

HWTS Network India Chapter

Annual Learning Exchange

Date: November 7-8, 2024

Location: S M Sehgal Foundation Auditorium, Gurgaon

Theme: "Scaling Up Safe Drinking Water for Better Health and Economy"



Indian Chapter Network Secretariat:



Sponsored by:



Collaboration with:





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Introduction:

The HWTS Network India Chapter Annual Learning Exchange was an engaging two-day working together that brought HWTS network members: experts, practitioners, and researchers committed to advancing safe drinking water solutions. Hosted by the S M Sehgal Foundation (India) in collaboration with CAWST (Canada) and sponsored by P&G, the event created a collaborative space to share knowledge, discuss innovations, and foster community-driven approaches to household water treatment solutions (HWTS). Guided by the theme *Scaling Up Safe Drinking Water for Better Health and Economy*, the sessions and discussions highlighted strategies for expanding HWTS adoption, building local capacity, and promoting sustainable health and economic benefits overcoming the challenges being faced by the network members.

Event Overview:

- Opening remarks: The event opened with a warm welcome by Mr. Lalit Sharma, which set a tone of collaboration and a shared commitment to advancing safe drinking water initiatives. Ms. Yashi Gautam followed with an overview of the HWTS Network India Chapter, emphasizing the year-round activities of the network and efforts to strengthen and expand HWTS efforts in India. Attendees were then addressed by Ms. Catherine Francis, representative of the Global HWTS Network, who joined virtually to encourage participants to actively share their knowledge, resources, and experiences and the spirit that defines the network.
- Partner introduction: Mr. Suneel Rajavaram from CAWST and Mr. Lalit Sharma from Sehgal Foundation introduced and outlined each organization's role in WASH initiatives and reinforced their commitment to fostering local capacities in the gambit of HWTS Network India Chapter.
- Keynote address: In her keynote address, Ms. Pooja Murada warmly welcomed participants to the Annual Learning Exchange of the HWTS Network India Chapter, marking it as a significant step toward enhanced collaboration and capacity-building. Reflecting on this year's theme, "Scaling Up Safe Drinking Water for Better Health and Economy," she emphasized achieving SDG 6 relies on both community-driven and sustainable solutions. She highlighted how lasting improvements in public health and economic stability can be achieved by empowering communities and fostering partnerships. She reaffirmed the shared commitment of all stakeholders to create an environment



where every household has access to safe drinking water, benefiting communities for generations to come.

Event Objective:

The learning exchange aims to contribute to improving safe drinking water coverage by focusing on the following objectives:

- Knowledge Sharing: Facilitating peer learning for best practices and experiences regarding household water treatment and safe storage.
- <u>Capacity Building</u>: Strengthening the capacities of HWTS Network members and other stakeholders through training and workshops.
- Technological Innovations and Adaptations: Showcasing the latest innovations in household water treatment solutions, focusing on adaptability, cost-effectiveness, and scalability.
- Partnership and Networking: Collaborating among diverse stakeholders to enhance partnerships and support local initiatives related to safe drinking water.

Session Highlights:

- 4 Day 1 of the Annual Learning Exchange featured updates and in-depth discussions on household water treatment solutions/innovations, highlighting breakthrough technologies and practical approaches to addressing water quality challenges. The key focus of group discussion remained on HWTS technology promotion, usage, and adoption at the grassroots level, which concentrated on three main aspects:
 - o Drinking water testing
 - HWTS promotion and adoption
 - The role of community engagement as a strategy for behavior change.

The discussion emphasized the critical role of local institutions in promoting, adopting, monitoring, and sustaining HWTS solutions. This was followed by a panel discussion where implementers shared their experiences, detailing the achievements, challenges, and strategies they have adopted to overcome in the implementation of HWTS (discussion points mentioned in the annexure).

Day 2 started at a vibrant platform for a technology showcase and exhibition, where participants explored low-cost household water treatment solutions and engaged in hands-on demonstrations. This interactive session fostered networking and knowledge exchange on HWTS innovations. Following this, technological presentations highlighted advancements in HWTS



solutions/innovations, and a session on measurement and monitoring sharing insights from the SMSF and CAWST annual survey journey as an example. The day concluded with a roundtable discussion, where network members collaboratively addressed implementation challenges, identified needs for training, technical support, and advocacy, and explored ways the network could strengthen mutual support.

PowerPoint Presentation: The latest technological updates presented at the HWTS Network India Chapter Annual Learning Exchange are available for viewing. These presentations provide insights into innovations in household water treatment solutions and the strategies shared by experts to address water quality challenges.

Connect with Us!

Stay updated and engage with the HWTS Network India Chapter across various platforms:

- ▹ WhatsApp
- ▹ LinkedIn
- Facebook
- Discussion Forum
- Knowledge Point

Join the conversation and collaborate with us to advance safe drinking water for all!



HWTS Technological Demonstrations











































Glimpses from the Learning Exchange Event

















Agenda flow:



November 7-8, 2024

Venue: S M Sehgal Foundation Auditorium, Gurgaon

India Chapter Network Secretariat





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Agenda

Time	Session	Speakers	
	Day 1-November 7, 2024		
	Welcome Note	Mr. Lalit Sharma	
	Overview of HWTS Network India Chapter	Ms. Yashi Gautam	
9:30-11:00 am	Global HWTS Network message (virtual)	Ms. Catherine Francis	
	Introducing CAWST and Sehgal Foundation	Mr. Suneel & Mr. Lalit	
	Keynote address	Ms. Pooja Murada	
-	Ica Break and Networking	Mr. Summel & Mr. Lalit	
	Session 1: Workshop opening	Mit. Suncei & Mit. Lant	
	Session II: Technical presentations chaired by Mr. Wakeel Ahmad and Mr. Pramod Kum	ar	
11:30-12:30 pm	Outreach and Water Quality in Urban Slums	Mr. Uday Shankar	
	Use of chlorine tablets by the households (virtual)	Mr. Hiren Patel	
	Challenges in Chlorine dosing and opportunities (virtual)	Mr. Raju Choppela	
	Designing Novel Arsenic Removal Mechanisms via Molecular Magnetic Characterization	Mr. Arpit	
	Local WASH Enterprise: Challenges and Opportunities	Mr. Sumit Kumar	
	Mainstreaming WASH Financing Agenda for a sustainable WASH Ecosystem: A Perspective	Dr. Utkarsh Dwivedi	
12:30-1:00 pm	Reflection by the chair; question and answers		
-	Lunch Break		
Session III: HWTS Technology promotion, Usage & Adoption at grassroots chaired by Dr. Vikas Jha and Mr. Wake			
	Group 1: Drinking Water Testing	Led by Mr. Gaurav & Mr. Pramod	
2:00- 2:45 pm	Group 2: HWTS Technology Promotion & Adoption	Led by Dr. Raj Kumar & Dr. Utkarsh	
	Group 3: Role of Community Engagement as Strategy for Behavior Change	Led by Mr. Salahuddin & Ms. Archana	
	Group Presentation and Open Discussion		
	Tea Break		
3:30- 5 pm	Session IV Implementer's HWTS experience (NGO, producer, trainer) chaired by Dr. Ut Discussion)	karsh and Mr. Suneel (Panel	
	Sharing achievements and strategies adopted	Mr. Anil Sharma & Ms. Aparajeeta	
	Identify Opportunities and Challenges on ground	Mr. Sumit with potters, Mr.	
	The A 1 A A 1 A A 1 A A 1 A A 1 A A 1 A	Goverdhan & Mr. Uday	
	Developing strategies to overcome the identified challenges	Working Together	
	Identify & Prioritize newly identified potential areas for the coming year	•	
	Reflection by chair and audience including question and answers; Closing		
6-7:30 pm	Infotainment (Networking and Entertainment)		
7:30-8:30 pm	Dinner party		
	Day 2- November 8, 2024		
	Session V: Technological demonstrations and Hands-on activities (in-lawn) chaired by Mr. Pramod and Mr. Lalit		
9:30-10:30 am	Different demonstration booths/ stations followed by an interactive feedback session		
10:30-11:00 am	Reflection by chair and audience including question and answers on the technology demonstration		



Tea Break					
	Session VI: Technological updates chaired by Dr. Ranjana and Dr. Trishikhi				
	Chemical Contamination in Water	Dr. Camillie Zimmer			
	Synergistic effect of Copper and Silver to remove E. coli	Ms. Yashi Gautam			
11:30 am to 1:00 pm	Showcasing different defluoridation techniques	Ms. Aparajeeta			
	Innovative model of CPF molding press	Mr. Suresh Soman			
	An approach for anchoring fluoride selective advanced nano-material for water treatment	Mr. Vijesh Prajapat			
	from natural sources				
	Program of Scale- Partners for Water Access and Better Harvest in India	Ms. Archana Kumari			
Lunch Break					
	Measurement & Monitoring	Mr. Toby Gould			
2:00-3:00 pm	Session VII: Roundtable Discussions chaired by Mr. Suneel and Mr. Lalit				
	Connecting the dots for future direction				
	Action Planning/ Next Steps				
	Future network engagements and closing				



Abstracts submitted for the Learning Exchange event

1. An approach to prepare low-cost ceramic filter by anchoring fluoride selective advanced nano-material for water treatment from natural sources

-Vijesh Prajapat and Dr. Trishikhi Raychoudhury, IIT Jodhpur

Fluoride contamination in drinking water remains a critical public health issue globally, with particularly severe consequences in regions like Rajasthan, India, where groundwater is heavily relied upon. Longterm exposure to fluoride can cause serious health issues, underscoring the need for effective, scalable remediation strategies that not only ensure safe drinking water but also contribute to better public health and economic stability. The study aims to develop low cost material incorporating advanced mataerial for drinking water treatment including fluoride removal from natural groundwater sources. For this purpose, as first step, fluoride removal capabilities of various nanoparticles (NPs) in both controlled deionized (DI) water and natural groundwater conditions were assessed. Furthermore, they may be used in conjunction with regular filters to improve their efficacy and scalability. Therefore, a list of NPs including Zinc oxide (ZnO), Zinc iron oxide (ZnFe2O4), Magnesium oxide (MgO), Aluminum oxide (Al₂O₃), Cerium oxide (CeO₂), Lanthanum oxide (La₂O₃), and Magnesium aluminate (MgO·Al₂O₃) were tested. Initial DI water experiments indicated fluoride adsorption capacities ranging from 10-20 mg/g, with performance ranking as follows: $Al_2O_3 > ZnO > ZnFe_2O_4 > MgO \cdot Al_2O_3 > MgO > CeO_2 > La_2O_3$ > AlCeO₃ > Fe₂O₃ > Al₂TiO₅ > (CeO2).(ZrO2). In natural groundwater, nLa₂O₃ emerged as the most promising adsorbent, indicating its potential for application in scalable filtration solutions. In the second step, small scale filter disc is prepared through which flow rate and particulate matter removal efficiencies are assessed. In the following work, the ceramic disk will be prepared impregnating nLa₂O₃ and the efficiency of the composite in removing fluoride and TDS will be asses.

2. Understanding and Mitigating Chemical Contaminants in Drinking Water: Focus on Arsenic and Fluoride

-Camillie Zimmer, CAWST

Chemical contaminants in drinking water, particularly arsenic and fluoride, pose serious health risks to millions across India, where groundwater contamination is widespread. Arsenic levels above the 10 microgram/L safe limit have affected 18–30 million people, leading to chronic health issues like cancer and skin lesions. Fluoride, at levels above the 1.5 mg/L threshold, affects an estimated 120 million people, which can cause dental and skeletal fluorosis. Traditional methods to remove fluoride and arsenic from water, like ion exchange, are often impractical for wide-scale use due to costs. Low-cost approaches employed at the household or community scale are available and CAWST is engaging with our partners' research into these two priority chemical contaminants. These low-cost approaches—such as bone char adsorption, chitosan filters, and zero-valent iron in slow sand filters—present opportunities and challenges, which we will explore in this presentation. We will provide an overview of arsenic and fluoride contamination, the health impacts, and low-cost approaches for treatment being explored by CAWST's partners.



3. Mainstreaming WASH Financing Agenda for a sustainable WASH Ecosystem: A Perspective

- Dr. Utkarsh Dwivedi, Shramik Bharti

The Government of India has demonstrated its strong commitment towards Sustainable Development Goal 6 (SDG 6) - "clean water and sanitation for all" since 2014. This has been undertaken by launching and providing intensive support to nationwide programs and campaigns such as Swacch Bharat Mission Phase 1.0 and 2.0, Jal Shakti Abhiyan and the Jal Jeevan Mission. While such programs do provide the initial nudge in terms of awareness generation, funds for large infrastructure support and legitimacy to water and sanitation related discussions and mandates, there is a limitation of how long the government will be able to continue to provide assistance at the cost of other priorities.

The Union Budget 2021-22 announced an outlay of Rs. 70,163 crores for the Jal Jeevan Mission aiming to bring safe water to 2.86 crore households through tap connection. Simply rolling out an ambitious mission does not ensure sustainable supply of household drinking water in rural India which faces 'slippage' problem. It means villages or habitations covered with safe drinking water facilities slip back to 'not-covered' status due to drying up of water source or collapse of facilities due to non-maintenances. In both urban and rural India, lack of water facilities and the need to use community water sources and toilets has posed a challenge in the fight against an infectious disease. Need for having dedicated and functional taps, toilets and handwashing facilities is now more than ever, so is the need to fund this demand.

There is a need for multi-sectorial ecosystem to support the government efforts. Developing such an ecosystem requires strengthening water and sanitation value chain stakeholders such as shopkeepers and entrepreneurs by providing them access to blended finance from local financial institutions (being most critical), innovative low cost technologies, availability of products, skilling of operation and maintenance personnel and others. All these have to come together to establish and support working models that become reference points for everyone to learn from. Once established, such ecosystems will also be able to address emerging second-generation problems too such as inappropriate toilet designs, repair and maintenance of toilets, lack of water to use toilet, last mile reach and other such challenges. Continuation of such efforts after jumpstarting them can only happen if other sectors of the economy come forward to support development of micro-ecosystems to service communities and households to establish, maintain, expand and retrofit such water and sanitation facilities as per their requirements and aspirations.

This presentation explores the critical need for mainstreaming Water, Sanitation, and Hygiene (WASH) financing within broader development agendas to foster a sustainable WASH ecosystem. It examines the current state of WASH financing, highlighting gaps in investment and policy integration that hinder the delivery of essential services, particularly in underserved communities. By analyzing successful case studies and best practices, the presentation presents a framework for aligning WASH financing with climate resilience, health, and economic development strategies. Furthermore, it advocates for innovative financing mechanisms, public-private partnerships, and community-driven approaches that can enhance the sustainability and scalability of WASH interventions. The findings underscore the



necessity of collaborative governance and multi-sectoral engagement to achieve universal access to WASH services, ultimately contributing to the achievement of the Sustainable Development Goals (SDGs).

4. Significance of Measurement - the CAWST and Sehgal Foundation Approach -*Toby Gould and Yuot Tut, CAWST*

This presentation explores the importance of data measurement and how CAWST leverages collected insights throughout the year to inform multiple areas, including the Annual Report, social media outreach, fundraising, business development, and marketing campaigns. We will highlight CAWST's impact in 2023, with a focus on contributions from India and the Sehgal Foundation, and emphasize the role of the annual survey in continuous improvement. Attendees will also be made aware of practical data collection tools like mWater, Sanitary Inspection Forms (SIFs), and other monitoring solutions, to enhance organizational measurement strategies for long-term success.



About HWTS Network India Chapter

Vision of the Network

All Indians must consume affordable safe drinking water.

Goal of the Network

The network shall contribute to increased safe drinking water coverage in India, specifically in rural, remote, and peri-urban areas, with a focus on the poorest of poor people through the implementation of household water treatment.

Objective of the Network

To increase knowledge and build capacities of members on appropriate and affordable HWTS technologies, products, research, and HWTS project implementation.

Membership

Organizations working or interested in HWTS for drinking water can join the network for free. It is expected that all members will cooperate and coordinate with the Sehgal Foundation holding the Secretariat of the network.

Presently, there are 300 members in the network.

Activities of the Network

- 1. Capacity building training workshops
- 2. Knowledge sharing
- 3. Annual Learning Exchange
- 4. HWTS Knowledge forum: discussions to resolve technical queries
- 5. Connect with the global HWTS Network
- 6. Technical consultancy support over:
 - a. Email
 - b. Phone calls
 - c. Personal visits



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Subhadra

Sumit Kumar

Suneel Rajavaram

Suresh Soman

Annual Learning Exchange

Navjyoti India Foundation

Sehgal Foundation

CAWST

Sibba Tech

S. No Name of the attendees Organization IIT Patna Abhijeet 1 2 Abhishek Thapa Advance WASH Mart Pvt. Ltd. 3 Alina Cluix SATHI 4 Anil Sharma 5 Aparajeeta Sehgal Foundation Delhi Premier Rotary Service Foundation 6 Archana Kumari 7 Kilkari Arpit 8 WaterAid Asmita Saha 9 Shramik Bharti Avinash 10 Bhanu Chopra Ion Exchange (India) Ltd 11 Camillie Zimmer CAWST 12 **Catherine Francis** CAWST 13 Dr. Raj Kumar Satankar Poornima College of Engineering 14 Dr. Ranjana Ray Chaudhuri TERI SAS 15 Dr. Utkarsh Dwivedi Shramik Bharti Dr. Vikas Jha Sehgal Foundation 16 17 Gajanand Ambuja Cement Foundation 18 Gaurav Shringi WASH Institute 19 Goverdhan Parajapati Potter Hyderabad 20 Hiren Patel Ameepharma 21 Jai Mangal Pandit Potter Bihar 22 Jitendra Choudhary Shudham 23 Kuldeep Bhorwal Sehgal Foundation 24 Lalit Sharma Sehgal Foundation 25 Mohd Sarvar Ion Exchange (India) Ltd 26 Mritunjay Pradan 27 Sehgal Foundation Pooja Murada 28 Pramod Kumar Ecosuraksha 29 S N Prasad Aqua Pacific 30 Raju Choppella Initiative Engineering 31 Rangeel Pandit Potter Bihar 32 Ropal Navjyoti India Foundation 33 **RSN** Sharma Water For People 34 Salahuddin Saiphy Sehgal Foundation 35 Sam Kapoor Sehgal Foundation 36 Shauna Curry CAWST

List of participants who attended the Learning Exchange event



41	Toby Gould	CAWST
42	Uday Shankar	Wateraid
43	Vijesh Prajapat	IIT Jodhpur
44	Vishnu	Ambuja Cement Foundation
45	VR Rajesh	Cluix
46	Wakeel Ahmad	Water For People
47	Yashi Gautam	Sehgal Foundation
48	Yuot Tut	CAWST



Annexure: HWTS Network India Chapter Update









Yearly Network Glimpse





















Annexure: Discussion points from day 1

Торіс	Ga	nps	Re	ecommendation
Drinking Water Testing	1.	Inadequate testing infrastructure: required up to	1. 2	PPP models for lab
	2.	block Lack of reliable data and its interpretation	3.	Training, capacity building of stakeholder
	3.	GIS-based simplification (color indication)	4.	Open access dashboard (interpretation, user friendly)
	4.	Contamination and mitigation methods	5.	Motivation to the community for participation (sensitization and awareness building)
	5.	Knowledge about contamination and its health impact	6.	Sensitization towards adopting alternate sources and remedial measures for water testing
HWTS	1.	Limited awareness	1.	Community mobilization
Technology Promotion & Adoption	 2. 3. 4. 5. 6. 	The price of the product is more than their capability to pay	2.	Investment in demand creation and behavior change
		(community) Product Acceptance Empathy towards product No demand creation activities No/low profit to supply chain intermediates	3.	Involvement of social and public organization
			4.	Trust and confidence building in the community
			5.	Understanding the needs and mindset of consumer, user, beneficiary, and influencer
			6.	Demonstrations stating the specifics of products
			7.	Documentation and dissemination of success stories, and peer learning (use of digital and print media)
			8.	Continued discussion at all possible platforms and opportunities
			9.	Final product presentation
L				

The gaps and recommendations were made from the present status.



Role of	1. Domestic responsibilities	1. Creating local celebrities as
community	2. Socio-cultural limitations	ambassador
engagement as a		2. Influential people engagement
strategy for	3. Acceptance to change (trust)	2. Cost official and exact in the
benavior change	4. Limited resources	3. Cost-effective and sustainable
		solution and demonstrations
		4. Financing opportunities
		5. Support system to match the cost with affordability (subsidy)