The Hygiene Improvement Project (HIP)â€”a USAID-funded project to improve key hygiene practices at scale in five countriesâ€”warmly welcomes you to this e-conference. Household water treatment and safe storage (HWTS), together with provision of an improved water supply, adequate sanitation and hand washing promotion are highly effective interventions receiving increased attention of donors and implementers. As we all work to improve quality and access to safe water, a number of challenging questions arise. We have chosen two themes that emanate from HIPâ€™s work in various countries:

Theme 1: Household Water Treatment and Safe Storage (HWTS): What can the poor afford?

Theme 2: How do programs promote water treatment and ensure that the government continues to supply improved drinking water sources?

We will discuss these themes simultaneously

but on parallel tracks. We hope that you will share your experiences and opinions on both themes.

HIP is using this forum to bring together colleagues with experience in researching, developing, testing and applying these methodologies and systems with those colleagues in the field working directly withpeople to ensure households have consistent access to safe water. We know that convincing peopleâ€”who have very littleâ€”to invest in andregularly practice behaviors related to safe water can be a challenge. Through this e-conference we hope to learn more about the motivations and barriers households face to using household water treatment and safe storage methods and what families can afford. By debating these issues, we hope to identify critical factors for successful implementation and highlight opportunities to strengthen HWTS approaches in different country contexts while ensuring that safe water sources are provided.

Content

2006 E-Conference

Household Water Treatment and Storage; 2006 May 12 - 22 E-Conference
2006 E-Conference
Discussion area. Login required. Please send an e-mail to HIP[@]smtp.aed.org if you want to participate.

No
Yes

1: Household Water Treatment and Storage: What can the poor afford?

1: Household Water Treatment and Storage: What can the poor afford?

Treatment and safe storage of household drinking water is a practice that can reduce incidence of diarrhea by over 30 percent. Yet many people around the world do not have access to safe drinking water in the home. And many poor people do not even have an extra bucket in which to separate drinking water from water for other uses. Although a range of technologies exist to treat unsafe waterâ€”many that are low costâ€”a majority of people do not have access to one, let alone a choice of options to treat and store their water safely. Thus, some of the key questions of this theme revolve around:

What strategies exist that promote household water treatment and storage?

What value do people see in treating and storing water safely so that they sustain the practice over the long term?

How can we magnify the savings from treating and storing water safely so that the investment seems worth the cost and effort to households?

What schemes exist that encourage small business investment into water treatment and storage?

What different payment methods might make these products more affordable or desirable to customers?

SODIS

SODIS
Marco Campos
sodisper@fundacionsodis.org
Boiling, chlorination and filtration are the most widely known technologies for disinfecting water. It is important to add another one: solar disinfection.
Solar disinfection of water is a proved safe and cheap technology available to all people that have access to 6 hours of sunshine (as a minimum).
People only need to clear water through any procedure to make it as clear as 30 NTUs and then put water into a clear plastic bottle to expose it to solar radiation.
Infrared as well as UV radiation kills all microbia contened into the water being exposed in the following 6 hours. For practical reasons (i.e. absense of a clock) is widely recommended to exposed water during the day and let it cool off during night.

SODIS

SODIS
Alan Spybey

A query to
Foort Bustraan re message of - Thursday 11 May 2006

"....This is possible if you paint bottles half black, put it on iron roofsheet, "

... which half would that be - so that the line of division is along the length, or around the circumference? Also, if the former, presumably the blackened part should be next to the roof, and the clear part exposed to the UV. Also does it help if the bottle is resting on a corrugated iron roof rather than on a fibre or mud roof?

Thanks

Sodis

Sodis
Foort
foort_bustraan@dai.com
Hi Alan,

painting should be along the length and yes, blackened part should be next to the roof, and the clear part exposed to the UV. and corrugated roof makes it much hotter. I did it in North-Somalia couple of years back and because there are no corrugated roofs there (nomadic people), I used sand, but again kept it out of the wind..temperature in 20 liter plastic container went up above 60 deg within 4 hours.. this together with the UV killed all bacteriae..

now in Indonesia we work in urban slums; no place on the ground only on roofs, so we work on corrugated iron sheets...there are enough around either used as actual oofs or as scrap...

SODIS

SODIS
Kevin McGuigan
kmcguigan@rcsi.ie
I have been involved with solar disinfection research for over 14 years now.

If you have strong local sunshine the basic protocol needs only be:
1. Fill the bottle.
2. Place it in direct sunlight for 6 hours.
3. Drink it as soon as possible afterwards.

Yes it's better to reduce the turbidity.
Yes it's better if you can boost the water temperature.
Yes It's even better if you give it a good shake at the start to maximise the dissolved O2 levels.

BUT

Too much emphasis is placed on including these additional steps to a simple protocol. If you have guaranteed levels of sunshine then there is no necessity for these steps in the procedure. If sunshine levels are not guaranteed or intermittent then by all means include them

We carried out the original controlled field trials of this technique in 1994 with the Kenyan Maasai using any old bottle that we could get our hands on, with no procedures for reducing turbidity or maximising dissolved O2 levels. We still saw an approximate 10% reduction in rates of diarrhoea among children under 5 years (see Lancet 1996;348:1695-97).

Since then we and other groups have shown that SODIS is effective against a wide range of waterborne pathogens including:
Vibrio cholerae
Polio virus
Cryptosporidium parvum (cyst stage)
Giardia (cyst stage)
Enterococcus sp.
Escherichia coli
Salmonella typhi
Salmonella typhimurium
Salmonella enteritidis
Shigella dysenteriae Type I
Shigella flexneri
Streptococcus faecalis
Pseudomonas aeruginosa

Solar disinfection has been approved by the WHO as an appropriate intervention against waterborne disease in the aftermath of natural disasters or other emergencies.

SODIS

SODIS
Foort Bustraan

foort_bustraan@dai.com
I agree that SODIS can work very well. We are experimenting with it now, but the tricky part is to raise temperature enough (at least above 50 Celcius, even better > 60 Cel) and that for > 3 hours. This is possible if you paint bottles half black, put it on iron roofsheet, ideally protect it from wide and have sun all time...then E-Coli measurements show a 100% reduction in faecal coliform.
also bottles can not be oto large or else UV does not penetrate and water doesw not heat up enough; so we do this with 1.5 liter bottles, which means a family has to have space to put 10 on a roof....
Another advantage is that the bottles provide immediate safe storage in the house, as long as kids don't drink directly from the bottles...

SODIS recommendations

SODIS recommendations
Martin Wegelin
wegelin@eawag.ch
Dear all,

Eawag/Sandec carried out comprehensive laboratory and field tests and started this research in 1991. The UV-A light is the most important component for the inaction of pathogens causing diarrhoea. The water temperature plays a secondary role and becomes effective only at temperature above 45 oC. This has also been proven by a recent PhD research which investigate the inactivation mechanisms for bacteria inserted by SODIS. Since 5 years we are promoting worldwide, we have formal cooperation with more than 20 developing countries and more than 2 million people are using this simple method for drinking water disinfection. SODIS is well documented on the website httP://www.sodis.ch.

We do not recommend any more to paint the plastic half-side black. UV-A transparent bottles of 0.3 - 3 litres can be used for SODIS. The bottles also reduce the risk of a recontamination of the treated water as long as the water is stored in the bottle, consumed directly from the bottle and/or from a clean glass.

I kindly ask you to disseminate this information in order to avoid misleading recommendations.

Best regards.

Martin Wegelin
Dept. of Water and Sanitation in Developing Countries (Sandec), Eawag P.O.Box 611, CH-8600 Duebendorf, Switzerland
phone: +41-44-823 50 19, fax: +41-44-823 53 99
e-mail: martin.wegelin@eawag.ch
http://www.sodis.ch

safe storage made inexpensive

safe storage made inexpensive
Reid Harvey

purifier@localnet.com
I'm Reid Harvey, a ceramist involved with silver treated, pottery water purifiers. Several weeks ago I had a chance to visit a well drilling demonstration in the far north of Cameroon, and it struck me that there should be an opportunity, as per a location, to bypass household water treatment, going directly to safe storage. This involves the use of pottery water storage containers, a widespread practice in the South.

The well drilling was a great example of appropriate technology, four guys with the extensions of an auger, going down through 8 meters of sand to the water, a three hour process. It occurred to me that this water is probably quite pure when it comes out of the ground, but thereafter becomes contaminated, when it is placed into the pottery containers. The porous inner surfaces are a breeding ground for bacteria, and I wondered whether any study has ever been done, linking these pottery containers directly to the high infant mortality rate. It's an issue, however, that people love these containers, since there is a cooling effect when air currents contact the damp outer surfaces. It can be 48C outside (120F), but the water remains cool.

There are several ways of treating the inner pottery surfaces with a tiny amount of silver, which stand to be an excellant intervention. One such treatment is the two step process of, 1. painting dilute silver nitrate onto the inner surface of a pottery container, then drying, and, 2. painting salt water onto the inner surface, then rinsing. Thus there is an ion exchange, resulting in rather insoluble silver chloride. This is a process I've described, at the following web site, and have undertaken with ceramic filters, however, what is new is the application that gets around the need for household water treatment.

As with the household water treatment there will be a need for hygiene education. It's necessary to make certain that users of the containers understand the important need for hand washing, and that a dedicated ladle be used, such as a plastic cup. The first such projects will also need to undertake a bit of testing, to ascertain that the E. coli is being removed, and that there is no residual silver in the water, however, every such test already undertaken has indicated good results. Reputable labs will need to be engaged as professional back up, but there are also simple and inexpensive tests for these two procedures, available from 3M and Hanna Instruments, respectively.

Reid Harvey
www.SilverCeramicSystems.com

New topic

New topic

Still another alternative is discussed in this UN published document

http://www.ideassonline.org/bros_view_eng.asp?id=28

Peace
ron

safe storage made inexpensive

safe storage made inexpensive
Reid Harvey
purifier@localnet.com
Hi Mohammed Kamfut,

Thanks so much for sharing your enlightening news about the use of taps, at the bases of pottery water storage containers. It probably would have taken me a very long time to come up with this idea. There is another approach to the silver treatment of these pots, which should work well and is also well worth a little individual research, and in this case the table salt (sodium chloride) need not be used in a second step. Rather, following the silver nitrate treatment of the pot this is fired a second time. Alternatively it may be possible to apply the silver nitrate to the dried pot, prior to the one, and only firing of this. However, care must be taken not to use too much of the solution, since the pot will not have been fired, and will be subject to break-down, due to the excessive solution. In this case, in the testing the practicality will be largely about achieving a careful balance between the correct amount of silver to use, along with the minimal amount of solution.

For the simple tests needed I would like to recommend the use of the 3M product, PetriFilm Plates. And for the tests for the presence of silver there is a simple test by Hanna Instruments, among their ion specific approaches, a meter with four reagents. Purchased in bulk these tests ar fairly inexpensive, just 60 U.S. cents, per test of the 3M material, and $1.00 or $2.00 per test for the Hanna Instruments material. I recommend you purchase this last through the Hanna Instruments office in South Africa. But as I'm sure you are aware there will be a need for back-up tests, performed by a professional, reputable lab. The simple testing media are for a first round of the random tests, which will give quick results, and possibly cut down on the higher cost of the lab tests. And this will also create a good awareness among those workers who are engaged in the intervention.

I appreciate that you have shared the approach of the taps, since, along with the silver treatment I believe this to be among the lowest priced interventions. As such I have been wondering if it is too low priced to be taken seriously, since the application of the methodology would appear to discourage such approaches as tacking on an overhead amount as a percentage of the price of the material. Rather, some company would probably make an imported two step kit, with a lot of bells and whistles, and sell this for a much higher price, excessive to the affordability of the poor. I would estimate roughly, for the sizes of pot you have mentioned, that the price of silver nitrate required per container would be: US$0.10 for the 10 liter pot and under $1.00 for the 125 liter pot, and I would wholeheartedly encourage you, and others to pursue this.

Reid Harvey
www.SilverCeramicSystems.com

Safe storage

Safe storage
Mohammed Kamfut
mkamfut@unicef.org
Household water storage - Mohammed Kamfut

Hello Reid and other participants,

I find the article on "safe storage made inexpensive" to be an interesting piece. Earthen pots are also widely used in northern Nigeria. For affordability, convinience and associated cooling effects, they have become the most popular water storage containers in this part of the country where temperatures can exceed 40C during peak dry seasons. For the reasons stated, we have been working with our State partners to promote use of the pots in conjunction with plastic taps as part of efforts on household water security intervention.

The pots come in different sizes with capacitiesranging from about 10 lires to 125 litres for the large size. Plastic taps are fixed at the base of the pots by carefully punching a hole the size of the tap and sealing the surroundings with cementing material. Alternatively a hole is made at the time of moulding the pot but before it is fired in a kiln. The purpose of the tap is to reduce the chances of contaminating the water through the usual practice of dipping different containers into the pot for drawing water.

This intervention has also been extended to some schools in rural communities. The pots used in the schools are medium sized and designed in a way that the mouth is constricted to avoid the practice of dipping any container. This arrangement ensures that the tap becomes the only outlet for collecting water. The pots are placed on fixed wooden, earthen or concrete stands conviniently located around the classrooms for drinking purposes by the pupils and teachers. In the target schools, the pupils themselves are responsible for periodic cleaning of the pots and filling them up with water on a rotational basis. For each pot, a plastic cup is always kept on top of the pot cover for use by pupils who do not have personal cups with them.

Although the issue of contamination from the pots have not been studied in detail, the introduction of taps proved to be a more hygienic approach as compared to the conventional practice of dipping different containers to draw out water. Where taps are not in use, households are encouraged through hygiene promotion campaigns to ensure the cleanliness of their water storage facilities and always maintain a separate container for drawing water out of the storage pot. To reduce the risks of contamination, cups with handles are encouraged as as against the use of bowls or other containers without handles when drawing out water.

Findings from a controlled random sampling done in 2002 for a few households have shown significant difference in ecoli between the pots fixed with taps and those that were not. The pots not fixed with taps were of two categories; those used with only one cup and others where multiple cups were used to draw out water. In addition to the porous nature of the pots you've indicated, contamination was attributed to other factors including water storage, cleanliness of the pots, type of pot covers used, dipping of fingers into the pots when drawing water and similar practices.

Considering the adoption of these pots as dominnt water storage containers, communities should be supported through appropriate interventions such as the suggested use of combined silver nitrate and salt water solution to make the pots safer for use. Will be interesting to test some units of the pots for ecoli and residual silver nitrate.

Thanks
Mohammed Kamfut
Unicef D Field Office
Bauchi, Nigeria

Understanding household

preferences and practices

Understanding household preferences and practices
Julia Rosenbaum
jrosenba@aed.org
Hello all. I'm Julia Rosenbaum and serve as HIPs Country Implementation Coordinator. I'm seeing a few of the postings are mentioning the importance of reflecting consumer preferences vis a vis the various point-of-use treatment technologies (appropriateness, acceptability, dependability); and the importance of talking about advantages and draw-backs of the different technologies.

An approach HIP promotes which we've adopted from other work is the "negotiating behavior change". Rather than promoting ideal behaviors leading to improved health outcomes, home visitors (be they Ministry of Health promoters, various community volunteers, sanitation inspectors, NGO promoters, etc.) can â€œnegotiateâ€• improved behaviors, often a dramatic shift in program practice. Instead of working as educators or distributors of water treatment products or practices, they become facilitators of change.

I also want to put in a plug for a tool HIP is currently developing with International Network to Promote Household Water Treatment and Safe Storage (who have been most helpful in organizing this e-Forum as well, thank you!). The research tool captures consumer preference and PRACTICE regarding use of various PoU products (SODIS, chlorination, boiling, filters), looking at a set of attributes most important to consumers (taste, temperature, convenience to use and maintain, etc). It guides planners through the process of "negotiating" changes in product and practice that reduce the burden of using without affecting effectiveness. Data and experience from the negotiating and problem-solving during the home visits can be applied to guidelines for negotiating solutions as the approach to home visits in the intervention.

The tool is still under development, but will soon be available on the HIP and Network websites. In the meantime, you can get a good idea of the method by downloading the executive summary of the first application of the reseach tool in Nepal.

www.hip.watsan.net

silver impregnation

silver impregnation
Klaas van der Ven
watersafe@hetnet.nl
Hello Reid

Thanks for your article. Basic Water Needs Foundation (BWNF) starts a small research program with silver impregnation of ceramic filters.
We will use 1. silver nitrate, converted into silver chloride using salt water. 2. Concentated colloidal silver in powder form (70% silver), diluted in water.

These 2 methods will be compared impregnating standard ceramic filters in India.
Quite a few bacterial tests will be done by a laboratory in Auroville (India).
I hope to hear if other silver impregnation methods do exist.
In case people are interested in the test results, write me a mail. Test results will be ready in about 6 weeks from now.

Klaas

silver impregnation

silver impregnation
Reid Harvey
purifier@localnet.com
Hi Klaas,

There should certainly be room for more designs of the low cost ceramic filters, and I wish you success. At the last conference of the Network, when several presentations led to a developing consensus, that ceramic filters are acceptable to the users, I was very conscious that I was the only ceramist present. This scared me, and largely as a result I returned to the proximity of my alma mater, the New York State College of Ceramics at Alfred University. Now my goal is to get more ceramists involved.

Sometimes I betray these intentions, however, by acting all to human, getting jealous or beligerant, and I suffer terribly for this. If in our friendship this happens, please understand that it's a temporary lapse in judgement. I believe we need to talk to each other a lot, as we get through this process. It's been a long haul and it was 1999 that I devloped the pottery purifier, with little remuneration to the present. I do know that the verification takes a long time, and in my heart I know that winning or losing doesn't matter.

Sorry for the commentary and I'm simply happy to be a member of this great team. I feel certain that we can meet the objectives, the MDGs, whether on timetable or not. This is because we have some great technologies to offer the world, and we are the salt of the earth.

Reid

Hello Reid

Thanks for your article. Basic Water Needs Foundation (BWNF) starts a small research program with silver impregnation of ceramic filters.
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In case people are interested in the test results, write me a mail. Test results will be ready in about 6 weeks from now.

Klaas

Ownership and financing

Ownership and financing

Renuka Bery, Hygiene Improvement Project
rbery@aed.org
I've been the knowledge management specialist for the Hygiene Improvement Project (HIP) a USAID funded project operated by the Academy for Educational Development based in Washington, DC.

Larry mentioned in the last posting that the right ownership and financing schemes are likely more important than cost. I imagine that communities or consumers have to accept the methods being proposed, but what ownership could mean a different things. Can you clarify what you mean by "right ownership"?

Also, what different types of financing schemes have you tried and what experiences or lessons can you share about the success or failures of these financing schemes?

Answers on financing and ownership

Answers on financing and ownership
Larry Siegel, SWI
swi@cox.net
Let me try to respond to the questions in Renuka's earlier message:

1. QTS: I imagine that communities or consumers have to accept the methods being proposed, but what ownership could mean different things. Can you clarify what you mean by "right ownership.....Also, what different types of financing schemes have you tried and what experiences or lessons can you share about the success or failures of these financing schemes?"

2. SWI Answer: Renuka, in our field work so far, we have become convinced that either financial or contract ownership is necessary to have project sustainability. The project we are doing in central Mexico will have "contract ownership," since a local Rotary club has pledged to manage the three systems that are being installed in outlying villages and to carry out the terms of the contract that is agreed upon with each of the participating communities. In two of the communities, the Well Committees will be the local responsible party. In a third it will be the Director of the school were the project is sited. In the event that a drinking water system is not used property, damaged or not maintained, the Rotary Club will remove it and offer it to another community.

Financial ownership would involve subsidized purchase by a family, coop, or perhaps a village entity. We are starting a project in Bolivia to create a small family business using either rainwater or a commercial water purification technology as the supply source for a water bottling business that can provide water to fifteen families. We will try a micro-financing approach with terms that will permit a weekly net profit in addition to the loan payment.

Larry

Other Activities

Other Activities
Safe Water International
swi@cox.net
Dan and Friends,

Safe Water International (SWI) is working with several approaches through demonstration projects in central Mexico and Bolivia. Later this month we will install point-of-use systems in three villages in the Patzcuaro, Michoacan area of Mexico. One will use a sand filter and UV lamp, the second a multiple stage paper filter and the third a solar pasteurizer. In Bolivia we are working with a commercially manufactured SODIS like device which is designed to purify seven liters at a time and with the new LifeStraw.

In each case we are looking for convenience, economy, and durability, as well as a formula for community or personal ownership. We have seen some signs in Mexico that the regional water authority may be willing to accept operational and maintenance responsibility if they are allowed to consider small point-of-use devices as part of their regional program.

We are beginning to feel that the dependability and convenience of the purification approach are more important than cost. It is possible that a relatively sophisticated device can be used in a very poor area under the right ownership and financing scenarios.

Larry Siegel
Safe Water International
Carpinteria, CA USA
swi@cox.net

Safe storage made inexpensive

Safe storage made inexpensive
Dan Campbell
campbelldb@cdm.com
Reid,

Thanks for your interesting post. Do you have any cost data or economic information on the silver treated, pottery water purifiers?

Also, if any other participants have economic analyses of household water treatment technologies, I would like to learn of those.

Thanks,
Dan Campbell
Environmental Health at USAID

Safe storage made inexpensive

Safe storage made inexpensive
Reid Harvey

purifier@localnet.com
Hi Dan,

I'm happy to answer with some prices, though when you ask for data, or economic information I feel at a loss, as if there is more that I should be telling you. Can you expand on this? If you want more than pricing, please, let me know what specifically this would be.

The pottery water purifier systems that went into low income communities of Nepal, were priced at around $5.00, for a system of two eight liter buckets, and $7.00, for a system of two twelve liter buckets. However, with an increase in the cost of oil these prices have now gone up. The system we are now readying for the market in Kenya uses a single pottery cylinder, and a disk purifier. We expect this to be priced at around $4.00, and intend making a pitch to the low income, prospective purchasers, that a single illness in the family can be more costly than the price of the system is.

About the silver treated, pottery water storage containers, in the far north of Cameroon a twelve liter container is priced at around $2.00. I would estimate that the silver treatment for this container should not cost more than $0.50, which would account for the cost of the silver, the labor to do the treatment and the overhead. But with the need for various quality control tests some subsidy would be needed in the beginning. Development of market links would also be needed.

If I may I would also like to talk about the other issues of appropriatness, along with the minimization of prices, and these include: effectiveness, acceptability to the users and sustainability. I would hope that as those who are describing the attributes of their household technologies go through the process of explaining these, that they would talk about the disadvantages, along with the advantages. The pottery purifier systems have a lot of very strong attributes, but I will tell you up front that, even though the the production is sustainable, depending on minimal imports, it is not a simple matter to begin production. There is another pottery filter system which is much more simple to produce.

Rather, the pottery purifier is best introduced in existing potteries, and the purifiers are a highly processed product. I say this because I do not wish to feel as if someone should be pointing out the disadvantages of their technologies, along with the advantages, and I intend not be critical of these others. We need to be supportive of the other technologies, and all are urgently needed, but we need to be up front about both the pros and the cons.

Reid

Dan Campbell wrote:

>This email is to inform you that a new Forum message has been published at hip.watsan.net.
>
>---
>
>Safe storage made inexpensive - Dan Campbell
>
>Reid,
>
>Thanks for your interesting post. Do you have any cost data or economic information on the silver treated, pottery water purifiers?
>
>Also, if any other participants have economic analyses of household water treatment technologies, I would like to learn of those.
>
>Thanks,
>Dan Campbell

>Environmental Health at USAID
>

Safe household storage

Safe household storage
Giovanni Del Signore
giodelsignore@tiscali.it
I have developed a range of medium-small electrolytic on site chlorinators (no chemicals, only kitchen salt). One model is particularly suited for household. It is powered by a small PV module, it is portable (weigts 800 g), measuring 18x15x5 cm.
Placed on full sun for 1 hour it can produce up to 50 mg of equivalent chlorine. With this amount it is possible to keep safe from 20 to 50 litres of water.

Giovanni Del Signore

www.aquaclor.net

Small business on HWTS

Small business on HWTS
G. Del Signore
giodelsignore@tiscali.it
With reference to point 4 of the report by Hamdiyan and Wahabu regarding possible reasons for beginning small enterprises I propose a solar powered electrolytic hypochlorite generator (I have developed) capable to produce in 6 hours of sun up to 15 g of equivalent chlorine, sufficient to purify approximately 12000 litres of water per day.
Such a unit (it is easily portable, weighing 13 Kg in all) purchased by credit, could be placed in proximity of a well where small doses of hypochlorite solution may be sold to the villagers (poured directly into their jars or canisters) just after their water collection.

G. Del Signore

www.aquaclor.net

New topic

New topic
Ron RIvera
ronriverat@yahoo.com
See this document for still another income generating activity to make potable water inexpensively.

http://www.ideassonline.org/bros_view_eng.asp?id=28

Peace
ron

Low cost innovative ceramic water filters

Low cost innovative ceramic water filters
Klaas van der Ven
watersafe@hetnet.nl
Dear All

Basic Water Needs Foundation (BWNF) from the Netherlands has developed a new approach for a low cost ceramic water purification unit
At the moment BWNF operates mainly in India.

We expect that during at the end of 2007 the following models can be exported from India:

CSF filter: Output 5 litres of water per hour or more. The ceramic filter can be backwashed and is easy to clean. Expected price for a complete unit in bulk quantities will be around $ 2.50 A replacement filter (silver impregnated) will be offered for around $ 1.10
CSF HD filter: This will be the same model with added washable pre-filter (cloth) combined with coagulation agent. This model can treat very turbid water without premature clogging of the ceramic filter element. Price will be low, but at this stage we do not have a clear picture yet about future pricing.

Status:
CSF filter: Consumer tests with 50 families starts in India and Zambia around September 2006. Larger pilot projects planned in the beginning of 2007.
CSF HD filter: Successful prototype tests. Consumer test planned for 50 families in India at the end of 2006. Pilot project for 1000 or 2000 families planned in India around April 2007.

Social marketing policy: Delivering CSF filters to NGO's worldwide. NGO's could sell the filters with a modest margin to the public, to cover costs for awareness campaigns and distribution costs. Probably the filters could be sold using a micro-credit approach.

BWNF has developed a small scale water purification unit (DWS unit) for villages or slum areas. Safe drinking water is sold for in India for 1.25 US cents per 20 litres.
One pilot project, in combination with an innovative awareness campaign, has been launched in India (October 2005). In the beginning of 2007 BWNF will install around 10 water purification units in India. BWNF expects that when 300 families are buying safe drinking water from the DWS unit, all costs can be covered (depreciation, maintenance, electricity, water distribution costs, etc.),
Specifications: sandfilter (backwashable), activated carbon filters (backwashable), UV disinfection, electronic safety system. Capacity is 450 litres per hour.
We expect to offer the DWS unit (made in India) at the end of 2007 for around $ 750. This is excluding the (brick) housing of the unit, storage tanks, pump and electricity connection.

At this moment BWNF prefers to stay low-profile. We are training technicians in India, setting up assembling facilities and will wait for the results of the consumer tests.

Contact: Klaas van der Ven at watersafe@hetnet.nl

Cost-effectiveness of home-based chlorination and safe water storage...

Cost-effectiveness of home-based chlorination and safe water storage...
Dan Campbell
campbelldb@cdm.com
Below is an abstract of a May 2006 study published in the American Journal of Tropical Medicine and Hygiene that examined the cost-effectiveness of safe water systems for HIV-affected households in Tororo, Uganda.

1: Am J Trop Med Hyg. 2006 May;74(5):884-890. - Cost effectiveness of home-based chlorination and safe water storage in reducing diarrhea among HIV-affected households in rural Uganda. by Shrestha RK, Marseille E, Kahn JG, Lule JR, Pitter C, Blandford JM, Bunnell R, Coutinho A, Kizito F, Quick R, Mermin J.

Safe water systems (SWSs) have been shown to reduce diarrhea and death. We examined the cost-effectiveness of SWS for HIV-affected households using health outcomes and costs from a randomized controlled trial in Tororo, Uganda. SWS was part of a home-based health care package that included rapid diarrhea diagnosis and treatment of 196 households with relatively good water and sanitation coverage. SWS use averted 37 diarrhea episodes and 310 diarrhea-days, representing 0.155 disability-adjusted life year (DALY) gained per 100 person-years, but did not alter mortality. Net program costs were $5.21/episode averted, $0.62/diarrhea-day averted, and $1,252/DALY gained. If mortality reduction had equaled another SWS trial in Kenya, the cost would have been $11/DALY gained. The high SWS cost per DALY gained was probably caused by a lack of mortality benefit in a trial designed to rapidly treat diarrhea. SWS is an effective intervention whose cost-effectiveness is sensitive to diarrhea-related mortality, diarrhea incidence, and effective clinical management.

What can the poor afford?

What can the poor afford?
Michael Lea
mikel@jalmandir.com
Hello all,

Introduction: I'm Michael Lea, clearinghouse editor for treatment technologies providing household water security.

Key Point: Importance of having credit, micro-finance, and HWTS micro-enterprise projects.

A recent BBC article feature an innovative POU technology, LifeStraw: 700 gallon lifespan, priced approx. $3.50 US. A spokesperson for a UK NGO criticized the device as overly expensive.

I agree, HWTS is a major investment when immediate family needs of food and other essentials is the first priority for someone earning $1.00 to $2.00 US or less per day. The poorest of the poor

are not employed at all. Highlighting the importance of women-oriented credit, micro-finance, and micro-enterprise HWTS projects.

Michael (Canada)

References
BBC story link: [http://www.worldchanging.com/archives/004389.html]
LifeStraw link: [http://www.index2005.dk/Members/dafude/bodyObject]
Clearinghouse: [www.jalmandir.com]

Microcredit Water Filter Resource

Microcredit Water Filter Resource
Michael Lea
mikel@jalmandir.com
Dear All,

First, I would like to formally convey my appreciation to Susan Murcott and HIP for the excellent e-conference background paper. A very useful resource indeed - thank you. Returning the kindness with the following HWT microcredit link:

Acumen Fund Water Innovations
[http://www.acumenfund.org/Impact/WaterInnovations/]

Michael

Costs and prices of technologies

Costs and prices of technologies
Matthias Saladin
msaladin@fundacionsodis.org
Hello everyone,

My name is Matthias Saladin, I am working for the SODIS Foundation. In spite of our name, we have not been promoting only SODIS but a series of low-cost HWTS in Latin America over the past 5 years.

In our experience, cost is only a small part of the picture. For example, with chlorine products costing as little as 5-10 cents for treating 10-20 liters of water, it's difficult to argue that costs are the limiting factor why HWTS is not practised more commonly. In our experience, other factors play an important role as well - in the case of chlorine products for example, it's also a matter of product availability. In many countries of Latin America, the Ministries of Health give chlorine products for free to the families. While this may sound like a good idea - and one which probably was appropriate during cholera outbreaks and in post-emergency situations - it also creates two problems:
- people depend on the distribution (many families report drinking raw water "because the health post didn't give me the chlorine")
- people are not willing to pay for such products because they can get them for free at the health

post.

With the method of water boiling, costs seem to be low at first sight, especially if the water is boiled with fire wood. But collecting the wood actually is very expensive in terms of productive time lost... and wood as well as other fuels imply high environmental costs.

We have found that SODIS is a widely accepted method, but not only because of its low cost - many other factors such as taste and attractiveness of a method play an important role.

But generally, introducing a new method for water treatment is not easily done. Negotiating techniques during household visits can help a lot (see other contribution), but also other social marketing approaches and motivational techniques can improve a specific method - or a mix of several methods - being practices by the families who have been consuming raw water up to now.

Looking forward to hear from other institutions who have promoted several technologies under "real-life"-conditions.

Best regards,
Matthias

www.fundacionsodis.org (so far, only available in Spanish)

New topic

New topic
Arinita
arinita@gmail.com
Dear all,

It is great to see many of my collegues from around the world are giving valuable inputs on HWTS and I feel that I should share some of our experience in Nepal, as Nepal is already part of the conversation. I am Arinita M Shrestha and I work for Environment and Public Health Organization (ENPHO) as Program Manager for HWTS unit.

ENPHO has had significant experience in promoting HWTS in Nepal including SODIS, Chlorine solution, Kanchan arsenic removal filters and many others. In all cases, we have felt that following things should be taken care of when we talk about promoting HWTS:

1) if people really know what we mean safe water and if they are aware that their water is safe or not. Do they have access to testing their water and is it affordable?

2) If people have adequate knowledge on the kinds of HWTS that we are promoting. This makes a lot of difference on the acceptance of any HWTS. If they do not know how it is used and what are the advantages and contraints they will either neglect HWTS and safe water and on the other hand may not be conscious on getting safe water at all.

3) Community setting is very important, this includes physical and socio-economic aspects. If we try to promote a technology where people have hard time accepting it then we should not try to force them to use it.This is where we go wrong, as we may have selfish interest to achieve our project goals at times . Rather we should be ready to give them alternatives.I would like to share few examples of HWTS in Nepal and our lessons. For SODIS we have tried our best to promote in both urban and rural settings with many promotional and advocacy activities. And we had tried

to focus on poors. What we have learned is that if we only go for poor, the poor gets the idea that this technolgy is only for poor not for others. This makes them feel excluded from the society's routines and do not want to continue it because they will be titled as poor. This is not what we want. On the other hand we have also realised that farmers who needs to work from early morning are irregular users of HWTS and in our case SODIS as they hardly have time to fill the bottles for the day or two. We have felt that in rural areas due to bottlw problem it is not feasible so far. However, we are looking for other options such as scrap collectors who may help in bringing bottles in the communties. This will also take some time.

Similarly, for chlorination, their are certain group of population who do not like the taste/ smell. There are group of people who are insecure about just using filter, so they again boil or chlorinate it. What we have learnt from all of this is we cannot go with one option at all. There should at least be 2-3 options in hands to give alternatives. When we go to promote a technology then we usually say something not good about the technology they are using it. This may give an idea that we are markeitng the new HWTS. This should not be done. If for example a household is using a filter then when we go to promote chlorination or sodis, we should be able show advantages and disadvantages of all 3 options including filter and at times we may also end up guiding on using filter itself. The goal is to get safe water, not changing products

And the most important part is to add water quality, sanitation , hygiene practice and, economic and health benefits when promoting HWTS. Access to information on availability,technical support and if possible local resource center for HWTS is also needed.

Arinita

comparisions

comparisions
Matthias Saladin
msaladin@fundacionsodis.org
Dear Renuka,

I find the Nepal study quite interesting. However, if I understand the design correctly, the different technologies were given to the families for free - so it's hardly surprising filters are very popular, while other technologies seem to be less attractive.

As far as our experience with SODIS is concerned:
- weather is limiting in only very few places we have been working so far - even in regions with rainy seasons, you often have 6 hours of sunshine every day. Or you leave the bottles out for 2 days, which means you need more bottles and more planning, but this can be achieved by working with a behavior-change-methodology.

- bottle availability may be an issue in some regions - that's why you have to come up with local supply schemes or other ideas when promoting the SODIS method. In Latin America, bottles are available even in very remote settlings, but poor families may not buy bottled drinks, so the promoting entity has to develop a strategy on how to overcome that. In our experience, collecting the bottles at the selling point (small shops) and then distrituting them through the local health promoters has worked well.

Acceptability of methods

Acceptability of methods
Renuka Bery
rbery@aed.org
Matthais and Larry...and others

The Hygiene Improvement Project and Solutions Inc, (Nepal) recently conducted a product trial in Nepal of water treatment methods available or soon to be available in four districts. Mothers with small children participated in the study and evaluated one of four water treatment methods (CS filter, chlorination, SODIS, boiling) according to particular characteristics: taste, smell, appearance, temperature, acceptability to family methods, ease of use, perceived effectiveness and perceived value. Respondents perceived SODIS as a relatively easy method of water disinfection, but did not particularly like it as it was dependent on the sun and couldnâ€™t be used in all weather conditions. Most common dislikes of the methods included the warm temperature rendered by boiling, SODIS, and to a lesser degree, perceived from chlorination. Many reported general lack of availability of bottles that could present a barrier to SODIS use. The research team also reported unavailability of bottles at study locationsâ€¦.Many respondents using SODIS were eager to try a different water treatment method, preferably a method that could be used throughout the year and not be dependent on sunshine.

In this product trial, the CS filter was the most popular method across all districts for its ease of use, but questions remained about the efficacy of the CS filter based on the level of contaminated water after treatment. It was unclear from this trial whether the problems are with the filter systems themselves or with secondary contamination associated with improper filter maintenance.

Are these findings in Nepal similar to those you have found in Latin America?

For more information, the executive summary of this product trial is available in the background materials section of this e-conference (www.hip.watsan.net.)

Renuka Bery

Acceptability of Methods

Acceptability of Methods
Safe Water International, Larry Siegel
swi@cox.net
Renuka and Friends,

SWI has done nothing as extensive as the Nepal study you conducted to evaluate the acceptability of alternatives household drinking water purification solutions. Our experience is only anecdotal based on the field work required by our projects.

The bias of our organization is that a particular household drinking water solution is successful when a poor family is willing to purchase it. Until recently there have been few of these choices.

As we seek to understand this marketplace for the poor and the poorest of the poor, we are trying to understand the features of a product that will have wide appeal. Cost is obvious, as is taste. Convenience is probably an important consideration as well. Renuka, is it possible that the

results of your study point to this aspect of convenience as much or more than to the particular device?

Larry

Acceptability of Methods

Acceptability of Methods
Reid Harvey
purifier@localnet.com
Renuka and Others,

About the CS treated filters in Nepal, the best one to anwer these questions would be IDE, and they've done an excellant job, quite dedicated. But because of the time I helped them get started with their production and testing I'd like to make some observations. I understand that the Nepal study is now accessable and I'll be getting hold of this.

I did receive a copy of a short PowerPoint presentation on this study, however this was largely illegible. I was able to read that some of the CS filters gave a flow rate as high as 5.0 liters per hour, and this is excessive. My understanding has been that each and every filter is pre tested for flow rate, in the factory, so I'm not sure how the high flow candles got into the field. Studies done with the candles, in general, prior to putting these into the field, indicated that for candles with so high a flow rate, the E. coli removal was less than complete.

Also, initial work had been done with the purifiers with very high amounts of silver and very high numbers of colony units in the raw water, upto 90,000. A decision was made by our staff to reduce the amount of silver, so as to account for the removal of water that would have colony units uptot 5,000. This is because a small survey had indicated that the users would rarely have water in excess of the 5,000 CUs

I have every confidence that if the variables of quality control are taken into account, the amount of silver, the rate of flow and others, with correct random testing and lab backup, the purifiers will work as advertised. However I believe that for a more complete picture it would be best to contact IDE Nepal directly.

Meanwhile I'd be happy to go into some of the other details, in case anyone would like to hear about this, but I do not want to be overly complicated in this message.

Reid Harvey

Bibliography on Point-of-Use Water Disinfection

Bibliography on Point-of-Use Water Disinfection
Dan Campbell
campbelldb@cdm.com

Greetings:

I have learned a lot from the participants of the conference so far. I wanted to share the link to the Bibliography on Point-of-Use Water Disinfection that was compiled by Environmental Health at USAID and CDC/Safewater. It includes 120+ references and links are provided to the abstracts or full-text for most of the references. The bibliography is a work in progress and we will continue to add missed studies and update it with new studies. The link address is:
http://www.ehproject.org/ehkm/pou_bib2.html

Brainstorming Idea

Brainstorming Idea
Michael Lea
mikel@jalmandir.com
Dear All,

What if the bottom of the pyramid (BOP) Learning Lab at the Chapel Hillâ€™s Kenan-Flagler Business School could have a look at the HWT technologies within the Department of Environmental Sciences and Engineering, Chapel Hill, University of North Carolina to investigate possible schemes to encourage small business investment into water treatment and storage products?

Michael

BOP Link:
Prahalad, C. K. The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits. [http://www.whartonsp.com/title/0131467506]

some answers to hwts and pricing-nnsupa ceramic water filter experiences

some answers to hwts and pricing-nnsupa ceramic water filter experiences
michael commeh
kwekumichael@gmx.de
Q1. What strategies exist that promote household water treatment and storage?
Ans: the use of transparent containers allow users to experience at first hand how the systems works, what they use to drink and what they are drinking now. From our feedback ghana, all the participants indicated the difficulty they find in going back to the original source including tap water when their filter candle is broken. In ghana the other factors is the availability of the product wether clay pots or not, finishing, aesthetics and cost to a low extend. ghanaians ether rich or poor like some kind of sophistication in the operation of a project. don't give them chance of saying" but this simple thing" value goes with taht as well.The users are from all walks of life with educated customers being the large group of about 90-92%. They are mostly in the urban areas

mainly accra and kumasi. In kumasi the majority are from the university community including the vice chancellor and most professors. These customers normally come after two weeks to buy at least three extra filters fo r their parent/realtives in either in the rural areas or another part of ghana. Some customers will want to have clay pots instead fo the transparent plastic. Some too argue in favour of transparent plastic give them the chance to know what is happening. The kids love it too says one! One factor that will help promote the HWTS is rich or urban users buying for their rural relatives!!! Please NOTE this.
Q2. What value do people see in treating and storing water safely so that they sustain the practice over the long term?
Ans: Some users have realised the need to treat the water after using this product when they realise the sudden stop in visiting the doctor or complains about stomach probems.In fact my own sisters now see the need to use filtered for mum.for a year my mum has not visited the hospital illness and sisters have noticed that. We further show users the cost of treating thyphoid as against the cost of filter system. This must include transportation, pain, drug side effect and must be linked to infertility for both men and women in africa and they will listen pactice what they her. In ghana fertility is big social asset. We donâ€™t play with it.
Q3. How can we magnify the savings from treating and storing water safely so that the investment seems worth the cost and effort to households?
Ans: This will come about when contiunous product improvement in term technolgical advancement that will reduce production cost, buying components from china (because they are cheaper and well finished than made in ghana even though imported). The new option is maintaining the price weâ€™ve started with for the next five to ten years as production cost decreases. We have plans to demonstration to ghanaians do it yourself (D.I.Y.) containers so that they can prepare their own conatiners cheaply and by the filter candles to fix themselves.
Q4. What schemes exist that encourage small business investment into water treatment and storage?
Ans: there is some tax exemptions and likes for water suplliers in ghana, but request a coming from small and medium scale private water treatment and supply firms about possible incorporation of our product into their processing system. I have suggest on the nationa tv on programme call â€œwomen chatâ€• about the use of national health insurance scheme to help people purchase a filter system. The university is currently preparin an agreement with a private investor into the full commercial production of the product.
What different payment methods might make these products more affordable or desirable to customers?
Ans: currently what is working is installment system at the pace of the customer, especially those on the university campus. Of some prefer to pay out right. customers will want the product to be sent to them in house with delievery fees attached. Intersting isnâ€™t it? national health insurance is one of the possible and likely method the will enhance the promotion of the of such a project.! we are working on this one. it is slow though.

New topic

New topic
Ron rivera
ronriverat@yahoo.com
Can you send me a picture of the filer you are writing about?
PEace
Ron

looking for partners

looking for partners
Reid Harvey
purifier@localnet.com
Greetings again, from Kenya, where I'm working with a local organization, the Eastleigh Community Centre, to begin production of ceramic filters, both disk and candle. These are much the same as those that have had a successful implementation in Nepal, with my partners there, IDE. I am writing because the deadline for the Gates Foundation application is looming, the 31st,and we are seeking partners.

I had a bit of dialogue with some of the people around Bill Gates, Paul Allen and others, in January, 2005, so I feel confident that they are looking for projects that have good visibility, not starting too small. I am especially keen to work with Network participants, or would-be participants, who are thinking about implemetation on a regional basis.

As many, if not most of you may know, there is an issue of intellectual property on the pottery purifiers, however these filter systems are pledged to the poor with zero royalty. Please regard this, in essence, as an 'open technology.' While I welcome responses through the e-forum, we'll need to discuss the nitty gritty through addressing me diresctly: <purifier@localnet.com>.

Intellectual property may be an issue of debate, however there has already been the substantial advantage that this guarantees a certain quality control. Technologies which are simply 'open' cannot afford this. I have no particular devotion to I.P., and it has simply been an available resource.

Thanks,

Reid Harvey
www.SilverCeramicSystems.com

Technical Verification for Social Acceptability Testing?

Technical Verification for Social Acceptability Testing?
Daniele Lantagne and Rob Quick
dul4@cdc.gov
In reading over the great diversity of postings and information that has been sent in through this e-conference so far, there seemed to be one theme that I'd like to discuss and ask a question on.

Many people and groups have talked about the importance of social acceptability of different options, but very few people have talked about the related technical qualifications. While I completely agree that social acceptability is critical, I will argue that technical verification of the technology used is also critical - and that the two must be considered in tandem when conducting studies.

I would propose three minimum technical qualifications necessary to conduct social acceptability testing:

1) The technology must not have the potential to cause harm to the study population.

2) The technology must meet some minimum standards of proof of improvement to water quality in a laboratory setting.

3) Concurrent with social acceptability testing should be the verification that the technology is used effectively by the populations we are serving.

These may seem simple, but I'll give two specific examples of why I think perhaps we need to state them.

The first example is the Lifestraw filter, that has been mentioned in this forum. The ORIGINAL LifeStraw filters had iodine residuals that were high enough to cause health effects in a significant fraction of the population using it over a short term (email DUL4@cdc.gov for report). This is not acceptable. Having said that, several of us have been discussing these issues with LifeStraw management - and they are working on prototypes with lower iodine residuals. Further testing in the lab and the field are necessary before we feel that this technology is ready for social acceptability testing.

The second has to do with the AED study in Nepal that has been referenced here. The ceramic filters were found to be the most acceptable of the four options presented to potential users. However, treated waters in the ceramic arm of the AED study had bacterial contamination (see this e-conference web page for study results) . This leads to a very large question in my mind, which is:

Is it ethical for us to recommend something because people like it even though we don't know how effective it is?

Appropriate testing of the ceramic filters (pore size, microbiological removal efficiencies) prior to implementation in Nepal with the filters would have answered some of the deeper questions, such as: Is the failure of the filter due to its manufacture? Or due to poor hygiene in the home? With the highly quality-controlled Potters for Peace filter in Managua, we found complete removal of bacteria in the laboratory, but recontamination in finished water in the homes due to cleaning the receptacle with unfiltered water. A follow-on study found that if people were taught to clean the receptacle with filtered water, recontamination was drastically reduced.

I would also like to say that I think it's really important as well to consider social acceptability regionally. As Matthias pointed out for Central America, chlorine solution has been given away for free by health clinics for years - and thus there is resistance to paying for chlorine (even when the cost is very low at around 30 cents to treat 1,000 Liters of water) and less resistance to SODIS. I completely agree. However, in Africa and Asia - where chlorine hasn't been given away for free, the situation is very different. People are willing to pay for this technology. Cultural context and experience is key.

Social acceptability is one important piece of a larger verification process that should include laboratory and field water disinfection effectiveness, health impact, and affordability. Ultimately, to make a difference, scalability and sustainability will also need to be addressed. For large scale implementation activities, all of these factors should be considered.

Mark Sobsey and the International Network are currently working on technology verification standards for point-of-use water treatment options. These are much more developed and based on scientific review and information, and meant as an actual certification process.

Here, I am just wondering what we should establish as the minimum technical qualifications for conducting social acceptability testing - what do people think?

HWTS Promotion Strategies

HWTS Promotion Strategies
Michael Lea
mikel@jalmandir.com
Key Point - Positive Choice Theme

For "promotion to be effective, one of the important aspect of communication programmes is that they should emphasise â€œpositiveâ€• (rather than â€œnegativeâ€•) attitudes such as clarity, taste, good health, affordability, and ease of use. These were found to be better predictors of whether people were likely to adopt and sustain water treatment practices. They concluded that these preferred attributes of water should be used to promote water treatment, and that campaigns should emphasise â€œstaying healthyâ€• rather than â€œpreventing diseaseâ€•. They observed that mothers were not aware of the concept of â€œgermsâ€•, but indirectly linked good health with clean water, and bad quality water with diarrhoea and stomach upsets" (Nath KJ, Bloomfield SF, & Jones M, 2006, p. 33).

Reference

Nath, KJ., Bloomfield. SF., & Jones, M. (2006). Household water storage, handling and point-of-use treatment. A review commissioned by IFH; published on [http://www.ifh-homehygiene.org]

Sharing Personal Experiences

Sharing Personal Experiences
Jalmandir, Michael Lea
mikel@jalmandir.com
With good intentions, amble funding, and excellent promotion logistics the outcomes can still be less than desirable. Brief "build and they'll come" case in point - villagers may still prefer open defecation over newly built VIP latrines - instead using the buildings for grain storage. During a 2006 visit to India I gave a talk on the merits of Moringa oleifera to clarify water. Afterwards when local village health workers (women) were asked why the local bountiful seeds weren't been utilized by the community, the response was that villagers believed that the tree brought bad luck to the user.

Key Point - Community Health Workers

Key Point - Community Health Workers
Michael Lea
mikel@jalmandir.com
"In developing national programmes for promotion of hygiene practices such as household water treatment and safe storage, it is now recognised that one of the key activities is developing capacity for hygiene promotion at local level, i.e building a sufficient network of â€œcommunity/ fieldworkers/ professionalsâ€• (community health workers, community nurses, paediatricians,

NGOs, school teachers) with expertise in, and commitment to, hygiene promotion. Community workers are vital to successful hygiene promotion because only they understand their local community and local conditions" (p. 34).

Reference

Nath KJ, Bloomfield SF, & Jones M (2006). Household water storage, handling and point-of-use treatment. A review commissioned by IFH; published on [http://www.ifh-homehygiene.org]

Updated Links to Point-of-Use Web Sites

Updated Links to Point-of-Use Web Sites
Dan Campbell
campbelldb@cdm.com
Dear Colleagues:

I believe one useful product for the conference would be to include an up-to-date and comprehensive list of links to Point-of-Use web sites in the conference proceedings. Below is the list that I have compiled so far, but I am sure this is not a complete list:

Links to POU Related Web Sites

() BioSand Filter http://www.cawst.org/technology/watertreatment/filtration-biosand.php

() CDC/Safewater http://www.cdc.gov/safewater

() Ceramic Water Purifiers - http://www.purifier.com.np

() Environmental Health at USAID - http://www.ehproject.org

() International Scientific Forum on Home Hygiene (IFH) http://www.ifh-homehygiene.org

() MIT/Water and Sanitation - http://web.mit.edu/watsan

() P & G Safe Drinking Water - http://www.pghsi.com/safewater

() Population Services International - http://www.psi.org

() Potters for Peace/Nicaragua http://www.potpaz.org/index.htm

() SODIS, Solar Water Disinfection - http://www.sodis.ch

() SODIS Latin America - http://www.fundacionsodis.org

() USAID Hygiene Improvement Project - http://hip.watsan.net

() USAID Point-of-Use Water Disinfection & Zinc Treatment Project http://www.psp-one.com/section/other_contracts/pouzn

() WHO Network to Promote Household Water Treatment & Safe Storage -

http://www.who.int/household_water/en

Regards,
Dan Campbell, Web Manager
Environmental Health at USAID

New topic

New topic
ron rivera
ronriverat@yahoo.com
MORE WEB SITES ON CERAMIC FILTERS

Web sites on the Filter
United Nations Brochure on the Ceramic Filter Technology
PublicaciÃ³n de la Naciones Unidas sobre el filtro
http://www.ideassonline.org/bros_view_eng.asp?id=28 (ENGLISH)
http://www.ideassonline.org/pdf/br_28_59.pdf (SPANISH)
USAID REPORT on the Ceramic Water filter (Danielle Latange,CDC):
www.edc-cu.org/pdf/report1-final.pdf
POTTERS FOR PEACE
http://www.potpaz.org/pfpfilters.htm
http://www.edc-cu.org/filtron.htm
INTERNATIONAL DEVELOPMENT ENTERPRISES :
http://www.ide-international.org/Page.asp?NavID=210
GUATEMALA (AFA GUATEMALA FITLER): www.waterfiltersforthepoor.com
info@familyoftheamericas.org
PRACTICA FOUNDATION/HOLLAND Small Smart Water Solutions book
http://www.practicafoundation.nl/smartwater/
Engineers Without Borders: www.edc-cu.org/filtron.htm
CAMBODIA: RECOURSE DEVELOPMENT INTERNATIONAL
http://www.rdic.org/waterceramicfiltration.htm
USDA:http://www.fas.usda.gov/excredits/gfe/Nicaragua%20visit%209_02.html
NICARAGUA FILTRON (in Spanish) www.filtronnica.com
MIT : http://web.mit.edu/watsan/img_nicaragua_ceramic.htm
THAILAND filters: http://www.burmeseyouthproject.homestead.com/burma.html
NEPAL AND INDIA filters: http://www.solutionsbenefitinglife.com/gallery.htm
http://www.who.int/household_water/en
Other
SWISS DEVELOPMENT AGENCY:
Poverty Alleviation as a Business

http://www.intercooperation.ch/sed/product/heierli/main.html

Open Source Alternative for Scaling Up

Open Source Alternative for Scaling Up
Michael Lea
mikel@jalmandir.com
Dear All,

I have to be honest, the word "customers" being used to describe theme 1 has me questioning the profit motive for scaling up. I would like to put forward a viable alternative to the passive consumer-driven model - "open source". Embracing an open source distribution of appropriate HWTS technologies would empower individuals and communities to develop HWTS solutions they need with their own resources and skills, themselves becoming producers of HWTS ideas and products, bringing sustainable social and economic development.

How do we scale up? A few suggestions:

- By implementing background paper 6th recommendation, "make information on tools and best practices widely available through the Internet";

- Investment into local village knowledge centres;

- Support innovative last mile initiatives.

Cheers, Michael

Field Access to HWTS Information

Field Access to HWTS Information
Jalmandir, Michael Lea
mikel@jalmandir.com
I second Larry's suggestion about the importance of having HWTS data for slow-speed or intermittent community online access. May I also suggest looking at open source software, TiddlyWiki [http://www.tiddlywiki.com/]. One of the neatest features of TiddlyWiki is that it is entirely self-contained in a single HTML file - even including graphics, meaning that it is trivial to distribute a comprehensive HWTS website by email for later offline reading. Putting TiddlyWiki on a USB thumb drive lets you carry around a self contained notebook in the field that you can edit wherever there's a reasonably modern computer, whether it's a Mac, Linux or a PC.

Financing options

Financing options
Renuka Bery
rbery@aed.org
Larry:

I agree with you that efficacy is crucial and cost should not be a limiting factor. The case study presented for this econference, Pure Home Water in Ghana found that when they offered their products on credit, people purchased a system.

My organization, the Academy for Educational Development (AED), has been working to develop financing schemes for insecticide treated nets that ensures poor people have access but also does not undermine the commercial sector by offering subsidies to those who could afford to buy nets. It is an approach that could be adapted for many other applications, including HWTS

One way to achieve the goals of a targeted subsidy program while at the same time strengthening the commercial sector is to implement a discount voucher program that provides discounts to the poor and highly vulnerable. The vouchers can be distributed through government clinics and NGOs and then redeemed by the commercial sector, who commit to providing quality ITNs at reasonable prices. In this way, governments and donors can use their scarce funds to focus on delivering the subsidy directly to the poor rather than on doing a job that they are not well-prepared to do - procure, distribute, and market ITNs.

To date, the USAID NetMark Project has designed and implemented a dozen voucher programs in 6 countries that have achieved average redemption rates of 70%. These programs mainly focused on providing pregnant women with vouchers via the clinic system. Discounts varied from approximately 40% to 100% in the case of a Zambian program linked to a measles immunization campaign that wanted to provide free nets. Funding for these programs have been received from USAID, DFID, Red Cross, governments, and ExxonMobil. The discount voucher model has been adopted as a national program by Tanzania.

Financing Strategies - Subsidies

Financing Strategies - Subsidies
Jalmandir, Michael Lea

In continued discussion with Larry Siegel [1820], another excellent example of financing of a high cost solution also presently underway would be the UV Bucket (see below). Both the Mexican state and municipal governments have agreed to subsidize 200 pesos towards the total 300 peso ($30 US) cost per UV bucket. As Susan mentions in the e-conference background paper, "little research exists on subsidies as related to HWTS". This is an unfortunate situation as the arguments against subsidies are strong, examples being that communities may become too passive waiting for their service to arrive or individuals may buy a particular product because it is cheap instead of being appropriate for their needs. In spite of agents-of-change idealistic plans buying participation with subsidies or free give-aways (incentives) is community oppressive. Needless to say it will be interesting to follow both the eastern Bolivia and Baja, Mexico implementations. As Bruce Gordon [1818] suggested, the risk being that mistakes may unfortunately be repeated.

UV Bucket link:
[http://www.jalmandir.com]

Open Source Alternative for Scaling

Up

Open Source Alternative for Scaling Up
Safe Water International, Larry Siegel
swi@cox.net
In response to the postings of Michael Lea and Bruce Gordon regarding range and cost of household drinking water treatment options, two things can be suggested in reply. The first is the need for a single Internet point of information for all who are working on drinking water solutions.

Those working in the field typically have only unreliable, low speed Internet access and cannot perform lengthy searches to reach desired information. Safe Water International has on its wish list the creation of an Internet site like â€œCraigslistâ€• â€“ the popular Internet site for searching out jobs, residences and purchases -- that could provide quick access to a broad range of information about HWTS. We cannot address this project soon. The potential power and efficacy of a central source of easily accessible information on HWTS options and strategies may make this a worthwhile project at the governmental agency level.

Secondly, cost itself should not be a limiter when assessing household level options. Paul Farmerâ€™s work on treatment of infectious diseases may provide a relevant model here. Within the scope of household water treatment, efficacy should be the key feature. It is conceivable that high cost solutions that are operationally practical and effective in the settings of poor households can be accommodated with the right financing strategies. One such strategy may be to have household solutions considered as part of a public water distribution system with user rates that finance the purchase and maintenance of the household system. There is a version of this approach underway in eastern Bolivia, where state and municipal funds are being used to pay for single family rainwater storage tanks.

sharing negatives, making informed choices

sharing negatives, making informed choices
Bruce Gordon
gordonb@who.int
Hello,

My name is Bruce Gordon, Technical Officer with WHO, and coordinating work on the International Network to Promote Household Water Treatment and Safe Storage. We are all aware of the vast potential of HWTS, but also that there is no "silver bullet" technology, nor implementation approach. Clearly, there are a lot of lessons to be learned from honestly appraising programmatic effectiveness in implementing HWTS. Unfortunately, failed approaches are not as frequently shared, and we all lose when the same mistakes are repeated. So the first point I wanted to make was that we could benefit from hearing some negative (and positive) experiences.

The second refers to the "open source" distribution model brought up by Michael. Indeed, the importance of expanding consumer options was underscored in recent Network meetings/events, but also brings with it the confusion associated with a myriad of choices. It is incumbent on us to ensure that consumers have choices, but also clear information to make an informed decision. In

this regard, as CDC mentioned, WHO is preparing a document on "technology evaluation."

New topic

New topic

Hello,
Following Bruce Gordon, I would say that his point is quite interesting in order to open the discussion (looking at negative aspects).
I do not have particular experiences with HWTS more with alternative sanitation technologies.
However, one issue remain the same, we often lack analysis regarding the perception of the possible consumers.
When we mention SODIS or Eco San, both technologies are very interesting and bring a lot of enthusiasm for many development workers (like me for example) .
However, we often forget that this technology may not correspond to the demand for the most disadvantage people.
They often dream about received tap water or getting centralized network for sanitation.
One important part in promoting HWTS is really the marketing aspect (radio, television), we have to show that this type of technology is more advanced and as an empowering aspect.
Not only , the fact that because you are poor, "we offer you this solution" .
Best regards,
Laurent

New topic

New topic
Orlando Hernandez
ohernandez@aed.org
Hello E-conference participants. I am the M&E Specialist on the Hygiene Improvement Project.

As you suspect, I have M&E issues that I would want to bring up in this discussion.

In other hygiene areas such as hand washing, there are basically two schools of thought as far as behavior measurement is concerned. Since we do need to track the extent to which interventions change hygiene practices, the first school argues in favor of observed practices. As a result, structured observation is the gold standard. The second school assumes that self-reports are an option. There is probably a middle ground which would accept proxies such as presence of hand washing implements, location of implements with respect to contamination areas, knowledge about when to wash hands or attitudes and beliefs considered to be behavioral determinants. The proxies may include then factors that lead to practices and that research has shown has a direct relationship to practices.

The question about how to best measure household water treatment and storage practices is equally important. Different ways at getting a handle on practices are used. Measures include measures of behavioral determinants, observation of storage utensils, and measurement of chlorine residuals when chlorination is used for water treatment.

I ask the group what objective measures of water treatment are possible, which have been used, and how useful have they been? In addition, what should we do given the wide range of water treatment options? Can we incorporate such objective measures to household surveys?

If no cross water treatment method objective measure is possible, should we develop one? Should we develop one that can be incorporated to household surveys?

Aspirations

Aspirations
Mona Grieser
mgrieser@aed.org
Hi, Mona Grieser of HIP addressing some of the discussion that's been taking place.

I do think that the ideal technology for water disinfection has yet to be developed. The flow of information now available to even rural peoples means that their aspirations have risen and many poor rural householders want to emulate their more affluent urban sisters, to reduce their work, to seem "modern". The "appropriate technologies" that experts recommend are often distasteful to rural peoples since they may not correspond to their image of themselves. We may think that an item like a commercial, stainless steel filter with a tap may be too expensive for poor rural people's but it doesn't stop them from wanting one.

In our work in Nepal we found that rural people will take out loans often with high interest rates for aspirational products (to use a marketing term). They also preferred the concept of a filter rather than other disinfection methods although they were indeed willing to consider other methods. Unilever did extensive research on customer preferences before they designed the PURIT filter and while it's the Cadillac of filters (meaning expensive), it does have all the aspirational features householders want, and those that purchase it put it prominently in places where it can be seen by friends and visitors, so proud are they of their acquisition. In Madagascar our discussions with sanitation practitioners informs us that people don't really want Sanplat latrines that smell and encourage flies but prefer the "domed pour-flush pan" even though it's more expensive and uses more water.In other words we do not "know" whether the Unilever filter is too expensive for poor people...we assume it. Perhaps its time to think about program models that put these items within reach---perhaps vouchers for the truly poor that gives them a discount, or micro-credit financing etc...Any thoughts?

Help HIP! E-conference feedback requested

Help HIP! E-conference feedback requested
Renuka Bery
rbery@aed.org
Dear Colleaguesâ€”

On behalf of the HIP team I would like to thank everyone who has contributed to this discussion. It has been lively and a chance to share new technologies, new ideas, and experiences people are grappling with in the field. While I donâ€™t want to dampen the discussions going on, I would like to leave some room for reflection as this e-conference enters its last few days. Please take a moment to think about the few questions below and share some of your thoughtsâ€¦both those who have posted messages and those who have been reading on the sidelines. Your contributions will help HIP learn from this experience and plan future learning and sharing opportunities.

1. Share one thing you have learned from this e-conference that will be useful to you in your work.

2. People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?

3. In your mind did this e-conference get to the heart of the HWTS issues posed?

HIP will synthesize the e-conference threads and post it on the HIP web site in June.

Warm regards,
Renuka Bery

Forum Feedback

Forum Feedback
Jalmandir, Michael Lea
mikel@jalmandir.com
Hello Renuka,

As per your feedback request:

Question
Share one thing you have learned from this e-conference that will be useful to you in your work.

Answer
Fellow colleagues have shared options of viewing the HWTS landscape in broader terms, particular towards private/public partnerships to solve critical HWTS issues. A greater understanding and appreciation was also gained (behind the scenes) regarding the USAID voucher program.

Question
People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?

Answer
Sharing entails the giving away of information. For some stakeholders, information is currency. Currency they are not willing to give away. What can I suggest to stimulate sharing? Embrace the Internet and the global culture of cooperation and the sharing of information. Sharing information draws us together, it's a uniting force.

Question
In your mind did this e-conference get to the heart of the HWTS issues posed?

Answer
Perhaps, but other issues seem to surface as equally as important, for example: the background paper recommendations; the need for central HWTS information clearing house [Larry Siegel, 1835]; and finally "no silver bullet" [Bruce Gordon, 1818] ... yet!

Michael Lea
www.jalmandir.com & www.biosandfilter.info
Household Water Security for Developing Countries

"Reverence for life through awareness, education, and action"

water treatment technologies

water treatment technologies
Giovanni Del Signore
giodelsignore@tiscali.it
This is a message for Mathias Saladin.
Dear Mathias, in your messge n.1763, you said you were interested to other technologies in addition to SODIS, etc.
I just received a report from Indonesia where Aquaclor Solar units are being employed. If you are interested I can send you the report.

Giovanni

New technologies

New technologies
Matthias Saladin
msaladin@fundacionsodis.org
Dear Govanni,

Yes I am interested in this report - but you also may want to post it on this (or a different) website so everyone interested can access it.

My e-mail is
msaladin@fundacionsodis.org

Thank you very much,
Matthias

shifting responsibility

shifting responsibility
Betman Bhandari
bbhandari@cawst.org
Dear all,

I am Betman, working with the Center for Affordable Water and Sanitation Technology (CAWST) which is a Canadian humanitarian organization that provides technical training, consultation and acts as a centre of expertise in water and sanitation for the worldâ€™s poor (www.cawst.org).
Key Point:

CAWST has been working with ENPHO-Nepal in Biosand filter technology and arsenic removal. There is a good result in the removal of arsenic through Biosand filter by adding 5 kg of nails to the diffuser basin. We would like to clarify NEWAHâ€™s statement on the conference concept paper â€œthe community do not maintain the filter properly, since users must change the nails, sand, gravel and maintain the bucket and fittings frequentlyâ€•. If the filter becomes clogged due to high sediment in the water, the sand can be cleaned in place. The sand is getting stirred up and the dirty water is dumped out with a tin can or old plastic bottle. As with all safe water containers, they should always be kept clean and well maintained. Note that there are no fittings or moving parts to be maintained. Therefore, the positive aspect of the filter is no need to change nails, sand and gravel frequently. One of the advantages of the Biosand filter is that it is easy to clean and operation. Furthermore, CAWST has consistently received positive feedback from trainees on the unique and innovative technology.

Regarding a discussion question, does promoting household water treatment and safe storage allow the government to shift the responsibility to individuals to finance their own safe water?

Although many countries have a high coverage of improved water in the report, due to inconvenient location of water point, a large number of people are still using unprotected water sources of their vicinity. Many research studies in Nepal show that rural people prefer sufficient quantity and a convenient location of source in term of distance. The geographical location of many village settlements of eastern and western region of Nepal is in a linear pattern along the riverside which also attracts people to use river water. In this context, household water treatment technology will be the most viable in such rural communities, where settlement is clustered and the quantity of unprotected water source is sufficient enough and close to the users.

Prior to the 1990, the implementers of Watsan project advocated that all piped water was safe to drink. The community management and water quality study of 179 governmental organization, INGO and NGO installed water supply schemes in Nepal shows that most of the rural schemes have fecal contamination particularly in the rainy season (Bhandari and Wickramanayake, 2000). Furthermore, the Nepal Government also realized that all Government installed rural water supply schemes are not safe. For this reason, the Government of Nepal has been integrating hygiene and sanitation programs into rural water supply programs. Although household water treatment technology is a new approach for the government program, the Household Water Treatment program will be worthwhile to integrate with rural water supply system as an entry point for improved water quality.

A recent cost-benefit analysis undertaken by WHO found that achieving the MDG target in water and sanitation would bring substantial economic gains: every $1 invested would yield an economic return of between $3 and $34, depending on the region. Similarly, there is a huge return in terms of lives saved and disease reduction from adoption of simple techniques for disinfecting water used for drinking and cooking. Household treatment cuts the primary transmission route for diarrhoeal disease and can pay back up to US$ 60 for every US$ 1 invested (WHO Water for life, 2005).

To achieve the 2001 Millennium Development Goals, every nation in the world should become responsible to develop and enforce policy in their water use and adopt new behaviours to ensure the livelihood of all people. We do not believe that without empowering people, promoting HWTS should imply a shift in responsibilities.

On the basis of our experience, to shift the responsibility to the individual, the best way to do this is as follows:

â€¢To enhance knowledge about the value of safe water

â€¢To build the capacity of the governmental and non governmental institutions including individuals involved in the delivery of a water and sanitation program including HWT which promotes independent action.

â€¢To focus and support the institution, rather than the project i.e. provide services to support the activities and programs of key clients.

Effective, Low Cost but also Beautiful HWTS!

Effective, Low Cost but also Beautiful HWTS!
Susan Murcott
murcott@mit.edu
Greetings to all!

I am Susan Murcott - an environmental engineering working on HWTS at MIT. I supervise teams of graduate students - both engineers and also Sloan Business School students - and we have worked in about 8 countries now on HWTS since 1998.

I have been reading everyone's E-Conf comments this past week with great interest. So much wisdom and expertise is represented - I wish we could package it and send it out! This is truly good and important work - bringing clean water to all people everywhere - I believe this dream has eluded us in the past but it is somehow possible now! Do you feel that way? I agree that HWTS is not a silver bullet, but I also think that there is a growing consciousness - made possible by the Internet and global communications. As I have read your various comments, I have wanted to reply personally to everyone and just say thank you for the expertise and wisdom you are bringing to this exchange and thank you for caring.

I was interested in an earlier comment by Mona Greiser about aspiratioinsal products - ones consumers prominantly place in their homes proudly- my experience corroborates Mona's that low income people aspire to better products and services. Mona said that we don't know whether the Unilever filter, for example, is too expensive for poor people. But at the same time, the Pure Home Water folks in Ghana know that their customers are unwilling to pay $20 for a ceramic filter product... and that the best way to promote sales for them has been to offer a credit scheme.

I also found Arinita Shrestha's comment about marketing to the poor to be insightful - that the poor don't want products "for the poor." So we need to be producing technically effective, low cost HWTS but also beautiful products, products we would want ourselves. Products we would give our mothers on Mothers Day. Products we would give our best friend at her wedding!

I assume that most of us who are attending this EConf are drinking from piped supplies but still, I am curious what HWTS products the participants in this E-Conf are using? Which do you like best?

Susan Murcott

New topic

New topic
ron rivera
ronriverat@yahoo.com
Since your asked... I lug around this funny looking flowerpot that I use as a ceramic water filter and drink from it eveywhere I go... its been around the world twice.
Peace
ron

Lead pipes

Lead pipes
Jaap Pels
pels@irc.nl
In reaction on Susan's 's:

- No HWTS product in my house in the Netherlands, but due to lead pipes we drank from 25 L bottles for a long time.

- And about the 'Mothersday present': Nice HWTS products to drnk from must be thÃ© place to share knowledge :-)

Grandeur Vision

Grandeur Vision
Jalmandir, Michael Lea
mikel@jalmandir.com
Earlier in the week a remark was posted by this writer [Lea 1815] that hinted towards a certain degree of uneasiness with the commodification approach of providing water and sanitation services to the poor. Propounding that we have a social justice obligation to consider clean water as a human right, the privatization development approach based on efficacy is flawed towards continued inequity of the rich getting richer, and the poor, poorer.

Alternatively, the Primary Health Care model (PHC) is a radical shift were water and sanitation programs and priorities are defined and articulated by the community within a participatory development approach. The PHC model as advocated in the Alma Ata Declaration is ultimately about empowerment of individuals and communities so that they have control over their own lives.

In conclusion, in the context of the poorest-of-poor communities, identification of micro enterprise projects to fit the people and their needs is crucial towards economic and social self-sufficiency. A

grandeur vision is a global movement of social entrepreneurship.

New topic

New topic
ron rivera
ronriverat@yahoo.com
Please check out this document...
people can own there own water filter company.
http://www.ideassonline.org/bros_view_eng.asp?id=28

peace
Ron

New topic

New topic
Camille Dow Baker
cdowbaker@cawst.org

I am Camille Dow Baker, President & CEO of CAWST, the Centre for Affordable Water & Sanitation Technology in Calgary, Canada. CAWST is an NGO which offers services in training and technical support for water and sanitation. Our focus, since inception, has been on household water treatment.

I have followed, with interest, the information and perspectives which have been shared, and would like to respond to some of the questions posed by the organizers and to share with you the CAWST learnings and perspectives on HWT.

Renuka Berry asked:

1. Share one thing you have learned from this e-conference that will be useful to you in your work.

I have learnt that
(a) I like participating in e-conferences. It is an easy way to obtain, not just information, but perspectives. You could almost hear the passion in peopleâ€™s e-mails.

(b)CAWSTâ€™s perspectives and focus in HWT probably differ from many others. My impression is that the focus by many is on HWT technologiesâ€¦. their construction, their marketing, their verification, and the measures of their use (Susan Murcott; market penetration, rate of sustained use, rate of adoption). CAWST, however, believes that household water treatment is a process or series of practices which can be adopted by the user to improve the quality of their domestic water. We, therefore, focus on teaching people about these practices so that they could use them effectively and sustainably. To that end, our measures of success are differentâ€¦number of people with better water, number of organizations implementing household water treatment

programs, number of organizations using our training material etc.

2. People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?

(a) Perhaps people donâ€™t speak because they donâ€™t know what others want to hear; they donâ€™t know if what they have to say is useful.

(b)I think that the organizers of the conference have done a good job at stimulating sharing. You have provided a very comprehensive report by Susan Murcott who has bravely invited feedback, and to whom I plan to respond. You have provided leading questions intended to stimulate thinking and debate on relevant topics, and you actively shared your own thinking.

3. In your mind did this e-conference get to the heart of the HWTS issues posed?

It may have gotten to the heart of the issues posed. But Iâ€™m not sure if they got to the heart of the issues that we feel passionate about, because, as indicated in (1) , we may have a different focus.

4. Does promoting household water treatment and safe storage allow the government to shift the responsibility to individuals to finance their own safe water?

That is not our experience. CAWST has clients which are government agencies which are planning to implement household water treatment programs. Many of these HWT programs are extensions of existing hygiene education programs, and/or a part of broader water supply and sanitation programs for rural areas. These government agencies, in general, view HWT in much the same way as CAWSTâ€¦as a good place to start the sustainable delivery of W&S services to the poor.
(a) HWT prevents people from getting sick, now.
(b) HWT allows people the ability to use a different number of water sources with some degree of confidence. In many instances, water sources vary markedly in availability and quality throughout the year.
(c) HWT is a good place to start the education that needs to happen if clean water is to be available to all.

5. How can implementers promote water treatment and safe storage without reflecting negatively on existing water sources, which may or may not be safe to drink?
Actually, we donâ€™t believe that itâ€™s necessarily a bad thing to reflect negatively on existing water sources. As your Nepal study showed, many times people have no concept of the level of contamination of their drinking water. Many of the NGOs that we work with plan to develop community expertise in water quality testing, in part to stimulate interest in the community for people to treat their water, and in part, to monitor their environmental water quality for the long term.

6. Can organizations working to improve access to water also promote HWTS without sending a confusing and conflicting message to their communities?

Absolutely. As Murcott, Shrestha, Saladin and others have pointed out. There is no conflict at all.

Orlando Hernandez asked:
7. I ask the group what objective measures of water treatment are possible, which have been used, and how useful have they been? In addition, what should we do given the wide range of water treatment options? Can we incorporate such objective measures to household surveys?

The most objective measure of water treatment is the difference in water quality between the

source water and the quality in the stored container at the point of use. Such measurements need to be quantitative, not just presence/absence otherwise there is no way of determining relative risk to health.

Incorporating water quality testing into monitoring programs would mean that water quality labs need to be built or available to communities and that community personnel are trained in water quality testing.

8.If no cross water treatment method objective measure is possible, should we develop one? Should we develop one that can be incorporated to household surveys?

Iâ€™m not sure what you mean by cross water treatment method objective. But, most times organizations are successful in obtaining money for implementing a community water and sanitation program, but they have no money for the continued monitoring thereafter. And money for monitoring is difficult to get. Monitoring programs therefore need to be designed to take into account the capability of the responsible institutions over the long term.

Jaap de Peels asked
9. What boggles my mind is how to convince donors, governments and the private sector to finance opportunities for knowledge sharing and what approaches would work better on top of this E-conference. I expect no silver bullets but love to hear stories and hints.

CAWST is itself an organization dedicated to knowledge sharing. What works for us is:
1. Being clear (and boastful) about our resultsâ€¦â€¦how many people in the end have cleaner water as a result of our activities.
2. Being clear about our strategies, direction and expected impact.
3. Being reputable both in our governance and professional practices.

Thank you for the opportunity for sharing.

Yours truly
Camille Dow Baker
President & CEO, CAWST

Full Belly Sheller / Phase-change Incubator

Full Belly Sheller / Phase-change Incubator
Jalmandir, Michael Lea
mikel@jalmandir.com
Hi folks!
1/2 billion people in the world rely on peanuts as a primary source of protein. Most people can only hand shell 3 pounds of peanuts an hour, but this open source machine can do 125 pounds an hour!

The Full Belly Project [www.fullbellyproject.org] designs simple agricultural machines and teaches people how to build a hand-operated nut sheller with common materials. Materials of choice is concrete because it is inexpensive, widely available, easy to work with and has a very long service life.

Thanks for your patience ..... here is the HWTS connection ..... CAWST and other organizations devoted to the biosand filter might find their particular concrete molding process interesting. Also I was pleasantly surprise to see that Amy Smith an MIT professor is associated with the project. Amy invented the phase-change incubator, a low-cost, low-maintenance device particularly useful for poor or remote communities when testing for microorganisms in water supplies. To learn more about the phase-change incubator email Amy: abs [at] mit [dot] com

the questions and the answers

the questions and the answers
Reid Harvey
purifier@localnet.com
questions and answers

Q: People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?

I'm sorry to say that the question begs a bit of pop psychology, so please bear with me. Sometime ago a friend dropped a pearl of wisdom on me, that it is only the insane who do not have neurosis, so I picked up the classic book on the subject, authored by Karen Horney. The author explained that the only way to rid ones self of neurosis concerned the extent to which that person could become truly objective. I am not so sure that I personally succeeded at this (otherwise might I be insane!?), however I did manage to adopt the approach of "I'm okay, you're okay," becoming more accepting of neuroses in others. I found that this is simpler when we're talking about individual neurosis, but then we also have neuroses of groups, nations, bigger groups, regions, etc. So we get really complicated.

Q: People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?

This gets back to the capacity to be objective. We have kicked around the worthwhile notion that people pick and choose what they will share, closely guarding what is of greatest value to them. However, in my experience when people do share something of value, others do not want to listen, so they do not respond Valuable ideas can also be threatening.

Q: What HWTS products are the participants in this E-Conference using? Which do you like best?

While in Nepal a couple of years ago, my family used the pottery filter of the IDE Nepal project. Now, however, being in the U.S. we use 'piped water from a pure source.' Lots of others in IDE Nepal have been using their 'Safa filter,' and apparently this was found within the user group of a UNICEF Nepal study to be 'the most popular.' (I'm sorry to say that when one of the organizers here cited the location of the study I did not take immediate note, and looking back in the discussion I cannot readily find this. Neither can I find this in a search.)

I'm trying to get around the nuances of my own neurosis, one of which concerns the right mix of immodesty versus objectivity, so I can't deny that that pushing this pottery filter system to the forefront is self serving. However, the product is also highly effective, when introduced properly.

And part of the user acceptability may well be the low price, US$5.00 to $7.00, at the time of our field study, upto last year.

A question I could pose is, how are the technologies of HWTS compared with each other? Does there not tend to be a kind of a leveling approach, in which the limitations of the technologies are overlooked, so that these may be conveniently compared with each other? For example, I would think that careful attention would have been paid to the specification of a colloidal silver treated filter, wherein this was rated for 2.5 liters per hour, and not more.

Q: Can organizations working to improve access to water also promote HWTS without sending a confusing and conflicting message to their communities?

Rolled into this question could be another, also concerning confusing signals, regarding the conflicting approaches of dependence upon, 1. HWTS technology, and, 2. Behavioralism. There are those organization focused on watsan that are avidly promoting the idea that solutions to our problems are all about behavior change, to do with hygiene, hand washing, etc. There are also those organizations that take a middle road, pursuing both schools of thinking, to some degree. I believe that 90% of the problem is related to hygiene education, but that the first 10%, the technology must be present, and it seems that the majority in the e-forum and the Network feel the same way. It's tempting to think that this issue is self evident, a part of the process, but consequences do crop up. For example, donors are confused.

Q: What boggles my mind is how to convince donors, governments and the private sector to finance opportunities for knowledge sharing and what approaches would work better on top of this E-conference. I expect no silver bullets but love to hear stories and hints.

I believe that donors deserve a lot of sympathy, since they are bombarded with many high-pressure approaches, which need sorting out. It's all about verification. There is little doubt that verification must be a deliberate, careful process, and when the verification does happen and the information is disseminated, then the donors and humanitarian organizations should be less skeptical. It is also challenging that donors are being told that the problems of watsan are all about behavior. From the stand point of technology I do believe that there are silver bullets and that these will be found in the verification. But I do not wish to be contrary in any way.

Knowledge sharing

Knowledge sharing
Henk Holtslag
holtslag.dapper@wxs.nl
LS
I see some interesting information in the last days and would like to share some more.

1. Testing water quality, Ecoli
To get an indication of water quality we often use Pathoscreen P/A pillows. The 100 ml of tested water turns black and stinks if the ecoli contents is to high so a good visible way of showing quality of water. Cost are around 1 US$ per test and is a HACH product. see websites of Hach.

2. Comparison of HWTS options
At the SODIS/ HWTS meeting in november 2005 in Quito Tom Clasen presented an interesting study comparing sevaral HWTS options. In this test Ceramic filters were most effective maybe also because they are more attractive than other options?. There are Ceramic filters with candle,

disc or potshaped filtering elements but the bottem line is that the combination of ceramic and a few cnest of colloidal silver makes clean water (regarding turbidity and harmfull bacteria), With innovation cost of ceramic filters are still reducing so we see this as very promising. Next month we will start some pilots with the vacuum candel filters (Zambia Mozambique and Tanzania, mentioned before by Klaas van der Ven.

3. Colloidal silver
For impregnating ceramic Pot shaped filters (potter for peace model) in Ghana and El Salvador, Colloildal silver in powder form is used, obtained from ARGONOL in Spain. The advantage of the powder is the easy low cost trasport.
1 kg for 7000 filters!. Cost of treament with this options is around 7 Cents US per filter element.

4. Bubble test for candle filters
Tests of candle filters from India and Brazil indicated that many candles have leaks between the ceramic part and the plastic or metal cap. A simple way to test this is the "Bubble test". Connect a piece of hose to the nipple , immerse the candle in water and blow. If big bubbles come out directly, the candle is not fit for use.

So far some information
I would like to thank Susan for the good back ground paper and the organisers for this opportunity.
Success al of you and go on sharing knowledge until all have safe water.

Henk Holtslag
www.practicafoundation.nl

Monitoring and Evaluation of HWTS

Monitoring and Evaluation of HWTS
Susan Murcott
murcott@mit.edu
Orlando Hernandez raised an important question the other day about measures for monitoring and evaluation of HWTS. I think it is very important that those of us implementing HWTS come to consensus about a common metric (or a set of common metrics) for determining long-term sustainability of HWTS implementation.

In my background paper to this conference, I offered several examples. One is from the Kenya Water and Health Organization (KWAHO) and their SODIS program in Kibera, Nigeria. They refer to their measure as â€œacceptance level,â€• and an example is shown - but it is not so easy to cut and paste into this message, so you can all refer to Table 6 in this EConf's background paper.

Another set of options are ones I suggest: "rate of adoption" and â€œrate of sustained useâ€•

Rate of Adoption (ROA) = # of households using HWTS system after 1 month / # households reached (or trained)

Rate of Sustained Use (ROSU) = # of households using HWTS system after 1 year / # of households reached (or trained)

What does everyone think of these options and for those implementing HWTS, what are you

currently doing to measure sustainability of your intervention?

Susan
Susan

tipping point - spontaneous spill over

tipping point - spontaneous spill over
heather lukacs
luka@stanford.edu
First, I would like to thank the organizers of this e-conference and all of you for sharing your experiences and approaches related to household water treatment and storage. Second, I would like to introduce myself. My name is Heather Lukacs. Many of you I have either met or know by name through the years that I worked with Susan Murcott at MIT. I am still inspired by her approach as illustrated by her 'Mother's Day gift' way of considering HHWT technology â€“ which very much resonates with me.

Now, my question â€“ I would appreciate feedback or thoughts from you:

Have you observed cases where household water treatment technologies (or hygiene education practices) have begun to spread spontaneously, without outside intervention among people who before did not treat their water?

In the Orangi Pilot Project in Pakistan, for example, masons were trained in building low-cost sewers in peri-urban areas. After the project funding dried up, the masons continued building sewers in other communities nearby. They were able to market their skills and broaden the impact of the original project.

There are so many places in the world where community-based organizations are aware of and want to help provide SAFE drinking water to people living in their communities. It seems to me that the right technology packaged in the right way for these independently motivated people would catch like wild fire. I would love to hear stories, your thoughts, or potentially come and research cases where this has (or is in the process) of happening.

I would like to see our the discussion move from what is merely acceptable to what is preferred or desirable - after all who would want to give their mother an 'acceptable' gift for Mother's Day?

Peace to you all,
heather

Heather Lukacs
PhD student
Interdisciplinary Program in Environment and Resources
Stanford University
luka@stanford.edu

Re: Monitoring and Evaluation

Re: Monitoring and Evaluation
Tommy Ngai
tngai@cawst.org
Hi,

I would like to add to Susan's comment on monitoring and evaluation, but let me first introduce myself.

My name is Tommy Ngai. I am currently a PHD student at University of Cambridge studying sustainable development and the implementation of HWTS. I am also a research associate at Centre for Affordable Water and Sanitation Technology (CAWST) of Canada, as well as a research affiliate at MIT, where I have completed my Master degree on arsenic mitigation under the supervision of Susan Murcott 4 years ago. For the past few years, I have been working in Nepal to research, monitor, evaluate, and disseminate various household-level arsenic and/or microbial mitigation options.

Susan mentioned about need to have a common metric to evaluate the the sustainability of all HWT. Although we have not clearly agreed and defined this long-term sustainability measure, for simplicity's sake, let me call it "long-term acceptance" for now.

I agree that this is a very important measure, and will have many important implications. This measure not only compares the relative success of different implementation efforts in the past, but also can be used to plan future scale-up programs. During my work in Nepal, I have constantly faced the following questions, but I still don't know how to answer.

1. Assuming three technologies has been implemented in the same country, using the best practice social marketing model. Technology A, B, C has long-term acceptance levels of 20%, 50%, and 80%. Does it means that future funds should be focused to disseminate Technology C, as it has the highest acceptance?

2. Assuming in a country, the same technology has been implemented by two agencies using two different implementation models, and the long-term acceptance level for model A and model B are 30% and 80%. Does it mean model B is better?

3. How do you balance acceptance rate with cost effectiveness, water quality, and other evaluation measures? If implementation program A costs $10 per household reached, has a 20% acceptance, and the water quality meets the revelent standard 90% of the times; and if implementation program B costs $5 per household reached, has a 80% acceptance, and the water quality meets the revelent stardard only 60% of the times, then which is better?

Have anybody done any investigation and research in this area? Thank you for your comments and suggestions.

Tommy Ngai

Long-term Sustainability Measure

Long-term Sustainability Measure
Jalmandir, Michael Lea
mikel@jalmandir.com
In response to Tommy Ngai [1865]

Hi Tommy,
I would like to contribute the following comments regarding your request for "long-term acceptance" measure. Respectfully may I suggest that sometimes the HWT community looks too narrowly and misses the big picture by not asking: How is a particular HWTS technology contributing to the OVERALL health of the community?

An excellent HWT quantitative long-term sustainability indicator would be a child health indicator, the Neonatal Mortality Rate. The other measures of "long-term acceptance" might be: community participation, increased empowerment, and positive change; trust, confidence, and increased sense of local leadership; and finally, the community embraces the responsibility of building local capacity and sustainability to carry out the activities beyond the official term of the project.

For a quick example - The villagers themselves start off by undertaking a participatory rapid appraisal and identify that diarrhea is the main community concern. Here is a mini action plan (other quantitative & qualitative indicators provided).

PROBLEM: Diarrhea

GOAL: To promote and ensure a clean and safe environment for all children under five.

OBJECTIVE: To reduce the incidence of diarrhea among children by 70% in three years.

SUB-OBJECTIVES: Year I - To reduce the incidence of diarrhea among children by 10%. Year 2 - To reduce the incidence of diarrhea among children by 40%. Year 3 - To reduce the incidence of diarrhea among children by 70%.

STRATEGY: Identify those households in greatest need of HWT technology. The increased HWT knowledge and mobilization will allow the villagers to approach and petition the government for needed loans, especially for the poor and marginalized.

ACTIVITIES: Sanitation and safe drinking water technology training, education and access

MONITORING ASSESMENTMENT

QUANITITATIVE: 1) Incidence of water-borne infections in community. 2) The child health indicators, i.e., neonatal mortality rate to measure use and knowledge of appropriate technology; measure effectiveness of training and community participation.

QUALITATIVE: Assess skills/attitudes regarding appropriate technology; observe its use and impact on child health.

Tommy I hope you find this helpful. Please feel free to contact me if this suits your needs and would like to discuss further.

Cheers!

SODIS related

SODIS related
Mindy Weimer
mindy.weimer@gmail.com
My name is Mindy Weimer, and I am an Environmental Engineer working as a consultant with USAID-Environmental Services Program in Jakarta, Indonesia. I am doing an action research project on point-of-use drinking water treatment alternatives for the urban poor. The alternatives I have introduced to four of the communities I work extensively with are ceramic filtration, chlorination, and SODIS.

I have been monitoring water quality from each of the volunteer-usersâ€™ in each of the four communities this month. Aside from water quality results, I am finding different reviews as I gather the usersâ€™ feedback. It has been both insightful and inspiring to follow this conference and learn of others experiences doing similar work. Thank you all for sharing.

I would like to share my bench-scale results from one of my SODIS experiments and ask if anyone else has seen similar results. At 6am (28.1degC) the water had 16FC/100mL, at 9am (44.8degC) rose to 56FC/100mL, but by 12pm (59.4degC) was down to 0FC/100mL. I tested again at 6pm (after 12hrs) and 6am (after 24hrs) and FC/100mL remained at 0. However, at 6am the following morning (after 48hrs) the water was 4FC/100mL.

I am also wondering if anyone has or knows of investigations of phthalates from plastic water bottles leaching into the water when exposed to high temperatures and sunlight. I am curious how significant this may be for SODIS users.

I welcome any feedback and wish you all the best in your work. Despite the extra email load, I regret this discussion forum is coming to an end.
You can contact me directly at: mindy.weimer@gmail.com

Replying to Mindy's SODIS QUERY

Replying to Mindy's SODIS QUERY
Kevin McGuigan
kmcguigan@rcsi.ie
Mindy can I ask what method you were using to monitor the faecal coliforms, because it might have some bearing on the explanation.

I had a similar experience of apparent reactivation when I was carrying out SODIS evaluation studies in E Africa in the early 90's but in my case the reactivation was artefactual becase I was using agar coated dip slides which I was just dipping into the neck of the bottle. Over time agar nutrients were getting washed off the dip -slides and encouraging growth from bacteria which we think were attached to detritus floating at the top in the neck of the bottle and shielded by the cap.

Once we introduced better sampling techniques I never saw this again so I would be really interested to know the mechanics of how you are monitoring the faecal population. Post exposure reactivation is an area that does require further study.

Nevertheless we changed our protocol to recommend that the SODIS water is consumed as soon as possible after exposure and not left for more than 24 hours before consumption.

Regarding thalates leaching from the plastic, Martin Wegelin & I looked at this previously with water samples in PET bottles that were exposed for varying times between 15 and 126 days. Using 2-step mass spectrometry we were unable to detect any photoproducts (J Water SRT-AQUA 2001;50:125-135). I have just finished a further (and as-yet un-published) study where

water was stored in PET bottles and left in direct sunlight in Southern Spain for 1 year. UV/Vis spectroscopy, GC/MS and CHemical Oxygen Demand (COD) measurements all failed to detect any photoproducts.

You can contact me directly at kmcguigan@rcsi.ie if you want to chat about this in more detail.

The Poor cannot afford anything.

The Poor cannot afford anything.
Joachim Ezeji
ruralafrwadp@yahoo.com
Please permit me to share my thoughts with you on this platform.I will however thank the forum organizers for this opportunity created for cross-breeding of views and ideas.I am afraid I could not read the background paper for obvious reasons.
I come from a rural community in Africa where household water treatment is as old as the community itself.The renewed current focus on Household water treatment and safe storage I believe is basically to upscale appropriate HHWTS adoption with a view at giving meaning to the target established in the MDGs to half the proportion of people without access to safe drinking and sanitation by 2015.
The African Water Development Report (AWDR) which was launched in Mexico city on March 19 had it in black and white that the water problem in Africa is not necessarily one of physical water scarcity but structurally induced scarcity caused by low level of infrastructure and socio-economic development.But beyond this argument is the central issue of clean water.Safe drinking water is the core issue on the MDGs list,NOT mere drinking water.The government tend to hands-off and beat its chest in self congratulations once it succesfully sinks one borehole or well.My work experience have shown that water assessed from improved sources such as boreholes,lined wells,protected springs or household piped connections may not always be SAFE.
The sinking of water boreholes or wells in poor neighbourhoods should not be allowed to eclipse the promotion or adoption of HHWTS.This is so because most of these water boreholes are often vulnerable to problems such as the incrustation of calcium carbonates,iron manganese and bacteria slimes on the inner linnings of casing materials.Other problems could be caused by improperly flused-out drilling particles such as bentonites and polymers etc.and cuttings from annular space between well screen and formation walls.Their are also threats posed by leachate plumes and organic growth from oxygen intake during pumping.
In developed countries where the institutions are strong,problem could arise.An example is the Walkerton Canada tragedy of 2000,which is a clear
example of a failed improved source.Severn Trent Water UK recently embarked on investigations to discover what could be polluting and destroying Blackbrook Reservoir,another example of improved water supply source for many people living in the Leicestershire area of the UK.In Africa the institutions are non-existent and even if there, very weak.This therefore underscores the importance of sustaining the HHWTS campaign in Africa.
The poor in absolute term cannot afford anything.If leveraging innovations is to be leaned on affordability then sustained adoption will be grossly constrained.It is my view that adequate recognition be accorded HHWTS in the scheme of things globally.It is not enough to make political declarations that support source improvements without any direct linking with HHWTS. HHWTS should be recognised properly and mainstreamed.It is the government that is capable of giving NGO promoters the basic on-the-ground support to make progress.An innovative strategy could be worked out that will enable the poor buy and use HHWTS.In Rural Africa Water Development Project (RAWDP) our core competence is on household water treatment using indigenous resources.We build on what is already in existence,improving on it and making the people see and appreciate the level of improvement.Why are we relunctant to talk about a coagulant like moringa oleifera seeds.It is one of the oldest and proven water treatment options in

Africa.Why ignore it when its recognition can make a lot of difference.Arguments proposed against it encouraged RAWDP to improve on it to design the Mor-sand Filter.The poor now see the difference without much protocol.
Thanks,
Joachim Ezeji
Programme Coordinator/CEO
RAWDP Nigeria.

Poor Affordability Question

Poor Affordability Question
Jalmandir, Michael Lea
mikel@jalmandir.com
In response to Michael Commeh [1875]

What the poor can afford to pay question is relative. My experience in India with the poorest-of-poor: the stigmitization and outcasting of the Dalits (untouchables); Tribals; Leprosy and HIV AIDS villagers, and the oppression of women in general is evidence that not all people can afford HWTS technology.

poor affordability

poor affordability
mike commeh

hi Mike,
do you want to say if these people decide and desire to get clean safe water, they will not be able to do that? unless an external influence wants to annihilate them. you will be surprise to find what will power can do. this is what i am trying to do/establish, to pep up people's will power into appreciating clean and safe water through the underatnding of their philosophysical and anthropological beliefs not only in the rural areas but also the urban centres. yes you might be right to some extend on the idia example but i believe also they start something. i have seen such people we think can't afford buy items way beyond what i will dream of in ghana. do you think it's mindset? either by society or environment.

e-conference extention:

this should not be extended to leave the strong positive impact on minds. this econference has been a mind broadener, educative and inspiring. it start to lose it knetic energy exictment if it is allowed to go on a few days more. we should end today for the impact to be memorable one.

re: poor affordability

re: poor affordability

Jalmandir, Michael Lea
mikel@jalmandir.com
Hello Michael,
Yes, it is a "mindset" that creates such structual violence to a certain segment of society. As victims of structural violence how we respond to their needs is important. Does one view the community as inferior, needing assistance. Are pushers of technology any different? Michael, I sense we both recognise the importance of sharing knowledge in a way that poor people can understand and make their own choices according to their needs is a liberating force for positive change.

Moringa's Contribution to Health

Moringa's Contribution to Health
Jalmandir, Michael Lea
mikel@jalmandir.com
Thank you Joachim Ezeji for your recent comments [1866]. We both also share the same views towards moringa's household water treatment capabilities. I for one would like to learn more about the innovative RAWDP Mor-sand Filter. As the conference is coming to a close, please feel free to email me: mikel [at] jalmandir [dot] com.

For the benefit of our conference colleagues I would like to briefly expand further on how moringa oleifera makes a further major contribution to human health. I'll conclude with a final related to HWT.

Curing Malnutrition

Increased consumption of Moringa leaves, seed powder (have 7 times the vitamin C in oranges, plus: 4 times the calcium in milk: plus 4 times the vitamin A in carrots: plus 3 times the potassium in bananas) and pods by children and child-bearing women could completely eradicate malnutrition.

Reduces the Threat of Malaria

A little coating of Moringa oil on the top of a water tank will also help kill mosquito larvae and thus reduce the threat of malaria and other deadly insect-borne diseases.

Income Generation via seed oil production

Moringa seed contains about 40% oil. The oil can also be used for making soap, for burning in lamps without smoke, and for treating skin infections like scabies. Cultivation of moringa can be very profitable for farmers with access to urban markets.

Seed Presscake

With a 60% protein content, the seed press cake left over from crushing seeds to obtain oil can be used as soil fertilizer, fuel for cooking, and to clarify dirty water.

As diarrhea and malnutrition are closely intermingled and a major cause of poverty, Moringa oleifera with it's HWT, health, and income generation capabilities should be given further consideration as appropriate HWT technology within it's (still to be researched) operating parameters. At the very least, where people are currently drinking untreated, contaminated water.

Once again, thank you Joachim Ezeji.

moringa

moringa

mike, that was very enlightening i remember a memeber of my centre did some work on this but never knew this plant has a lot to offer than i thought.

New topic

New topic
Maria Elena Figueroa
mfiguero@jhuccp.org
Hi all, greetings from Baltimore.

It has been quite a learning experience to join this e-conference. I add my congratulations to the organizers and Susan Murcott for making this possible.

My name is Maria Elena and I am at the Johns Hopkins Center for Communication Programs in Baltimore. The Center where I work has a long history (20+ years) helping develop and implementing communication programs to support health initiatives in the developing world. Over the Centerâ€™s lifetime we have learned that human action is influenced by factors related to many different levels of the social system where individuals live. In particular we have learned that communication can be designed to encourage and support healthy behaviors by working at those many levels of society, including enabling the socio-political environment, increasing interaction with the health care delivery system and schools, enhancing healthy community norms and increasing the ability of families and individuals to take positive health actions.

Per Renukaâ€™s question about what have we learned from this e-conference? As I read the many experiences that are being shared from implementing HWTS programs in the field I have learned that there are great opportunities out there for communication to help â€œmultiplyâ€• and really â€œbring up to scaleâ€• the several efforts and approaches that you all have described, including the door-to-door approach, which by the way, it is not an old-fashioned approach, as Matthias labeled it, but the opposite, â€œinterpersonal communicationâ€• is at the core of community dialogue and action for change. There are many ways in which communication can help do this and I am not dissociating here the mass media from interpersonal approaches, they actually go together.

Reid Harvey asked how are the technologies of HWTS compared with each other?

I donâ€™t know how those in one side of the equation (those developing technologies) would answer this, but I can tell that those in the other side of the equation, â€œthe potential usersâ€•, have a range of attributes that they bring into their minds and hearts when comparing technologies. In a study in Guatemala where the product PuR (P&G) was introduced we assessed these attributes in a household survey. The results of a multidimensional scaling analysis showed that mothers did not associate PuR with chlorine, rather PuR fell in between chlorine and the five gallon water bottle, called â€œgarrafÃ³nâ€• in Spanish. Chlorine was associated with â€œeasy to useâ€• and PuR was associated with â€œclarity of waterâ€• but not with easy.

Other findings in regard to communication have already been posted by Michael Lea and refer to

our work in Pakistan with HOPE Pakistan (Mubina Agboatwalla). We found that â€œpositiveâ€• (rather than â€œnegativeâ€•) attitudes such as confidence than one can treat drinking water at home and that one can find the time to do so, were better predictors of whether people were likely to adopt and sustain water treatment practices. This matches as well what Sid Shrestha suggests of using positive messages, such as emphasize â€œstaying healthyâ€• rather than â€œpreventing diseaseâ€•.

Jaap Pels asked how to convince donors, governments and the private sector to finance opportunities for knowledge sharing, and asks for hints.

One way may be to ask that donors finance the knowledge sharing site of the International Network for Household Water Treatment (if Bruce approves). This is a cost-effective way of targeting funds while knowing that many will benefit from that investment. One of the goals of the Network is to provide increased access and sharing of this type of knowledge, but funds are always scarce. If the Network is provided with some type of funding to support this knowledge management operation, and key contributors, this will help and expedite getting information out for people to use it.
By the way, also many thanks to Jaap for â€œoperating so efficiently behind the scenesâ€•

From the point above, also a request to Dan Campbell to please add the Center for Communication Programs website to his list of Links to Point-of-Use Web Sites. CCP is also a member of the Network and the link is www.jhuccp.org

We are currently reorganizing the webpage to better highlight the water and hygiene activities and communication materials that we have available. For those intereste, going down the page you will find the Media Materials Clearinghouse labeled MMC that has a compilation of communication materials from all over the world related to health. I invite you all to contribute your materials to the MMC (look for instructions in the webpage) which can later be linked to the Network webpage for easier access.

Thanks again for the opportunity,
- Maria Elena

organizers - can we go beyond the 22nd?

organizers - can we go beyond the 22nd?
Reid Harvey
purifier@localnet.com
Since the dialogue has become quite lively, can we go a few days beyond the allotted time?

Reid

tipping point - spontaneous spill over

tipping point - spontaneous spill over

heather lukacs
luka@stanford.edu
First, I would like to thank the organizers of this e-conference and all of you for sharing your experiences and approaches related to household water treatment and storage. Second, I would like to introduce myself. My name is Heather Lukacs. Many of you I have either met or know by name through the years that I worked with Susan Murcott at MIT. I am still inspired by her approach as illustrated by her 'Mother's Day gift' way of considering HHWT technology â€“ which very much resonates with me.

Now, my question â€“ I would appreciate feedback or thoughts from you:

Have you observed cases where household water treatment technologies (or hygiene education practices) have begun to spread spontaneously, without outside intervention among people who before did not treat their water?

In the Orangi Pilot Project in Pakistan, for example, masons were trained in building low-cost sewers in peri-urban areas. After the project funding dried up, the masons continued building sewers in other communities nearby. They were able to market their skills and broaden the impact of the original project.

There are so many places in the world where community-based organizations are aware of and want to help provide SAFE drinking water to people living in their communities. It seems to me that the right technology packaged in the right way for these independently motivated people would catch like wild fire. I would love to hear stories, your thoughts, or potentially come and research cases where this has (or is in the process) of happening.

I would like to see the discussion move from what is merely acceptable to what is preferred or desirable - after all who would want to give their mother an 'acceptable' gift for Mother's Day?

Peace to you all,
heather

Heather Lukacs
PhD student
Interdisciplinary Program in Environment and Resources
Stanford University
luka@stanford.edu

New topic

New topic
mike commeh
kwekumichael@gmx.de
Joachim Ibeziako Ezeji, i don\t believe the poor can not afford anything. there are various strategies to help them be able to afford something, in this case HWTS to provide clean and save drinking water. it has become clear to me that it is only when one really understand and want something that you pursue it. so how do we get the poor to want and understand their water issue for them to pursue it with various creative approaches? so let us not make mistake by generalising or stereotyping the poor. i made a comment earlier that ghanaians can be poor but they love style and class i mean beauty quality things. so you see one can bring a good product but if it is not good looking, forget it. i had that experience myself concern Nnsupa ceramic water filters and now we are reaping the results. and as we imporve on the product and maintain the cost, we know hopefully we meet the MDG half way.

New topic

New topic
ronriverat
ronriverat@yahoo.com
Hi... can you sendmea picture of the ceramic water filter you are describing in your article?
peace
ron

New topic

New topic
Mickey Sampson
Mickey@rdic.org
Variety of items: Mickey Sampson

I am the country director for Resource Development International â€“ Cambodia. I have been working in water and sanitation implementation in Cambodia for over 8 years now. RDIC has a water research laboratory in Cambodia and has been involved in evaluating and implementation of various HWT methods including ceramic filters, UV systems, SODIS. www.rdic.org

Silver: I would like to add a few notes to Reid and others work in using silver as a biocide. For those of you who are just beginning to explore this field please read information on Argyia a pigment discoloration which can result from ingestion of silver. I say this not to dissuade you from using it but you should know about this condition. Also Reid brings up using AgCl which is the product of silver nitrate with table salt. If you remember back to your general chemistry class you learn that AgCl is insoluble. Unfortunately if you look further into the book you discover that when studying Ksp (equilibrium) AgCl is in fact soluble but in relatively low concentrations. Therefore if you are using AgCl in treatment of storage containers small amounts of Ag+ are being released gradually. Not necessarily a bad thing and it may play a key role in the disinfection mechanism, but it means your coating will have a limited life span. We have experimented with the powder colloidal silver mentioned by Henk and treated traditional clay water jars in Cambodia. We found that they effectively eliminate e. coli for 7-9 months in jars which were left standing at room temperature for 12-18 hours. Reid also mentioned using thermal reduction (silver nitrate is heated driving off the nitrate leaving silver metal) as a potential process. We have also done a similar thing using a chemical reducing agent. We have used vitamin C which is of course harmless to reduce the Ag+ to silver metal. There are of course a wide range of other compounds which can be used in a similar way.

Failures: One of my greatest failures was in the introduction of UV system into villages and homes approximately 8 year ago. Although, the technology was strong I failed to understand the key educational issues as well as culture issues. Villagers preferred to use the car batteries, designed to run the UV lamp, to operate their TVs and lights at night. Most never understood the purpose of the UV lamp and often times failed to turn it on. This process while painful for me was incredibly educational. I learned the importance of culture and education as well as a new golden rule technology alone is not the solution if it were the world would have clean drinking water. At this point we began to explore new methods of education these have developed over the years and now include such things as KARAOKE education. Karaoke is a great fun way to sing about health issues and teach villagers in an entertaining way. Because of cultural, economic status and different water sources we now employ various methods of HWT this reinforces the concept

that there is not a single silver bullet, but we must use a variety of approaches to be effective.

Monitoring and evaluation: I strongly agree with Susan there is a great need to come up with a set of standards. These standards will allow us to more clearly understand the roles of technology, education and acceptance (cultural). I also would like to add evaluation from outside your own organization can be very valuable. It is easy to have bias towards the technology you are implementing. RDI has a ceramic filter factory (20,000 plus pot style filters will be sold this year) and we have been fortunate enough to have Joe Brown a graduate student from Dr. Mark Sobsey group from University of North Carolina to do an assessment of our filters in the field. This study is more extensive than most, and the information has been very useful and has strengthened my desire to increase our efforts in education and improve some of our existing monitoring methods. This study should be available to others early next month.

Ceramic filters: Currently our ceramic filters sell for $7 and replacement ceramic inserts are $2.50. At this price we believe that the filters will be sustainable over the long term. Currently sales are making a modest profit which we are putting back into the program in the form of subsidies for poor families. At this point NGOs are still our largest market, but that is slowly being shifted into retail sales. I strongly urge those of you who are looking at various technologies to take a strong look at the ceramic options.

E coli testing: I would like to recommend a product called easy-gel Coliscan the company who produces it is called micrology labs. We experimented with this product and compared it to standard membrane technology used in our lab with outstanding results. We also use it in the field at ambient temperatures in Cambodia. The technology uses a chromogenic media (meaning at the end different bacteria colonies take on different colors). This method can be used to quantify concentrations of e. coli and total coliform cost is only about $1.35 per test and is very simple to use. Simply add 5 ml of your sample to a premixed media, then pour the media into a special Petri dish and allow it to set for 24 hours and you can then read count your colonies and calculate your cfu values.

I would like to thank to organizers of e-conference. I believe it has been beneficial to all who have participated.

Role of HWTS in streamlining safe water and water quality

Role of HWTS in streamlining safe water and water quality
Amreeta Regmi
aregmi@usaid.gov
My name is Amreeta Regmi, Municipal Water Services Advisor with USAID Indonesia. I am happy to share some of USAID Indonesiaâ€™s experiences in promoting HWTS and safe water through the country water projects, under the Basic Human Services program. These projects promote point of use chlorination technology at the household level through the â€˜Safe Water Systemsâ€™ Aman Tirta program and promotion and maintenance of water quality standards at supply, conveyance and delivery points for household use through the Environmental Services Project (ESP). ESP is a reef to ridge project that recognizes the linkages between people, environment and water. Both these projects are in the second phase of implementation and some interesting results have already started emerging through the respective projects as well as

through inter-project integration efforts. The paragraphs below may be relevant to some of the discussions and postings, of Theme 1 and 2. This message is rather long, so please bear with me.

The above mentioned two projects support safe water: â€˜water qualityâ€™ improvement through two strategic yet different project entry points: household (Aman Tirta) and municipal levels (ESP). This approach provides plenty of opportunities and possibilities to interlink technology at both the household and institutional levels as well as horizontally and vertically in guiding a national vision that all Indonesians should have easy access to safe drinking water. This message is also consistent with Government of Indonesiaâ€™s water policy and legal framework which requires all water utilities to use chlorination as a method of disinfecting water. The challenge of course is in overcoming the entrenched normative behavior of boiling. However, data from the field reveal that if technology is designed to provide incentives (social, health, economic and environmental benefits) to the consumers, diffusion can occur rapidly, granted that these messages are conveyed to the consumers through appropriate communication strategies and channels.

At the household level, â€œAman Tirtaâ€• project adopts a combination of social and commercial marketing approach in introducing point of use water technology â€˜Air RahMatâ€™, 100 ml bottle of 1.25% sodium hypochlorite solution to the consumers. One bottle is sufficient to meet safe drinking needs of a family for a month at a cost of about 30 cents per month. Information from the field is showing evidence that some families are spending as much as 30 cents per day on their kerosene use for boiling and cooking purposes and yet other information indicate that the price of wood is rising with trees being cut down every day, not to mention the environmental costs. â€˜Air RahMatâ€™ bottles are produced locally in Jakarta through public-private partnership involving various Indonesian private sector groups and sold to the consumers through both traditional and non-traditional retail outlets. Check the website provided at the bottom of this message for further information.

Aman Tirta experience indicates that affordability is closely linked with benefits. Technology diffusion occurs rapidly if technology is made affordable when â€˜pricesâ€™ do not exceed the consumerâ€™s current â€˜costsâ€™ of boiling or the â€˜costsâ€™ associated in the purchase of water. Another point to note is that â€˜pricingâ€™ at full cost recovery will remain important in ensuring sustainability of technology; recognizing this at an earlier stage of technology design can allow a mixed marketing strategy to implement this model. Air RahMat caters to a segment of the society who are neither able to purchase bottled water nor have access to municipal services and those who otherwise continue to pay more for safe water needs.

At the institutional level, the Environmental Services Project directly interfaces and provides technical assistance to various water utilities that supply water to about 39 percent of the population. The projects are also reaching out to professional water and water quality associations and networks. While there is no single apex body or institutional entity that regulates water quality standards, a plethora of institutions and activities are undertaken in an uncoordinated manner. Health, Environment, Water and Public Works laws, all prescribe to water quality: while the law from environmental viewpoint recognizes legislative power of government and right of individuals to a clean and healthy environment; health and water law prescribes to water quality: governance and enforcement is an issue across sectors. Chlorination is required by the water law and sets ambitious target that requires all citizens to safe water by 2008.

Past interventions supported by USAID/USAEP in Indonesia, successfully introduced â€œsafe water zoningâ€• in various water utilities distribution networks by ensuring that water quality standards are maintained at the source, conveyance and delivery points. For example, the water utility in Medan (Tirta Nadi) has reached coverage of 30 percent within the area of the service network and is now able to supply safe water to consumers. However, most of the consumers continue to boil their water despite the fact that they can drink safe water directly from the faucets. Informal discussions with the consumers indicate that some of the consumers were not aware that the water provided by the water utility was safe to be consumed directly.

The following questions/points deduced from some of Indonesiaâ€™s experience can be further deliberated:

1. Is there a scope for HWTS intervention to bridge some of the existing gaps of municipal service providers and link the domestic and the institutional sectors in the promotion of safe water and water quality to the consumers? Can HWTS combine effective messaging/strategies to stimulate institutional changes and thinking in targeting their consumers?

2. Behavior change and affordability are linked with incentives derived from the attributes of the technology, either in the form of time saving, money saving, health benefits, environmental benefits etc, which eventually translate into â€œcostsâ€•. Social marketing approaches alone may not be adequate in promoting HWTS as a sustainable technological option.

3. Safe water provision and water quality standardization is a responsibility overseen by various institutions. How do we leverage on this existing institutional pluralism in promoting HWTS and safe water?

For further information on Aman Tirta project in Indonesia, check out the website: www.jhuccp.org/asia/indonesia/aman_tirta.shtml

ceramic filters

ceramic filters
Reid Harvey
purifier@localnet.com
Micky raises some important points and I'd like to address the issue of argyria. It appears to be well documented that there is no deleterious health effect from ingesting silver, however, among those studying this metal there are frequent reminders about the cosmetic condition argyria. Argyria comes from ingesting massive amounts of silver compounds, or the metal, and manifests itself in the skin turning to a gray or blue color.

In the U.S., for example, silver in a ceramic filter is primarily governed by the Environmental Protection Agency, and this is accepted as okay. However the ingesting of silver is under the Food and Drug Administration and this is taboo. I would urge participants to avoid any link between the use of silver in a filter and the use as a health remedy.

We need to study and document that silver is not getting into the filtered water. Note that argyria is a very rare condition and that this only appears to be a problem for people who are white. Most whites are not so susceptible and the celebrated case is that of Rosemary Jacobs, whose site is easily found in a search. For many year Rosemary used silver nitrate nose drops, as a remedy for alergies, however she asserts that she had acquired this condition through the use of a colloidal silver preparation. I believe that any further discussion of ingesting silver would be appropriate in a different forum and that we should regard the exploration of this topic as if this were a walk through a mine field.

Diffusion of Phtalates during SODIS exposure

Diffusion of Phtalates during SODIS exposure
Regula Meierhofer
regula.meierhofer@eawag.ch
Mindy Weimer has raised questions on the inactivation pattern of pathogens during solar exposure and the extent of diffusion of Phtalates into the water from PET-bottles.

1) Inactivation pattern of pathogens during solar exposure

A great number of SODIS experiments have been carried out in the laboratories of Eawag, Swiss federal institute of aquatic research, and other research institution such as for example the Royal College of Surgeons in Ireland, the University of Northumbria in England, the MIT and others. The laboratory research has been complemented by many field tests of partner organisations of Eawag/Sandec in more than 20 developing countries. You can find references of research results on the POU bibliography that has been compiled by Dan Campell (http://www.ehproject.org/PDF/Others/pou_bibliography2.pdf) or on the SODIS website (http://www.sodis.ch/Text2002/T-Papers.htm)

An increase of Faecal coliforms or other pathogens during solar exposure has never been observed nor could we find any regrowth of E.coli within one week after the water had been treated with SODIS. Could it be that your test samples were recontaminated during sampling? What kind of testing methods did you use? You may contact me directly for further discussions.

2) Diffusion of Phtalates into water from PET bottles

The discussion on the diffusion of Phtalates and Adipates goes back to a masters thesis by D. Lilya, College of Graduate Studies, University of Idaho . During her work she conducted an assessment on organic chemical migration from reused PET plastic bottles and claimed a possible carcinogenic risk of reusing PET-bottles due to the migration of DEHA (di(2-ethylhexyl)adipate) and DEHP (di(2-ethylhexyl)phthalate).

Worried about those statements, Eawag/Sandec in collaboration with the Swiss Federal Laboratories for Materials Testing and Research (EMPA) studied the migration of organic components DEHA and DEHP from new and reused bottles (heavy use during 6 months in the field (Honduras, Nepal and Switzerland) to the water under the conditions of solar water disinfection (SODIS). Bottles were exposed to sunlight at a water temperature of 60Â°C. Total time of exposure to sunlight was 17 hours.

The levels of the plasticizers di(2-ethylhexyl)adipate (DEHA) and di(2-ethylhexyl)phthalate (DEHP) detected in the water were 0.010 â€“ 0.046 Âµg/L for DEHA and 0.10 â€“ 0.71 Âµg/L for DEHP. These detected levels are in the range of background levels detected in pure water stored in glass bottles without any previous contact with PET. Background levels are found even in pure water due to the ubiquitous presence of traces of these plasticizers. Such low concentrations of DEHA and DEHP are distinctly below the WHO guidelines for drinking water quality (80 Âµg/L for DEHA and 8 Âµg/L for DEHP).

The report of diffusion of phtalates and adipates can be downloaded from:
http://www.sodis.ch/files/Report_EMPA.pdf

Â°Â°Â°
Regula Meierhofer

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Water and Sanitation in Developing Countries (Sandec) Ueberlandstrasse 133 8600 Duebendorf
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Showing bacteria in contaminated water

Showing bacteria in contaminated water
Reid Harvey
purifier@localnet.com
Klaas and others,

This is just a thought, but I've heard a couple of people talk about chasing E. coli around, using a small silver wire. I did not take in the specifics, but I wonder if it would be possible to fix the silver in position, within the field of vision, then move the water sample around, in search of the E coli.

I would think this would entail a slight separation between the silver and the slide, but that the silver would be within the water. Somehow this might be do-able.

Reid

Glitter Germs

Glitter Germs
Jalmandir, Michael Lea
mikel@jalmandir.com
Glitter Germs

In response to [Klaas van der Ven 1885] invisible germs.

Hello Klaas,
Alternative exercise to simulate invisible bacteria presence .... Let each women rub a little lotion on their hands and then pour some glitter (the glitter represents germs) into the palm of one hand. Then allow them to go about their regular activities. This will give the glitter a chance to spread around the room. Then discuss. Afterwards wash / dry hands and discuss those results. You can get the same results with grounded up chalk or colored fluorescent chalk. An excellent exercise for invisibility (my favorite) would be glow-in-the-dark powder exposed by a blacklight. If cost is a concern, use "sticky" cold cooked rice.

Hope this is helpful. Cheers!

Source: [http://www.teachnet.com/lesson/health/germs041999.html]

Clearinghouse

Clearinghouse
Jalmandir, Michael Lea
mikel@jalmandir.com
Dear Colleagues,

You might be interested to learn that there is a clearinghouse maintained to provide you with assistance and information about research and development of innovative technologies associated with household water treatment technologies.

Clearinghouse for low-cost household water treatment technologies
[http://www.jalmandir.com/clearinghouse/english.html]

I invite you to submit any updated information that you would like to be included in your respective technical briefs. In particular additional information is required for SODIS, PUR Water Purifier, and the Silver Ceramic Purifier.

The capacity of the design will soon allow a person to email or download the website in it's full entirety for offline reading. For now please keep in mind that the clearinghouse is a work-in-progress. If you have any questions, please don't hesitate to contact me:
mikel [at] jalmandir [dot] com.

Cheers, Michael

TiddlyWiki

TiddlyWiki
Jaap Pels
pels@irc.nl
Hi Michael Lea (1892),
I see you are working with TiddlyWiki :-).
Looks great! Are you the super-editor?
How do you plan contributions?
Cheers, Jaap

re: Clearinghouse

re: Clearinghouse
Jalmandir, Michael Lea
mikel@jalmandir.com
Hello Jaap,

Thank you for your kind words. Presently, I'm the sole editor, but more importantly I'm not attached to ownership. During this conference I have been a strong advocate towards open source and community participation. I would like to offer the "Clearinghouse" to the HWTS

community (network). If enough interest is expressed by the members we could run the Clearinghouse as a participatory project. I would love to hear some feedback. In the meantime, if you would like to share your knowledge for the common good please feel free to email me. To be honest the only reason it's not open for dynamic editing is that I haven't wrap my brain around the TiddlyWiki software. The global need is too great for wasting time with minor technical issues.

To the organizers and my fellow participants of this e-conference - thank you. You've challenge my assumptions, I've made mistakes, learned from the experience and hopefully adjusted my approach accordingly. I've also realized that I am a learner among learners with a common goal.

All the best,

Michael

1-day official extension

1-day official extension
Renuka Bery
rbery@aed.org
Dear Colleagues:

This e-conference will officially stay open one day longerâ€”through May 23, 2006. At this time, HIP will discontinue the moderation and synthesize the postings. However, HIP has agreed to keep the forum open for those who wish to continue sharingâ€”it will function more like a listserv: without moderation and synthesis. Feel free to keep the discussions going and introduce new themes. For those who no longer wish to continue receiving forum emails, follow the instructions for getting off the conference at the end of any forum message. The e-conference postings have become public now, so anyone can log onto HIPâ€™s web site and view the discussion threads. But to post a message, you still need to log in. As mentioned, we will post the syntheses as soon as they are readyâ€¦sometime in June.

On behalf of all my HIP colleagues, I thank you for your participation and openness in contributing to this forum. Congratulations to all! It has been an excellent learning experience with a high degree of networking and wealth of information and rich experiences shared.

Warm regards,

Renuka Bery

reactions to e-conference

reactions to e-conference
Rochelle Rainey
rrainey@usaid.gov
Hi,

The threat of closing the e-conference has driven me out of the shadows where I have been

lurking, reading with interest all the suggestions, comments, and questions posed by the participants.

I have a few comments and questions myself, now that I am logged in.

Abednego Chigumbu (is that Abednego from UNICEF Ghana? if so, hi!) mentioned that he thought water source improvements were a more sustainable way to improve water quality than household or point of use treatment because of the behavioral aspects of correct, consistent, sustained use. That could very well be the case, but Tom Clasen has done a meta-analysis that should be published soon that indicated that household water treatment was about twice as effective in reducing diarrhea in children under five as improvements at the source.

In terms of sustainability over years, of course, we don't have that kind of data from household treatment. And Tommy Ngai also mentioned the need for this kind of research - if it isn't as effective, but protecting the water source lasts for 1 year and people give up using household water treatment after six months, what should USAID as a donor promote?

Thanks for all the time and energy into making this a productive forum! Rochelle

Henk - clarification

Henk - clarification
Rochelle Rainey
rrainey@usaid.gov
Hi Henk Holtslag

I had a couple of questions from your postings...

The website you gave for your Smart Water Solutions, www.nwp.nl doesn't work for me. Can you check and make sure there is no typo?

Also, do you have any information on the PLATION water treatment device you saw demonstrated at Mexico City conference? I couldn't find anything on Google about it, or Aqua as a company (lots of references to Aqua, just not for a company that makes water treatment devices.)

Thanks for your clarification on these items!

Rochelle

targeting water treatment products

targeting water treatment products
Rochelle Rainey
rrainey@usaid.gov
Hi all,

Sorry, I forgot to introduce myself in previous comments... My name is Rochelle Rainey, and I work in Washington DC, as a technical advisor on household drinking water for the United States Agency for International Development (USAID).

One of our main concerns, as a donor with a strong commitment to promoting point of use water treatment, is one that surfaced during this e-conference as well: how to provide an affordable option for better health, when the people who need it most can afford it least?

I appreciated the comments about stigmatizing products by targeting them only to the poor, and stigmatizing poor people by targeting these low-cost products only to them.

My limited understanding of voucher systems is that program administration costs are greater than just providing the product for free. If that were the case, would it still be in the interests of sustainability to try to get some people to pay and some to recieve it in a subsidized way with a voucher? Have any of the participants experimented with these targeted subsidies on a program scale?

I would very much like to hear your thoughts and experiences!

Thanks, Rochelle

Sharing hygiene promotion approaches/Government sponsorship

Sharing hygiene promotion approaches/Government sponsorship
Merri Weinger
mweinger@usaid.gov
(This is a message from Merri Weinger, Program Manager, Hygiene Improvement, USAID)

I wanted to second the suggestion from Bruce Gordon encouraging sharing of successes and failures- with a special focus on experiences with different approaches to promoting selected POU technologies (e.g. social marketing, negotiating behavior change, building on existing platforms (e.g. antenatal care), etc.). Experiences in promotion of multiple options simultaneously would also be important to gather (e.g. Bolivian experience with boiling, SODIS and chlorination).

I was also interested in comments by several people on the need to get governments more actively involved in promotion and distribution of POU options. USAID is working with UNICEF, PSI and CDC in Malawi to introduce hygiene improvement (chlorination and handwashing with soap) as a component of antenatal care through the government clinic system and community outreach channels. While the government is interested in joining the team, human resources and time are limited. It seems that UNICEF, PSI, etc will take the lead in developing and launching the program. Gaining significant buy-in from the government will be challenging. We will keep you posted as we move towards implementation. What is needed to further engage government partners and ensure sustainability if seed funding is provided by international donors? Another area for sharing lessons learned.

Many thanks to the forum organizers. Iâ€™ve learned a lot and look forward to keeping the exchange going.

Merri

promotion experiences

promotion experiences
Matthias Saladin
msaladin@fundacionsodis.org
Dear Merri,

In a nutshell:
- It was one of our core experiences in promoting HWTS in Latin America over the past 5 years that just talking about 1 method/technology is limited in its efficacy and sustainability. We started promoting SODIS, but since 2003 also include water boiling and chlorination. All these technologies are commonly available, even in rural areas, have proven health impact, and need no or very little upfront investment. In countries where ceramic filters are available, we also included them in our promotion - and we may extend the list further as soon as other technologies show a positive health impact. The fact that you can give options to the families increases the probability that they will choose any of them, and also the time they will keep using them. We have seen many families who actually use a mix of technologies, depending on the circumstances (weather, turbidity of the water, temperature, etc.).

As far as government involvement is concerned, we have made very positive experiences in several countries of Latin America. Currently, we support the Ministries of Health of El Salvador, Honduras, Guatemala, Ecuador, Bolivia, and Peru in promoting HWTS and hand washing, even though only on a pilot scale so far. They are definitely interested in bringing these pilot experiences to scale, and to involve other actors such as grassroot organizations, NGOs, schools, etc.

Sharing negative experiences: promoting one specific technology has been an experience of limited efficacy and sustainability for us and our NGO and government partners. We strongly believe in the multi-technology approach and have develped a specific methodology for promoting it. We are willing to share this experience with any institution interested - you can contact me at msaladin@fundacionsodis.org

Cheers,
Matthias

Henk - Clarification, Info on PLATION

Henk - Clarification, Info on PLATION
Henk Holtslag
Holtslag.dapper@wxs.nl
Dear Rochelle

Regarding your question on the site of the Netherlands Water Partnership, that is www.nwp.nl
The booklet Smart water Solutions and Smart Sanitation Solutions can be found under Publications.
These booklets can also be found at the sites of Waste or www.practicafoundation.nl

Regarding the desinfection device PLATION , you can find information at www.aquaestinternational.com

Hope this works if not let me know
Saludos
Henk Holtslag

More thanks

More thanks
Reid Harvey
purifier@localnet.com
I too would like to thank the organizers for this e-forum. It's been great to get together in this way, with updates from so many friends. And it's easy to see that there are a lot of very dedicated people involved in this effort. We may have to contend with the law of Murphy, that what can go wrong will go wrong, but as long as we cross all of the t's and dot all of the i's, never giving up, we must succeed.

Reid

Paths of least resistance

Paths of least resistance
Bob Hildreth
agua@volcris.com
Paths of least resistance, scaling up by creating an environment rather than an "organization".

In the Dominican Republic after nearly 6 years we are now approaching 9,000 families in over 100 communities using a combination of the BioSand + Chlorine. This has been accomplished with no project employees to date. The concept has evolved by creating alliances and opportunities between NGOs and a private sector. Barriers are created when outside organizations take on too much ownership.

Education is provided to interested community leaders identified by NGO's, Rotary clubs or whomever. These individuals become Community Facilitators, with no real organizational affiliation to the project, but to their own community. They return to their communities and begin the process of education to raise the awareness of the water problems to a higher priority.

There is less resistance when the whole process appears to originate from within. It can not be overstated how effective a local person (not just native) of respect can motivate his own community.

Granted, our process is somewhat like cherry picking in that community projects are first generated where easiest, good community leaders, openness and community access. The amount of effort to cause behavioral modification is significantly less in some communities than others due to a host of factors. Resources go towards the least resistance first, more challenging communities become easier as time goes on (reputation, technology, cost, education and such).

Bob Hildreth
Project Las Americas

Thanks

Thanks
Bob Hildreth
agua@volcris.com
The forum has been enlightening. The combined knowledge and resources of the people working in this field is capable of realizing many times our current efforts with the multiplier of synergy in a team effort. This is a great initiative.

Adoption approach

Adoption approach
Xanat Flores
xanatf@mit.edu
Dear all,

I am Xanat Flores, a former student of Susan Murcott at MIT. At the moment I am only indirectly involved in HWST thru collaboration with Amy Smith and Susan Murcott at MIT.
I have been really enjoying all the discussion that has been going on during the past week. I think it has provided a great amount of knowledge and expertise in different areas of interest (technology development, marketing, basic research, social approaches, etc). I have also been very happy to see many familiar names, and to read their share, and I also want to join everyone in thanking Renuka and everyone in the HIP team for making this great e-conference possible.
Now I would like to say a few words in relation to what others have said. I agree and support Matthias Saladinâ€™s old fashion approach and actually think is one that many people miss. For big companies this might not be the best and most â€œefficientâ€• approach, whereas a good strategic marketing campaign might be considered the best way to get a product out. However, when we look at the greater picture, recipes, stories, traditions, etc., have been passed from generation to generation using the old fashion approach and have remained for hundreds or thousands of years. Many people have showed interest in a marketing approach. Nevertheless, we might need to start thinking about what is it that keeps these recipes, stories, traditions, etc., alive. I think the only way to learn this, will be using the old fashion/grass roots approach that Matthias talks about.
I only have a very limited experience in rural communities, very different from urban settings, but from it, I have learned that people tend to adopt more easily a given technology or hygiene and sanitation practice when they can adopt it as part of their daily rutine, customs, culture, social circle, etc. I have found that several technologies that have been introduced into certain communities, although very effective, end up in someoneâ€™s back yard unused. This could be due to different factors: a)they donâ€™t really see the need of the technology; b) they are not able to get replacement parts; c) they are not able to get a technician to come and repair it; d) there are some social/cultural/religious issues involved that prevent them from using them. I believe that a grass roots approach would be able to prevent these factors to a certain extent.
From my point of view, a grass roots (for rural communities) approach should therefore include:
1. A survey of the concerns and needs of the populations (children, women, men, elder). Sometimes, the users might not see the need, for example, of pure drinking water, and therefore

education might be needed before the introduction a technology. However, for as long as the population does not raise and expresses the need, adoption will remain limited.
2. Knowledge dissemination thru key members of the community (and not only local governments and local NGOs). The involvement of the local leaders is key, in many aspects: they have a good idea of the populationâ€™s needs, and therefore can help address what can be adopted; sharing the knowledge with key members can help brainstorm what features should be present in the technology looking at it with a scientific, but also social behavior eye, and at the same time, will be able to understand the system and therefore repair it (and make it from locally available parts); key members will help disseminate knowledge and educate other members of the community; other members from the community, who tend to look up to community leaders will more easily adopt the technology.
3. Community involvement. Getting the people involved (maybe thru small workshops, small town meetings, small open forums) not only in the technology adoption, but even in an earlier stage, the technology development, allow the community to embrace the technology as its own. This allows the community members to understand it, to take care of it, and to be responsible for it.

This approach is a more time and energy consuming one, and comes from my limited experience in rural communities, but it seems to be more friendly and sustainable. And now that I think about it, is one that also some big companies use. For example, I come from Mexico, and I have seen that Coca-Cola has specific products sold in Mexico that I have never seen here, and it even has regions specific product!

Now, answering some of the questions raised by the HIP team:
1. Share one thing you have learned from this e-conference that will be useful to you in your work.
I happily learned that there is a large group of people with a common interest and a vast amount of knowledge, gained thru research and/or experiences, and that I can learn a lot from it.

2. People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?
For myself there were two reasons that had kept me from sharing: 1) time; 2) the feeling of not having much to contribute with due to limited experience.
And in my case, the more participation I noticed, the more I wanted to participate. So I guess, thru participation we can all get other people to share.

3. In your mind did this e-conference get to the heart of the HWTS issues posed?
 I cannot say whether or not it got there, but we are certainly a step closer.

Thanks a lot for all the sharing!

Sincerely,

Xanat Flores

PhD Candidate
Massachusetts Institute of Technology

Our experience from the project sites in Nepal and India.

Our experience from the project sites in Nepal and India.
Hem K. Pokharel
hem@solutionsbenefitinglife.com
Dear Network Participants,

I am Hem K. Pokharel, presently working for Solutions Benefiting Life (SBL), USA. We are a small non-profit organization. SBL researches and distributes SBL units in developing countries(Silvered ceramic disk filter). We have distributed 800 units in Nepal and India. People actually buy our system from the local producers. We are interested in research, education and distribution and to promote a small business development in the project sites (run and owned by local people) so that people at their communities can produce and sell the unit using local clubs like womenâ€™s organization.
The SBL staffs goes back to every house and collects necessary information to monitor change in their health by using SBL units. We have project managers in Nepal and India. They go back to the community and talk to local people. Doctors and the leaders of the community constantly talk to the local people about the benefits of drinking clean water.
With SBL units we distribute soap, notebook, questionnaires, brush, user manual and health education manual. We believe that all those elements are equally essential. We want to collect as much information as possible and to provide local people with all the information and things necessary to use the SBL Unit.

SBL Unit

1. It is all clay units. It has disk so it could be used with plastics too. Clay unit is ideal for our present site. Clay also keeps cost low.
2. Present cost of production is USD $ 3.57 in both Nepal and India. 800units have already been distributed. Tested both in labs and in houses.
3. Uses colloidal silver. Flow of 4.5 LPH killing all bacteria. Optimum flow rate and residence time was identified after numerous tests at SBL Sudbury MA lab, external labs in Nepal and USA and P/A test in houses.
4. It gives employment to people, promotes local business and no plastic involved, so do not have to depend on big plastic companies. Big companies are rare, expensive and infrequent in developing countries.
5. Every batch of units is tested at Nepal Environment and Scientific Services in Nepal for Membrane filtration test before distributing in field sites.

How is SBL working in the field?

1. SBL systems have already been distributed to all the schools in Thimi. In addition to that our program director for Nepal Mr. Hari Govinda Prajapati (Nepal) and Mr Noor Alum (India) go back to schools and check to see if they are being used properly. They both also conducts P/A tests in schools and houses frequently. Test kits are obtained from ENPHO Nepal.
2. In addition to schools SBL brings local clubs, micro lending organizations, libraries, womenâ€™s organizations and the respected people of the community to educate people on the importance of clean drinking water.
3. We do not give away units for free. Free is Free. Our belief is that people do not take care of things properly if they are free. Even the most poorest are willing to Pay some amount for â€œOwnershipâ€•. Presently people are paying 1/6th of the cost. SBL bears the rest. Doing that people will let you know if there is anything wrong. People tend to speak that way. We have upgraded our systems many times based on the feedback from people.
4. We give a great importance to questionnaires (Before) and the health data which is collected after distribution. It helps us monitor the health improvement and how it fits in their family?
5. We go back and communicate frequently with families and schools. More communication is always better. We have volunteers from local community and schools. They help us to collect questionnaires and health data. Mobilizing community is very essential part for SBL. SBL is thankful to schools and responsible people of the communities who have taken this project to their hearts.

Presently our program is limited to two project sites. We want to do more. We are looking for funds to support and expand our program in other places.

Sincerely,

Hem K. Pokharel
Project Manager
Solutions Benefiting Life
490 Boston Post Road
Sudbury, MA 01776
USA
Email: hem@solutionsbenefitinglife.com
Web: www.solutionsbenefitinglife.com

New topic

New topic
Robert Ainslie
robert.ainslie@jhuccp.or.id
Dear All,

My name is Robert Ainslie and I am working on a USAID safe water program in Indonesia. We are working through a commercial model to produce, and distribute the safe water product called Air RahMat. The actual product just got to market in February of this year. It is the only product/technology that is being promoted through this program. The main competition is boiling water. In two recent surveys there was an reported 96% boiling rate among the population. As this sounds good, there are two factors on the boiling issue: 1) it is very expensive here now that the price of kerosene has tripled in the last 8 months. People report spending half of their kerosene on boiling drinking water. The second issue is that in one study we did with CDC, 96% of the source water was contaminated and 47% of the treated water was contaminated. So that is the context we are working in.

In looking at queries around what people can afford and the constraints to using HWTS, I think itâ€™s the behaviors around treating or not treating that are key to adoption. Many of the programs in the past focused on treating water to reduce diarrhea. So the motivating factor was the improved health (less incidence of diarrhea). But in asking people where they get diarrhea form, many link it to the growth stages in kids, eating hot or cold food, eating dirt, etc. Getting it form water is usually low on the list. So that is one barrier. Next if people believe that you can prevent diarrhea through treating water, a problem you face is when they get it from another vector, say not washing your hands, or not cleaning or protecting food properly. So people may lose faith in the water treatment. Also we hear women say that they treat their water and then the kid drinks untreated water at a neighborâ€™s house. So why should the mother invest in treating her water. Also the fact that they have been drinking their water just fine with out treating (or treating only in dry season, or wet season). So we are faced with not only getting a technology right (one that a person likes) but also the behavior of treating water before drinking.

There needs to be emphasis on creating the norm of treating in the community, not only one or two people treating. Here in Indonesia, boiling is the norm. If you donâ€™t boil then you use bottled water. When introducing SWS here, people always want to boil before or after treatment. It is unthinkable to drink un-boiled water. When they learn of the benefits of SWS, and tastes and hear other peopleâ€™s testimonial, then they are willing to try, but it is a huge step not to boil. We even hear that people would rather not boil water because of the expense or the time it takes,

but it is a behavior that is well entrenched.

I also think in the promotion of HWTS we need to think why people drink and what they like about the qualities of water, not that its safe and prevents disease. Look at any bottle water and it promotes itself because its â€œfreshâ€•, it pure, its form a mountain stream. We need to but those types of aspirational qualities around water treatment. Why should you treat your water â€“ because it makes it fresh, pure, like mountain spring waterâ€¦. We are promoting Air RahMat as a cost saver and as practical.

Not sure if this goes to the sore of the questions posed, but I have been reading the exchanges and just now (last day) been able to write some. We will let you know how SWS (Air RahMat) does next year in the conference.

Regards,

Rob

Answer to klaas Indonesia

Answer to klaas Indonesia
Robert Ainslie
robert.ainslie@jhuccp.or.id
Klaas,

Thanks for the information. I think that is one of the barriers in terms of people wanting to see something happen. Procter and Gamble found this out and in their PuR product the water changes color and then there is the flock. People are always amazed. When you boil, the water comes to a boil, and people can see that, and they see the steam. So that could be a good addition.

The Air RahMat (SWS Chlorination) product is in a 100 ml bottle and treat about 660 liters. The cost is 4,000 Rupiah (about $.40) per bottle. It comes to about 15 times cheaper than boiling, so it is economical.

My email is Robert.ainslie@jhuccp.or.id

Cheers

Removal of chlorine taste

Removal of chlorine taste
Klaas van der Ven
watersafe@hetnet.nl
Hello Rob

I know your system and I think to have a suggestion to have a more appealing product.

All people prefer good tasting water and, if possible, will do not like to drink chlorine tasting water. One of the problems using the SWS approach is the right amount of dosing. Overdosing is more safe but wil result in a worse chlorine taste.
Redidual chlorine can be removed using activated carbon. When you take a small diameter PVC pipe (diameter 25 or 32 mm and a length of about 15 cm.) with a funnel connected to this pipe, all residual chlorine will be removed. The pipe can have an end-cap with small holes that can be taken off for refilling with activated carbon.
Indonesia manufactures activated carbon. In India granulated activated carbon costs from the factory about $ 1.70 per kilo (= $ 0.85 per liter).
A 15 cm. long 32 mm. diameter pipe will contain around 75 mml. activated carbon, with a cost price of around $ 0.07. This is real cheap. The volume of activated carbon can be fine tuned in such a way that at least 600 liters of chlorine containing water can be treated. I think that this 75 ml. will be enough for 600 litres of water.
When people buy a new bottle of chlorine disinfectant, they can buy a sealed refill bag with activated carbon with a cost prive of around $ 0.10 (including sealing).
Probably it will be better to impregnate the carbon with silver. This can be done locally and will add a little bit to the costs mentioned.
Using the funnel/activated carbon approach, the right dosing will not be a problem. People can start over dosing now, because residual chlorine will be removed. Treated and filtered water can be stored in bottles for daily use.
I would like to hear your comments.

Klaas watersafe@hetnet.nl

water purifier Indonesia

water purifier Indonesia
Klaas van der Ven
watersafe@hetnet.nl
Hello Rob

Probably you can make bacterial contamination in water visible in some way. Some messages regarding this item has been posted in this group discussion.
As taste of filtered water is important, I am wondering if activated carbon is used in the new purifier. What will be the price of this purifier and how can we reach you.
It is important for all people in the E-conference to leave their E-mail address in their message. In this way they can be reached later on. I like to contact some people by mail, but mail adresses are missing.

Regards

Klaas Mail: watersafe@hetnet.nl

Dechlorination

Dechlorination

Giovanni Del Signore
giodelsignore@tiscali.it
Rob,
you may also use charcoal finely crushed and washed instead of commercial activated carbon.
I made a test placing a piece of charcoal in a glass of chlorinated water. Chlorine disappeared (I used a chlorine test kit) after a few minutes.
This could be a cheaper solution

Giovanni

giodelsignore@tiscali.it

2: How do programs promote HWTS and ensure that the government continues to supply improved drinking water sources?

2: How do programs promote HWTS and ensure that the government continues to supply improved drinking water sources?

While donors, governments and implementers work towards the millennium development goal of providing access to improved water supply by 2015*, many households currently depend upon water supplies of inadequate quality and limited access. Even households with adequate access to safe drinking water engage in practices that bring about â€˜secondary contaminationâ€™ of water.

1. Does promoting household water treatment and safe storage allow the government to shift its responsibility to individuals to finance their own safe water?

2. How can implementers promote water treatment and safe storage without reflecting negatively on existing water sources, which may or may not be safe to drink?

3. Can organizations working to improve access to water also promote HWTS without sending a confusing and conflicting message to their communities?

This e-dialogue will address these key questions, and work to identify successful program strategies for advancing on both government

provision of safe water and household treatment and safe storage.

* The Millennium Development Goals define access as 30 minutes or less to go, collect water and return to home.

Water Protection and Targeting Behaviour

Water Protection and Targeting Behaviour
Abednego Chigumbu
achigumbu@unicef.org
The provision of safe drinking water requires that project implementers approach it with certain practical considerations, especially when it relates to rural populations. Disinfecting water at the household level, whether by boiling, use of chemicals, ultra-violet rays, etc, may be easier said than done for a number of reasons - financial, social, cultural, time constraints, knowledge and attitudes towards the role played by water in disease causation, etc. It is my view that methods that render existing sources safer through physical protection are more sustainable and produce better results. The use of water treatment agents may only have a limited impact for the duration of a project or outside intervention. Once the project is over people usually slide back to their old practices. In this regard the upgrading of family wells has been known to produce positive and long-lasting health and social impacts. If the water source is also linked to some productive use then the benefits are further multiplied. Household ownership of the well ensures that breakdowns are attended to whenever they occur and with little or no external assistance. Communal sources, on the other hand, may be perceived as belonging to the implementing agency. The use of participatory health and hygiene education techniques in behaviour change communication can never be over-emphasised if safe household level use and storage of water is to be realised. Fears, beliefs, myths and misconceptions need to be dealt with in a friendly and non-threatening atmosphere and informed decisions made by the affected people.

Decentralised WWTP for productive purposes

Decentralised WWTP for productive purposes
Laurent Stravato
laurent.stravato@sgi-spa.it
Dear Colleagues,
My name is Laurent Stravato and I am currently working for Studio Galli Ingegneria (Italy). I have also worked previously with IRC in the Netherlands and developped some action research projects on low cost technology for household wastewater treatmnent plant.
I am presenting below some comparative data between microphytes, macrophytes lagoons with information such as cost of realization.

Those information describe mainly the sanitation aspect and the water treated with such technologies can't be used for drinking purposes (only productive activities)

Type of lagoon	Microphytes	Macrophytes
Average Flow (m3/day)	45	45
Wastewater origin	Household	Household
Cost of realization	8,350 US$	15,340 US$
Network type	Separate	Separate
Material of canalisation	PVC	PVC +concrete
Length (meter)	548	3400

Different studies elaborated with EIER or CREPA http://www.reseaucrepa.org/ demonstarte that duckweed Microphytes or Macrophytes systems are able to generate
sufficient income for the maintenance and operating of treatment facilities starting already at 1000 habitant equivalents. Once the treatment facilities set up, the maintenance can be financed by means of urban agriculture and inland fisheries bringing important benefits for livelihoods.
Ref:http://www.irc.nl/page/24568

Cordiali Saluti,
Laurent

Theme 2

Theme 2
Brandt Witte
bwitte@aed.org
I am the Water and Sanitation Technical Advisor for the Hygiene Improvement Project. I am interested in discussing three very importnat questions that are raised in the background reading for Theme 2: How do programs promote HWTS and ensure that the government continues to supply improved drinking water sources?

1. Does promoting household water treatment and safe storage allow the government to shift the responsibility to individuals to finance their own safe water?

2. How can implementers promote water treatment and safe storage without reflecting negatively on existing water sources, which may or may not be safe to drink?

3. Can organizations working to improve access to water also promote HWTS without sending a confusing and conflicting message to their communities?

These questions come up over and over again in my travels and my own take is that it is important to take a multiple barriers approach and work to ensure drinking water safety at both

the community source or catchment and at the household level.

theme 2

theme 2
Libertad Gonzalez
Libertad.Gonzalez@ifrc.org
3. Can organizations working to improve access to water also promote HWTS without sending a confusing and conflicting message to their communities?

IFRC as an organization working to improve access to safe water promotes an integrated approach for their watsan projects. This approach basically contains 2 elements: hardware elements (construction / rehabilitation /upgrading of affordable water and sanitation facilities) and software elements (promotion of good hygiene practices at community and household level and community management system of the facilities).

Carrying out activities at household level to promote water treatment and safe storage does not exclude implementing hardware activities at water source level. A good water source does not ensure that post-delivery contamination is not done at household level so only through integration of these two aspects in the same project we can ensure high quality in services delivering and gaining better health status in the community.

water storage in clay pots

water storage in clay pots
michael commeh
kwekumichael@gmx.de
clay pots for storage is better in my opinion though i will not force any one to use it. though there is little knowledge on pots water stored in pots, what had been gathered so far is this: researtch has shown that when clay products cools they get magnetisd for the earth magnetic field. Now when water passes through a magnetic field, it makes plants grow healthier, greener and bigger/taller than their counterpart without magnetised water. putting one plus one is two, clean and safe water stored is fired clay pots will let me grow healthy and young with increasing age. this is one of the research we hope to star soon to investigate into. you can also try it!

Water storage in Clay pots, desinfection with Silver

Water storage in Clay pots, desinfection with Silver
Henk Holtslag
Holtslag.dapper@wxs.nl
LS
Micheal Commeh mentioned the positive effect on water quality if stored in claypots. In many countries water is stored in clay pots and besides Chlorine, an other way of desinfecting the water storage tanks maybe Colloidal silver as also mentioned by Mickey Sampson. With BWN we are testing in India, the effect on water if the pots are "painted" inside with a little silver. An other "new" treatment idea we saw on the recent World Water Forum in Mexico
It is called The PLATION
It is a tube, containing a number of silver impregnated balls that floats in the water container. The company Aqua est showed investigations that, within 3 hours, the water in the container was free of bacteria! The size of the tube depends on the size of the container. Seems interesting to study this more and go on developing low cost options of this plation.
Greetings
Henk Holtslag

New topic

New topic
ron rivera
ronriverat@yahoo.com
We have to get the WHO to take us seriously and publically say " yes, HWT technologies can help meet the MDG".
Once that is done national and local governments will sit up and take us seriously also.
What do you say?
Peace
Ron

Theme 2

Theme 2
Matthias Saladin
msaladin@fundacionsodis.org
Dear Brandt Witte,

Your questions are very interesting, and each of them would be worth a sperate topic in this e-conference. Anyway, I will try to summarize some experiences we made in promoting several household water treatment methods in Latin America over the past 5 years:

1. Does promoting household water treatment and safe storage allow the government to shift the responsibility to individuals to finance their own safe water?

We don't think promoting HWTS should imply a shift in responsibilities - in the long run, it still should be the task of the water distribution entities (government or private) to deliver safe water. However, HWTS can help in the meantime - but realistically, "in the meantime" may be a very long period of time.
Generally, we see HWTS as a shift in public health policies (from curing to prevention), but not directly related to drinking water policies.

2. How can implementers promote water treatment and safe storage without reflecting negatively on existing water sources, which may or may not be safe to drink?

Our approach is to empower people to test their water quality. While a distribution network may deliver poor quality water, some open sources may be actually of good quality - so anyway, you need to measure quality. And in any case, safe storage is needed, because that's actually where big part of the problem arises. We are about to publish some data in this regards, but there is already published evidence that transport and storage are two big risk factors which dwarf the issue of water quality of the source...

3. Can organizations working to improve access to water also promote HWTS without sending a confusing and conflicting message to their communities?

For example, UNICEF Bolivia has already accepted the fact that centralized water treatment systems (chlorinators) generally are non-operational in the rural communities, for a series of reasons. As a consequence, they included a promotion phase of a multi-technology HWTS approach (boiling, chlorination, SODIS) after the construction phase of their water supply systems. This component has been introduced without substantially changing the methodology of these projects, as UNICEF already were aware that constructing rural water supply systems needs a strong hygiene promotion component in any way.

General comment:
I am not sure if the above can be generalized, but it has been our experience that water supply and water quality are two issues which do not interfere with each other, they rather complement each other - and that's how it should be.

These 2

These 2
Safe Water International, Larry Siegel
swi@cox.net
Matthias, both of your recent comments match the experience of SWI in Bolivia and central Mexico.

Your mention of the role of water testing is particularly useful. We had a recent experience in Boliviaa where water testing led to the use of an HWTS .

Which water testing procedure are you using?

Larry Siegel, SWI

Message for participants following both themes

Message for participants following both themes
Renuka Bery
rbery@aed.org
Dear Forum Participants:

After successfully addressing some file size issues, the Hygiene Improvement Project (HIP) is pleased to inform you that the background paper for this conference that provides an overview of the wider topic, household water treatment and storage, has been posted in the background materials section of this e-conference. Accompanying this is a series of appendices and some PowerPoint presentations. We hope you find it useful.

Also, as indicated in this document, the paper will be finalized following the e-conference, so please feel free to send any comments you have about this paper directly to hip@aed.org. The paper was prepared by Susan Murcott from MIT for HIP. She and many others helped USAID and HIP to identify potentially interested participantsâ€”including all the members from WHOâ€™s International Network to Promote Household Water Treatment and Safe Storage who have actively started to participate. HIP would also like to acknowledge our colleagues at Nepal Water for Health (NEWAH) and Pure Home Water, Ghana who prepared excellent case studies to help frame the questions for this e-conference.

We appreciate everyoneâ€™s understanding as we address technical issues that have been arising as quickly as we can. To assist in answering some technical and logistic questions, we have developed and posted a frequently asked questions document with corresponding answers. These include things like: How do I turn off my notifications? Does this conference have an agenda? and What do I do if I forget my password?

The conversations started earlyâ€”an indication, we hope, that everyone is eager to share experiences and to discuss critically these important issues around household water treatment and storage. We look forward to much more sharing.

Thank you.
HIP Team

Theme 2: How do programs promote HWTS and ensure that the government continues to supply improved drinking water sources

Theme 2: How do programs promote HWTS and ensure that the government continues to supply improved drinking water sources
michael commeh

kwekumichael@gmx.de
hi everyone,
this is an existing moment/conference. thanks to susie murcott. more of these are needed. i hope my contribution make some sense here. this is our concern now and we are trying to sort it out at least scienticfically first all and see the way forward.-
Safe and Clean Drinking Water-Household Ceramic Water Filters Research, Development and Production II.

Introduction: Delivering his keynote address on the 15th December 2005 at the United States Information Service, Mr. Zubler Georg, the Ambassador of Switzerland to Ghana said that every human being needs regular supply of clean drinking water in order to survive but aside been in limited supply, water can also not be reproduced nor can be replaced.
He said that a UN report indicates that currently about one and a half billion people lack access to clean drinking water and greater percentage of this number are in remote rural and rapidly growing urban areas.

He mentioned that, in Ghana the 2003 Core Welfare Indicators survey indicated that only 57% of the rural poor have access to clean water. Altogether according to 2003 Ghana Demographic and Health Survey, only 16% of households in Ghana have access to pipe-borne water in their dwellings, yards and plots.

He stated that although Ghana is blessed with many water resources, most of these sources are in different state of pollution and degradation. Studies by Water Resources Commission indicate that only 6% of Ghanaâ€™s water resources are unpolluted or recovering from pollution. 67% are either of poor quality or grossly polluted as a result of the discharge of untreated or only partially treated wastewater and solids into surface drains and watercourses.

He said since water-borne diseases are responsible for 80% of illness, providing safe drinking water and proper sanitation is therefore a high priority for most Governments, International Agencies and NGOs in developing countries. One of the targets of the Millennium Development Goals is to half, by 2015, the proportion of people without sustainable access to safe drinking water. It is estimated that providing safe drinking water and proper sanitation to everyone in the world by 2025 will cost USD 180 billion a year, two to three times the amount invested at present. He said it has therefore become extremely important, to develop cost effective methods to ensure clean and safe drinking water to every household.

He lauded the effort made by Technology Consultancy Centre (TCC) to produce efficient and affordable household water filters from local materials for the provision of good drinking water for both rural and urban household in Ghana. He said it is to help solve the water problem in Ghana that is why the Swiss Embassy has decided to finance TCCâ€™s Water Filter Project (Research, Development and production).

In conclusion, he expressed the hope that people in this country will value the environment and maintain its integrity and also change their attitudes towards the protection of water resources to ensure sustainable development of the country.

In the last technocratic edition, part one of the Nnsupa household ceramic filter was featured. The last edition dealt with problem statement and how Nsupa product was researched and developed. This edition which is the part two or better still the continuation of part one talks about other applications this Nnsupa filter is capable of. Before we start to talk about it capabilities letâ€™s look at some scenarios.

We are told to boil our water before drinking. This is very true to the core when considering dangerous pathogens in the drinking water. But what about the soluble and insoluble in the drinking water that can not be removed by boiling? We have such chemicals as fluoride, arsenic and the likes found in our ground water, that course serious medical problems like teeth decay and cancer respectively. A typical example of such cases would be found at Agogo in the Ashanti

region and Bongo in the Upper East region. Let also take sea water as another example. When sea water is boiled it becomes more salty with increasing time thus rendering it undrinkable. We are told to wash our hands with soap, but how hygienic would it be when the water you are using, is biologically and chemically contaminated?

The two scenarios above go further to consolidate the earlier statement thatâ€• water can be safe but is it clean to drink? And can be clean but is it safe to drink?â€• The growing or grown interest in bole holes or wells construction by NGOs, individuals and the Ghana government, recently (with the aim of providing or supplying potable water) has prompted some of us scientist to begin, as early as possible, to look at the possible future effect of our ground on our health and to come out with sustainable solutions and policies. As earlier stated, data from Community Water and Sanitation department has shown the existence of fluoride and arsenic in some of our ground waters. There have been reports of salty water in our pipes as well especially along the coastal areas of Ghana. This leaves us with the question of how safe are we just using filters of any kind, with the aim of improving our drinking water safely in terms of pathogen exclusion alone? Many bole holes or wells have clean drinking water but they donâ€™t show the presence of fluoride and the likes unless tested in the laboratory. This situation is very serious in Nepal, India and Bangladesh!

During raining season, most wells produce brown cloudy water making drinking difficult especially in the urban areas. In the rural areas such water have drunk for so long that no difference is observed or better still with the thinking of â€œin the absence of good bad is betterâ€•!
In some cases we have had Nnsupa turning black after one year, filtering just tap water in Accra. Investigation showed the presence of Manganese which turn black on oxidation.
What Nnsupa Ceramic Water filter Candle has been found to do

Currently results show the Nnsupa ceramic filter is capable of desalinating up 85 to 95% of our sea water. It is also capable of reducing fluoride up to 85%. Higher percentage of 98 and 99% can be achieved when the flow rate is reduced to 300ml/hr. With such flow rate two to four such special filters are needed in a container to make up.

NNSUPA CERAMIC FILTER CANDLES INSTALLATION AND OPERATING INSTRUCTIONS

GRADE OF CANDLE
Standard NNSUPA-CARBON
Two hours soaking with very hot water
Yes

Cleanable Yes
Boilable Candle Yes
Scrubable with toothbrush Yes
Recommended Lifespan 12 months
Well/bole hole water, river, tap Yes
Pond water, drainage water Boil first

CANDLE PERFORMANCE
Reduce to safety Level

Bacteria/Pathogens â˜»100%
Cysts â˜»100%
Chlorine/Nitrates 85%
Rust and sediment â˜»100%
Taste and odour â˜»100%

Organic/Inorganic chemicals N/A
Desalinate Seawater â˜»85-90%
Colloidal silver impregnated No
Heavy metals â˜»100%
Arsenic Yet to be quantified. mark reduction though
Fluoride â˜»85%

It is possible to produce household ceramic filters that can be acquired by each family. The filter is affordable, which could be sold at USD1.50. It can either be subsidized or be part of the health insurance scheme. A lot of campaign through various programme in the industry are being organized to introduce the household ceramic filters to every family.
The production, being done at the Technology Consultancy Centre will ensure the highest quality. This product is hoped to solve water related sickness in terms of cost, quality and efficiency to both the government and the target group.

Future Research Developments and Dissemination

It has become imperative to really understand how the Nnsupa works, behaves and its limitations. We need to know it optimal operation level for us to achieve a very sustainable unique product. This actually part of what we call continuous product improvement. To this end e need to also understand the characteristics of our water bodies, try them on the filters and analyze into details what the filtered water composition is, as against the unfiltered water. For example atimes there is a thin layer on the surface of the Nnsupa ceramic filter. This is due to the exclusion of oxide/hydroxide/carbonates of metal or colloidal microbes that have cemented itself on the surface. With such a situation, the thin layer should be scraped off to make the filter perform efficiently.
Considering the time left to reach the MDG by 2015, frantic effort is needed from the government, NGOs, District Assemblies and the likes to get as many people access to the a filters system. One of the effective ways this can be done is the effective use of the National Health Insurance Scheme. NHIS can help people purchase 15 litre transparent filter system.

Acknowledgment

Of course this project wouldnâ€™t have been possible had the Swiss Development not given us $15,000 to conduct the R&D and commercial production of the Nnsupa. Special thanks go to Dr. Peter Schweizer, the then Swiss Ambassador whose special interest and support saw the birth of the project. Stone foundry and Frimpong Engineering have been of a great help in getting the engineering works done. These small scale firms helped in the translation lf the technological theories into reality.Many thanks go to Mr. Bruce of Water and Sanitation, Civil Engineering department, Dr. Obiri-Danso of Biological Science, Dr Ampofo and staffs of Water Research Institute (C.S.I.R), Dr. Kwesi Darko of Nuguochi Memorial Research Institute and Ms Susan Mucott of Water and Sanitation, Civil Engineering, Massachusetts Institute of Technology (MIT). for their support in the analysis of the efficiency of the filters. Of course TCC staffs are not forgotten. I must admit that these Professors also contributed immensely toward especially to Nnsupa achieving its additional goal of arsenic, fluoride etc. reduction. They are, Prof. F. Momade, Provost of College of Engineering and Prof. J.H. Ephraim, Dean of Post Graduates Studies. My utmost felt sincere thanks goes to Mr. & Mrs Ato DeGraft of College of Arts & Social Science, Mr. Eugene Bernice Larbi of TREND group, Dr Clarke and Mawuli Asempa both of Accra for their contribution in promoting the Nnsupa. Mrs. Kate Acquah I thank you very much too. Without all of you this research work would have been on the shelf. My sincere thanks finally go to Mr. Ben Andoh and his staff for publishing this project in the technocrat.

By: Michael Commeh
Research Follew
TCC, KNUST
Kumasi

For information and bulk supply contact;

Organization: Technology Consultancy Centre
Kwame Nkrumah University of Science & Technology
Kumasi, Ashanti Region
Ghana, West Africa
Tel: 0244 794187 or 051 60296, 051 60297

Ghana candle filter

Ghana candle filter
ron rivera
ronriverat@yahoo.com
i... can I have a picture of your candle filter.
peace
ron

Proper correct message

Proper correct message
Padmaja Shreshtha

Dear all
Greeting from Padmaja Shreshtha

I am working in Environment and Public Health Organization (ENPHO), located at New Baneshwor, Kathmandu, Nepal. One of the main objective of our organization is to develop and promote low cost water testing technique at field level and household drinking water technology, so that all the members of the community can get safe drinking water at low cost.

In this conference I would like to put my view based on the given three questions. The quastions are as follows:

1. Does promoting household water treatment and safe storage allow the government to shift its responsibility to individuals to finance their own safe water?

2. How can implementers promote water treatment and safe storage without reflecting negatively on existing water sources, which may or may not be safe to drink?

3. Can organizations working to improve access to water also promote HWTS without sending a confusing and conflicting message to their communities?

Based on the above three questions my views are as follows:

Shifting of the responsibility from government to individuals is not the important issue. The most

important point is that whether the drinking water supplied by government or other organization to every member of the community should be safe. It would be quite safe if individules make their drinking water safe by themselves. But the government or the other organization who take responsible for the supply of drinking water should maintain minimum quality of standard so that members of the community can treat their drinking water by simple household technology and obtain safe drinking water.

Household water treatment and storage of drinking water is not a new chapter for most of the community member. They treat their drinking water and store it separately. Only the matter is that whether the treatment and storage is done correctly/properly or not. For this the community members require proper and correct message regarding treatment technology and storage process.

Through different types of awareness programs HWTS can promote and give proper message to the community members. The government should play a vital role in it.

New topic

New topic
Siddartha Shrestha
sidshrestha@unicef.org
Hi ! I am Siddartha Shrestha working in Programme Communications for UNICEF Nepal Country Office.

We are currently in the process of developing a campaign to promote PoU water treatment in Nepal. I agree with Julia Rosenbaum's article that the key to effective promotion is "negotiating behavior change" through the frontline workers (community health volunteers, mobilisers etc.).

Based on the Nepal consumer and baseline survey conducted in 2005, over 75% of the respondents did not perceive any problems with the quality of water for drinking.
I believe that even before offering the available water treatment options to the target audience, we need to make them aware (in a positive manner and not using the "fear" appeal) that the water they are currently drinking has microbial contamination. And the most effective way to do this is through interpersonal communication supported by mass media.

Regarding PoU treatment options, one option we are trying to promote in Nepal is the Kanchan (Biosand) filter developed by ENPHO in select Terai [flat lands] districts. The Kanchan filter is one PoU treatment option uniquely positioned for several of the arsenic-prone Terai districts. This is primarily designed for arsenic mitigation but can be used for reducing microbial contamination too. This dual benefits of the filter could be used to promote it extensively in the arsenic prone districts of Nepal.

The filter consists of a large PVC cylinder as a container with several layers of brick chips and rusted iron nails [for arsenic removal] on the surface followed by fine sand then coarse sand and pebbles. The water is poured from the top over the various layers and collected from the pipe outlet. The filter could treat to about 15 lt per hour, which is more than sufficient for the household of 5-6 people.

Help HIP--Econference feedback requested

Help HIP--Econference feedback requested
Renuka Bery
rbery@aed.org
Dear Colleaguesâ€”

On behalf of the HIP team I would like to thank everyone who has contributed to this discussion. It has been lively and a chance to share new technologies, new ideas, and experiences people are grappling with in the field. While I donâ€™t want to dampen the discussions going on, I would like to leave some room for reflection as this e-conference enters its last few days. Please take a moment to think about the few questions below and share some of your thoughtsâ€¦both those who have posted messages and those who have been reading on the sidelines. Your contributions will help HIP learn from this experience and plan future learning and sharing opportunities.

1. Share one thing you have learned from this e-conference that will be useful to you in your work.

2. People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?

3. In your mind did this e-conference get to the heart of the HWTS issues posed?

HIP will synthesize the e-conference threads and post it on the HIP web site in June.

Warm regards,
Renuka Bery

"Help HIP--Econference feedback requested"

"Help HIP--Econference feedback requested"
Mohammed Kamfut
mkamfut@unicef.org
To Renuka and colleagues,

Help HIP--Econference feedback requested - M Kamfut

Thanks for all the efforts in organizing this conference and actively participating. It has been a great success and a worthwhile experience.

1. The conference has afforded the opportunity for establishing contact with professional colleagues working on different aspects of HWTS. A lot has been learnt from the experiences shared particularly on appropriate, inexpensive options of making household water storage safer.

2. I believe a lot of people are interested but for reasons pointed out by other colleagues, tend to be reluctant when it comes to sharing information in a wider forum like this one. Some are probably tied up with other exigent commitments typical of the usual schedule for most professionals. Extending subsequent conference duration to about two weeks might generally help the situation. It could also allow people who are probably on mission to find time and contribute.

3. The various entries and trend of discussions have been very interesting and lively. They have captured most of the key issues on HWTS especially as they relate to theme 1.

Regards
Mohammed

feedback

feedback
Matthias Saladin
msaladin@fundacionsodis.org
Dear Renuka,

Thank you (and the rest of the team) for this e-conference. It definitely has been positive to see the number of people and institutions interested in this topic.
One specific thing I learned is that the institution I work for (SODIS Foundation) is not the only one having made positive experiences with household visits and face-to-face contacts. In the general tend for looking for ways for scaling up, this always seems to get forgotten (or be difficult to implement at large scale), but in our experience, it's key to actually changing behaviour. I considered this type of intervention to be old-fashioned (and it probably is), but now I can tell that there are other people and institutions out there who also like old-fashioned but effective interventions...

Thanks to everyone who contributed.

Matthias

Scaling Up/ At Scale/ Tipping Points

Scaling Up/ At Scale/ Tipping Points
Julia Rosenbaum, HIP
jrosenba@aed.org
There have been a few comments over the past few days asking about strategies for taking successful approaches to scale. Other comments asked about reaching a â€œtipping pointâ€•, when householders seems to â€˜spontaneouslyâ€• adopt water treatment technologies without focused outside promotion. Before the closing of the conference, we didnâ€™t want to miss the opportunity to share with the e-forum USAID/HIPs central approach to hygiene improvement: working AT SCALE.

Often, innovative approaches to hygiene improvement are implemented through pilot efforts with the intention to â€œscale upâ€• later. Working at scale is different than scaling up; it begins at

scale by engaging the widest range of sectors and stakeholders about common themes like hygiene improvement. Scale is reached when multiple stakeholders and interventions saturate the same targets with needed activities to adopt and sustain the key hygiene practices that reduce diarrheal disease among a large enough population to have health impact.

Lasting change ultimately depends on a critical mass of people practicing improved behaviors. These actions are motivated and maintained through access to infrastructure, promotion, policies, regulation and influential social norms that direct positive hygiene practices. Change can be sustained when individuals encounter the same message at every key contact point in their lives. (This, perhaps, is the hygiene tipping point.) HIP brings key stakeholders together to develop a shared vision and action plan to improve hygiene with approaches that reach people where they live, work, worship, shop, study and play.

Over the course of the project, weâ€™ll be developing a series of tools to help implement this methodology. And we hope to be developing a set of indicators to document the impact of this approach, and sharing those tools too.

IRC/Netherlands has also been spearheading a multi-country inititative on scaling up of community-managed water systems, with a dedicated webpage of discussion and resources. http://www.scalingup.watsan.net/

Help HIP--Econference feedback requested

Help HIP--Econference feedback requested
Safe Water International, Larry Siegel
swi@cox.net
Renuka and Colleagues,

I doubt any of us appreciates the extent of preparation and commitment that went into the organization of this e-conference. Safe Water International is enormously grateful for the leadership and effort that brought it about. We have been privileged to participate and to gain a better understanding of the initiatives and thinking around the world regarding household level drinking water treatment.

Our response to your closing questions follows:

1. Share one thing you have learned from this e-conference that will be useful to you in your work.

Given the nature of the work our groups and agencies do, there is always a danger of working in a vacuum. For SWI the forum has confirmed the value of a central information clearing house along the lines the forum itself has provided. It is surely clear to the e-conference organizers that managing such a forum is a large commitment; yet the exchanges that have taken place have transferred information more widely and more immediately than is otherwise possible.

2. People talk about sharing knowledge, yet when the opportunity presents itself, much knowledge and information is not shared. Why? What can you suggest to stimulate sharing?

The most likely explanation, and the experience at SWI, is that time and resources do not

provide the opportunity to engage in wider sharing. Each of our groups is wrapped up in its own projects, organizational issues, and financial demands. We all undoubtedly recognize the importance of information sharing in perfecting our own work, yet many probably feel they do not have the energy and time to provide thoughtful and useful comment. There may also be an element in insecurity in presuming to enter into discussions which for the most part have been carried on by government and university professionals.

A certain amount of sharing occurs via e-mail between clusters of groups, sometimes on an ad hoc basis and in other cases over a longer term. In our experience these exercises are most dynamic and productive when they focus on a particular HWTS option, as happened a few months ago when SWI sought feed-back on details of slow sand filtration.

3. In your mind did this e-conference get to the heart of the HWTS issues posed?

Thanks in part to Bruce Gordonâ€™s work on the Household Water Treatment and Safe Storage Network of the World Health Organization and to the initiatives of a number of other groups at work in the field, international focus seems to have turned more intently to solutions at the household level. This e-conference was an affirmation and strengthening of that direction.

The e-conference certainly probed some issues, e.g. education, cost, and range of options, but perhaps more importantly; it drew out the current thinking of groups and individuals at work at the field level.

New topic

New topic
Mohammed Kamfut
mkamfut@unicef.org
To Larry Siegel and other colleagues,

Thanks for mentioning the slow sand filtration option in your feedback to the econference which prompted this message.

Unfortunately I have not come across the request by SWI seeking feedback on details of slow sand filtration. Nevertheless I would like to seize this opportunity and briefly present the household sand filtration system with a view to provide linkage for sharing of experiences amongst colleagues interested in slow sand filtration.

The system provides a simple and fairly effective technique ideal for household and communal use especially in rural communities and farm settlements that depend on surface water sources. The design is based on the principle of slow sand filtration where the basic unit comprises the filter material, the storage container, outlet tap and fittings. The main filter media used include fine river sand, gravel, charcoal and marble to a lesser extent. Plastic barrels, clay pots and drums were used as the water containers. Depending on the capacity, a typical filter can provide up to sixty litres or more of potable water in a day.

Water quality tests conducted on the filters have shown significant improvement in physical appearance, chemical content and bacteriologic quality. The system has also proved effective in

the removal of objectionable taste and ordour based on recent testing of the filters in a community of Gombe State where water from a handpump equipped borehole has taste and emits pungent sulphur ordour.

The effectiveness of the filtration process depends on different factors including type and properties of the filter media used, thickness of the filter bed and turbidity of raw water. Whereas limited thickness of about 30cm have been effective in the removal of physical and some chemical constituents, filter bed thickness and flow rate are particularly important considerations to ensure necessary microbial activities in the improvement of bacteriologic quality.

In addition microbial actions indicated above, sedimentation and adsorption also play significant roles in the effectiveness of the filter. For small scale filters being discussed, the process of sedimentation has not featured prominently considering the limited size and number of filter chambers used. However, where high turbidities are involved, a layer of graded material comprising coarse-grained sand and gravel was used to precede the layer of fine-sand. For newly installed filters, flow of water was maintained at gradual rates to ensure that each bed is well compacted. In the design of the household filters, the operation was made to be as simple as possible. Experience has shown that the simpler a system is the more chances that it can be sustained at the community level. For this reason the use of drains and control valves has been reduced to a minimum. Such improvements may gradually be introduced once the communities become familiar with the operation.

Knowledge sharing

Knowledge sharing
Jaap Pels
pels@irc.nl
Hi all, Jaap Pels from IRC in the Netherlands.

I work with the HIP team on task 6 - Knowledge Management. For 20 years I worked for the Dutch consumers organisation and I was happily surprised to see references to Rogers and Kotler; authors often mentionad in respect to consumerism. Together with my education in natural sciences, it made me more comfortable to understand the discussions ranging from consumer preferences up to filtration and disinfection.

IRC provided the technical architecture for this E-conference; I operated behind the scenes and I am to blame for info-glut and (almost) all glitches :-). Frankly, I was a bit anxious when we invited over 500 people to participate in this E-discussions. What would happen if all participated and contributed 2 postings? Certainly some mailboxes would have been swamped. Also I am aware of the limitations of E-conferences; a wealth of knowledge is not easy translatable into text. Basic to knowledge sharing is 'trust', which is not easy without face to face contact.

I have read contributions by the complete spectrum of professionals; from on the ground practitioners, suppliers / producers / inventors, networks up to academics and decision makers. A wide variety of topics was covered; from financing, (social) marketing, consumers choice, partnerships, networks, behaviour change, community management, appropriate technologies up to 'at scale', multiple use systems, household productive use and 'scaling up' approaches. Technology, approach and people-wise this is a Xanadu for knowledge sharing! Initiatives like the WHO HWTS network and the HIP 'At scale' approach build upon such notions.

What boggles my mind is how to convince donors, governments and the private sector to finance opportunities for knowledge sharing and what approaches would work better on top of this E-conference. I expect no silver bullets but love to hear stories and hints.

Cheers, Jaap

Knowledge sharing

Knowledge sharing
Henk Holtslag
Holtslag.dapper@wxs.nl
Dear all

My name is Henk Holtslag, and I am associated with the Practica foundation. Practica is active in knowledge transfer of best practices in water and energy for rural areas.
Regarding HWTS we are active in several options ao training in the local production of ceramic filters as promoted by Potters for Peace and Basic Water Needs.

Despite observations, I think this mail conference is a very good initiative and I would like to respond briefly on a question of Jaap Pels

How to convince donors, governments etc to finance knowledge sharing?

Some suggestions
1e Repeat again and again the WHO investigation
Investing in improvements in water and sanitation have cost benefits of 3 - 43 dollar for every dollar invested!!!.
This was mentioned before in this conference. Our experiences on water fora like Mexico and others is that many donors, policymakers do not know this yet.
Maybe we should hire market specialist of Coca Cola that know how to get a message across!

2e Explain that a mayor obstacle for widescale implemantaion of proven low cost technologies is THE LACK OF AWARENESS. Our experience again is that over 80% of the stakeholders, end users, local NGOs, local private sector are not aware of developments in the last 10 years that have reduced cost of many water technologies in well drilling, pumps, irrigation treatment with 50 to 70%.!
One cannot choose for options that are unknown.

3e Explain that much time (funds) is required for knowledge sharing because a sustainable dissemination of
SIMPLE TECHNOLOGY IS NOT SIMPLE
It takes investments in applied R&D to improve the technology and adapt it to the local situation. Our impression is that technical details are often underestimated. We see projects of 50.000 US$ fail partly because of the wrong choice for a bolt of 1 dollar.
All new options require a long term follow up on education on use and maintenance but also on marketing.
An example may be the Treadle Pump now a relative success and used by 2 million families in Asia for small scale irrigation
Of the 7 mln dollars it took to start this, over 70% was needed for marketing.

4e Install SMART TEC CENTRES in every country and ,or region. These should not be paper collection centers but effective practical knowledge centers where options can be seen, touched, tried out. Advisors that know the local context can select 2 to 5 options of each technology that fit

the local situation regaring wells, pumps, storage water treatment, etc. We have negative but also very positive experiences with centres like that.

There is much more to say, but I would just like to mention the idea to exhange experiences on failures which seems a good idea to me. Hope this will work out.
Experiences on "new" low cost water technologies can be found in a Publication of the NWP called Smart Water Solutions. see www.nwp.nl
Regards
Henk Holtslag

sharing negative experiences

sharing negative experiences
Matthias Saladin
msaladin@fundacionsodis.org
Dear all,

It definitely seems to be difficult to share knowledge, at least over through e-conferences. Apart from the fact that everyone with access to a computer and the internet is busy doing other things, this may be because there is nothing to be gained in the short term from sharing knowledge and participating in e-conferences - not even a pretty certificate you can post on your wall...
This seems to be even more so with negative experiences - as Bruce Gordon has pointed out. So who else would be willing to take on the challenge of an e-conference for sharing "failures, breakdowns and disasters"?

sharing negative experiences

sharing negative experiences
Alan Spybey
alan.spybey@kickstart.org
I would agree with Matthias Saladin about the lack of motivation for sharing negative experiences. I participated in an e-conference on Business Development Services some years back, and the same tendency was in force during that interchange. It is very difficult for people not to be consious of the fact that they depend on donor goodwill, and that this is an opportunity to demonstrate success. There's about the same chance of somebody saying what a mess they got into in an e-forum as there is of a guy talking about his bouts of shyness in the showers after a game of rugby. Since a good deal of positive direction is calculated from failure in any research or design environment this makes it a pretty poor forum for learning.

Despite the possibily limited value for direction in new techniques, the forum has a value in informing people of techniques they may never have heard of. That value increases in direct proportion to the ignorance of the participant, so in my case as somebody who knows very little about purifying water, it at least gives me options for action should we need them.

All the same I would be very interested in a 'sharing negatives' forum. I don't have any about water quality and sanitation, but I've got a monster about shallow tubewell drilling.

Alan

knowledge sharing

knowledge sharing
michael commeh
kwekumichael@gmx.de
knowledge sharing dependes on what one wants from the other. if the like this e conference then i guess the result is obvious, but it about trade secrets then certainly forget!

government/NGOs support

government/NGOs support
michael commeh

ther is one thing i believe in sicerely. funds are limited and these days before one gets funds any project one might have started something indicating ones commitment. i therefore go this way and when the good work is recognised the funds will flow freely. a typical example is our glass blowing/technology project. when it realised how commited progressive we were, we have no problem. you people always want to be associated with success!

New topic

New topic
ron rivera
ronriverat@yahoo.com
Number One:
We have to get the WHO to take us seriously and
publically say " yes, HWT technologies can help meet
the MDG".
Once that is done national and local governments will
sit up and take us seriously also.
What do you say?
Peace
Ron

How can our efforts be heard

How can our efforts be heard

We have to get the WHO to take us seriously and publically say " yes, HWT technologies can help meet the MDG".
Once that is done national and local governments will sit up and take us seriously also.
What do you say?
Peace
Ron

Rural Africa Water Development Project (RAWDP) Nigeria

Rural Africa Water Development Project (RAWDP) Nigeria
Joachim Ibeziako Ezeji
ruralafrwadp@yahoo.com
Responding to your concluding questions,I will add as follows;

Lessons Learned:
Reading the various postings is an entirely new orientation for me.However the passion and enthusiam with which participants discussed their work at making clean and safe water abundantly available impressed me.It inspires me to talk about the Mor-sand Filter designed by RAWDP,Nigeria.The filter mainstreams effective coagulation as a crucial forerunner for efficient filtration,and as being more significant than filtration parameters such as filter media and filtration rate.

Knowledge Sharing:
Many people lack the tools of communication and language,some lack time while some are simply undecided to contribute or prebvaricators etc.Access to the e-conference entry points may be lacking in many places.To effectively stimulate sharing I advice you recognise every stakeholder and treat all with fairness irrespective of level of operation,scope,location and technology or approach.

HHWTS issues addressed:
Yes,the e-conference went deep though not exhaustive.All remaining issues could be discussed another day.Contributions so far has been both exploratory and descriptive.Support for HHWTS should in addition to cash funding involve legislation,networking,supply of water quality kits,training,incentives , evaluation and monitoring.I agree with the options prescribed by Susan.

Government and HHWTS:
The government from our experience here often play lip service.The government generally see water source development as a major priority over HHWTS.HHWTS is seen more in government circle as an emergency palliative.Beyond this myopic viewpoint people or individuals are left to sort themselves out.Till this orientation is changed, cogs to progress will remain herculean and obstrusive.Let recognition for HHWTS cascade from the international fora where global political

decalarations for example the MDGs were made.WHO can play a key role on this.
Thanks,
Joachim Ibeziako Ezeji
Programme Coordinator/CEO.

WHO getting us serious

WHO getting us serious
mike commeh
kwekumichael@gmx.de
we have to just do our job and i am pretty sure WHO and the like will chase us to offer their support.yes when they come now it will shorten the time needed to get job done but we can't wait!

Showing bacteria in contaminated water

Showing bacteria in contaminated water
Klaas van der Ven
watersafe@hetnet.nl
Dear all

During the awareness campaign in India about the importance of safe drinking, many village women expressed a need to see bacteria that are present in contaminated water. This seems to be very important to them. They have to see, in order to believe.
We are lloking for a way to make this possible.
Using a microscope it is nearly impossible to let people see bacteria that are presnt in the water. You will need huge concentrations of bacteria to be able to show this, much higher levels than can be found in practice.
Showing bacteria multiplication on agar-agar plates, colour change, or other comparable methods do not seem to work.
Does somebody have ideas or suggestions regarding this subject?

Klaas van der Ven
Basic Water Needs Foundation
watersafe@hetnet.nl

1-day extension

1-day extension
Renuka Bery
rbery@aed.org

Dear Colleagues:

This e-conference will officially stay open one day longerâ€”through May 23, 2006. At this time, HIP will discontinue the moderation and synthesize the postings. However, HIP has agreed to keep the forum open for those who wish to continue sharingâ€”it will function more like a listserv: without moderation and synthesis. Feel free to keep the discussions going and introduce new themes. For those who no longer wish to continue receiving forum emails, follow the instructions for getting off the conference at the end of any forum message. The e-conference postings have become public now, so anyone can log onto HIPâ€™s web site and view the discussion threads. But to post a message, you still need to log in. As mentioned, we will post the syntheses as soon as they are readyâ€¦sometime in June.

On behalf of all my HIP colleagues, I thank you for your participation and openness in contributing to this forum. Congratulations to all! It has been an excellent learning experience with a high degree of networking and wealth of information and rich experiences shared.

Warm regards,

Renuka Bery

Water source imrpovement and water treatment

Water source imrpovement and water treatment
Sally Sutton
sally@ssutton.fsbusiness.co.uk
Like Rochelle, I have been watching but couldnâ€™t get round to finding the original log in details etc to comment. However before the endâ€¦. I am Sally Sutton by the way, working at present as a consultant with UNICEF West and Central African Regional Office on Cholera prevention and increased household investment in improved water supply â€“ Self Supply (ranging from household water treatment to source up-grading)
re Rochelle Rainey 1899 and Abednego Chigumbu. The question of length of time of changed practice is important, as is the difference between peri-urban and rural environments. The two environments may exhibit very different mobility of faecal coliform and also possibility of supply chains working. Peri-urban areas tend to have higher faecal coliform counts in sources (and possibly also of contamination between source and POU?) but also better access to supplies. In rural areas source (and hosuehold) contamination appears generally to be low in much of Africa (judging from results in 4 countries only but very different cultural environments)compared with Asia and Latin America (usually tens rather than hundreds or thousands of FC). So we should be careful to quantify the problem and not make assumptions before encouraging people into investments which may have very little benefit, and rural supply chains are also difficult to maintain. It would be good to know how many of the studies on health impact, contamination between source and POU and water quality are from rural environments. Different strategies may be more effective in different environments, rural, urban, African, LatinAmerican, Asian.
A move to HHWT in cholera times is difficult to sustain (though UNICEF are now looking at how to extend this in 8 cholera prone countries of West Africa), especially when government provides chlorine for free during epidemics. The danger of relying on the one intervention only is that it is the most vulnerable who tend to be the last to change, and as someone has already pointed out it is the financing systems which perhaps need more attention than the technology. Enable people to make their own choices. In general quality comes a lot further down their list than having a

source nearer to the house, which they can then manage, improve and set rules and act as arbiters of good practice including treatment as they will be regarded as 'progessive'. Step by step approaches include all options, but in the order households feel is appropriate to their needs. Otherwise.. just to say thanks for very useful discussion (some of which I have forwarded to various West African offices along with encouragement to look at the whole debate).
Best wishes
Sally Sutton