

Public Private Partnership and Urban Drinking Water in Lucknow, Urban Slum

I- Background of the POU Intervention-

Estimates show that the 180 million children under five years of age in India suffer from over 350 million episodes of diarrhea every year in addition to having other waterborne diseases. Bacterial contamination of drinking water is one of the main causes of diarrhea and other waterborne diseases. Poor families bear most of the burden of these diseases, which includes mortality, morbidity and financial impacts. Over the years, the incidence of waterborne diseases, including, diarrhea has not come down.

NFHS-III showed that less than 25% of households receive water piped into their houses, yards or plots. The remaining 75% still depend on public water posts, whether piped or from tube wells. Even though the water may be uncontaminated at the source, water often becomes re-contaminated during transport, storage or retrieval.

However, urban poor and rural populations rarely purify their drinking water to make it free from bacterial contamination. NFHS-III data also showed that, overall, less than 35% of households treat their drinking water with any method to make it potable; 50% of those who treat their drinking water strain it through a cloth, a process which does not remove bacterial contamination. Moreover, these are national averages and POUZN baseline researches in our intervention areas in UP shows the practice to be far less prevalent than the national average.

Intensity of Problem



Point-of-use water treatment is uncommon in large parts of India. Qualitative research revealed the reasons for low use include lack of awareness of the effects of drinking contaminated water and of the safety of their water source(s), lack of acceptance, availability (particularly in rural areas and for POU devices and chlorine) and affordability of POU devices.

II- KEY ISSUES FACING WATER TREATMENT PRACTICES

1. **Lack of awareness and acceptance:** The common person perceives clear water as safe to drink. However, in recent times, waterborne diseases have undergone greater media scrutiny and thus urban populations are significantly more aware of the impacts of unclean water than their rural counterparts. Awareness is particularly a problem in rural areas, where people strongly

believe, and often correctly, that their water source is clean. However, many people do not appreciate the possibility of water recontamination between source and use.

Traditionally water purification has been considered as an emergency measure which is discontinued as soon as the emergency is over. For example: the doctor recommends giving boiled water when a child is sick or the government agencies distribute chlorine tablets after floods or cyclones.

2. **Availability:** The rural areas, where over 70% of the population still lives, are underserved by the regular distribution network, not just for POU products, but for a large portion of consumer goods. Rural populations largely live in small villages and hamlets, the remoteness of which make logistics for direct communication, as well as product availability, difficult to achieve.
3. **Affordability:** Boiling requires fuel, a scarce resource in poor areas of UP, and proves costly in terms of money, effort and time spent by a woman. Chlorine and other chemical disinfectants are more affordable but not readily available in the private market. POU devices have to be purchased from commercial suppliers. The poor's income, especially in rural areas, does not allow them to purchase POU devices in a single payment (one multi-stage water filter costs ~ \$ 40). Moreover, a majority of the poor families are unable to comply with the documentation process to obtain the credit insisted upon by banks, other formal credit channels and distributors.

III- UNIQUE OPPORTUNITY:

1. Self-help group (SHG) movement

SHGs provide a powerful force for change within India. First begun in the 1980s, today more than 11 million SHGs exist in India with an estimated 150 million members. More than 1,000 NGOs are involved in the formation and capacity-building of these groups, some with funding for microfinance and others that borrow from microfinance institutions. A typical SHG is comprised of 12 to 20 low-income women who collectively create savings to act as a guarantor for loans from banks and government programs.

2. Investment of local NGO in community development

Local NGOs are interested in the well-being of the community and can implement health solutions to problems faced by SHGs. Even NGOs which were established mostly for social and community purposes with no direct health involvement were enthusiastic to contribute to a solution to such basic human needs as safe drinking water.

3. Growing microfinance institutions (MFIs), especially in rural areas

While the vast majority of microfinance loans incorporate income generation for the borrowers, numerous examples around the world include a percentage of the loan for other benefits, such as home loans, schooling for children and health care.

IV- DEMONSTRATION PROJECT

POUZN has two NGO partners: KAM-is network established by Pratinidhi, which works with 1200 SHGs (14000 women members) in rural Faizabad, Sultanpur and Ambedkarnagar, Ballia, Unnao districts, and Pratinidhi, which works with 150 SHGs (1500 women members) in urban Lucknow self initiative. Chlorine is purchased in bulk and distributed to cover costs associated with its procurement. Two POU device manufacturers make their products available and create supply chains in rural areas: Hindustan Unilever uses its *Pureit* product and Eureka Forbes uses *Aqua sure*.

Quantitative baseline research on 10,840 women SHG members in August 2007 revealed that:

- 75% women are aged below 45 years

- 50% women have small children
- 70% are involved in at least one income generating activity like agriculture, handicraft making, and daily wages labor, rearing cattle or running a small shop.
- 40% of urban and 80% of rural SHG members are illiterate
- 50% reported fetching water from public sources; 70% rural and 99% urban women reported storing water at home
- 67% of urban and 48% of rural women know that diarrhea is caused by unsafe water. However, a negligible 4% undertook boiling and less than 0.25% used chlorination. None of the respondents reported using SODIS or POU devices.
- Average income of SHG members and their families in rural areas ranges between USD 1 to 1.50, while in urban areas the same ranges from USD 1 to 4. Among the rural families, 53% families are classified as very poor, 45.5% are poor and 1.5% is above poverty line.

Micro-loans to the interested SHG members are provided by both commercial POU device partners are providing microfinance schemes for the SHG members, with NGOs guaranteeing the loans as well as collecting and repaying them to the distributors.

V- ACTIVITIES UNDERTAKEN TO DATE

- Developed culturally appropriate communication materials on safe water and methods of treatment, including boiling, SODIS, chlorination and POU devices
- Implemented awareness generation and sensitization meetings in SHGs through various communications activities by NGO partners.
- Tested water at source through water testing kits made available through UNICEF
- Tested water at multiple points to highlight recontamination of safe water and presented results to SHGs
- Organized multiple meetings for each SHG to discuss safe water and available methods of treatment
- Provided POU products like chlorine tablets (on cost plus a modest margin basis) and water filters (with micro-loans) through NGO and commercial partners
- Recovered 100% of POU device loans to date
- Negotiated distribution commissions for NGO partners from manufacturers
- Supported commercial partners who wanted to initiate models in other parts of the country with encouraging results
- SHG members using different POU methods (Sep 07- April 08)

VI- STATUS OF SHGs

As on date, 44.4% urban SHG members and 13% rural SHG members have started using some method of POU water purification. This is substantially higher than the baseline of August 2007.

No. Of SHG's in the intervention			
	Urban	Rural	Total
SHG's	150	1076	1226
Members	1512	11426	12938
POU Methods Used			

	#	%	#	%	#	%
SODIS	0	0.0%	0	0%	0	0.0%
Boiling	45	3.0%	656	6%	701	5.4%
Chlorination	330	21.8%	660	6%	990	7.7%
Filters	297	19.6%	163	1%	460	3.6%
Total	672	44.4%	1479	13%	2151	16.6%

The NGO and commercial partners are in the process of appointing micro-distributors from the SHGs who will continue to distribute filters and replacement cartridges, as well as stock an appropriate chlorine product.

X-ECONOMIC CREDENTIAL

POUZN reviewed the existing published data and interacted with several women's SHGs in UP to understand the economic burden of diarrhea on a low-income household. . A combination of studies and anecdotal evidence suggests a strong economic argument in favor of suitable low cost POU devices.

Poor families report at least one diarrhea episode every fortnight. Each episode conservatively costs at least Rs 200 in direct expenses and wages lost. The nutritional loss and long-term impact on health and growth is not quantified here. This indicates a poor family spending more than Rs 4800 per year on diarrhea treatment.

Effective tabletop devices produced by various reputed manufacturers cost about Rs 1600. The chemical cartridge, which is the only consumable part, costs 250 Rs and must be changed every five months for a family using 10 liters per day. If the device cost is amortized over the average product life, which producers estimate to be five years, the cost of the cartridge is added the total is 320 + 600 or 920 Rs per year. Even if costs are not amortized, the total in the first year is 1600 + 350¹ = 1950, which is significantly less than the cost of diarrhea for one child.

Through this demonstration, POUZN has anticipated the trend to influence towards low-cost, effective and convenient POU devices. These devices have ensured sustainable use and reduce expenses and morbidity related to water-borne diseases.

XI- KEY LESSONS TO DATE

- Urban and rural interventions need to be conducted differently. Given below is a short table highlighting key differences in these locations.

	Urban	Rural
Awareness	More aware of links between safe water and health. Have access to mass media.	The main challenge with rural consumers is that they are less aware of link between safe water and health.
Acceptance of messages	Water is frequently visually	Many rural people believe, often

	unclean and poor water quality is a subject of frequent media scrutiny in the urban areas, so safe water messages are more readily accepted than in rural regions.	correctly, that water at the source is clean. Water from hand pumps usually looks clear and smells/tastes good. Very little rural appreciation of the fact that safe water may also be re-contaminated.
Aspirations	Urban poor do come in contact with rich or middle class households and see POU methods and devices being used.	Very little aspiration as a negligible proportion of population uses any POU methods or devices.
Availability of options	Chemical POU and devices are readily available. Distribution is not an issue.	POU products are not readily available. Small human settlements make formal distribution difficult.

Affordability	Urban have higher incomes than their rural counterparts. However, buying a multi-stage filter remains a major decision.	Within the project, over 50% families are very poor, 45.5% are poor and 1.5% is above poverty line. Buying a multi-stage filter is a major life decision.
Accessibility to loans	Difficult. Are unable to complete the formalities for formal loans from manufacturers, distributors or banks. NGO/MFIs are largely absent.	SHG members can get loans from SHG or NGO/MFI. However, fewer loans for non-income generating activities.

- NGOs and commercial partners have quite different mind sets and motivations. In addition, they view each other with some suspicion. A temporary facilitator who can aid commercial-NGO activity is necessary for a successful project.
- Though NGOs are initially uncomfortable as distributors, they see the long term benefits of earning commissions and of offering communications and products to improve the SHG members' lives. This will also help to make the model self-sustainable in the long run.
- SHGs are an effective platform to address groups of motivated women and are a good starting point for changing behavior. The rest of the family should also be gradually exposed to safe water messages to obtain long-term behavior change.
- Water testing at multiple points, such as at the source, after transferred to water storage container and prior to drinking, is important, particularly for rural consumers. Rural dwellers do not recognize that water can become re-contaminated by poor handling.
- To increase behavior change, a solution should be offered simultaneously to highlighting the problem. Timely provision of POU products plays a key role in encouraging a family to start and continue with POU water purification.
- NGOs are most comfortable promoting all POU methods rather than just one. Offering multiple methods also allows people to try the best method for their family and can facilitate adoption of POU products.
- The commercial sector cannot reach lower-income individuals alone: extra behavior change communication (BCC) and supply chain efforts are needed to help the urban poor and rural communities to initiate and maintain POU water purification. The commercial sector, with limited reach and resources for reaching the poor, are generally unable to sustain their marketing efforts to this target audience. However, with persuasion and a vision to reach the bottom of the pyramid, an increasing number of commercial partners can be convinced to work with this constituency.

- NGO outreach staff has a key role to play. They know the community well and enjoy its trust. Their communication reassures the community that water purification is necessary and good for the community's well-being. NGO staff training is necessary and generic materials should be provided to them.
- Micro-distributors at the community level are required for efficient distribution. The usual distribution chain does not reach these people, making it imperative to set up alternative community distribution chains. Micro-distributors from the same villages can maintain supplies of POU products, including chlorine, additional POU devices, filter (or cartridge) replacements, and any replacement parts needed.
- Availability of MF is a concern in urban areas. Even in rural areas, regular MF can be expensive as interest rates can be as high as 25%. This rate is sustainable for income generating activities, but cheaper loans can facilitate additional filter sales.
- Although devices are found to be the most user-friendly POU method, device affordability is a key concern. Currently, the lowest price for a tabletop, multi-stage filter is INR 1800 (~ \$40). Cheaper alternatives that meet requirements of efficacy, consistency and scalability will increase usage considerably.
- **Supporting evidence**

Analysis, newspaper clippings, photographs, feedback and appreciation letters, Video/audio clippings, reports, etc.



Water Testing



Unique water mascot creating excitement



Magic shows being used for generating awareness on safe drinking water



Results of water testing being announced in between the community



Awareness campaign on Safe Drinking Water



Awareness campaign on Safe Drinking Water



Community adopting various POU methods after declaration of results

Project Phases



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