



Environment

Water Community



Solution Exchange for the Water Community Consolidated Reply

Query: Adaptive Capacity Building of Slum Women to Deal with Deteriorating Availability & Quality of Water - Examples; Referrals

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From [Sakshi Saini](#), Institute of Home Economics, New Delhi
Posted 9 November 2009

I work with the Institute of Home Economics for a project on enhancing the adaptive capacity of women. Under this project, we are looking for various strategies that can enhance women's capacities to handle the deteriorating water quality and quantity. We are especially interested in strategies that can be replicated in households in the slums of Delhi.

The focus is on increasing the adaptive capacity of women that will enable them to deal with reduced water availability and the deteriorating quality of water. For this to happen, sustainable and economically viable options which can be operated and maintained by the local community, are required.

In this context I would like members of the Water Community to share their experiences about:

- Are there instances of water management interventions at the community level which have been successful? Please provide examples
- Can these interventions be duplicated at the slum level?
- What are the ways in which we can educate communities, especially children and women on the 3Rs - reduce, re-use and recycle?
- Is there any published material/references discussing these points above? Please share details of the same.

The information will help us in identifying a range of options for implementing similar activities in the slums of Delhi.

Responses were received, with thanks, from

1. [Jyoti Parikh](#), Integrated Research and Action for Development (IRADe), New Delhi
2. [Vijay Malik](#), Medentech, New Delhi
3. [Manasi S.](#), Institute for Social and Economic Change, Bangalore

4. [Kulwant Singh](#), United Nations Human Settlements Programme (UN-HABITAT), Nairobi, Kenya
5. [S. D. Garway](#), Anacon Laboratories Pvt. Ltd., Nagpur
6. [Sikandar Meeranayak](#), Sanklapa Rural Development Society, Hubli
7. [D. V. Deshpande](#), National Bank for Agriculture and Rural Development (NABARD), Mumbai
8. [Arunabha Majumder](#), Jadavpur University, Kolkata
9. [A. K. Susheela](#), Fluorosis Foundation of India, New Delhi

Further contributions are welcome!

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Summary of Responses

Women living in slums are primarily responsible for collecting water for domestic use. While in some areas, they have handpumps and standposts, in most places they have to depend on tankers, leaking water mains or informal water markets. The latter are usually run by men. These are the main sources of water since slums dwellers do not have legal tenancy rights and therefore, the government does not provide them with legal water connections.

To get around this, several organizations have piloted ways to provide an assured supply of water in selected slums in different parts of India. They have used several ways to reach out to the urban poor. The common theme is to reduce the burden of women in fetching water. Thus, some schemes provide standposts at points, determined in consultation with slum dwellers. Others provide household connections. In all cases, the facilitating organization has tied up with the city's municipality for bulk water supply and takes the onus of providing water within the slum as well as collection of user fees.

Some of these strategies provide ways to enhance the capacity of women to handle water quality and quantity. The water they get from handpumps is rarely fit to drink, and therefore they have to buy drinking water from the informal water vendors. This is also true of water they obtain by tapping the water mains; the areas around the leaking water mains are cesspools and collecting clean water in these circumstances is nearly impossible. Sometimes, slum dwellers get their water from a tube-well but as power supply in these areas is notoriously unreliable, their water supply is also uncertain.

For example, additional research shows how [Water.org](#), through their local partner, has provided individual water connections to some people in Anna Nagar, Tamil Nadu. This has obviated the need for women to walk two Km for water, or get in line at 2 AM for tap water supply. It is also much safer for them. In Tiruchirapally, an NGO called Gramalaya has provided some women living in slums loans to get a household water connection. Before this, they used to pay Re 1 per pot of water and getting enough water took up most of their time and energy. Since the household connection has been installed, the women have time to take better care of their homes, earn additional income and look after their children. They are also able to repay the water loan.

In [Karnataka](#), the Deena Seva Sangha initiated a safe drinking water and sanitation programme in the selected Bangalore slums in 2006. It provided water connections in the Valmiki Nagar slum. The houses here are small. The Sangha provided them handpumps and household water connections. The Bangalore Water Supply and Sewerage Board provided a bulk connection to the entrance of the slum and the Sangha laid the lines inside. This is one of the successful models where inaccessible and difficult urban areas can be provided with water and sanitation facilities and people benefit substantially from this project. In the Dakshina Kannada district, the Village Water Supply and Sanitation Committee in Hosangadi provided metered household water connections. Elsewhere, the gram panchayat of [Huligaro](#) village introduced water conservation measures to tide over summer shortages.

While these are examples where NGOs have intervened and demonstrated community-level interventions to provide water, there are others where the government and UN-Habitat have built institutions for better water service delivery. Under its Water for Asian Cities Programme, UN-Habitat has used gender mainstreaming to achieve gender equity and overcome the costs of women's marginalization. One of the important ways to ensure this is to ensure that "participatory approaches are not reduced to rituals... and gender roles are redefined by addressing structural factors that influence women's position of inferiority and participation". Thus, gender mainstreaming in water supply is an issue of good governance in planning and management of water which is pro-poor and ensures inclusion of perspectives and needs of all, especially women.

Regarding water quality, there are several household water treatment systems (HWTS) that people can use to purify drinking water. These can address the issue of deteriorating water quality and are cheap and simple for anybody to use. Medentech has tried out HWTS in 480 slums in Lucknow, [Uttar Pradesh](#). It started with raising awareness about water-borne diseases and tested some water samples from households for bacterial contamination. They distribute chlorine tablets through self-help groups (SHGs) enabling them to earn additional income.

In [Andhra Pradesh](#), the National Bank for Agriculture and Rural Development executed a watershed project with people of Bharath village, Warangal district. They initially solved the water availability issue, but then ran up against water quality problems. They solved this by setting up a reverse osmosis plant from which people get water in 5-litre bottle for a charge. Many other organizations have used community-level RO plants to supply drinking water in villages where drinking-quality water is not available. People in slums can use the same principle if an organization meets the capital costs of the system. (Please read the summary of Use of RO Systems for Providing Safe Drinking Water, <http://www.solutionexchange-un.net.in/environment/cr/cr-se-wes-17080901.pdf>).

In [West Bengal](#), the state Public Health Engineering Department has installed Tara pumps (a handpump with a piston) in several villages. The community maintains them; each pump serves several households and the one woman from each of these households becomes part of a maintenance group. The Department of a local NGO trains them to repair pumps. The households contribute a small sum towards parts, while the women contribute their labour gratis.

In many community projects, people are willing to pay for better water supply. The costs are often lower than what they pay to the informal water vendors or tankers. The quality of water is also better than what they get from these sources. The critical issue is people's participation in water governance, monitoring and evaluation for community ownership of the schemes.

Comparative Experiences

Andhra Pradesh

Reverse Osmosis Plant set up to treat impure Water, Warangal District (from [D. V. Deshpande](#), National Bank for Agriculture and Rural Development (NABARD), Mumbai)

In Bharath village polluted water was causing health problems to the residents. A watershed project was initiated by the Indo-German Watershed Development Programme to tackle this. The community came together and set up a Reverse Osmosis (RO) plant for purifying the water and treating it. The treated pure water is now being supplied to every family ensuring that their daily needs for drinking water are met. Read [more](#)

Karnataka

From [Manasi S.](#), Institute for Social and Economic Change, Bangalore

Community efforts help in Water Conservation

With the help of the Gram Panchayat, water source and quality is no longer a problem in Huligaro village. During summers, the water levels used to go down so the villagers now carry out simple water conservation measures like roof water harvesting, digging pits to store water in common areas, harvesting and directing rainwater to specific ponds to improve the groundwater table. Collective action backed by awareness has made it a model village. Read [more](#)

Piped Water Supply leads to reduced misuse of Water, Dakshina Kannada District

To tackle water scarcity in Hosangadi, the Village Water Supply and Sanitation Committee (VWSC) introduced piped water supply. VWSSC introduced meters to households who have obtained household connection. The placement of the meters was done in a way to avoid misuse of water. The village now gets water supply for 2-3 hours a day which has made life convenient for the villagers. Read [more](#)

Uttar Pradesh

SHG Members involved in Household Water Treatment and Safe Storage in Slum Areas, Lucknow (from [Vijay Malik](#), Medentech, New Delhi)

In Lucknow, Medentech has been working in 480 slums with local NGOs on household water treatment and safe storage (HWTS). In this campaign, water from a few households and sources are tested for microbial contamination and the community is acquainted with different HWTS methods which were economical and effective. The SHG members now earn their living out of selling these solutions to the community. Read [more](#)

West Bengal

Women Members successfully trained to maintain and operate Tara Pumps, Medinipur District (from [Arunabha Majumder](#), Jadavpur University, Kolkata)

From 1993-95, with the support of UNICEF, Tara pumps were installed for drawing groundwater in different villages in West Bengal and the community was given the responsibility for its maintenance. Two women users for every pump were trained and provided the tool kits. In 1994, the same project was successfully initiated in Medinipur district and here too women were involved in operating water quality testing field kits. Read [more](#)

Related Resources

Recommended Documentation

Enabling Poor through Institutional Alternatives to Access Drinking Water Supplies in Rural India (from [Manasi S.](#), Institute for Social and Economic Change, Bangalore)

Paper; by K.V. Raju and S. Manasi; Ecological Economics Unit, Institute for Social and Economic Change; October 2005; Permission Required: No

Available at <http://www.mpl.ird.fr/ur044/projets/Textes/Raju.doc> (DOC; 106 KB)

Highlights various success stories of community level water management, including some best practices of water management in urban slums

Strategy and Action Plan: Mainstreaming Gender, Water and Sanitation (from [Kulwant Singh](#), United Nations Human Settlements Programme (UN-HABITAT), Nairobi, Kenya)

Report; United Nations Human Settlements Programme (UN-HABITAT); October 2006; Permission Required: No

Available at <http://www.solutionexchange-un.net.in/environment/cr/res-09110901.pdf> (PDF; Size: 892KB)

Elucidates the work done by UN-HABITAT in Madhya Pradesh on community based water management, also provides a highlight of water management projects in slums

Recommended Organizations and Programmes

Integrated Research and Action for Development (IRADe), New Delhi (from [Jyoti Parikh](#))

C-50, Chhota Singh Block, Asian games Village Complex, New Delhi 110011; Tel: 91-11-26495522, 55646622; Fax: 91-11-26495523; jparikh@irade.org; <http://www.irade.org/>

Is working on water management, storm water, drainage and disaster management and has started working on issues of water availability in urban slums and urban poverty

Medentech, New Delhi (from [Vijay Malik](#))

B-3, Sector-5, Plot No-6, Dwarka, New Delhi 110075; Tel: 9818386774; vmalik@medentech.com; <http://www.medentech.in/emergency-water-purification/water-purification-tablets.html>

Working on a household water treatment and safe storage programme in 480 slums in Lucknow with local NGOs, women from SHGs

Anacon Laboratories Pvt. Ltd., Maharashtra (from [S.D. Garway](#))

60, Bajiprabhu Nagar, Nagpur 440033, Maharashtra; Tel: 91-71-22242077; Fax: 91-71-22559372; anaconngp@gmail.com; <http://www.anaconlaboratories.com/water.html>

Working on water quality monitoring of Nagpur City, also working on water management and upgradation of drinking water plants

From [D. V. Deshpande](#), National Bank for Agriculture and Rural Development (NABARD), Mumbai

Indo-German Watershed Development Programme (IGWDP), Andhra Pradesh

'X' Road Musheerabad, Hyderabad 500020, Andhra Pradesh; Tel: 91-40-27612640; Fax: 91-40-27611829; hyderabad@nabard.org; http://www.nabard.org/farm_sector/devp_maha.asp

Programme administered by NABARD, working on developing micro-watersheds in a comprehensive manner to create livelihood opportunities for slum inhabitants of the area

National Bank for Agriculture and Rural Development (NABARD), Maharashtra

Plot No. C-24, "G" Block, Bandra-Kurli Complex, Bandra (E), Mumbai 400051, Maharashtra; Tel: 91-22-26530094; Fax: 91-22-26530060; contact@nabard.org; <http://www.nabard.org/introduction.asp>

Is aiding in implementing a watershed project in a slum locality in Warangal district, Andhra Pradesh involving community action towards water conservation

KfW Bankengruppe, Germany

Charlottenstrasse 33/33a, Berlin 10117 Germany; Tel: 49-30-202640; Fax: 49-30-202645;
info@kfw.de; http://www.kfw.de/EN_Home/index.jsp

Offers support for sustainable improvement in social and ecological living including environmental protection, funded the watershed project in slums in Andhra Pradesh

From [Arunabha Majumder](#), Jadavpur University, Kolkata

United Nations Children's Fund (UNICEF), New Delhi

73, Lodi Estate, New Delhi 110003; Tel: 91-11-24690401, 24691410; Fax: 91-11-24627521, 24691410; newdelhi@unicef.org; <http://www.unicef.org/india/wes.html>

Supports the national and state governments in developing and implementing a range of replicable models for water supply and sanitation

From [A. K. Susheela](#), Fluorosis Foundation of India, New Delhi

Development Alternatives, New Delhi

111/9-Z, Kishangarh, Vasant Kunj, New Delhi 110070; Tel: 91-11-26134103, 26890380; Fax: 91-11-26130817; tara@devault.org; <http://www.devault.org/TEMF.htm>

Is working to promote sustainable national development, has aided CPCB in developing water testing kits that is being used for community based water management in slums

Central Pollution Control Board, New Delhi

Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi 110032; Tel: 91-11-22307233; Fax: 91-11-22304948; ccb.cpcb@nic.in; <http://www.cpcb.nic.in/water.php>

Established a nationwide network of 1019 water quality monitoring stations, has also developed water testing kits contributing to water management in slums

Water.org (from [Nitya Jacob](#), Resource Person)

D-56, 6th Cross, Thillainagar, Tiruchirappalli, Tamil Nadu; Tel: 9443161263;
try_damu@yahoo.co.in; <http://water.org/>

International non-profit organization, has provided individual water connections to some slum dwellers in Anna Nagar, Tamil Nadu

Responses in Full

[Jyoti Parikh](#), Integrated Research and Action for Development (IRADe), New Delhi

Integrated Research and Action for Development (IRADe) is the Centre of Excellence for climate change adaptation and urban governance. These issues of water management, storm water, drainage and disaster management are a part of our concern and of relevance. We have just started our work this year on these issues as slums and urban poverty are of great importance in dealing with cities and climate change. Please do contact us for more details.

[Vijay Malik](#), Medentech, New Delhi

We are working on HWTS (household water treatment and safe storage) programme in 480 slums in Lucknow with local NGOs. In this project the local community is made aware about issues related to water - water borne diseases/sanitation/nutrition. During this awareness campaign water from few household and sources is tested for microbial contamination. The community is made aware about different HWTS methods which are economical, simple and effective. These solutions are sold by local SHG members to the community and they earn their

living out of this. We are looking forward to promote HWTS in other areas with interested partners.

Manasi S., Institute for Social and Economic Change, Bangalore

Please check the following link for best practices at community level water management: <http://www.mpl.ird.fr/ur044/projets/Textes/Raju.doc>. The link provides an article titled, Enabling Poor through Institutional Alternatives to Access Drinking Water Supplies in Rural India. The article notes that "addressing rural water supply concerns has been on since the First Five Year plan of India. Since providing water is a state subject, various approaches have been adopted to reach the targets, but to no avail, results have been mixed and unsustainable, most of the times. Approach has been shifted from supply driven to demand driven lately. Setting up strong institutional set up is seen as one of the focal point to solve the crisis. While the government has been spending crores working out processes and methods, innovative efforts undertaken by four villages in Karnataka were documented, thus revealing their efforts in addressing the problem amicably. Drawing lessons from their experiences would aid the government in replicating such models." It also provides four case studies - The Yanegudde Experience, The Zaadshapur Experience, the Huligaaru experience and the Hosangadi Experience in Karnataka.

Kulwant Singh, United Nations Human Settlements Programme (UN-HABITAT), Nairobi, Kenya

I am attaching a publication based on our work in Madhya Pradesh. The publication is titled, Strategy and Action Plan: Mainstreaming Gender, Water and Sanitation. Please read <http://www.solutionexchange-un.net.in/environment/cr/res-09110901.pdf> (PDF; Size: 892KB) for more details. Hopefully, you will find some answers to the issues raised in the query.

S. D. Garway, Anacon Laboratories Pvt. Ltd., Nagpur

We are presently working on Water Quality Monitoring of Nagpur City and updating the data on our website as a ready reckoner for municipal authorities to locate the sources of contamination. We have a strong networking team for sample collections for the entire city which is done on a daily basis (approximately 1000 samples per day). We can be of help to [Vijay Malik](#) if you wish to promote the project in Maharashtra and particularly in the Vidarbha area. The work can be taken up related to sampling, physico-chemical and microbiological testing, maintaining database and educating the citizens. We also have registered an NGO for conducting such projects. We are accredited to NABL. For further details about our organization, please log on to www.anaconlaboratories.com or please feel free to contact me.

Sikandar Meeranayak, Sanklapa Rural Development Society, Hubli

I request [Vijay Malik](#) to please inform us about the cost of installation of HWTS per household.

D. V. Deshpande, National Bank for Agriculture and Rural Development (NABARD), Mumbai

I wish to share the experience we had under the Indo-German Watershed Development Programme (IGWDP) Andhra Pradesh which is funded by KfW and managed by NABARD through NGOs. Under this programme, in Bharath village, Warangal district, Andhra Pradesh, a watershed project is being implemented wherein people come together for community action. The village water sources, however, had some quality issues which caused health problems to the people.

Based on the positive experience of the watershed project, the community came together and set up a reverse Osmosis (RO) plant for purifying the water and treating it. The treated pure water was supplied through 5 litre plastic bottles at a charge and a system to supply specific quantity was developed so that it was recorded for every family to ensure that the daily quota of drinking water was received by every family. One physically challenged person was employed for supervising the plant and maintaining the records. Of course, the NGO was facilitating the whole process and Water Aid, another NGO, helped them in obtaining the technology.

Arunabha Majumder, Jadavpur University, Kolkata

The Tara pumps (hand pump-piston type) were installed for drawing groundwater in different villages in West Bengal during 1993 to 1995 with support from UNICEF. The basic objective was to assess its functional feasibility, operation and maintenance, users-acceptability, etc. It was decided that the Tara pumps must be maintained by the community.

Accordingly, women members were trained for O&M of Tara pumps. This was done for hundreds of Tara pumps installed during that time. Two women users for every Tara pump were trained and they were provided with the tool-kits. It became unique for Tara pumps to be maintained by women only. The villagers accepted this concept. Women performed well to maintain the Tara handpumps. The All India Institute of Hygiene and Public Health (AIIPH) was involved with the above programme.

When we at AIIPH (1994-1997) initiated the project of water quality monitoring and surveillance in Midnapur District in West Bengal, ICDS workers (women) were involved in operating water quality testing field kits. They were trained and they performed very well for the success of the programme.

A. K. Susheela, Fluorosis Foundation of India, New Delhi

Developmental Alternatives (NGO) in Delhi and the Central Pollution Control Board (CPCB) GOI have developed water testing kits for testing multiple parameters. These are user friendly. You may call these organizations and request for a demonstration. This is one of the ways you can address the problem you have raised in your query.

Many thanks to all who contributed to this query!

If you have further information to share on this topic, please send it to Solution Exchange for the Water Community in India at se-wes@solutionexchange-un.net.in with the subject heading "Re: [se-watr] Query: Adaptive Capacity Building of Slum Women to Deal with Deteriorating Availability & Quality of Water - Examples; Referrals. Additional Reply."

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