

Making clean drinking water universally available is 'achievable'

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Researchers found examples of good practice in South Asia and sub-Saharan Africa. Credit: Rob Hope

(Phys.org) —Making clean drinking water globally accessible is one of the biggest challenges of this century. Yet a new study by Oxford University contends that this goal is achievable if the key elements of good governance and management are adopted.

It proposes a framework built on examples of good practice in South Asia and sub-Saharan Africa – areas which the authors argue present the most severe challenges of all the developing countries. The study warns, however, that the scale of investment necessary to update the often neglected, ageing infrastructure of pipelines or water pumps goes beyond the narrow project timeframes favoured by politicians.

The findings are published in a landmark collection of papers on water security, risk and society by the journal *Philosophical Transactions of the Royal Society A*.

The study says the problem of providing clean water is most acute in developing countries, particularly in Africa, where creaking infrastructures struggle to keep pace with fast-growing urban populations; in rural areas, millions of water pumps stand unused waiting to be repaired. Despite hitting the Millennium Development Goal for drinking water access in 2012, over 780 million people still do not have safe and reliable drinking water, says the report, resulting in largely preventable health problems that most affect women and children.

Based on nine case studies in Cambodia, India, Kenya, Uganda and Senegal, the authors analysed new data in rural and urban areas to compare what the authors call the under-researched aspects of water security: the institutional side of how water supplies are delivered, their operation and management systems. They examined water payment systems and the quality of service, such as how quickly leaks or pumps were fixed, and whether populations had water on demand or a regularly disrupted service.

The study suggests that a critical factor in all cases is to have a good system for maintaining existing water supplies. Additionally, new information systems were found to be important for improving the way the quality of service was monitored. In West Africa, for instance, a structured crowd sourcing platform is used by water scheme managers to input weekly data via a mobile phone application; in East Africa, a mobile-enabled monitoring system is leading to faster repair times for water pumps.

Late bills are still a huge problem in developing countries, so consequently there is often a failure to recoup the service costs needed to

invest in the infrastructure. The study highlights a successful mobile water payment system adopted in one Kenyan city, which was the preferred way of paying bills for 85% of customers who would otherwise often have to queue in water company offices. More efficient and transparent payment systems were not only found to reduce debts, but also helped root out corrupt practices which diverted water payments into illegitimate channels.

The study warns that barriers to progress include the vested interests of individuals benefiting from the status quo, and misguided public investments which are short-term and without any real measures of performance. However, the authors argue that these findings provide concrete evidence to demonstrate how drinking water risks can be managed and reduced 'even in the most difficult and challenging contexts'.

Lead author Dr Rob Hope, from the Smith School of Enterprise and the Environment at the University of Oxford, said: 'We hope this study provides a framework to design policy and guide investments to systematically reduce drinking water risks in urban and rural contexts. These case studies demonstrate a variety of approaches taken by countries in some of the most challenging circumstances.

'They set benchmarks by which others can measure their own progress. Our examples include water managers who have introduced both bonus systems to reward good performance and competitions between different areas to drive up standards of service. Some water service providers have found ways of giving subsidies to expand access to water customers on the lowest incomes. There are other examples of initiatives to promote greater efficiency which can mean leaks or [water pumps](#) get fixed more quickly or water rationing can be replaced with a continuous service.

'Despite the often gloomy outlook voiced by some on the prospects for

making [drinking water](#) more accessible, these case studies in sub-Saharan Africa and South Asia show there are realistic pathways to transform water services, thereby potentially improving the health of the millions of people who depend upon them.'

Meanwhile, in the same collection of papers in the journal, Professor David Bradley of Oxford University writes that the monitoring programme developed to measure the success of the Millennium Development Goals (MDGs) for improving domestic water supply and basic sanitation worldwide has been effective. His paper discusses whether the successor to the MDGs for 2015 on [water security](#) will also include water for agriculture, flood control and the environment after 2015.

More information: Rob Hope study: [rsta.royalsocietypublishing.org ...
1/2002/20120417.full](http://rsta.royalsocietypublishing.org/.../2002/20120417.full)

David Bradley study: [rsta.royalsocietypublishing.org ...
1/2002/20120420.full](http://rsta.royalsocietypublishing.org/.../2002/20120420.full)

Provided by Oxford University

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