

TITULO: Chile's desalination challenge: unlocking seawater in a water-scarce nation				
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Chile's desalination challenge: unlocking seawater in a water-scarce nation

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A country shaped by scarcity and geography is turning to the ocean but legal hurdles remain.

Chile, a long and narrow country at the southern tip of the globe, is defined by its dramatic geography, from the arid Atacama Desert in the north to the pristine lakes and glaciers of Patagonia. Its territory includes a vast coastline, a fertile central valley and the towering Andes Mountains, all of which shape the country's relationship with water.

For the past 12 consecutive years, Chile has experienced rainfall levels consistently below historical averages, giving rise to what experts now call a 'mega-drought', a term that reflects both its severity and duration. In 2021 alone,[1] Chile recorded a nationwide precipitation deficit of 50 per cent. The World Resources Institute currently ranks Chile among the 20 countries facing the highest levels of water stress globally.[2] Meanwhile, rising water demand continues to increase pressure on already strained freshwater resources.

Geography has also played a defining role in water accessibility. In northern Chile, where desert conditions prevail and continental water sources are limited,[3] industries, particularly mining, have increasingly turned to the ocean to meet their water needs. This shift has catalysed the rapid expansion of the desalination sector. Several large-scale desalination plants are already in operation, and many more are in development, including a new industry trend: multipurpose and multiclient projects.

According to ACADES, Chile currently has 24 operational desalination projects[4] (each with a capacity of 20 litres per second or more), representing a combined installed capacity of 10,583 litres per second. Nearly all are located in the northern regions of Tarapacá, Antofagasta, Atacama and Copiapó, Chile's principal mining districts. This concentration is no coincidence: with few exceptions,[5] the mining sector has been the primary driver of seawater use through desalination.

Yet, despite the sector's momentum, developing desalination projects in Chile remains a complex and time-consuming endeavour. Project developers must navigate three major regulatory challenges: environmental authorisation, maritime concessions and surface land rights.

Chile's Law No. 19,300 on General Environmental Bases establishes the legal framework for environmental protection, including the requirement that certain projects undergo an environmental impact assessment process. However, desalination plants are not explicitly listed in Article 10 of the law, which sets out the categories of projects subject to be submitted to this process. As a result, desalination initiatives typically enter the environmental assessment process indirectly, often due to the need for effluent discharge permits. The environmental review can take up to two and a half years, culminating in the issuance of an Environmental Qualification Resolution (RCA), a kind of umbrella permit that may include certain sectoral authorisations. However, several additional sectoral permits are typically required afterward, significantly extending the project timeline.

In addition to environmental approval, project developers must secure a maritime concession,[6] – an administrative right to use state-owned coastal areas and seabeds – for the construction and operation of intake and discharge infrastructure. This procedure is also lengthy and bureaucratic, involving substantial documentation and repeated engagement with multiple government agencies. In practice, obtaining a maritime concession can take several years.

A third challenge lies in securing surface land rights. Desalination plants, pipelines and reservoirs require substantial land, whether public or private. Unlike mining and energy projects, desalination developments are not legally entitled to impose easements. As a result, developers must negotiate rights-of-way and long-term lease agreements directly with landowners, a process that can be fragmented and slow, particularly when multiple parties hold land rights.

In light of these challenges, the Chilean government has begun to take meaningful steps to facilitate desalination development. A bill currently under discussion in Congress (Bill No. 11,608-09 'On the Use of Seawater for Desalination') aims to provide greater legal certainty and reduce permitting timelines. While the bill still has room for refinement, it addresses several long-standing industry concerns, including the right to impose easements and reforms to streamline key permits. In parallel, the government has launched a public tender for the development and operation of a multipurpose desalination facility in the country's north, an initiative that signals strong institutional backing for seawater solutions.

Together, these efforts underscore Chile's growing commitment to desalination as a central pillar of its water strategy, both for population needs and industrial resilience. With the right legal and regulatory frameworks in place, seawater can become a cornerstone of Chile's long-term water security. Simply put, we need more seawater in our lives.