

## SNAPSHOT

# A drop to drink

In Darfur, the onerous task of water collection is made more manageable by simple innovations such as large-capacity rollerdrums to replace head-carrying. However, the situation for this woman and millions like her remains bleak, with a drought predicted for the summer, just months after the region experienced its worst drought in 60 years.

As demand for water increases across the globe, its availability in many already-strained regions is likely to decrease, owing to climate change, the latest United Nations World Water Development Report (<http://go.nature.com/14h1KC>) warns. The triennial synthesis of global water-stocks research, released in March, paints a gloomy picture, even though a separate report (<http://go.nature.com/2Q9cqy>) reveals that the Millennium Development target to halve the number of people without safe drinking water has been met, well

before the 2015 goal. It means that 89% of the global population now has access to potable water — 2 billion more than in 1990.

That still leaves nearly 800 million people without drinking water, and the ongoing move to urban centres is making things worse. There are more people without tap water in cities today, the report notes, than there were at the end of the 1990s.

The rate of groundwater withdrawal has at least tripled over the past 50 years and continues to increase by 1–2% per year, the report says. That's being driven by a number of factors. Population is on the rise, predicted to grow from 7 billion to 9.1 billion people by 2050. Along with rising standards of living and hunger for meat, this more-crowded world is expected to require a 70% boost in food. Food means water: producing 1 kg of rice requires about 3,500 litres, while

1 kg of beef sucks up a remarkable 15,000 litres. Demand for water for agriculture is predicted to go up 20% by 2050.

The bigger population will also require more energy, which again means more water. Power plants, including those fed by fossil fuels and geothermal and nuclear power — which together accounts for 78% of present-day electricity generation — use water to keep their plant machinery cool. The report estimates a boost of 11.2% in water used in energy production by 2050. About 20% of the world's current freshwater withdrawals are used in other industries — another number that's set to rise with global economic development.

Yet water is becoming scarcer. Some dryland regions of the planet saw a steep drop in rainfall in the early 1970s, which has persisted, leading to a 20% overall reduction in rainfall, the report notes. Climate models generally predict that the wet parts of the world will get wetter, and the dry parts, including Darfur and the Horn of Africa, will become drier. Monsoon patterns are also changing, making it difficult for locals to adapt to highly variable water supplies.

The mismatch between demand and supply is not the only worrying water trend. The frequency and intensity of water-related hazards are also on the rise, the report notes, with devastating effects on lives, infrastructure and livelihoods. The proportion of people living in flood-prone areas is rising, with natural disasters already costing as much as 15% of the annual gross domestic product in some developing countries.

The cost of adapting to the impacts of a global average temperature rise of 2 °C above pre-industrial levels is estimated at US\$70–100 billion per year between 2020 and 2050, the report notes. A good chunk of that will be to pay for water-related issues, from getting clean water to those who need it, to irrigating crops and managing floods. At the dry end of climate predictions, water-related problems should cost US\$13.7 billion; at the wet end of predictions, that rises to US\$19.2 billion.

NICOLA JONES



© UNESCO/ALBERT GONZALEZ FARRAN