



HOW CAN OUR BLUE PLANET BE RUNNING OUT OF FRESH WATER?

Audio slideshow transcript: Making dirty water clean

PROF IAIN STEWART:

Scientists have already come up with a few technologies that might go some way to solving the water crisis.

One approach is to use special bottles that clean dirty water and make it safe to drink. They contain tiny, nanometre-sized filters which can remove bacteria and viruses, but some pollutants - such as lead – still get through. The bottles have been used successfully in disaster relief efforts.

Another approach, known as ‘vapour compression distillation’ is to heat the water so that it becomes water vapour, and then condense it back into fresh water.

So purifying dirty water is possible, but expensive and inefficient. What if it was possible to use sea water, where we currently rely on fresh water? In 2009, scientists reported that they had developed salt-tolerant crops.

The simplest solution could just be to improve the way we manage the fresh water we have. In developing countries, 45 million cubic metres of fresh water are lost through underground leaks every day.

But still the magic solution would be a technology that allowed us to use the almost limitless supply of sea water. So most place their hopes on a process called desalination, which means the removal of salt from water. The most effective way of doing this is called reverse osmosis, using mechanical pressure to force water through a membrane, leaving salt on the other side.

Industrial facilities that do this already exist. This one opened in 2010 in Beckton, near London. But the process consumes huge amounts of energy, and that makes it expensive. The Beckton facility cost around £250 million to construct. Still – scientists believe that desalination offers the best hope of finding the answer to the impending water crisis.

Images courtesy of Getty Images, Lifesaver and Science Photo Library