



SMALL AND SAFE

Investing in small community water supplies will reduce waterborne disease outbreaks and overall costs

A global issue

About half the world's population live in rural locations and are typically served by "small community water supplies", which are vulnerable to breakdown and contamination.

According to the WHO/UNICEF Joint Monitoring Programme on Water Supply and Sanitation, globally an estimated 884 million people lack access to an improved water source. Out of these, 743 million live in rural areas¹. Many of the remaining 2.5 billion rural dwellers are served by small water supplies that are managed by operators who lack adequate training, with significant gaps in adequate risk management practices.

The greatest risk is the potential for an outbreak of infectious disease such as acute diarrhoeal illness. Every year, 2.2 million deaths are attributed to diarrhoea alone, with the vast majority of deaths among children under the age of five². Some 88% of diarrhoea cases are attributed to unsafe water, inadequate sanitation and hygiene³.

Small community water supplies are a concern faced by both developed and developing countries. One in ten Europeans, between 40 and 50 million people, receive drinking-water from small or very small systems, including private wells⁴. Globally, and particularly in sub-Saharan Africa and Oceania, small water supplies found in rural areas significantly lag behind their urban counterparts in the quality of their drinking-water¹.

How are small community water supplies defined?

Small community water supplies are defined by the challenges faced in their administration and management.

Typical challenges include:

- Often under-trained operators;
- Remoteness and isolation;
- Harder to leverage financial and political support;
- Larger percentage of the population is vulnerable;
- Larger geographical spread; and
- Larger per unit cost of materials and construction.

These supplies include those serving rural villages and towns, individual households, vacation homes and trailer parks. Water supplies serving transient populations and those in periurban areas (the communities surrounding major towns and cities) are often organized in the same way and are beyond the reach of municipal services. These can also be considered small community water supplies.

¹ WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. *Progress on sanitation and drinking-water: 2010 Update*. Geneva and New York, World Health Organization and United Nations Children's Fund, 2010.

² WHO (2008). The global burden of disease: 2004 Update. http://www.who.int/healthinfo/global_burden_disease/2004_report_update/en/index.html

³ WHO, The World Health Report 2002. Geneva, World Health Organization, 2002.

⁴ Hulsmann A (2005). Small systems large problems: A European inventory of small water systems and associated problems. Web-based European Knowledge Network on Water/ENDWARE. http://www.weknow-waternetwork.com/uploads/booklets/05_small_water_systems_ver_june2005.pdf



Hand pump, Peru

Long-term goals

In 2000, the General Assembly of the United Nations adopted the Millennium Development Goals (MDGs) that identify actions and targets to improve health, food production, education, access to clean water and essential infrastructure. In particular, MDG target 7c aims to reduce by half the proportion of people without sustainable access to safe drinking-water and adequate sanitation.

Substantive and sustainable improvements to the safety of small community water supplies in developed and developing countries, particularly in rural areas, are needed to meet the MDG water and sanitation target.

Let's learn from experience!

Experience from developing and developed countries can inform the improvement of the management of small community water supplies. A single water supply incident in Walkerton, Canada resulted in widespread illness and loss of human life, alerting authorities for the need to invest significantly in improving small community water supplies, including their management practices. Given the health, social, financial and political impact of such incidents, countries should not wait for them to occur before action is taken.

What is needed?

Small community water supplies do not receive adequate attention or investment and are failing millions of people.

The World Health Organization (WHO) has brought together the leading experts and practitioners – and the best available evidence – to produce simple and usable risk assessment and management tools applicable



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to small supplies. These are based on the Water Safety Plan approach, recommended in WHO's Guidelines for Drinking-water Quality.

Target areas for support include the pro-active assessment and management of risks to public health and training and education of community leaders and members and others responsible for these water supplies.

Research gaps need to be filled, particularly in the areas of socio-economics, community capacity and intervention effectiveness.

A pro-active approach pays!

After-the-event remedial actions in response to public health incidents highlight a lack of efficient planning and increase the cost in absolute terms, both financial and human.

A pro-active approach can reduce potential threats to public health and can convert the costs into benefits.

Interventions to improve water, sanitation and hygiene practices have the potential to prevent and reduce illness and death from diarrhoea significantly. These efforts would also result in savings to the health system and increased social and economic benefits for individuals and families.

Developed countries typically have adequate water supplies and so their focus is on the proper design and adequate maintenance and management of supplies. Yet the return on a US\$ 1 investment (in terms of costs averted and productivity gained) in developed countries is substantial, at US\$ 2.786.

What can be done to address challenges associated with small community water supplies?

The following are examples of what some countries have done:

- Using cell phone technology to transmit inspection and monitoring data collected by community members to public health inspectors (South Africa);
- Partnering certified operators with community operators to provide technical support and education (Canada);
- Using graphic-based pamphlets to educate community members on water safety and preventive maintenance of water supplies (Bangladesh);
- Supporting the implementation of Water Safety Plans (WSPs), WHO's recommended risk assessment, prioritization and management approach (Iceland, Guyana, Jamaica and others);
- Designing regulations based on the WSP approach, supported with grants (New Zealand and United Kingdom);
- Focusing on developing and delivering community-level training programmes that best ensure sustainability (Peru); and
- Funding nitrate testing of water supplied by private wells for households with someone who is pregnant or with a child up to six months old in order to prevent "blue-baby" syndrome (Lithuania).

In developing countries, the return on a US\$ 1 investment is US\$ 5.97⁵. The higher rate of return in developing countries is related to the potential to significantly decrease mortality rates.

Investing in small community water supplies and the development of appropriate policies, programmes and regulations is a strategic investment that will bring a multitude of benefits. Clearly, the greatest benefits are preventing illness and death and associated health costs. Other benefits include the increased potential for livelihood activities, education and business development and increasing the long-term sustainability of small communities.

Further information on small community water supplies and good practice can be found at: http://www.who.int/water_sanitation_health/dwq/smallcommunity/en/index.html.

⁵ Cameron J, Hunter P, Jagals P, Pond K, eds. *Valuing water, valuing livelihoods: Guidance document on social cost-benefit analysis of drinking-water interventions, with special reference to small community water supplies*. London and Geneva, International Water Association and World Health Organization, in press.

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