Tenth Annual Global Water Alliance (GWA) Conference on
"Role of Locals in Implementing Water, Sanitation and Hygiene (WASH)
Sustainable Development Goals, 2015-2030"
4-7 January, 2017, Kolkata, India

Summary of the Conference Proceedings

Welcome Addresses: On 4th January, 2017 the conference was opened by welcome addresses by Dr. Arun Deb, GWA Board Member on behalf of GWA, by Professor Ajoy Kumar Ray, Director, Indian Institute of Engineering Science & Technology (IIEST) on behalf of IIEST, and by Honorable U.S. Consul General Craig Hall on behalf of US Consulate, Kolkata. In their welcome addresses, all of them mentioned about brief activities of their respective organizations and welcomed the participants at the conference.

Keynote Speaker: Gourisankar Ghosh, Past Executive Director of U N Water Supply and Sanitation Collaborative Council.
Professor Anirban Gupta, Professor of Civil Engineering, IIEST introduced the Keynote Speaker Ghosh.
In his keynote speech, Mr. Ghosh initially provided a chronological history of WASH leading to the development of the United Nation's Sustainable Development Goals (SDGs) 2015-2030. He also discussed the nuances of different international resolutions and its impact under the Indian scenario to achieve SDC 6 by 2030. India has a huge manpower at the ground level. However, India has a problem of not taking decision on the basis of technical and social criteria. It is necessary that the stakeholders should have more responsibilities, be more articulate by developing creative knowledge banks and by allowing open and free discussions, identifying weaknesses of the system, to develop the sustainable approach suitable for India

Session A: Roles of communities, Governments, NGOs, Industries and Beneficiaries for Sustainable WASH

Session Chairperson: **Anand Rudra, USAID, Delhi**

Mr. Rudra opened the session by providing an introduction of the topic. He also discussed importance of sustainability in all WASH projects and mentioned about the USAID involvement of WASH projects in India.

Speaker: **Dr. Francis Odhiambo,** WASH Specialist, WASH Section and Officer in Charge, Unicef, New Delhi on Water Quality Issues.
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Dr. Odhiambo discussed about the status of Drinking Water Quality with particular emphasis on Arsenic and fluoride in West Bengal, with nearly 43.8 million rural populations at risk. Japanese Encephalitis is also is a problem in 5 states.

Open defecation is also a serious problem contributing to the water quality. Communities should be involved in developing water safety plans and testing of water quality.
He also emphasized the role of NGOs in demonstrating water security and quality, role of Government to ensure water security and safety and maintaining water quality at the required levels.

There is a lack of following up with results to the community. Government needs to follow up on this issue. Industries should also be aware of water conservation and management.
Comments on Dr. Odhiambo's presentation: The presentation is to the point and identified the needs of thoughtful reporting of problems and roles of empowered organizations.

Speaker: **Dr. P.B. Salim, IAS**, District Magistrate, South 24 Parganas, West Bengal District-wise Management of Swachh Bharat Program in Achieving Goaks.

Dr. P.B. Salim, the administrator of the South 24 Parganas District is in charge of making the district Open Defecation Free (ODF).
There are many challenges to making India open defecation free. India tops the world in open defecation. Latrines are often used for storage, this need to change.

Dr. Salim developed a model to connect teachers, faith leaders, youth organizations, women, health workers, etc to work as a cohesive group to empower latrine users. It follows SMART strategies, channels school children as change agents, women as ambassadors who helped at all levels of the planning process.
He developed several tactics such as: Use faith-based organizations for cleanliness, use doctors to "prescribe" toilets for sick children, organized mini-marathons to raise awareness for open defecation, and longest human chain to raise awareness for health consequences of open defecation.
Dr. Salim says it is important to talk about these issues to overcome cultural barriers. In his planning he also used GIS technology for effective monitoring and mapped households without toilets.
The strategy includes providing toilets for everyone, regardless of legal residence. Now, 99% of people in this area have access to a toilet.

He concluded his presentation with a video of latrine access intervention in rural India.

Comments on Dr. Salim's presentation: It is a successful example of district-wise management of ODF.

Speaker: **Mr. Depinder Kapur:** Study on Behavioral Change on Rural Sanitation in India
In 2015, a study on behavioral changes was conducted by WASH India in rural areas of three states in India and identified key barriers and motivators of change in

sanitation and hygiene behavior. The study tried to get answers of some basic questions such as why people are using, not using and building toilet's.
Being a local, Mr. Kapur felt he was able to get honest answers for these questions. People don't always follow protocol. Researchers have to ask: Who are the people building toilets and who are the people using toilets. These are the most important questions.
Mr. Kapur mentioned that overall sanitation in India has improved, but burden of disease is still present. It is difficult to assess the relative contributions of a single factor.

Sanitation coverage increased by 30% in the past 30 years. People prefer a good quality toilet mentioning that septic tank better than pit latrines. Barriers to behavior changes include money, culture, and emotional appeal. Subsidies are needed to assist in building toilets. There needs to be more emphasis on emotional appeal. It is necessary to change gender stereotyping.

Comments on Mr. Kapur's presentation: Succinct and offered a sociological approach to understanding sanitation in India. Due to time constraints only three session questions were allowed:

1) **What are your experiences in maintaining WASH?** Dr. Salim's answer: Involve every member of the community to sustain a community wide WASH system..

2) **Cost and experience in toilet construction?** There are different needs per village. People get toilets pretty cheaply, but challenge is about behavior change.

3) **Arsenic and treatment of water. Why is it so difficult? Is it affordable?** It is not difficult and the arsenic treatment that developed by IIEST is proven, sustainable and affordable. Many such systems are successfully running efficiently for a long time.

Session B: WASH Cases Studies (Urban, Rural, Community based efforts, Schools)

Session Chairperson**: Mr. Sutanu Ghosh,** Managing Director of Ghosh, Bose & Associates; President, Bengal Chamber of Commerce

Mr. Ghosh introduced the topic by mentioning that the need for proper sanitation facilities around the world is huge. $1/5^{th}$ of the urban population (700 million people) live without toilets. The number of people around the world that would be standing in line for a toilet would stretch around the world 29 times.

Speaker: **Mr. Saumen Ray,** President Elect, Rotary Club of Calcutta: Need for User's Mindset Change for Better WASH Programs – A Case Study

Case study project implemented 150 toilets and 20 tube wells ($45,000 USD) in India, making 3 villages open defecation free. During the first visit 4 year ago, there was distrust among villagers. The project is now successful, and a second project is about to start.

Four key conclusions and recommendations from the first project are:

1. Need a mind-set change (most important): implemented a full scale mindset change workshop.
2. Need an implementation partner – local partner carefully chosen
3. Toilets and water go hand-in-hand
4. Connect with the villagers – needed for sustainability and maintenance

Speaker**: Mr. Yadav Kumar Rai,** Executive Director, Nepal Foundation: Case Study of Nepal Foundation's 'One House One Toilet Project'

Organization first identifies community in need, and then addresses issues impacting that community. These issues are then prioritized.

The community that was chosen in Nepal was Rapcha, with 350 families (3,000 inhabitants). Only 2% of inhabitants had toilets.
The WASH project had 2 phases:

1. Social awareness phase
2. Construction phase

The village became one of the first ODF villages in the district. 1/5 cost was financial cost, 4/5 was time cost. Two earthquakes damaged local toilets in 2015, but they have already been repaired by respective owners.

Session C: **Innovate Social, Institutions and Financing for WASH Programs**

Chairperson**: Dr. Kamal Mazumdar,** Former Deputy Adviser, Ministry of Drinking Water and Sanitation, Government of India. Dr. Mazumdar introduced the topic.

Speaker: **Rinchen Wangdi, Chief Engineer Public Health Engineering, Bhutan** – A Case Study on Bhutan Approach to Rural Sanitation and Hygiene at Mongar District, Bhutan

<u>Background on Bhutan</u>

1. Bhutan is 70% rural
2. 81% of the nation is covered by forest
3. 2% of the population participate in open defecation (OD)
4. Urban Sanitation Coverage is 78% while Rural is 33% (Total of 50% nationwide)
5. Some rural villages are remote from urban areas, thus some supplies necessary for this program implementation were scarce until suppliers provided assistance

<u>Rural Sanitation and Hygiene Program</u>

1. Ministry of Health and Settlement Initiative provides safe, sufficient and sustainable sanitation facility access to all rural Bhutanese

a. Reduction in childhood mortality, preventable disease, improved family health and nutrition

b. Accomplished by good governance to create legitimate demand, funding and assistance to implement mission, training and regulations

2. This goal is to be accomplished by promoting hygienic use of a sanitary toilet and education about hand washing with soap.

3. It began in 2008 with four blocks and then scaled up to one district. In 2011 the program was endorsed as the national approach and currently under implementation in 8 districts.

4. Shift in perception on OD, good hygiene required for success

Sample Implementation In the Mongar District with 6000 rural households

1. Program began in April 2014 by conducting a survey reaching 29% of the 41,852 district residents (6000 Households)

a. Households (HH) with access to basic sanitation: 95.55%

b. HH with access to improved sanitation: 29%

2. Initial visit also started the sanitation education portion, the supply chain assessment and an overview of the governance of the program.

3. In September 2014, 181 field workshops were conducted on toilet installation, continued education and demand creation with 96% HH attendance.

4. Dec 2014, supply chain engaged local suppliers to train 117 masons for latrine construction. District was in control of implementation at this point

5. In Aug 2015, a mid-point review found 63% had access to improved sanitation

6. In Aug 2016, a final review found that 95% had access to improved sanitation

7. Total cost in this district was 138,000 USD or 22.80 USD per HH

Identification of Residents Resistant to Program

1. Type 1 – Ignorance

a. Do not know benefits of safe hygiene and sanitation

b. Well to do people with good job, but still uses pit toilet

c. Strategy to create demand was to educate through the workshops.

2. Type 2 – Apathy/Budgeting

a. Subject was alcoholic

b. Budgeting for sanitation was therefore the issue

c. Education on budget priority of sanitation over alcohol, plus a combination of peer pressure and the linking of dignity to private safe sanitation led man to stop drinking and build his own toilet.

3. Type 3 – Elderly

a. Manpower was the main issue with limited finances adding a burden

b. They were motivated to be healthy, safe and dignified

c. Community support to assist with building got their toilet built

4. Type 4 – Residents Living in Unoccupied Houses

a. Migrants using whatever method of housing they can and not always around

b. OD most common

c. Advocacy and peer pressure changed attitude. When the community found out that changing one's own habits might still not be enough to ensure safe hygiene, it motivated those newly educated community members to push others.

<u>Program Success and Future</u>

1. November 2015, Bhutan declared these three sub-districts as 100% Improved Sanitation Coverage, and now it is up to 21 sub-districts in total.
2. Must maintain momentum and make an annual priority of the government
3. Assess sustainability of sub-district level programs
4. Align goals with UN Sustainable Development Goals

Speaker: **Dr. Manabendra Nath Roy,** President, Riddhi Foundation: An Analysis of Bottlenecks Faced in Implementing Swachh Bharat Mission (SBM) (G) in Maharashtra

Introduction to Process Bottlenecks

1. Understanding bottlenecks to sanitation initiatives is critical to elimination of OD
2. UNICEF and Riddhi Foundation behind a study to identify these bottlenecks in Aurangabad division of Maharashtra State
3. Bottlenecks occur at Gram Panchayet (GP) level (village governance) and Zilla Parishad (ZP) level (district governance)

Methodology

1. Critical processes identified at 4 Tiers: Community, GP, Block and District
2. Questionnaires were developed to evaluate these processes
3. Scoring of processes
4. Random sampling of households (HHs) with and without toilets selected for questionnaire

Results

1. Community Level Factors:
a. Social Context
b. Availability of Resources
c. Advocacy for demand generation
d. Supply arrangement
e. Participation and Equity
f. In 2014-2015, only Social context didn't indicate any bottlenecks. This was improved in 2015-2016 to where Availability of Resources and Participation were the only bottlenecks
g. Three groups demonstrated these bottlenecks:
    i. Those below the poverty line
    ii. Those in the VJNT Caste
    iii. Those who engaged in OD and do not have a toilet

2. GP Level factors:
a. Policy in Place for SBM Implementation
b. Institutional Framework for SBM Implementation
c. Capacity and motivation to deliver

d. Supply Arrangement
e. Advocacy for Demand Generation
f. Resources under GP Control
g. Monitoring and Supervision
h. Support from Block Development Office
i. Quality and Sustainability
j. Focus on sanitation and making GPs OD Free
k. Only Policy in Place did NOT have a bottleneck in 2014-15.

In 2015-16, only Capacity and motivation to deliver, Advocacy and Focus on Sanitation had bottlenecks

3. Block Level Factors

a. Policy on Block's Role Implementing SBM
b. Institutional Framework for SBM Implementation
c. Fund flow and related processes
d. Capacity and motivation to deliver
e. Advocacy for Demand Generation
f. Support received from ZP
g. Monitoring and Supervision
h. In 2014-15, Fund flow and related processes, Capacity and motivation to deliver, Advocacy for Demand Generation and Monitoring and supervision had bottlenecks
i. In 2015-2016, Fund flow and Capacity to deliver had bottlenecks

4. District Level Factors:

a. Policy on ZP Role in Implementing SBM
b. Institutional Framework for SBM Implementation
c. Fund flow and related processes
d. Capacity and motivation to deliver
e. Advocacy for Demand Generation
f. Support received from State
g. Monitoring and Supervision
h. In 2014-15, Advocacy and Demand generation & Monitoring and supervision were the only bottlenecks.
i. No Bottlenecks in 2015-2016

<u>Conclusions</u>

1. Bottlenecks occur more at the bottom of governance where there is less administration in place
2. Advocacy and Demand generation & Monitoring and Supervision must improve across all tiers
3. Constraints in ODF and Non ODF GPs are similar; these are:
a. Poor or no regulation
b. New HHs and HHs with defunct toilets
c. No Plan for Solid/Liquid Waste Management

d. Low Levels of Hygiene Practiced
e. Low technical knowledge of toilet construction
f. Low level of knowledge of cleansing

Speaker: **Anthony Sauder,** Pennoni Associates, Philadelphia, GWA Board Member:
Community Construction of Pour-Flush Latrines: Slow Acceptance, Then A Priority for Indigenous Families in Guatemala

Introduction: WASH Project in Lake Atitlan Region of Guatemala:
Partners include: Engineers Without Borders, University of Pennsylvania, Global Water Alliance, Pennoni Associates, and Ati't Ala

Program Beginning:

1. Local NGO began project implementation by providing agricultural support, but unable to provide to all farmers.
2. US Partners assessed that agricultural support was what men wanted, but women wanted latrines
3. Existing sanitation conditions were poor, some with no latrines. Most existing latrines were slabs of wood or concrete and very old
4. Location made plumbing and septic systems unsustainable options, so new latrines were required
5. Women attended initial meeting about program 2:1 to men, created community support for implementation
6. Program would be community led field demonstrations of latrine construction and education

Phase 1

1. 20 Families are all excited to learn how to build latrines
2. 6 Months into program, not much usage of latrines mainly due to residents set in their ways and not trusting of pour flush technology
3. NGO promised uptake would improve

Phase 2: Program Spreading

Local NGO held more workshops to educate and receive community feedback and women again pushed promotion. This raised participation and spread word of the program. New masons were trained and hired to construct in new area. As a result demand for latrines increased and neighboring village begins to demand latrines. First village does all the training and administrative set up of new village's program

Takeaways

1. Student Engagement produced language barriers that made indigenous people shy, could have contributed to slow adoption of program
2. Homestays quickly integrated students and therefore the local population accepted input easier

3. Outsiders must stay humble and show respect from position of wealth/power
4. Patience in program implementation is the key

Session D: Role of Gender and Equality/ Empowerment of Women for Successful WASH Projects

Chairperson Ms. Meena Narula, Country Director, Water for People
Ms. Narula shared a Ted Talk video by Eleanor Allen, President and CEO, Water For People, USA.
Highlights from Video: Women would be less likely to die after giving birth if there is better access to WASH. WASH is a women's issue. Children under five need better WASH.
Ms. Narula Introduced the topic:
Why is water a women's issue? 1) It takes TIME to get water and it is often difficult to carry water back home. 2) Education. Getting water interferes with education. 3) No toilets means no place for privacy to change female pads. There is a need for men to be on board with financing latrines. The year 2030 is the year United Nations agreed to get toilets and water for everyone in the world.

Speakers**: Dr. Jayanti Bandyopadhyay**, Professor, Salem State University, USA: and **Dr. Linda Hall, Professor**, SUNY, Fredonia, USA: Exploring the impact of Investment in WASH on Women's Empowerment in West Bengal

A) Two NGOs were selected for study: NISHTHA focuses on social education to empower women of all ages. Sabuj Sangha empowers women through Self Help Groups (SHGs).
B) Surveyed 191 women, questionnaires include health, hygiene, education and sanitation.
C) 95% of respondents have toilets at home, majority bathe in ponds.
D) Surveys showed sustainably statistically significant results among women's health mortality, hygiene and sanitation improvements. Women gained improved confidence.
E) With several stakeholders in mind, the survey was designed to cater to all kinds of people.
F) Showing pictures during education was more helpful than just reading a book.
G) Impact of social education and awareness → Empowers women to be equal with men.

Speaker**: Ms. Lorrie L. King**, WASH and Food Security Programs Manager, United Methodist Committee on Relief, USA - Impact of Comprehensive WASH and Menstrual Programs on School Absenteeism

A) A case study and lessons learned for replication.
B) Provided a background story of why she decided to focus on menstrual programs. Ms. King was amazed to find most girls stayed home during

menstruation and schools weren't talking about female absenteeism as a problem. This is a consistent problem in many areas of the world.

C) Ms. King met a local stakeholder who helped build the Shree Nawa School.
D) Very inspired when she learned about menstruation causing girls to miss school
E) Met with a very passionate school of girls to talk about menstruation.
F) Shared about harmful menstruation policies in many rural villages such as Chaupadi---> isolate menstruating girls in outdoor huts during periods. This can be dangerous.
G) Background literature review showed little work done on solving period issues in schools.
H) Cultural norms prevented girls from using pads
I) Worked with ministry of health to introduce OBYGN to talk about menstruation at schools

Comments on speaker: Very passionate and knowledgeable. Needed more time to convey all information.

Speaker: **Dr. Md Akramul Islam**: Director of Tuberculosis and Malaria Control, BARC, Dhaka

A) Gender inclusive approaches for successful implementation of BRAC WASH interview
B) Been involved in WASH since 1991
C) Everyone needs to be involved for a successful WASH program.
D) BRAC raised awareness of proper menstrual hygiene in schools.
E) Village WASH committees assess existing WASH situations and identify issues.
F) Lessons learned: Success of WASH program largely due to women's inclusion and participation in decision-- making.
G) Consistent empowerment is needed.

Comments on speaker: Painted an image of benefits in successfully bridging the gender divide in WASH.

Session E: **Chairperson: Dr. Arun Deb, GWA Board Member:** Monitoring for Sustainability, Impacts on Community and Key Indicators
Dr. Deb introduced the topic and mentioned the importance of sustainability in the long term success of a WASH project.

Speaker: Dr. Md Akramul Islam, Director, Tuberculosis and Maaria Control, BRAC (Bangladesh): BRAC WASH outcome monitoring: Learning Together
Dr. Islam developed a Sustainability Assessment framework of Qualitative Information System (QIS) to measure 15 most critical indicators. QIS was implemented 3 times from 2012 to 2014.

- 15 indicators were measured
- Scoring system was between 0-4

- Data collected with a smart phone
- 1 male and 1 female measured data at the household level
- Sample size used was between 3,600 to 8,000.

Results: Almost all who have latrines use them; 87% of drinking water stations installed by BRAC are functional; 70% girl's latrines (from BRAC) were clean; 71% schools had menstrual hygiene management facilities

Lessons Learned:

- More can be done to improve hand washing.
- Very poor still experience poorest drinking water safety: fewer concrete platforms at water source
- Latrine cleanliness is still a challenge at school and household level

Speaker: Mark Lotto, Graduate Student, University of Pennsylvania
Critical Factors that Impact Sustainability of School WASH and Village Arsenic Removal Programs

During assessment of 14 school WASH programs and 13 village arsenic removal programs, the following critical indicators were identified, with the following long-range recommendations.

School WASH:
Results: Greatest challenge to programs was that WASH infrastructure was broken.
Recommendation: WASH infrastructure needs to be replaced at first sign of damage. Follow up visits by NGO need to evaluate this infrastructure.

Village Arsenic Removal:
Results: Greatest challenge to programs was that filter media was not being changed on time, and water testing was not being conducted regularly.
Recommendation: A subscription service should be implemented by the NGO or private organization to automate water testing and media exchange. Subscription service should also include yearly awareness program.

Session F - WASH Team students of University of Pennsylvania, Evaluating WASH Interventions in Rural Schools of West Bengal
Chairperson: **Mr. Richard Riegler,** GWA Board Member

Speakers: WASH Team Presenters- University of Pennsylvania Students: Evaluation of Sustainability of School WASH Program in West Bengal By School WASH Team

Research background and research design

- Area: Purba Medinipur district
- Objectives are to collect and analyze WASH performance data from 18 High Schools in Contai
- NGO responsible for construction is Sarboday Sangha

- Research purpose is to assess the sustainability of school WASH projects in rural West Bengal
- Assessment tool for:

Health - Behavior and Knowledge

Social - School hygiene education

Technical - Resources/hardware

Financial - Program cost and tariffs

Institutional/ Sustainability Tracking - Water committee and NGOs

Hygiene education

· Hygiene education is in practice in 17 out of 18 schools

· Water committee ius active in 17 out of 18 schools

Finance

· Cost of WASH program in 18 schools: average INR 400,000, ranging from INR100,000 to INR 700,000

· Total cost of 18 schools: INR 7,234,000

· Funding breakdown: INR 2,771,000 from NGOs, INR 2,551,000 from school funds, INR 469,000 from the government, INR 1,443,000 unspecified.

· WASH maintenance funding from student tariff

· Capital Funding for each student: Average INR 1137

2. For maintenance of school, INR 240 per student per school year

3. 9 in 18 schools have a specific tariff for WASH maintenance (from INR 1 to 10 rupees a month)

4. Some school collect tariff from teachers

5. 15 in 18 schools have students who can't afford the tariff and they are allowed to use the facilities.

· Latrine/urinal in each school: average 14

· Students per latrine/urinal: average 49 students per latrine/urinal

- Drilling of well and installation of a submersible Pump: INR 100,000

Maintenance cost

- Septic tank cleaning: INR 500 to 7000
- Monthly maintenance cost: INR 800 to 5000

· **Issues**

- Faucet taps were frequently damaged and took time to replace due to finances or lack of mechanics
- Latrine doors were sometimes damaged
- Soap was not always observed at handwashing stations
- 2 schools reported no access to clean drinking water
- Summer months reduces water availability
- Female sanitary napkins weren't always stocked and available

Recommendations

For water supply and sanitary supplies

- Deeper installation of submersible pump
- Multiple overhead storage tanks
- Variable water supply sources
- Water Recycling and Reuse
- Hygienic education camp
- Identify the demands and needs
- Gaps between available assets and expenditures should be supplemented by NGOs and government

For financing and maintaining

- Develop plan for financial sustainability (including a WASH repair savings account)
- Include the water tariff into general fee. Allocate a percentage of the school fee into WASH.
- 1-2% of teachers' income towards water tariff.
- Campaign for teachers to gain basic knowledge to fix small problems e.g. change faucets
- Provide some stock of replacement for schools.

For menstrual hygiene

- Campaign for teachers to gain basic knowledge to fix small problems e.g. change faucets
- Provide some stock of replacement for schools.

For water quality

- Water testing
- Filter developed and installed

For awareness building

- Education campaign (for school headmasters and staffers)

For further research

- NGOs need to do more than monitoring, but also to keep recording the data for further research

Limitations

· Lack of background data of schools before WASH intervention

· Limited time to visit more sites

· Short timeframe for the investigation

· Did not receive IRB approval to interview students

· Biased Translation

· Language of the Survey

· Evidence from direct dialogue with the Headmaster instead of users' experience

· Study could have been more powerful if it was a Randomized Controlled Trial (RTC)

Speakers**: Arsenic Team of UPENN Students** -Evaluation of Sustainability of Community Based Arsenic Removal System

Background knowledge of arsenic and related health implications

Study objectives

· Assess the sustainability of arsenic removal plants.

· Determine if there are certain indicators for success and sustainability.

Study methods

· Area: Districts of Nadia, and N.24 Parganas (Habra) in West Bengal

· Number of site: 14

· Method: survey for committee members and community members

· Studying Key points: governance, financial, technical, access/usage, social/community involvement

Research Findings

· Arsenic level of 14 sites

· More than 60% of the total sites have sustained funding, caretaker, good customer satisfaction, positive capacity building

· 2 of the 14 sites are ordering media within the recommended time frame of 6 months- 1 year

· 2 of the 14 sites have a plan for breakage

· 43% of sites do not have programs, events or other health related activities available to the public

· 10 of the 14 sites do not have annual training on the importance of clean water

· Equal ratio of male and female committee members is not adequate

Study limitations

Reporting bias, recall bias, translation error, inability to verify verbal reports and time constraints

Recommendations

For NGOs

- Test filters (influent and effluent)
- Determine if there are guidelines for sustainability and if they are necessary for all sites
- Periodic follow-ups

For water board committee

- Establish routine community health events to increase awareness
- Maintain records of arsenic and filter changes for better planning or media replacements
- Ensure full time caretaker.

For both NGO and committee

- Broadening partnerships to schools

- Maintain records for reference
- Determine future feasibility of plants to support agricultural

SESSION G: **Beneficiaries Speak, Experts Listen**

Chairperson**: Dr. Anirban Gupta,** Professor, Indian Institute of Engineering Science and Technology (IIEST)

In this session, one high school headmaster and where a school WASH system has been installed and one community member who has been benefitted from installation of Arsenic Remediation plant, spoke about their respective benefits. Dr. Gupta introduced the topic and the speakers.

Speaker: **Santanu Gayen, Head Master**, Dhablat Laxman Parabash High School – Issues of School WASH Sustainability- Beneficiary Perspective

The school did not have any proper sanitation and fresh water to wash their hands after using toilet. There was high absentee rate. Girls used to suffer during menstruation. Sabuj Sangha, a local NGO with funding from the Deb Family Charitable Trust installed a WASH system to provide support to solve these chronic problems through the WASH initiate.

Background: The school was established in 1989 and has 2227 students (1105 boys and 1122 girls). There are 50 teachers (Male 36 and female 14).

In addition to arts and science streams, the school also has vocational education stream (home nursing, tailoring and mobile repair). The school also has students hostel facility for boys and girls.

Without any school WASH system, absenteeism among students was high due to sickness.

Process of interventions:

- Sabuj Sangha was requested by the school to construct new sanitary blocks
- Meeting with all stakeholders
- Developed technical frame and cost estimate for the WASH Project
- Distribution of responsibilities
- Tracking of collection and material purchase

In the new WASH system the following facilities were installed:

- New toilets were created
- Installation of tube well held
- Running water with overhead reservoir
- Change room for girls

- Drinking water stations
- Hand wash stations
- In addition, special arrangement was made for physically challenged students

For sustainability of the WASH system, a WATSAN Committee with two teachers and students was formed to properly maintaining the system. Regular awareness meetings on hygiene promotion are conducted.

Results:

- Attendance of students particularly girls has been increased
- Teachers started to visit student homes to discuss WASH with the guardians.
- Students keep school premises clean
- Most of the neighborhood families constructed household toilets
- Improvements of hygiene behavior among students and families
- Balance on WATSAN committee account as of October 2016 is Rs 26,660
- A log book has been in place for keeping logs of all maintenance and infrastructure improvement works.
- The school host awareness rally, have hygiene messages across campus and celebrate handwashing day.
- WATSAN Committee meetings proceedings are recorded and maintained.

Speaker 2: **Samir Ranjan Datta,** Member, Water Committee Arsenic Removal Unit, Kayadanga, North 24 Parganas: Community Arsenic Remediation-Benefits and Issues

Introduction:

-Asoknagar Kalyangarh is an Arsenic Prone Area

- Presence of Arsenic in ground water in this locality was detected by Dr. sadhan Sen in 1995

- Kayadanga Amal Filter was installed on 24 January 2005

- Water Committee was formed

Benefits - Social and Financial

Social Benefits

- Scarcity of drinking water throughout the globe

- Restraining from misusing

- Adverse effect of consuming arsenic contaminated water

- Protect Community from Arsenicosis

- Ensure availability of arsenic free safe water.

User families - 250 to 553 in 2016

Financial Benefits

- Accessibility of arsenic free water for a small contribution

-Employment generation - Care Taker and vender

- Financial sustainability of water committee

- Utilization of surplus funds of upgrading the plant motorized

Fund Status

- In 2011- Rs 64,800, and in 2015- Rs. 243,373

Roles and responsibilities of Water committee

- monitoring the caretaker

-Regular back WASH and maintenance

-Water testing

-Monthly tariff collection

-Satisfy beneficiaries

-Presentation of account at the annual general meeting

Q&A

Arsenic mitigation- **Q.** What is the population of the area? Have you ever thought of rain water harvesting and pond water to help with water supply during summer periods? **A.** Currently, 553 user families collecting water from the arsenic treatment system. Not at present, possibility of government taking up rainwater harvesting.

Q. Do you have plans to increase women involved? Women have more of a voice, possibly indirectly influence other issues. How do you see women being involved? **A.** Trying to include more women, but this is voluntary. Most people are retired.

Q. Drinking water sometimes badly misused? **A.** Not here. All beneficiaries use water judiciously.

Q. How do you dispose of contaminated alumina? **A.** There is a protocol detailing how to stabilize arsenic waste and is conducted by IIEST.

School WASH System Project

Q. What has been your experience with the use of the incinerator**? A**. Adolescent girls use this very effectively.

Q. Are toilets built with any participation of the community or government? **A.** All stakeholders including the community and government participate.

Q. How do you manage the sanitation of the sanitary block? A. WATSAN Committee raises fund and manages the WASH system

Q. How have you been able to raise funds? **A**. WATSAN Committee of the school raises fund and also manages the fund.

Q. What health benefits were obtained by the community as a result of the installation of Arsenic Removal System? **A**. Gastro-intestinal diseases such as formation of gas, diarrheal and other digestive problems were reduced significantly.

SESSION H: **Other Topics Related to WASH**

Session Chairperson**: Ed Grusheski,** Board Member, Global Water Alliance

Speaker 1: **Dr. DN Guha Mazumder,** Director, DNGM Research Foundation: Health Impacts on Community of Arsenic Mitigation Program – A Case Study in Malda, West Bengal

A study is an epidemiological study for identification of arsenicosis cases and economic issues related to arsenecosis. This study included 4575 villagers in 1713 households in 7 blocks in Malda District and sought to discover how the problem of arsenic has evolved in India and its impact on these communities. Out of 4575 villagers studied in arsenic impacted areas, 422 (9.22%) cases of arsenecosis , 53 (12.3%) cases of suspected Bowens Disease (skin malignant) and 7 cases of (1.9%) of suspected skin cancer have been detected. Out of 1414 water samples collected from home tube wells 60.40% of samples have been found arsenic concentrations of more than 0.05 mg/L.

Results found that medical professionals were not adequately trained to identify advanced stages of cancer due to arsenic exposure.

Speaker: **Dr. Kyana Young** , Post-Doctoral Fellow, Marquette University, Milwaukee, USA **–** Advanced Oxidation as a Water Treatment Technology for Rural Areas

Since late 2015, several cases of Elizabethkingia bacteria contamination outbreak occurred in the United States. There have been 63 confirmed cases and 18 confirmed deaths associated with this bacteria. It was imperative the need for better understanding of how to effectively inactivate this bacteria.

This project discusses the effectiveness of various disinfection methods in various dosages and contact times to inactivate Elizabethkingia. This study also evaluated the need for better participation of women in engineering.

Speaker**: Dr. Akramul Islam –** BRAC WASH Program, Bangladesh – Water Entrepreneurship in a Coastal Sub District of Bangladesh – A Pilot BRAC WASH Program

This study conducted a research on the water interventions in coastal areas. The objectives of the study were to provide safe water in areas of high arsenic and saline. Identify the most cost effective methods, and sustainable drinking water options. The

study looked at various methods of water supply (ponds and piped water). 38 pond which supplied 100 households, and 5 piped water supplies which supplied 100-600 households. The study was active for 1.5 years beginning 11/2014, and assisted by BRAC. Results showed 64-73% increase coverage from 2013-2015 reaching ~24,000 people.

Speaker: **Amal Sarkar, Chief of News Bureau, Ei Samay** The Roles of Media in Implementing UN WASH Goals

Media plays an essential role in educating the public on issues of concerns. In India media did not play a proper role to help reaching the goal to make India open defecation free. However, with the advancement of communication technology, there has been a susceptible change in the public awareness level.

Information is a key component of empowerment. Clean potable water can be a reason for warfare. Open defecation is at the cost of dignity and due to lack of clean potable water. Women are at risk for gender violence and sexual assault as they have to sneak out in the night to relieve themselves, where predators may be lurking. The government should be held more responsible for providing toilets and/or latrines in public businesses and households.

Q&A

Q. What are your suggestions to activists who don't have a voice?

A. Social media can be more impactful than traditional media (TV, radio, newspaper, etc.) Take on women's rights and increase government involvement.

Session I: Feed Back from Site Visits and Discussion

Chair Person: **Dr. Arun Deb**, Board Member, Global Water Alliance

Participants presented a feed- back from their site visits on 5-6 January, 2017. In summary participants mentioned about their learning experience during the project visits and they are impressed to seeing the projects running mostly in good condition. They also raised some issues that to be considered in the future. They thanked the organizers for conducting these all day site visits.

Concluding Remarks: **Dr. Anirban Gupta,** Secretary, GWA Organizing Committee

Professor Anirban Gupta summarized the conference and presented some high lights of the conference.

Vote of Thanks**: Mr. Syama P. Datta,** Member, GWA Conference Organizing Committee.

Mr. Syama P. Datta presented vote of thanks. He thanked enormously all the participants who came from abroad. He also thanked all to make the conference a successful conference.