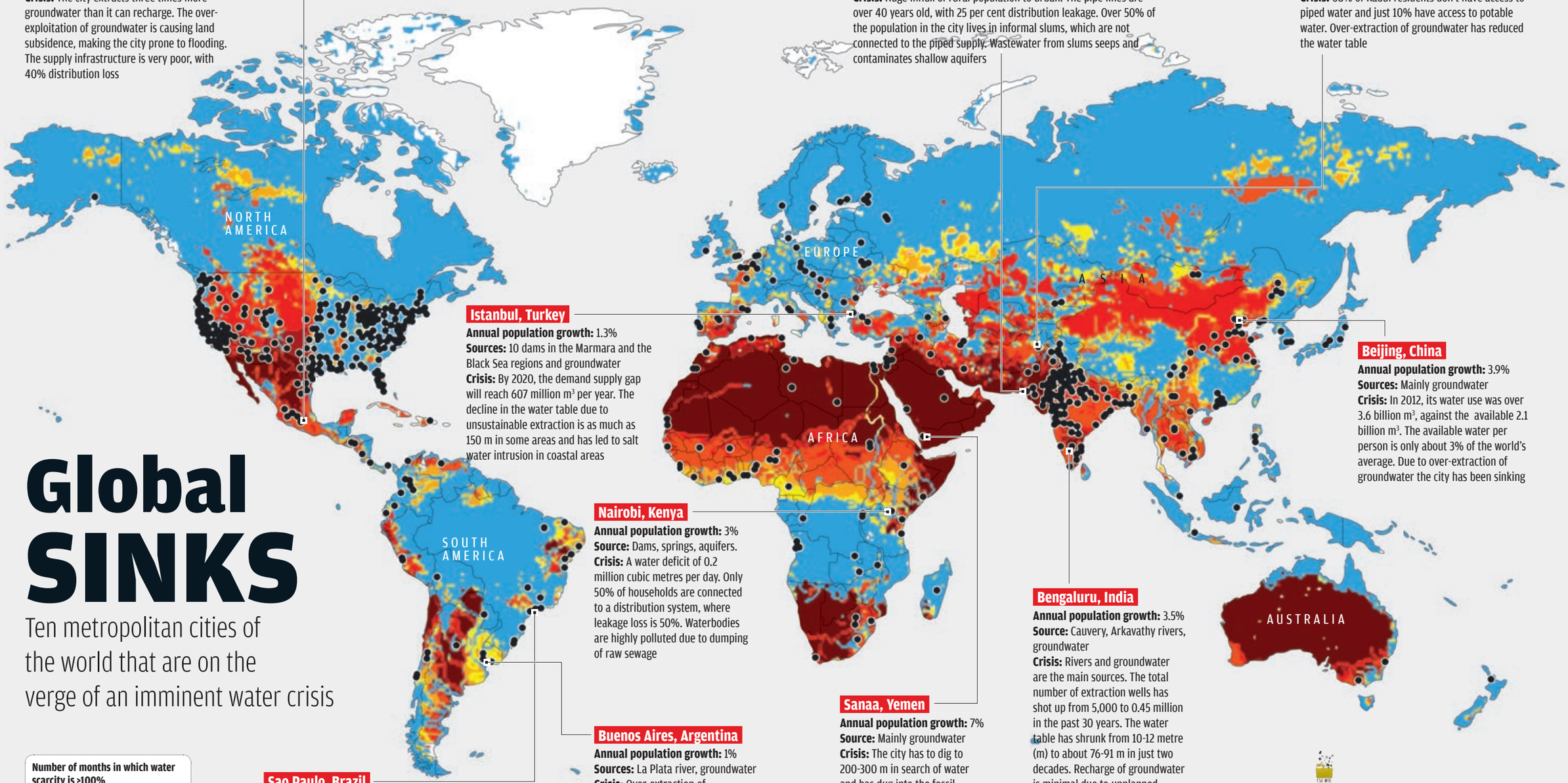
COVER STORY

Global SINKS

Ten metropolitan cities of the world that are on the verge of an imminent water crisis



Mexico City, Mexico
Annual population growth: 1.5%
Source: Surface and groundwater
Crisis: The city extracts three times more groundwater than it can recharge. The over-exploitation of groundwater is causing land subsidence, making the city prone to flooding. The supply infrastructure is very poor, with 40% distribution loss

Istanbul, Turkey
Annual population growth: 1.3%
Sources: 10 dams in the Marmara and the Black Sea regions and groundwater
Crisis: By 2020, the demand supply gap will reach 607 million m^3 per year. The decline in the water table due to unsustainable extraction is as much as 150 m in some areas and has led to salt water intrusion in coastal areas

Nairobi, Kenya
Annual population growth: 3%
Source: Dams, springs, aquifers.
Crisis: A water deficit of 0.2 million cubic metres per day. Only 50% of households are connected to a distribution system, where leakage loss is 50%. Waterbodies are highly polluted due to dumping of raw sewage

Sao Paulo, Brazil
Annual population growth: 1%
Sources: Six reservoirs
Crisis: The city loses 30% of its treated supply to leaks. The two main rivers are heavily polluted and rainforest destruction has reduced precipitation

Buenos Aires, Argentina
Annual population growth: 1%
Sources: La Plata river, groundwater
Crisis: Over-extraction of groundwater near the sea has led to saltwater intrusion, making groundwater non-potable. Only 5.8% sewage treated, rest discharged in the city's waterbodies

Karachi, Pakistan
Annual population growth: 5%
Source: Surface and groundwater
Crisis: Huge influx of rural population to urban. The pipe lines are over 40 years old, with 25 per cent distribution leakage. Over 50% of the population in the city lives in informal slums, which are not connected to the piped supply. Wastewater from slums seeps and contaminates shallow aquifers

Kabul, Afghanistan
Annual population growth: 0.2 million
Source: Groundwater
Crisis: 68% of Kabul residents don't have access to piped water and just 10% have access to potable water. Over-extraction of groundwater has reduced the water table

Beijing, China
Annual population growth: 3.9%
Sources: Mainly groundwater
Crisis: In 2012, its water use was over 3.6 billion m^3, against the available 2.1 billion m^3. The available water per person is only about 3% of the world's average. Due to over-extraction of groundwater the city has been sinking

Sanaa, Yemen
Annual population growth: 7%
Source: Mainly groundwater
Crisis: The city has to dig to 200-300 m in search of water and has dug into the fossil aquifer, which, estimates say, will be over in a decade.
Less than 50% of the population receives piped water and leakage loss is 60%

Bengaluru, India
Annual population growth: 3.5%
Source: Cauvery, Arkavathy rivers, groundwater
Crisis: Rivers and groundwater are the main sources. The total number of extraction wells has shot up from 5,000 to 0.45 million in the past 30 years. The water table has shrunk from 10-12 metre (m) to about 76-91 m in just two decades. Recharge of groundwater is minimal due to unplanned urbanisation. The city only uses half of its treatment capacity to treat the waste and as a result a substantial amount of waste is dumped in the waterbodies

Prepared by DTE/CSE Data Centre
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Source: The United Nations World Water Development Report 2017; Martina Florke et al, 2018, Water competition between cities and agriculture driven by climate change and urban growth, *Nature Sustainability*