

Current situation and major challenges of desalination in Chile

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ABSTRACT

Northern regions of Chile are suffering a significant water scarcity, which has been exacerbated during the last decades mainly by the intensive metals and minerals production, and the continuous population growth in the zones affected. This article presents the current situation in the field of desalination in Chile aiming to identify the current and future desalination capacity, the major technical difficulties, environmental issues, and economic aspects faced by the desalination industry in the country. The current situation is presented by making an inventory of the industrial scale and by reviewing the scientific literature on the subject published until 2018. It was identified that eleven desalination plants at the industrial scale are operating in Chile, producing a total of 5,868 l/s of desalinated water. Also, there are ten desalination projects in different stages of evaluation, which will increase the desalination capacity by 116.5% to reach a total of 12,706 l/s in the coming years. Moreover, the major challenges identified were the harmful algal bloom events, the disposal of desalination concentrate, and the high energy consumption by water supply systems. Potential solutions were identified to address these challenges and proposed as future directions in this investigation.

Keywords: Desalination; Chile; Present; Challenges; Future

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