

Huatulco's Water System: In Survival Mode?

By Randy Jackson

In survival training, there is the *Rule of Three's*: You can survive three minutes without air. You can survive three days without water, and you can survive three weeks without food. Air, it seems, is plentiful enough. But knowing we only have a three-day survival window without water should make us all prioritise a clean, dependable, potable water system. In Mexico, as in most places in the world, people depend on the government to provide sufficient potable water for their needs. In Huatulco, the potable water system, built and maintained by FONATUR (the *Fondo Nacional de Fomento Turismo*, the National Tourism Promotion Fund), is facing the challenge of meeting the growing demands on the water system.

Anyone living in Huatulco, even for part of the year, is well aware of the frequency of water outages. In some sectors, people are without water for several hours every day. Other sectors experience frequent unannounced water outages for multiple days each week. What has mitigated the seriousness of the water delivery problems up to this point is that virtually all residential buildings and hotels have water storage tanks and cisterns that hold three or four days' worth of water. This mitigation measure can give the appearance of "all is well," but it seems apparent that the demand for potable water in Huatulco is seriously challenging the capacity of the FONATUR potable water system to provide it.

In my attempt to understand Huatulco's potable water system, I set out to answer four basic questions.

- (1) What area and population does the FONATUR water system serve?
- (2) What are the uses of water in Huatulco?
- (3) How much potable water is available?
- (4) How much potable water is needed?

First, what do we mean by "potable" water? Potable water covers normal household uses. Drinking, cooking, washing, toilets and showers. FONATUR provides "gray" water for irrigating street plantings, but many residents use potable water for lawns and plants. In Huatulco, it also includes the water used in swimming pools.

(1) WHAT AREA AND POPULATION DOES THE FONATUR WATER SYSTEM SERVE?

For a past article in *The Eye* (January 2022), I noted that the government census showed 25,000 residents in the Tourist Zone of Huatulco, including La Crucecita. This, plus the approximately 7,000 hotel guests here in the high season, means that the FONATUR potable water system is serving approximately 32,000 people. In a 2022 request to fund a water study, FONATUR indicated that this number would rise to 41,000 by 2030.

Other communities within the larger area of the municipality of Santa María Huatulco, which includes the communities of Santa María itself, Copalita, Coyula, and others), all have potable water sources outside of the FONATUR system. The FONATUR water system covers the area from the Copalita River (think La Bocana), westward along the coast covering all the communities and bays along the coast as far as Maguey, and inland to include La Crucecita.

Most of the FONATUR water delivery is by pipe to end use, but in some sectors, like H3, the water is trucked in by FONATUR.

(2) WHAT ARE USES OF WATER IN HUATULCO?

In 2018, FONATUR, under their obligations for transparency, published a presentation on the potable water system for Huatulco. The 2017 consumption data are summarised here:

	Litres Per Day	%
Residences	3,847,920	34%
Hotels	3,200,512	28%
Commercial	1,749,709	16%
Lost	1,564,383	14%
Irrigation	876,337	8%
	11,238,861	100%

(3) HOW MUCH POTABLE WATER IS AVAILABLE?

The FONATUR potable water supply comes from eight wells along the Copalita river. The total water extracted from the wells in 2017 was 11 million litres per day. In a recent budget request document (2022), FONATUR reported that their current well production was 15 million litres per day, and stated that the amount was insufficient to meet existing requirements.

A budget of \$9.7 million pesos (\$500,000 USD) was granted to FONATUR for a pre-investment study in 2023 of locations for new wells, with the goal of bringing the potable water supply up to 21 million litres per day. As this budget is only for well site selection, it is probably safe to assume that any additional potable water for Huatulco is some years away.

For some time now, I have been aware of persistent rumours that some of FONATUR's potable water wells are impaired or non-functional. By visiting the wells and talking to operations personnel, I can confirm that all eight wells are in operation, and only one well (#8) has a reduced flow rate, roughly 25% lower than the average of the other seven wells. My investigation would confirm that the combined volume of all the wells is about 15 – 16 million litres of water per day.

Of course, the amount produced is not always the amount delivered. As shown in the consumption table above, 14% of the water produced from the wells was lost. Water lost due to leakage is a perennial problem in water delivery systems around the world. The loss rate in Canada and the United States is around 12%. In Mexico overall, the loss rate is thought to be between 20% and 40% as a result of underfunded maintenance of water infrastructure. Here in Huatulco, the reported 14% loss was before the last major earthquake. In just the previous month (December 2022), FONATUR finished replacing a damaged section of mainline pipe near La Bocana. Water lost from leakage is not only from the pipes and tanks used to deliver water to consumers. There are leaks in the water storage cisterns of residential buildings and hotels. Although the loss from private cisterns would not show up in the FONATUR water loss statistics, it would still reduce potable water availability to consumers, requiring even more supply.

One final note on water availability. Stating the obvious, the FONATUR Huatulco water system is dependent on funding. That funding is provided by the administration of President Andrés Manuel López Obrador (AMLO). In 2022, Huatulco was allocated \$250 million Pesos (\$12 million USD) to improve deteriorated infrastructure, including water.

For 2023, the PPEF (*El Proyecto de Presupuesto de Egresos de la Federación*, basically the Budget of Expenses project) has announced their proposed funding for the tourism sector as follows:

	\$Mxn (billions)	\$US (billions)	% of Tourist \$\$
All existing FONATUR resorts *	756	38	0.4%
Mayan Train	173,073	8,741	99.6%
Total	173,829	8,779	100%

*Ixtapa (Guerrero), Huatulco (Oaxaca), Bahía de Banderas (Nayarit), Los Cabos and Loreto (Baja California Sur), Pacific Coast (Sinaloa), Cancun and Cozumel (Quintana Roo)

The 2023 appropriation for the Mayan Train is \$8.7 billion USD. A Bloomberg news story from July 2022 reported the total cost to Mexico to complete the Mayan Train could reach \$20 Billion USD.

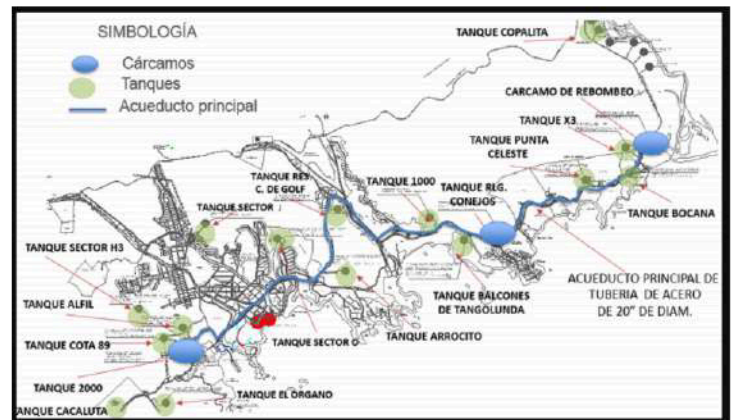
(4) HOW MUCH POTABLE WATER IS NEEDED?

Water systems around the world are sized in accordance with the formula:

Population times average water use/person/day = Volume of water needed per day

The volume of water per person varies in different countries and regions. The international OECD (Organisation for Economic Co-operation and Development) has collected data on the per capita use of potable water. The United States leads the world in consumption at 380 litres/person/day, Canada is at 335, Italy 250, and Sweden at 200 litres/person/day. I found only one reference on comparable water use in Mexico, and that was for Mexico City, which uses 200 litres/person/day.

To figure out Huatulco's per-person use of water, I used the Huatulco water consumption by category table above. If residential users consume 34% of the supply, and the population is about 25,000 people, consumption would come to 154 litres/person/day. Per person use by hotels, 28% of consumption, is substantially higher. Depending on occupancy rate, hotels use between 450 and 900 litres/person/day.



I'm still, however, trying to answer this question: How much potable water is *NEEDED*? The full answer to this question would depend on what "need" means. Or better still, do we need all the water we use? So let me throw out one more number. The World Health Organization suggests the minimum per person requirement for water use is 30 litres per day (for drinking, cooking, personal hygiene and laundry). As we all use way more than that, it is an open question as to how much even modest conservation efforts might reduce the demand on the Huatulco water system.

Although water conservation could be an important part of the solution to Huatulco water shortage problems, conservation of a shared resource never seems to happen voluntarily. So Huatulco-ites should expect to see their water bills continue to rise, and water outages to keep on keeping on.

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