

Water supply and management

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By Vaishali Honawar

Providers of clean water technology stressed the importance of developing a realistic plan to provide safe drinking water to all human beings, and discussed some of the challenges faced in moving toward this goal, during a workshop on water supply and management.

Rhett Butler of SkyJuice Technology said 4,500 children die each day due to the consequences of consuming unsafe water and inadequate hygiene.

As many as 1.1 billion people in the world are currently without access to clean drinking water, and the number would grow to 2.3 billion by 2015, he added.

But bringing safe water to each of these people would require building new water supply services for 375,000 people each day until 2015 – an impossible goal. “We need to look for alternatives,” Mr. Butler said.



Detailing the characteristics of those most likely to not have access to safe drinking water, Mr. Butler said as many as four billion people, or 60 percent of the world's population, now make incomes of under \$3,000 each year. Higher proportions of these people are unlikely to have access to piped water supply, and many buy from mobile water vendors. Many also rely on unregulated surface water collection.

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The challenges, Mr. Butler said, are to implement suitable but low-cost technology that can stretch from emergency short-term to medium-term. The design should be sustainable with an option for community ownership and plants must be reliable and simple to operate, he added.

The solution, according to SkyJuice, is a simple, localized solution that does not require costly infrastructure and that can serve as an effective solution for water treatment for emergency supply and/or medium-term potable water.

The SkyJuice system, Mr. Butler said, has low-cost upfront and ongoing operating costs, and it produces potable water swiftly and easily, among other benefits.

SkyJuice technology uses ultra filtration membrane technology which is highly effective in removing all non-dissolved species in potable water.

Speakers



Moderator:
Rhett Butler
Founder/Chairman,
SkyJuice



Jonathan Randall
Humanitarian
Partnerships, World
Wildlife Fund (WWF)



Neil Wrigglesworth
Export Sales Manager,
Wagtech International
Limited



Mirco Richardson
Mage Industrie AG
(Watercone)

Workshop report from the
2009 Aid & Trade Event

2009
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 A stylized map of the world in light blue, with the text 'INTERNATIONAL AID & TRADE' overlaid in large, bold, red letters.

9-10 July 2009
Washington D.C., USA

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The technology purifies by direct filtration and physical removal and does not use chemical reactions or electricity, chemical satchels, collectors or reflectors etc. Units are designed for a life of five years minimum with an expected service life of up to 10 years.

Neil Wrigglesworth, the export sales manager of Wagtech International Limited, said his company works primarily in developing countries like Ghana, Rwanda and Bangladesh.

“Access to safe drinking water is a basic human right,” Mr. Wrigglesworth said. “But each year there are 1.6 million deaths due to diarrhea alone.”

Wagtech manufactures water and environmental testing equipment. The Berkshire, U.K.-based firm has offices in the Far East, Indian sub continent, East, West and South Africa, Central Asia, Middle East and South America.

The kits have been used successfully in disaster-hit areas. For instance, Wagtech International has provided 13 mobile testing laboratories to three major cities in Northern Iraq in a \$2 million project. Mr. Wrigglesworth described Wagtech as a “lab in a box.”

Among the benefits of the Wagtech kits, he said, is that the analysis they conduct conforms to World Health Organization guidelines. Further, he added, the kits also reduce dependence on a central, fixed-site laboratory for water testing.

He said he is just back from a trip to Zimbabwe where the infrastructure for monitoring water quality has broken down entirely and the country has neither the staff nor the money to revive it. “The central and fixed-site labs are no longer functioning,” he said, adding that in such a situation portable kits can reduce the dependency on laboratories.

Outlining the characteristics of good kits, Mr. Wrigglesworth said that they need to be lightweight and durable, and one shouldn't have to be a technician to use a kit.

“In many countries, they don't have any information [on water quality], especially in rural and poor urban areas. A rapid field assessment will provide the first set of usable information on water quality in a country and this can be the basis for designing a national routine monitoring and surveillance program,” Mr. Wrigglesworth said.



“Field testing is logistically easier and more cost-effective,” he added.

Mirco Richardson of Mage Industrie AG, introduced the audience to the Watercone, a portable still that turns salt water into potable water, and which has been used effectively in some parts of Yemen under a pilot project.

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“The Watercone started out as a design experiment,” Mr. Richardson said, adding that it is yet to be tested on a larger level.

“Large parts of human settlements are near oceans or rivers or near salt lakes,” he said. “But salt water is undrinkable and river water is polluted.”

While there are many systems that purify and filter muddy water, there are not many simple systems that desalinate, he said, adding that the small Watercone units ensure a supply of fresh drinking water each day.

Over a period of 24 hours, five liters of salt water can be transformed, using the sun's energy alone, into up

to 1.7 liters of drinking water. “It is not really distilled water, but close to it,”

Mr. Richardson said, adding it was safe enough to add to children's milk powder, for instance. The Watercone also removes any mercury, arsenic or cadmium in the water, he added.

Mr. Richardson described a successful pilot project that began in Yemen in 2004 where 100 Watercones were given to 10 fishermen families in two villages. Yemen has a large coastline and an acute shortage of drinking water, making it an ideal testing ground for this device. The Watercones became so popular, he said, that the men in the village would guard them at night, worried that people from neighboring villages would try to steal them.

In 2009, he said, Mage Industrie hopes to start more pilot projects where Watercones are needed. “For instance, when Haiti gets hurricanes, perfect conditions are created for a Watercone,” he said.

Mr. Richardson also detailed some of the problems with Watercone production, however, such as the very high cost due to the expensive recycled polycarbonate used to make the cone, as well as the long time required to produce them.

“Right now we can't sell them for under \$100, and NGOs are apprehensive about paying this,” he said.