



When will water run out?

The world is perilously close to drying up in the next decade and Gulf water policy needs urgent prioritisation, writes **RYAN HARRISON**.

It may not feel like it, but the worst water crisis in the Middle East is here. And it's here to stay, according to most environmental experts. So much so that when things get bad in the coming decades, it will be enough to make the recent downturn look like a mere economic blip.

Freshwater supplies are approaching a critical point in much

of the region and in the Arab world in general, already one of the driest regions on the planet, countries will tip into severe water scarcity as early as 2015, according to a recent report by the Arab Forum for Environment and Development (AFED).

By then, people living in the region will have to survive on less than 500 cubic metres of water a year each, or below a tenth of the world average

of more than 6,000 cubic metres per capita. Supply per capita has plunged to only a quarter of its 1960 level.

William Rees, the University of British Columbia economist who developed the notion of the eco-footprint, offers a grim vision of climate change where the world is dangerously warmer and drier.

"Imagine a four celsius degree warmer world, which some say is increasingly



likely by the end of the century. It's a place where the entire Middle East – as well as India, China, much of Africa and South America – are projected to become uninhabitable deserts.

"Should this unfold, the only upside is that the region would be ideal for solar collector arrays if civilization survives the displacement and migration of hundreds of millions of people and the resultant geopolitical chaos," he says.

Although Rees admits that such a doomsday scenario is based on a climate system that is complex, increasingly hard to predict and riddled with extreme weather events, such as the record heatwave in western Russia and the historic floods in Pakistan this summer.

However, he added, at the very least: "The probability of increasing, or even permanent, drought in at least parts of the Middle East is on the table as part of the generalized human forcing of global climate change."

In the coming decades, rapid population growth will further stress water resources in the region. According to UN projections, the Arab world, which has a current population of 360 million, will multiply to nearly 600 million by 2050.

This has led governments in the Gulf to pump billions of dollars into improving and expanding water networks. For instance, Saudi Arabia has increasingly reached out to the private sector to manage water projects to conserve resources and ensure consistent supplies as population growth spurs demand.

National Water Co, Saudi's state owned utility, recently announced it will put projects costing \$800 million

FRESHWATER MELTDOWN

Global discussion of climate change has focused on rising temperatures, which in and of themselves aren't a threat and have some positives (such as lowering winter heat demand). As UCLA geographer Laurence Smith shows in his important new book *The World in 2050*, nearly all our globe's surface freshwater is in glaciers and snowpack. Warming is causing "more of the world's water to leave the mountains to run to the sea," warns Smith, and "no amount of engineering" can reverse this loss in the short-term.

into operation next year. It comes as Riyadh-based investment bank NCB Capital said the kingdom needs \$33.3 billion in investments in desalination and water recycling plants.

The country gets about 100 millimetres (four inches) of rain a year, and most of that evaporates due to temperatures that can reach 50 degrees Celsius (122 degrees Fahrenheit) in the summer.

Like other Gulf states, the Saudi government is also studying raising tariffs on consumption to better conserve water. The government revised electricity rates in July.

The AFED report said: "Without fundamental changes in policies and practices, the situation [in the Arab world] will get worse, with drastic social, political and economic ramifications."

ACUTE GULF SHORTAGES WITHIN 15 YEARS

The Arab world has five per cent of the world's population, but only one per cent of its renewable fresh water.

Agriculture consumes 85 per cent of Arab water use, compared with a world average of 70 per cent. Irrigation efficiency is only 30 per cent, against a world average of 45 per cent.

Groundwater is over-exploited, leading to significant declines in water tables, pollution of aquifers

and seawater intrusion in coastal areas. According to delegates at last month's World Economic Forum summit in Dubai, the Middle East will face acute water supply pressures in the next 15 years, with consumption in the region projected to increase by 50 per cent.

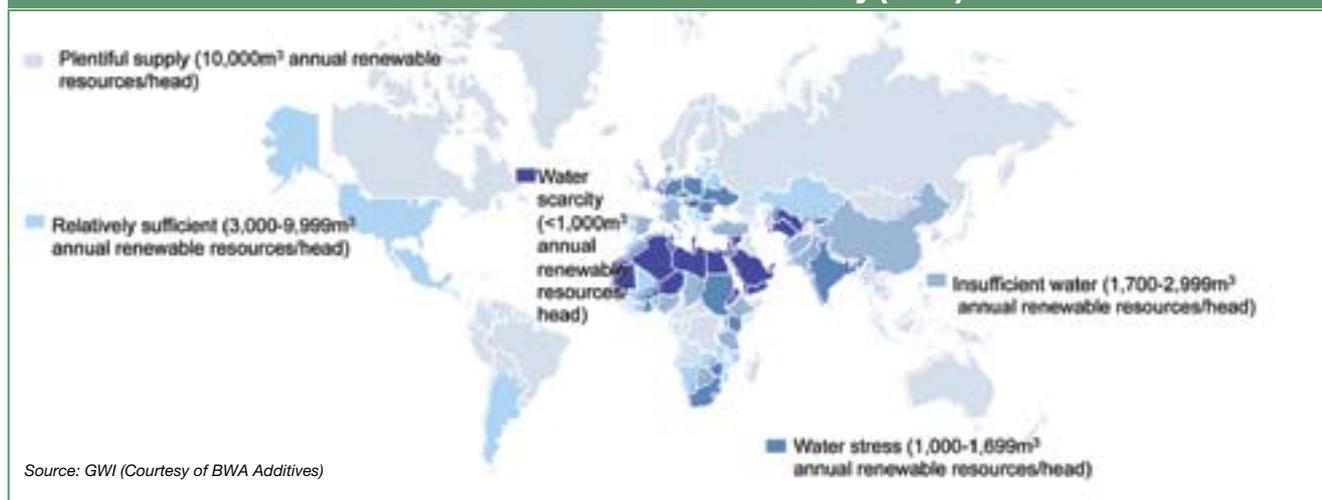
Meanwhile, the region's population is projected to grow by 4.5 per cent this year.

In November, Rashid Ahmed bin Fahad, the UAE's Minister of Environment

and Water, told members of the Federal National Council: "Water is ... considered the primary challenge in the UAE." Agriculture was one area in which water use needed "a fundamental rethinking", he said.

Rapid urbanisation, industrialisation, energy production and agricultural activity in the region have led to water overuse and intense competition among countries for available water resources.

Global Distribution of Water Scarcity (2000)



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Groundwater is over-exploited, leading to significant declines in water tables, pollution of aquifers and seawater intrusion in coastal areas, AFED said. More than 43 per cent of wastewater is discharged raw, while only 20 per cent is reused.

Meanwhile, the Arab world has five per cent of the world's population but only one per cent of its renewable fresh water, so several Gulf states rely heavily on desalinated sea water, accounting for more than half the world's desalination capacity.

Therefore, the desalination industry is expected to grow 15 – 20 per cent per year for the projectable future, said Paul Turgeon, president at BWA Water Additives, a water treatment specialist.

He said there is an increasing demand for potable water (or drinking water) globally, and in the Middle East this demand is high and growing fast.

"There are two methods of desalination. First, there is thermal, which is fossil-fuel intensive and is favoured by the Middle Eastern countries. Then there is the reverse-osmosis technique which is popular in Australia, China and the US.

"Growth in industries, agriculture and population is fuelling the global demand for potable water. There is

demand in countries where there is no access to potable water; and there is also demand in countries that have growing populations and limited potable water resources," said Turgeon.

BWA creates and dispenses chemicals that help with the desalination process – including descaling, cleaning and corrosion inhibiting technology.

He added: "We work closely with manufacturers in the desalination process. The demand for reverse osmosis is growing. The demand for thermal is growing, even though the costs are high, it is desirable in the Middle East region because of access to fossil fuels."

Concerns about the general state of water in the region were heightened last month, when experts cited by CNN said Yemen could be the first nation to completely run out of water in a few years, a prospect that does not bode well for its young population of 24 million that is expected to double in 20 years.

In Sana'a, which could be the world's first capital city to go dry, the population is growing at a rate of seven per cent per year as people flee from the parched outer reaches of the country.

So while the threat of scarcity may not be as rapid or intense as the recent financial upheaval, the looming crisis is slowly but surely sneaking up on the Middle East. Governments should remain on high alert in their efforts to limit any damage from the coming decades' water torture. ■

GOVERNMENTS NEED TO TALK

A damning report from the Arab Forum for Environment and Development recently heaped pressure on Gulf states to act to handle the water crisis. It said the challenge could be solved by effective government and better management. But, as the final conclusion of the report summed up: "The root of the Arab water crisis is a set of political and management

shortcomings: water institutions are fragmented, water legal systems are deficient, public water budgets are constrained, water policies are divorced from sound science, water investments are poorly targeted, funding and regulations for pollution control are insufficient, controls over proper aquifer use are lacking, and water prices are artificially low."