

Short supply

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With a major increase in the global population being predicted, the supply of drinking water could prove a future hurdle

According to international research, access to clean, non-polluted water has become more and more difficult. Uncontrolled use of pesticides, a disregard for protecting water sources, draining underground aquifers without thought as to how long it takes to replenish them, and an expanding world population that is overwhelming traditional water sources combine to imperil people the world over. Insufficient clean water is recognised as the primary factor that leads to disease and death. Without access to more water, mankind faces a grim future.

In China, all aquifers and rivers are now believed to be polluted. That means, based on this fact alone, about 24 percent of the world's population has no access to clean water. The massive desalination plants in the Middle East are turning salt water into toxic mixes of heavy metals and salts that, when pumped into the Arabian Gulf, are slowly turning that body of water into a desert. Many experts expect the lack of adequate supplies of potable water to be the basis for future conflicts. Individuals and countries will battle over access to this essential but diminishing resource.

For this reason, several groups, such as the United Nations, Goldman Sachs, JPMorgan Chase, among others, have released troubling reports, while advocating environmentally friendly programmes to alleviate this burgeoning problem. Tony Allan, a professor at London's Kings

College, and Koichiro Matsuura, head of United Nations Educational, Scientific and Cultural Organisation (UNESCO), have both declared vital commentaries on how water will eventually become a tradable commodity as demand increases but supplies do not. In short, we're looking at a world where water will not be free anymore – but a commodity that will be priced according to its true value.

My co-author, Charles Edwards, and I have dedicated a full chapter on our book, *Transport Logistics: The Wheel of Commerce* on this looming concern over what is potentially the biggest threat to human existence. Our research opened our eyes to the harsh truth: with a world population that exceeds 6.5 billion and is predicted to rise by almost 50 percent in the next 40 years, the demand for water continues to grow. But the supply of readily available, safe, fresh and potable water is not expanding.

Access to water is limited or non-existent in many regions of the world. If life is to continue, available fresh water must be available where it is needed. Amid the seemingly hopeless circumstances, Charles and I came to know about Waters of Patagonia – a Chilean organisation that is aiming to be at the forefront of providing water for the world.

While an estimated 97 percent of all water on the earth is salt water found in the oceans, an estimated 60 percent of the remaining fresh water is locked in a frozen state in glaciers and ice fields. The largest sources of frozen water are Antarctica, Greenland and Chile. Recognising this, brothers Allen and Ian Szydlowski from Waters of Patagonia, acquired the rights to collect and bottle the natural melt flow from a series of glaciers in Southern Patagonia.

The volume of melt water is so large in this part of Chile that the surface waters of the Pacific Ocean some 50 miles offshore have no traces of salt; they are fresh and potable. The permits allow Waters of Patagonia to siphon off just some of the melt water. This reduces the impact of their operations on the natural environment. However, that relatively small percentage can easily translate into the difference between no water and access to a supply that is sufficient to meet the needs of many parts of the world. In this case, it is simply a matter of transport and logistics solutions.

While the plans of the Szydlowskis are to bottle this very high quality water, their real objective is to collect and transport fresh water in bulk quantities to areas around the world where access to safe water is either in limited supply or soon will not be available. Capturing the water is relatively simple.

Bottling the water is likewise a straightforward process. But moving very large bulk shipments of fresh water over long distances is a challenge that has only been accomplished for petroleum products. While some might look at the Waters of Patagonia as a supplier of water, in reality it is a logistics company.

Moving vast quantities of fresh water from a source to an area of demand is a transportation and logistics challenge, especially when the quantities exceed the typical volumes associated with bottled water. The movement of fresh water from the ice fields of Southern Patagonia in Chile heralds the emergence of a new international business.

Waters of Patagonia has designed a family of transport and logistics solutions to move different quantities and categories of its fresh water. They range from 0.5-litre bottles, small bulk shipments in specially equipped 20-foot ocean containers and adaptation of crude oil tankers, up to a massive towed bag that can accommodate 30,000 cubic metres of fresh water.

Bottles are the first step as the water is introduced to the market place as an up-scale product around the world. Filling and shipping ocean containers, similar to the current methods of moving bulk wine, are the second step. Adapting tankers to carry water in one direction and other products on a return voyage heralds the third step in the logistics evolution of the company. Eventually, the huge towed bags will be able to transport very large quantities of water, enough to satisfy the needs of thousands of consumers at competitive cost levels.

As in every business, the success of a venture can be reduced to a few key factors. In this case, the challenge is almost exclusively a logistics issue. The supply of water exists; as well as the demand for safe water. The challenge is to create an effective and efficient transport and logistics system that will convey the safe water from origin to destination. As the Szydlofskis believe, the essential mechanisms of a successful operation that will transform the water business include the creation of movable pipelines that will facilitate worldwide distribution, dependable supply and water quality.

The Szydlofskis have acquired tens of thousands of hectares that it will protect from development in order to ensure the supply of fresh water. The only neighbour is Chile's largest national park, Parque Nacional O'Higgins. As Ian points out, their actions are, in effect, translating the intrinsic value of the territory into an economically viable activity without disturbing the land. In keeping with the company's policy of preserving and protecting the natural environment, their plant has been designed to have a small carbon footprint, which is especially critical as it is located in the midst of a natural environment where any imbalance could disrupt the critical water supply.

Many other cities around the world have not embraced the fact that potable, clean, unpolluted water is no longer freely available. Officials and citizens generally lack the education needed to address this critical situation that could endanger our world as we know it – and not in centuries, but in years. To quote Allen and Ian's father JC, in his interview with Water Innovation magazine, published May 2010, "The notion that water should be free has to change. It's a commodity and it won't be long before this is recognised. In time, redistribution of water will become a normal practice, just like with oil."

The need for safe water around the world is undisputed. A supply of safe water in Chile has been confirmed. The remaining challenge and opportunity is how to move the water from its source to where it is needed in a safe and efficient manner. In all, I believe that the most critical water issues that the world is currently facing is making the redistribution of water an urgent necessity and incorporating realistic costs into the pricing of this valuable commodity.