

Chile - An Insight into the Country's Water Quality

Chile is a long, thin country that hugs the southwest coast of South America and is nearly twice the size of California. The entire country at its widest point is only about 300 miles, yet to travel its 2,500-mile length would be about equal to going from the southern tip of the Baja Peninsula to Ketchikan, Alaska. The terrain is desert in the north with a fertile central valley, volcanoes and lakes toward the south, giving way to a rugged and complex coastline. The Andes Mountains form the eastern border.

The water needs of Chile are defined by its unique geography. The mining industry is located in the northern desert. The coast of Chile is sparsely developed, so the focus on development of fresh or purified water supplies is driven by the needs of the mining industry. The south of Chile is in the Antarctic zone and is very thinly populated. It also has abundant water from rainfall and snowmelt. About 85% of Chile's population of 15.2 million live in urban centers in the central regions of the country with about 40% living in greater Santiago. The water for this area comes from surface water generated by snowmelt from the Andes mountains.

Currently, 70% of water in Chile is used to generate electricity, while 30% is consumed. Of the consumption figure, irrigation makes up 84.5%, while industry demands 6.5%, mining 4.5%, and drinking water 4.5%.

Water supply systems in Chile provide drinking water to 92% of the urban population and sewage collection to 81%. In rural areas those percentages drop to 42% and 13% respectively. Overall, water is supplied to approximately 13.2 million people, with average consumption of approximately 700 liters per capita per day for domestic, industrial, and mining uses. Because of population growth, urban migration and industrial growth, the demand for potable water is expected to double by 2020, putting increased pressure on water resources in the capital and northern regions.

Industrial Water Treatment in Chile

Largely associated abroad with extractive industries, Chile nonetheless has an active and important industrial base. Industries as a group contribute around 15% of GDP, far ahead of the better known mining sector. Industrial production has grown 5% annually for the past 18 years, while industrial sales have kept a similar pace, at 7% annual growth. Projections put Chile's industrial output doubling by 2020, growing at a rate of 8% as the economy continues to expand.

The available water supplies in Chile are largely conducive to use by its industry. The primary exception is in the northern regions of the country where the mining users are often faced with water supplies high in minerals, suspended solids, and organics. Brackish water reverse osmosis equipment is occasionally used to purified provide water to the mining users. Water supplies to the primary industrial users in the central regions of Chile are typically municipal or other fresh water sources relatively low in dissolved solids.

Chile's GDP was projected at \$85 billion for 2000 with an annual real growth rate of 5.8%. Chile's economy is highly dependent on international trade. In 1999, exports accounted for about 20% of GDP. Their major export markets are EC 25%, U.S. 17%, Japan 15%, U.K. 6%, Argentina 3%, and Brazil 5%. Chile levies a flat 11 % customs duty (C.I.F. basis) on all imports from countries with which it has no free trade agreement. This will decline one per cent per year to six percent beginning January 1, 1999. There are no restrictions, non-tariff barriers, or reservations against U.S. products.

Imports supply nearly all of the water and wastewater treatment equipment in Chile. The total import market in 1997 was US\$158 million; the U.S. supplied US \$94.8, almost 60% of the market. European companies have about 35% market share and Asian countries about 5%. Domestic production is minimal and limited primarily to fabrication of large tanks and other distribution equipment.

The U.S. has been active in Chile for some time and U.S. technology is highly respected. Many Chilean regulations and engineering techniques are modeled after those of the U.S., offering U.S. companies a competitive advantage. European products are also accepted, but are often at a price disadvantage and must be justified by significantly better performance, ease of purchase, and financing. However, European manufacturers are frequently aggressive in their sales practices and possess a long-standing reputation for personalized after-sales service; an important factor in a country so far away from the supplier.

Asian products are sold when they are offered at a much lower price. For industrial water treatment equipment, efficiency and durability will probably play a more important role than price, since the projects require long useful lives to control replacement costs.

All companies, however, face stiff competition from international firms, particularly from the U.S., Spain, Germany, France, U.K. and Canada, many of which have been in the market for several years, establishing business networks with local companies and regulatory agencies. There is strong interest from European companies in entering the water sector as privatization unfolds.

The best prospects for foreign companies interested in supplying solutions for the industrial water treatment users in Chile include the following areas:

Sanitary services: Consulting, Design, and Engineering services in association with with other international and local companies to offer a full range of services, including financing.

Municipal wastewater treatment: The largest investments in wastewater treatment will be in the Metropolitan Region, specifically in the Santiago area.

Drinking water supply systems: Smaller scale systems for municipalities, industrial developments, and tourist areas will be required.

Innovative water reuse and recirculation systems for municipal and industrial applications (especially mining) will be an important element in water projects in the north.

Pollution prevention and control equipment for key industrial sectors such as mining, fish processing, pulp and paper, and food processing. This includes solvent extraction/electro-winnowing processes for copper mining, air flotation technologies for fishmeal to recover proteins, chlorine-free pulp bleaching technology, high-pressure spray systems, and evaporators.

Sludge-processing equipment for mining operations.

Pre-treatment technology for wastewater discharged into municipal systems.

Residential and Light Commercial Water Treatment in Chile

One would expect the best market for residential and light commercial water treatment equipment to be in the more highly-populated central region of Chile. However, the central region is also the region with the most abundant supply of fresh water and most developed distribution system, so the overall market for this type of equipment is small. The opportunities that do exist are in the residential POU market and for bottled water, ice, and small beverage producers. As in most small and developing markets, the demand for water purification equipment for car washing, pharmaceutical, and other ultrapure applications is minimal.

Sea Water Desalination

The use of sea water desalination in Chile is small, but does provide for some potential for the future. For a country with such a long coastline, the development of the coastal areas that would drive a demand for sea water desalination has lagged behind the development of the mining and central industrial areas. The market for sea water desalination is starting to emerge in the dry northern coastal regions adjacent to Iquique, as desalination technology becomes more affordable relative to other alternatives.

Conclusion

Chile is a country blessed by a combination of relatively small population and ample fresh water supplies. To date, its active international trade and business environment has provided Chile access to the water treatment technology needed. However, Chile will be faced with the same challenges as most other countries as its population grows and migrates to the less developed regions of the country.

Chile at a Glance:

Official Name:	Republic of Chile
Area:	756,945 sq. km.
Capital:	Santiago
Population:	15.2 million
Language:	Spanish
Education:	Years compulsory--8 Attendance - 3 million Adult literacy rate--95%
Life expectancy:	75 years

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