VINCENT FOURNIER/JA

Saline solutions: once seen as a last resort, desalination is the answer to Morocco's water crisis

DESALINATION

Morocco turns the sea taps on

As water becomes scarcer in Morocco, desalination is being used not just for drinking water, but for agricultural irrigation, too

In 1960, water availability in Morocco was around 3,500m³ per person per year. By 2000, through a combination of population growth, economic development and a decrease in precipitation, it had dropped to 1,000m³ per person. Forecasts predict it will fall to 490m³ by 2020, below the UN's 'absolute water scarcity' level of 500m³ per person per year.

Faced with such a dire reality, Morocco is turning to the sea for alternatives. Desalination – the process of turning saltwater into freshwater by removing dissolved salts – is a well-established but expensive and energy-intensive technology. For Morocco, which imports 95% of its energy, desalination has always been a last resort – something to fall back on in small, remote locations such as Laayoune or Dakhla with no other water resources.

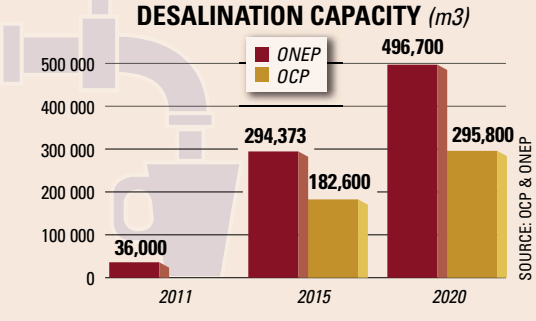
But the imperative is now widespread. The *Office National de l'Eau Potable* (ONEP), Morocco's bulk water producer and main public water utility, is in the midst of a large desalination programme, which should see a 13-fold increase in its desalination capacity by 2020.

Even more symptomatic of the seriousness of water scarcity is that desalination is no longer confined to drinking-water production. *Office Chérifien des Phosphates* (OCP), Morocco's state-run phosphate conglomerate, is building a large desalination plant in Jorf Lasfar, which will be the biggest in Morocco, producing 220,000m³/d by 2020. OCP plans to launch a tender for the construction of another large plant for its Safi site by the end of the year.

The government also plans to build a desalination plant to provide water for irrigation in Chtouka, south of Agadir, Morocco's premium agricultural area. Chtouka's agricultural success has come at great environmental cost, however: groundwater levels have dropped 40m over the past 20 years, and the ministry of agriculture estimates the annual water deficit in the area at 58 million m³.

3,000

Number of jobs at risk should the salinity of groundwater levels rise much further in Chtouka



ONEP plans a 13-fold increase its desalination capacity by 2020; OCP is building large plants

TWO BIRDS WITH ONE STONE

The consequences of such overexploitation are serious: smallholders are struggling to keep up with increasing pumping costs, and saline intrusion is polluting the aquifer. "If we carry on with business as usual, the aquifer will become so saline that agricultural activity will no longer be possible in Chtouka," says Arrifi El Mahdi, director of public-private partnerships in irrigation at the ministry of agriculture, rural development and fisheries. "It represents an opportunity cost of 3 billion dirhams in capital expenditures and 9 billion dirhams in operating expenditures, and 3,000 jobs would be at risk. This justifies the construction of a desalination plant."

Morocco now needs to work out how to finance such infrastructure. It costs €60m-80m ($80m-105m) to build a large desalination plant, with high running costs (50% energy). For its flagship plant in Agadir (100,000m³/d), ONEP has launched a tender for a 25-year build-operate-transfer contract to construct and operate the plant, the first of its kind in Morocco. The ministry of agriculture is also considering PPP options for Chtouka, although the challenge will be to guarantee that farmers buy the plant's output rather than continue withdrawing from the aquifer. The days of cheap water may be over, but the willingness to acknowledge – and pay for – the new reality will require a more fundamental and long-term shift in attitude. ●

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