Wildlife Foundation, and UNESCO would increase outreach and our institutional credibility towards enterprises, academic institutions and the general public. Facing limited resources, we decided we would have to include representatives from the public, civic and private sectors.

We divided the outreach part of the programme according to level of education and socioeconomic status, and devised tools to ensure that the issues could be understood by everyone—a student from a private school has a different reality than a student from a public school, as the latter may not even have water at home. We then linked the programmes to each other so that messages about the importance of water, conservation and citizens' personal responsi-



Growth of the Metropolitan Area of the Valley of Mexico since 16th century



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bility could be broadly disseminated, reaching people in their neighbourhoods, schools, working places, while walking on the streets and driving their cars.

This approach to promoting a sustainable water culture was reinforced through visits to academic institutions, hospitals, companies, neighbourhoods and supermarkets, and by organizing forums, summer camps and other engaging activities. Under the “H<sub>2</sub>O Inspectors” programme, for instance, children between 6 and 12 years old were recruited to promote water culture education amongst their relatives, classmates and in their neighbourhoods. All the inspectors received an official ID and uniform from

**Messages about the importance of water, conservation and citizens’ personal responsibility were broadly disseminated, reaching people in their neighbourhoods, schools, working places, while walking on the streets and driving their cars.**

the Water Culture Education Office, helping them to be recognised wherever they went. They were also invited to attend special forums, summer camps and other activities organised for their benefit.

These activities enabled us to engage the highest possible number of people. Our partners from UNESCO agreed to train teachers and future promoters, using a new activities’ guide book they had edited in collaboration with the National Institute of Water Technology. Furthermore, in order to continuously promote the water issue we created a certification programme for participating academic institutions. We implemented a similar process for companies and enterprises, adapted to their specific perspective and recognizing their efforts and social commitment.

Ten months following its initiation, the programme had established direct contact with more than 116 thousand people in Naucalpan. An additional 50 thousand had been reached indirectly. In total, almost 18 percent of the municipality’s population had met with our efforts to inform their water consumption habits. In the private sector more than 50 companies had been contacted. Through educational facilities we managed to increase the participation of children in the “H<sub>2</sub>O Inspectors” programme by more than 500 percent.

All in all, the Naucalpan water culture education programme, still running today, has been a resounding success. Municipalities, cities and states throughout Mexico have begun launching similar programmes in their own jurisdictions. Drawing upon our experience, they have been inspired by an example of how well-designed policies can overcome the obstacles of time and budgets without compromising effect.