

#### U.S. - India Standards and Conformance

Cooperation Project, Phase II Sustainable Solutions for Safe Drinking Water for All

June 26, 2018



#### **Session 1:**

Improving Water Efficiency & Sanitation in Homes & Buildings

#### Ravindra Sewak

India Country Director

# Agenda



- 1. India Water Situation
- 2. Our Priority
- 3. Market-based iJal Model
- 4. Current Impact of iJal
- 5. Network of Partners

### **India Water Crisis**



Nearly 800 million people in India living beyond piped treated water

Millions have been spent on solutions

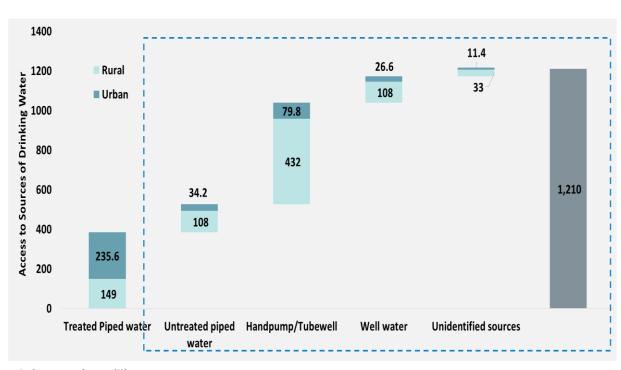
Nearly half fail within a year of launch

Every year, about 600,000 Indian children die of illnesses associated with unclean drinking water

### Safe Water Challenge in India



#### WITHOUT TREATED PIPED WATER: 822 M





#### **ESTIMATED MARKET 250 MILLION PEOPLE**

India ranks a poor **132nd** out of 180 nations for its <u>per capita water availability</u> and a low of **120th** out of 122 nations for its <u>water quality</u>, according to the Water Resources Information System of India.

Source: Census 2011

<sup>\*</sup>Figures in Millions

### Water Crisis in Hyderabad city!





- Home to second largest slum dwellers in India – 23 %
- The poor live in 775 notified urban slums ~1.7 M people
- Poor get water through stand pipes or HMWS&SB tankers
- Water is supplied once in three days



#### **URBAN SMALL WATER ENTERPRISES (USWEs)** CITY HYDERABAD



- Hyderabad, the capital of the recently created state of Telangana, is home to 7 million (mn) people
- Part of erstwhile Andhra Pradesh; one of the first Indian states in which rural SWEs were set up
- 32% HHs in Greater Hyderabad are in slums (Census 2011); 1476 slums are home to ~1.7 mn people1



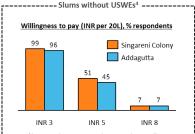
HMWSSB water supply: Key	y SLBs²
Piped water coverage	66%
Non-revenue water	38%
Per capita supply (LPCD)	122
Cost recovery	69%

#### Water Supply for Urban Poor

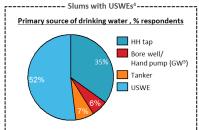
- 125k out of 830k water tap connections are in slums; INR 150 for BPL<sup>3</sup> connections vs. INR 220 for others, per month
- GHMC and HMWSSB ply ~400 tankers, esp. for water supply to slums
- · GHMC has partnered with a NGO for tap water quality assessment at HH level; conducted by SHGs



- . Many USWEs being run by independent entrepreneurs for serving both slums & planned colonies; one of the first cities in the country where USWEs formally came into existence (2010-11)
- GHMC supported a donor funded, NGO facilitated-SHG managed model; 5 currently operational kiosks average daily 20L can sales: 100-150 (INR 4-6), with 20%-50% volumes through distribution (INR 10-15); Revenue: INR 10k-12k, SHG savings: minimum 4k-5k (if GHMC covers electricity cost then another ~4k)
- · GHMC plans to set up a USWE in each of the 1476 slums in a phased manner and has initiated the project by procuring 45 plants



- ~73% respondents reported a water borne disease incidence at home in past 6 months
- ~81% felt water should be treated before consumption; out of them 40% use cloth as filter, another 45% boil it



- ~52% respondents reported a water borne disease incidence at home in past 6 months
- · 92% chose good quality water as top key health determinant, vs. 46% in Delhi, 40% in Mumbai

- · People are well acquainted with and receptive to USWEs
- · Apex municipal body, GHMC, values USWEs for drinking water supply to urban poor
- · Prevailing USWEs are financially viable for local operators
- GHMC's Urban Community Development (UCD) wing oversees USWEs' operations; scope for better water quality compliance and monitoring

- USWEs set up by independent entrepreneurs have no or limited water quality checks; no regulatory oversight
- <sup>1</sup> Greater Hyderabad Municipal Corporation (GHMC) data <sup>2</sup> MoUD National Data Handbook, 2010-11 (Hyderabad Metropolitan Wate
- Supply & Sewerage Board) 3 Below Poverty Line (BPL)
- 41160 HHs across 5 slums were studied (3 with USWEs, 2 without USWEs)
- Kiosks set up in partnership with GHMC have taken 6-9 months in commissioning due to regulatory delays

#### SUPPORTING PARTNERS









This visual is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Safe Water Network India and do not necessarily reflect the views of USAID or the United States Government

### **Our Mission**





Bringing
Water to her

Solving for millions more

820,000 with Access 260 Stations by 2018 Focus on water contamination: **Fluoride Nitrate Arsenic** Salinity Microbial

## **Program Areas**



# iJal Water Stations with 24x7 Water ATMs



- 228 iJal Water ATM Stations: community / entrepreneur owned
- Telangana, Hyderabad city, Maharashtra, UP
- GP Endorsed
- Access to over 820,000 people
- <2% downtime
- 13 iJal stations equipped with Solar system with Lithium Ion Batteries & Hybrid Inverter

#### **Rainwater Harvesting**



- 55 villages, 1022 household / community Kunds in Churu, Rajasthan
- Elimination of drudgery and water security

#### **Knowledge Center**



- Digital Tools as decisionsupport systems
- Manuals, Do-it-Yourself guides, toolkits
- Sector Reports
- Performance Standards
- Consumer Research
- Field Insights

# **Ensuring 24x7 water supply**





Water ATMs provide relief to low income dwellers with 24x7 availability of affordable safe drinking water



#### BOO (Build Own and Operate) Water ATMs in Hyderabad Slums 2017-2020



#### **GOVERNMENT SUPPORT**

With principle consent from GHMC to make treated water available at five denominations to the urban slum residents in Hyderabad city.

#### WATER PRICING AT ATMS

₹1: Per Glass (500 ml)

₹2: Per liter

₹5: 10 liters

₹10: 20 liters

₹50: 100 liters (for bulk delivery)



SCALE OF PROJECT 50 stations in 2018

## Value Chain



#### Incentives and capacity-building throughout the value chain



#### ...including cluster-level field support services:



### **Women in Water**



Women playing a increasingly important role in consumer activation and operations



Rani Barakaum (far right)
Community WASH Mobiliser, leader of "self-help group"



**Surekha (far right)**Community WASH Mobiliser

### **Livelihoods Generation**





Solar Powered iJal station – Medak Hospital



Station Operator



Distributor (Driver / Loader)



Self-Help Groups

Operating Models (Stations)	Full Time	Part Time	Total Livelihoods	Livelihoods per station
Community (19)	24	42	66	3.5
Entrepreneur (173)	362	136	498	2.9
Self Help Group (31)	62	-	62	2.0
iJal Stations (228)	448	178	626	

#### 85 women at work!

- 23 women entrepreneurscum-operators
- 62 Self Help Group members

### Towards Sustainability with Innovations





Remote Monitoring System



**Digital Tools** 



**Solar-power run iJal Station** 



**Consumer Activation** 



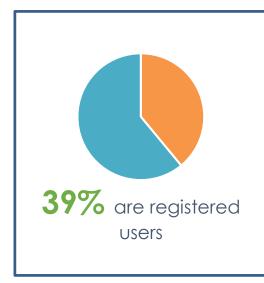
**Water ATMs** 



**Women Financial Education** 

#### **Consumer Dashboard**



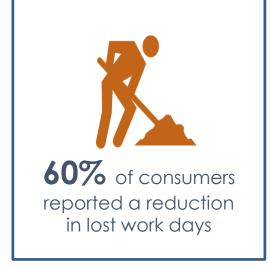




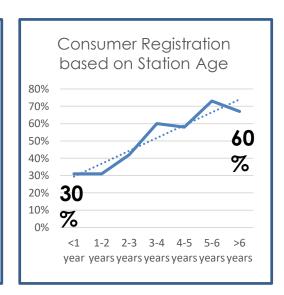
**51%** of users reported a decrease in medical expenses



**73%** of parents reported reduced school absenteeism







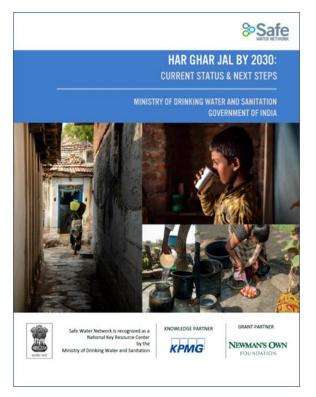
# **Current Impact of iJal**



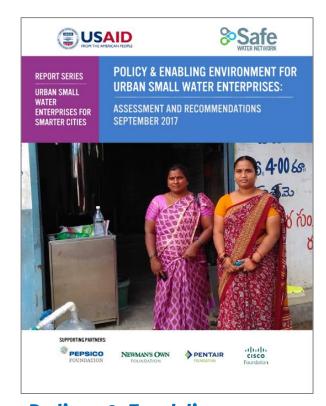
**Water Quality** OpEx 228 820,000 positive as per national **Operations** water access standards from day 1 iJal Stations **Innovation** at all stations solar enabled **Water ATMs** can washers 39% 626 216 <2% **Metrics** Livelihoods Million liters Downtime registrations (annualized) generated 51% 60% 75% Consumer claim reduction in reduction in reduction in loss of men collect water school absenteeism work days medical bill from iJal

# Knowledge Products: Policy and Advocacy





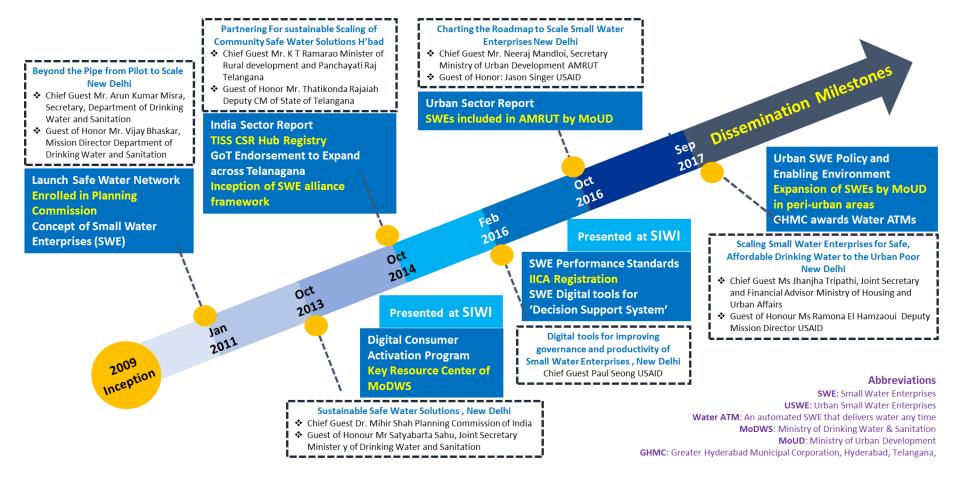
Har Ghar Jal by 2030: Current Status & Next Steps



Policy & Enabling
Environment
for Urban Small Water
Enterprises

# Advancing through Beyond the Pipe Forum: Noteworthy Achievements and Outcomes





# Water Quality: NABL Approved Lab



		Tel.: +91 40	23810504 /23810505 • w CIN: U/4220MH1995		Certif	Gate No. TC-5040
Name & Address of the Customers : Miss. SAFE WATER NETWORK INDIA (SWN) The Centrum, T8-3, 3rd Floor, 369-370, Sultanpur,Main Mehrauli Gurgson Road, New Delhi-110 030			Test Report No. : BAL PL/17-18/CL-2303/17     Lab Sample Code : 16230302/17     Issue Date : 27/02/2018     Customer Ref. : Mail			
		- 1/2			16/02/2018	
samp	ole Details ; Raw Water			Date of Registration		16/02/2018
				Date of commenceme	nt of testing	16/02/2018
0	ala Lacation I Inokal Javas	hanker/		Date of completion of	testing	27/02/2018
	Sample Location : Jookal, Jayashanker			Sample Condition of receipt Ambi		Found Ok Ambient .
	Received 2ltrX1no. Required As per Mail D	ated.16.02.201	18	SAMPLE TESTED AS	RECEIVED	
Sam	ple submitted by the customer					Page No. 1/3
			TEST RE		I	
S.No.	Test Parametars	UOM	Test Method	Requirement (Acceptable Limit) as per IS 10500: 2012	Permissible Lim Absence of Alternative Sour per IS 10500:2	ce as
1	Colour	Hazen Units	IS:3025 (P.4)	5 max.	15 max.	<1
2	Turbidity	NTU	IS:3025 (P.10)	1 max.	5 max.	<1
3	pH		IS:3025 (P.11)	6.5 to 8.5	No Relaxation	7.39
4	Electrical Conductivity	µs/cm	APHA 2510-B			3850
5	Total Dissolved Solids	mg/l (ppm)	IS:3025 (P.16)	500 max.	2000 max.	2507
6	Total Hardness as CaCO3	mg/l (ppm)	IS:3025 (P.21)	200 max.	600 max.	1905
7.	Non Carbonate Hardness as CaCO3*	mg/i (ppm)	By Calculation			1376.9
8	Calcium Hardness as CaCO3*	mg/l (ppm)	By Calculation			632.1
9	Alkalinity to Phenolphthalein as CaCO3	mg/l (ppm)	IS:3025 (P.23)	_	-	Nil
10	Total Alkalinity to Methyl Orange as CaCO3	mg/l (ppm)	IS:3025 (P.23)	200 max.	600 max.	529.2
11	Calcium as Ca	mg/l (ppm)	IS:3025 (P.40)	75 max.	200 max.	253
12	Magnesium as Mg	mg/l (ppm)	IS:3025 (P.46)	30 max:	100 max	310
13	Sodium as Na	mg/l (ppm)	IS:3025 (P.45)			81.6
14	Potassium as K	mg/l (ppm)	APHA 3500 K-B			9.8
15	Chloride as CI	mg/l (ppm)	IS:3025 (P.32)	250 max.	1000 max.	778
16	Sulphates as SO4	mg/l (ppm)	IS:3025 (P.24)	200 max.	100 max	126
17	Nitrates as NO3	mg/l (ppm)	APHA 4500 NO3-B	45 max.	No Relaxation	419
Ve	Nitrite as NO2	mg/l (ppm)	IS:3025 (P.34)	0.02 max (5)	Dr. Chattali Ro Team Leader thorized Signa	

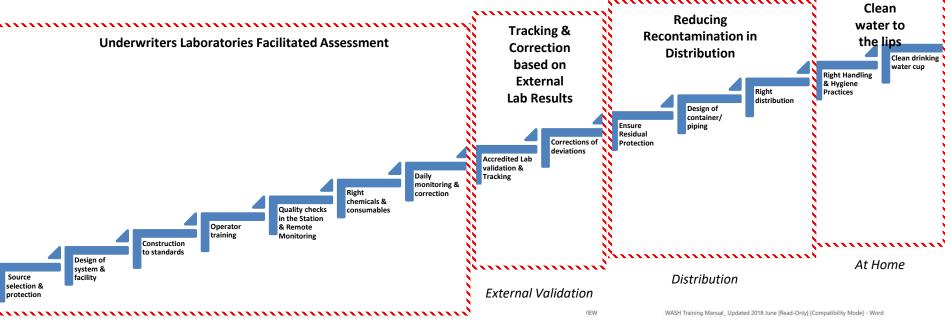
Raw Water Test Report Jookal iJal Station Jayashanker district, Telangana

* 1	Plot No. 7	-2-C 7 & 8/4	Industrial Estate, Sanat 23810504 /23810505 • w CIN: U74220MI11995		18. INDIA	\$\$\$\)	
	Superior		TEST REPO		Certifice NABL F	Y-001	
Name & Address of the Customers : M/s. SAFE WATER NETWORK INDIA (SWN) The Centrum, TB-3, 3rd Floor, 393-970, Sustaneur Main Mahrauli Gurgaon Road, New Delhi-10 300			Test Report No. : BALPL17-18/CL-2303/18 Lab Sample Code : 16230302/18 Issue Date : 27/02/2018 Customer Ref. : Mail				
			30		16/02/2018		
Sampl	le Details : Treated Water		AV.	Date of Registration	16	/02/2018	
				Date of commencement	nt of testing 16	/02/2018	
		1		Date of completion of	testing 27	/02/2018	
Sample Location : Jookal, Jayashanker			Sample Condition of r	eceipt	Found Ok Ambient		
	teceived 2ltrX1no.  Required As per Mail Da	sted.16.02.201	В	SAMPLE TESTED AS	RECEIVED		
Samp	ole submitted by the customer					Page No. 1	
			TEST R	Requirement	Permissible Limits	in Results	
S.No.	Test Parameters	MOU	l est Method	(Acceptable Limit) as per IS 10500: 2012	Absence of Alternative Source per IS 10500:201	as	
1	Colour	Hazen Units	IS:3025 (P.4)	5 max.	15 max.	<1	
2	Turbidity	NTU	IS:3025 (P.10)	1 max.	5 max.	<1	
3	pH		IS:3025 (P.11)	6.5 to 8.5	No Relaxation	6.5	
4	Electrical Conductivity	us/cm	APHA 2510-B		-	262	
5	Total Dissolved Solids	mg/l (ppm)	IS:3025 (P.16)	500 max.	2000 max.	142	
6	Total Hardness as CaCO3	mg/l (ppm)	IS:3025 (P.21)	200 max	600 max.	20	
7	Non Carbonate Hardness as CaCO3*	mg/l (ppm)	By Calculation	_		7.84	
8	Calcium Hardness as CaCO3*	mg/l (ppm)	By Calculation		-	7.84	
9	Alkalinity to Phenolphthalein as CaCO3	mg/l (ppm)	IS:3025 (P.23)			Nil	
10	Total Alkalinity to Methyl Orange as CaCO3	mg/l (ppm)	IS:3025 (P.23)	200 max.	600 max.	12	
11	Calcium as Ca	mg/l (ppm)	IS:3025 (P.40)	75 max.	200 max.	3	
	Magnesium as Mg	mg/l (ppm)	IS:3025 (P.46)	30 max.	100 max.	3	
12	Sodium as Na	mg/l (ppm)	IS:3025 (P.45)			28.5	
12	Potassium as K	mg/l (ppm)	APHA 3500 K-B			0.5	
100	Chloride as Cl	mg/l (ppm)	IS:3025 (P.32)	250 max.	1000 max.	26	
13	Sulphates as SO4	mg/I (ppm)	IS:3025 (P.24)	200 max.	400 max.	<1	
13		mg/l (ppm)	APHA 4500 NO3-B	45 max ABS	No Relaxation	42	
13 14 15	Nitrates as NO3		IS:3025 (P.34)	0.02 max	1	<0.01	
13 14 15 16		mg/l (ppm)	13.3023 (F.34)				

Treated Water Test Report Jookal iJal Station Jayashanker district, Telangana



#### Stairway: Quality Assurance ladder to safe water



Safe Water Station





# **Thank You**