

# Chemistry for Tomorrow's World

## Drinking water quality



Globally more than 1.2 billion people do not have safe drinking water, 2.4 billion lack sanitation facilities, and 1,000 children die every day as a consequence of waterborne diseases. Current population forecasts suggest that by 2015 an additional 784 million people worldwide will need to gain access to improved water sources, to meet the Millennium Development Goal target to halve the proportion of people without sustainable access to safe drinking water.<sup>1</sup>

We must also recognise the impact of food production and agricultural practices on water quality. Our reliance on 'virtual' water, in imported food and other supplies, places pressure on water in other countries.<sup>2</sup> Future energy solutions, such as biofuels, will also place additional stresses on water supplies.<sup>3</sup> International co-operation is essential to maximise the impact of future developments, and innovative monitoring, treatment and water management systems must be appropriate for local needs.<sup>4</sup>

### How can the chemical sciences help?

- Chemists must develop simple, energy efficient ways to purify water at the point where it is being used. This might involve new disinfection processes and the use of novel membranes to filter drinking water.
- Portable 'fit for purpose' technologies are vital. Scientists need to develop new instruments, sensors and analytical approaches to ensure consistent real-time measurement of water quality and to allow local populations to monitor quality and pre-empt, or effectively respond to, contamination disasters.
- Energy efficient methods of producing usable water from salt water, such as sea water, are urgently needed to increase the availability of water in times of shortage.
- Through collaboration with social scientists to understand water quality in the context of political, economic and social conditions, chemists will be able to develop innovative low-cost technologies appropriate for local needs, especially in areas of the developing world.<sup>5</sup>

### About the RSC & Chemistry for Tomorrow's World

The Royal Society of Chemistry (RSC) is the leading society and professional body for chemical scientists. Over 2008 and 2009, it gathered expert views to identify priority areas where the chemical sciences can play an important role in the development of society.

For more on this initiative please visit our website:

[www.rsc.org/roadmap](http://www.rsc.org/roadmap), contact us at [roadmap@rsc.org](mailto:roadmap@rsc.org) or call the RSC science team on +44 (0)1223 432424.

<sup>1</sup> <http://www.un.org/millenniumgoals/>

<sup>2</sup> *Global Water Security – an engineering perspective*, The Royal Academy of Engineering, April 2010

<sup>3</sup> Henrik Larsen, DHI Water Policy, 2008

<sup>4</sup> *Africa's Water Quality: A Chemical Science Perspective*, The Pan Africa Chemistry Network, March 2010

<sup>5</sup> *Water water everywhere/nor any drop to drink*, Chemistry for Tomorrow's World Policy Event, RSC, April 2010