



Environment

Water Community



Education Community

Solution Exchange for the Water Community **Solution Exchange the Education Community** **Consolidated Reply**

*Query: Technical Inputs for School WASH Programme
- Experiences; Referrals*

Compiled by Nitya Jacob, Resource Person and Ramya Gopalan and Sudakshina Mallick, Research Associates

Issue Date: 30 September 2008

From [Bhawna Vajpai](#), The Loomba Trust, New Delhi

Posted 7 July 2008

I work for the UK based Loomba Trust, committed to upgrading and constructing water supply, sanitation and hygiene facilities in schools under its WASH initiatives. We aim to work in 1,000 schools across India (rural areas and small towns) in collaboration with state governments.

The project employs a holistic integrated WatSan strategy that includes hardware and software components. Using a child-friendly approach, we will design, construct and maintain facilities that will be part of the learning environment, and are hygienic and safe. These will be later maintained by the schools in sustainable manner.

We are starting a pilot in selected schools in Punjab, and collaborating with the State Government. The key project components are:

- **Hardware components**
 - Construction of school toilets and urinals that are gender sensitive, including incinerators in girl's toilets, and address the needs of physically challenged children
 - Provision of effective water supply facilities, water conservation and reuse and hand washing facilities
 - Drainage, plantations, waste disposal, proper lighting, and ventilation
- **Software components**

- o Behavioural change that includes health and hygiene education plans
- o Formation and orientation of student sanitation clubs
- o School health check-up and de-worming camps
- o Training and capacity building for teachers

I am sure many organization/consultants are working on similar integrated WASH programmes. We would like to request the members of the Water and Education Communities to share their views and experiences on following:

- What is your experience with hardware components that may be added while designing such integrated WatSan models/system? Please give detailed information.
- Are there appropriate field tested technical designs for integrated water and sanitation models, with cost estimates, that can handle use by 200-500 children per day aged 5 to 17?
- Please provide the names and contact details for technical professionals/organizations with experience in designing and implementing a WASH programme. Also, please suggest resource persons with training experience on hardware and software aspects.

We will use the inputs from members to refine the design of our project and to prepare a database of technical expertise, who can provide technical support for our project. These will be shared with the community.

Responses were received, with thanks, from

1. [Mahendra Mishra](#), Government of Orissa, Bhubaneswar
 2. [Ratnakar Gedam](#), Planning Commission, New Delhi
 3. [Sukanya Subramanian](#), United Nations Children's Fund (UNICEF), Ranchi ([Response 1](#); [Response 2](#))
 4. [Shriniwas](#), BAIF Development Research Foundation, Pune ([Response 1](#); [Response 2](#))
 5. [Arti Gupta](#), PRAKRITI, Shimla
 6. [Abhishek Mendiratta](#), Consultant, New Delhi ([Response 1](#); [Response 2](#))
 7. [Kabir Vajpeyi](#), Vinyās, New Delhi
 8. [Anuradha](#), Prithvi Innovations, Lucknow
 9. [Johnson Rhenius Jeyaseelan](#), WaterAid India, Bhopal
 10. [Ravindra](#), Arghyam, Bangalore
 11. [M. Jahangir](#), Pakistan Water Network, Islamabad
 12. [Akhilesh Gautam](#), United Nations Children's Fund (UNICEF), Raipur
 13. [Sakshi Saini](#), The Vigyan Vijay Foundation, New Delhi
 14. [Gyanendra Mishra](#), UDAAN Society, Aligarh
 15. [Sarvesh Singh](#), Independent Consultant, Lucknow
 16. [Vijay Gawade](#), Independent Consultant, Pune
 17. [K. J. Sathya](#), Independent Consultant, Karnataka
 18. [Gopal Kumar Jain](#), Centre for Environment Education, New Delhi
 19. [Colin L. Yarham](#), Health Education and Promotion International Inc., Chennai
 20. [Satyendra Singh](#), Consultant, Madhya Pradesh
 21. [Michael Lipman](#), South Asia Pure Water Initiative, Inc., Hamden, Connecticut, USA
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Further contributions are welcome!

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Summary of Responses

The discussion highlighted the importance of community participation while designing integrated school WatSan models. Several experiences and lessons substantiated the administrative achievability of involving schools, communities and local people. They also demonstrated the technical viability and sustainability and highlighted the significance of participative processes. They emphasised the need for training and education in hygiene as being central to a successful school WASH programme. Members provided details of professionals and organizations with experience in designing and implementing school WASH programmes.

Members provided details of holistically designed programmes, with highly replicable strategies. An example is the Swasthh and Swasthh Plus project launched in [Karnataka and Jharkhand](#) that built hygiene concepts and practices into the regular school routine. It was successful as it took the community into confidence and made teachers look at the curriculum differently. In fact, training teachers and students on hygiene and toilet maintenance encouraged them to use and maintain the facilities better. Monitoring students' hygiene would also create demand for toilets.

Total sanitation for schools and students of government schools is easy to achieve because the Sarva Shikha Abhiyan (SSA) includes the construction of separate toilets for girls and boys under civil work. Though [Total Sanitation Campaign](#) is demand driven, community based toilets remain problematic. The poor who cannot afford individual toilets despite the incentive under TSC require closed-door flush toilets. Community toilets have a common entrance for men and women or a common wall between the male and female sections. This discourages women from using the toilets when men are around, and is risky at night. The cost of construction of toilets in small houses under IAY exceeds the subsidy paid, and members suggested there is a need to enhance it and revise it from time to time.

Vinyās Centre for Architectural Research and Design based in New Delhi has published a document called An Inclusive Approach for School Sanitation and Hygiene Education: Strategy, Norms and Design. This reviews and evaluates existing school toilet designs from several Indian states, evolving strategies at the level of policy, planning and implementation. It has a comprehensive set of revised design norms with focus on inclusiveness and gender sensitivity, good practices, design guiding principles. It has a pool of 16 new generic designs suitable for a varied set of geo-climatic situations, design selection tools, relevant child-centered anthropometric data for SSHE, comprehensive estimating and costing of designs, etc.

WaterAid India in [Uttar Pradesh](#) has designs for schools with up to 300 students where rainwater is collected, stored and used for the toilets through force-lift pumps. The model incorporates an incinerator to dispose off sanitary napkins. They have found involving parents in running the school helped select appropriate pumps, siting and maintenance.

Members said the designs should address different school sizes (strength of boys and girls), site-specific situations and orientations, needs (if there are already existing toilets, etc.) in India. There is a need to look at the expandable design options because under SSA, several schools will be expanded in the near future. Several such designs are available under TSC, as are other designs for places where water is scarce.

Regarding the cost and siting of toilets, members felt the average cost per toilet block should not exceed the Rs. 20,000 limit prescribed under the TSC guidelines. Separate toilets for girls and boys should be constructed for co-educational schools. The toilets and leach pits should be at least 10 m from the drinking water source, be it a well or hand pump, of the school or Anganwadi. The number of urinals or latrines should be in conformity with the number of boys and girls in the school.

The members said hygiene and sanitation facilities must be simple enough for the school authorities and students to maintain. This will ensure that they remain in use. Facilities for hand washing and cleansing must be designed, placed and integrated into the entire package of facilities. There should be enough water for cleaning and washing hand. While constructing soak pits, the masonry of the wall should have holes 2.5-5 cm in diameter to let the water and gases seep into the walls. Urinals must be covered with sheets of either iron, plastic or tiles to protect against the weather and keep the toilet clean.

The discussion highlighted the importance of both the software and hardware in a school WASH programme. TSC has a good selection of technologies and methodologies that can be adapted from different regions, as well as financial resources under the Campaign and SSA.

Comparative Experiences

Karnataka

Rainwater Harvesting through Bio-Sand Water Filters, Kolar (from [Michael Lipman](#), South Asia Pure Water Initiative, Inc., USA)

Bio-sand filters manufactured and distributed in rural districts. The filter removed contaminants from harvested rainwater, making it potable for children by removing the fluoride. The filters are low-cost and made of local materials, last between 25-30 years, do not require electricity or chemicals and are virtually maintenance free. Village schools that have rainwater-harvesting systems to deal with the problem of debris accumulation are now using these filters. Read [more](#).

Rain Water Harvesting Program in Model Schools (from [Ravindra](#), Arghyam, Bangalore)

Arghyam implements rain water-harvesting program in 23,683 rural government schools. The activities in the schools include installation of rain gauge meters and conducting awareness campaigns on water, sanitation, health and hygiene for village members and school authorities. These efforts have resulted in the increased availability of potable drinking water for students and staff in these schools. Read [more](#).

Gujarat

Creating Sustainable Livelihood Through Rural Sanitation (from [Shriniwas](#), BAIF Development Research Foundation, Pune; [response 1](#))

BAIF Development Research Foundation constructed toilets and bathrooms through the Total Sanitation Campaign. It has also launched a massive watershed development programme in selected villages of benefiting 3,665 families. The strategy seeks to elicit the participation of marginalized communities in planning and implementation. Because of these activities, there has been a significant impact on crop yields, the water table has risen significantly and now drinking water is available year round. Read [more](#).

Uttar Pradesh

School Hygiene and Health Promotion in Schools, Lalitpur (from [Johnson Rhenius Jeyaseelan](#), WaterAid India (WAI), Bhopal)

Water Aid India, in partnership with Sambhav Social Service Organization has worked in 20 schools in to disseminate messages on health and hygiene promotion among teachers and students and ensure there are adequate water and sanitation facilities in all schools. The project focussed on software and hardware activities in water and sanitation. This has resulted in the availability of safe drinking water in the schools and restoration of hand pumps. Read [more](#)

Karnataka and Jharkhand

School Water and Sanitation Towards Hygiene and Health to Improve School Facilities (from [Sukanya Subramanian](#), UNICEF, Ranchi; [response 1](#))

In 2004-05, UNICEF and USAID started a programme in more than 5,500 public schools. The objective was to ensure enrollment by providing facilities for rainwater harvesting, cleaning kits for maintaining toilet sand and incorporating practical aspects of health, hygiene and environment education into classroom practices. These efforts have led to higher attendance rates, particularly among girl students, and made the school environments safer and more hygienic. Read [more](#).

New Delhi

Water and Sanitation in Schools and in the Community, (from [Sakshi Saini](#), The Vigyan Vijay Foundation, New Delh)

Organization motivates the school, staff and students to perform activities for better environment like plantation of trees in schools, composting school waste and awareness on water-conservation etc. It has constructed rain water harvesting structures in schools and colleges and has also implemented waste-water treatment plants. The processed water is supplied to irrigate parks, gardens and lawns. Schools have adopted this model of sustainable intervention. Read [more](#).

From [Ratnakar Gedam](#), Planning Commission, New Delhi

All India

Rural Sanitation Campaign for Better Sanitation in Schools

The Central Rural Sanitation Programme (CRSP) was launched in 1986 primarily to improve the quality of life of rural people by providing them with proper sanitation. CRSP used a 'demand' driven approach that attempted to accelerate sanitation coverage in rural areas. It tried to bring about relevant behavioural changes for improved sanitation and hygiene practices. Children learned how to use toilets in school and teachers became oriented to impart sanitation education to them. Read [more](#)

Sanitation Program in Rural Schools

Sulabh has taken up a rural sanitation programme in 350 districts across the country. It has initiated a programme to get toilets constructed in schools so that children do not drop out. Teachers and students are also taught how to keep the toilets clean. It educates the community on sanitation standards and the adverse health impact of unsanitary conditions. Sulabh's efforts have resulted in better sanitation facilities in schools and greater awareness within the community on the importance of sanitation. Read [more](#)

Related Resources

Recommended Contacts and Experts

Deoranjana Kumar Singh, State Project Officer, Orissa Primary Education Programme Authority, Bhubaneswar (from [Mahendra Mishra](#), Government of Orissa, Bhubaneswar)

Siksha Soudha, Unit V Bhubaneswar Orissa; Tel: 91-674-2393981 ; info@opepa.in ;
<http://www.opepa.in/managementStru.asp?glink=GL013&plink=PL084&selPlink=PL084#tel>

Vice-Chairman of Bhubaneswar Development Authority who works with using local languages and knowledge to generate awareness on water use.

Recommended Organizations and Programmes

The Loomba Trust, New Delhi (from [Bhawna Vajpai](#), The Loomba Trust, New Delhi)

Suite No. 14, 31, Prithviraj Road, New Delhi 110011;
Tel: 91-11-24636832; Fax: 91-11-24634310; info@theloombatrust.org;
<http://www.theloombatrust.org/stateprograms.php#india>

Charitable trust established in 1997 to educate poor children in 29 states, working on improving sanitation and hygiene facilities in schools, including education on WaSH.

United Nations Children's Fund (UNICEF), New Delhi (from [Sukanya Subramanian](#); [response 1](#) and [Akhilesh Gautam](#))

73 Lodi Estate, New Delhi 110003;
Tel: 91-11-24690401; Fax: 91-11-24627521; newdelhi@unicef.org; <http://www.unicef.org/wes/>
Working with the government and other partners to ensure the effectiveness and sustainability of water, sanitation and hygiene (WASH) programmes targeted towards children.

South Asia Pure Water Initiative, Inc, United States (from [Michael Lipman](#))

2832 Whitney Ave. Hamden, CT 06518 USA; Tel: 203-281-0747; info@SAPWII.org;
http://www.sapwii.org/bio_sand_filters.html
Organization manufacturing low cost Bio-Sand Water Filters with local materials that purify water and improve the quality of water can be used in WatSan models/system.

From [Ravindra](#), Arghyam, Bangalore

Arghyam Trust, Bangalore

2nd Floor, 840, 5th Main, Indiranagar 1st stage, Bangalore Karnataka; Tel: 91-080-41698941;
Fax: 91-080-41698943; info@arghyam.org; <http://arghyam.org/content/view/63/92/>
Organization implements rainwater harvesting program in 23,683 government schools of Karnataka and undertakes awareness campaigns on water, sanitation and hygiene.

School Sanitation and Hygiene Education, New Delhi

Office of Joint Secretary, Department of Drinking Water Supply (Rajiv Gandhi National Drinking Water Mission), Ministry of Rural development, Govt. of India, 9th Floor, Paryavarn Bhawan, CGO Complex, Lodhi Road, New Delhi 110003; Tel: 91-11-24361043; Fax: 91-11-24364113;
jstm@water.nic.in; <http://ddws.nic.in/ssheindex.htm>

Comprehensive programme to ensure child friendly water supply, toilet and hand washing facilities in the schools and promote behavioural change through hygiene education

Water, Sanitation and Hygiene Programme, New Delhi

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

Programme led by UNICEF to improve the health of school-aged children by highlighting the need for hygiene promotion, sanitation and hand-washing facilities in schools.

From [Abhishek Mendiratta](#), Independent Consultant, New Delhi; [response 2](#)

Nirmal Gram Nirman Kendra, Maharashtra

Govardhan, P. O. Gangapur Via Nashik 422222 Maharashtra; Tel: 91-253-2231598;

nirmalgram@rediffmail.com;

http://www.sankalpindia.org/projects_files/project_nirmal_gram_nirman_kendra.htm

Organization founded in 1983 for environmental sanitation, promoting correct sanitary habits, creating awareness programs to educate adults and children to adopt sanitary interventions.

Centre for Environment Education (CEE), Ahmedabad (from [Anuradha Gupta](#), Prithvi Innovations, Lucknow and [Gopal Kumar Jain](#))

Nehru Foundation for Development, Thaltej Tekra, Ahmedabad 380054 Gujarat; Tel: 91-79-26858002; Fax: 91-79-26858010; cee@ceeindia.org;

http://www.ceeindia.org/cee/water_san.htm

Organization conducted educational training programmes on water related health, sanitation issues and also designed low-cost toilets for villages.

Prithvi Innovations, Lucknow (from [Anuradha Gupta](#))

421, IIM Residential Campus, Prabandh Nagar, Off Sitapur Road, Lucknow - 226013; Tel: 91-0522-2734083; prithvinnovations@hotmail.com; Contact Anuradha Gupta; Founder Secretary;

Conducted training, awareness workshops, health camps in primary government schools on water, sanitation and hygiene and creates awareness on water conservation.

From [Johnson Rhenius Jeyaseelan](#), WaterAid India (WAI), Bhopal

WaterAid India (WAI), New Delhi

1st fl., Nursery School Building, C-3, Nelson Mandela Marg, Vasant Kunj, New Delhi 110070; Tel: 91-11-46084400; wateraid@wateraid.org;

http://www.wateraid.org/international/what_we_do/where_we_work/india/6457.asp

Organization conducts hygiene promotion classes in schools and facilitates access to safe water, sanitation and hygiene education

Sambhav Social Service Organization (SSSO), Gwalior

Gargi House, 93-A, Balwant Nagar, Gwalior 474002 Uttar Pradesh; sambhavngo@gmail.com;

<http://www.sambhavindia.org/Pages/shse.html>

Organization works on poverty reduction through water, hygiene and sanitation promotion and education and is trying to secure adequate water and sanitation facilities in 20 Lalitpur schools.

SWASTHH Plus Project, New Delhi (from [Sukanya Subramanian](#), UNICEF, Ranchi; [response 1](#))

American Embassy, Chanakypuri, New Delhi 110021; Tel: 91-11-2419-8000; Fax: 91-11-2419-8454; http://www.usaid.gov/in/our_work/activities/OSD/edu_swasthh.htm

Project promoting water and sanitation to improve health and hygiene of schoolchildren in Jharkhand, directly involves teachers and students to create a sense of ownership

From [Ratnakar Gedam](#), Planning Commission, New Delhi

Sulabh International Social Service Organization, New Delhi

Sulabh Gram, Mahavir Enclave Palam-Dabri Road, New Delhi 110045; Tel: 91-11-25031518; Fax: 91-11-25034014; sulabh1@nde.vsnl.net.in;
http://www.sulabhinternational.org/sm/areas_major_initiative.php

Organization promoting sanitation and prevention of environmental pollution by constructing household and community toilets and educating children and adults on good sanitary practices

Total Sanitation Campaign (TSC), New Delhi

Ministry of Rural Development, Department of Drinking Water, 247, A Wing, Nirman Bhawan, New Delhi 110011; Tel: 91-11-23010207; <http://ddws.nic.in/NewTSCGuideline.doc> (Doc, Size: 468 KB)

Central government programme launched in 1986 to increase awareness on sanitation among rural people and achieve improved sanitation and hygiene practices in schools.

Indira Awaas Yojana (IAY), New Delhi

Ministry of Rural Development, Department of Rural Development, Krishi Bhawan, New Delhi 110001; Tel: 91-11-23010207; <http://www.ruraldev.gujarat.gov.in/pdfs/iay-guidelines.doc> (Doc, Size: 102 KB);

Contact Amita Sharma; Joint Secretary; Tel: 91-11-23385027; amita712@yahoo.co.uk

Flagship government scheme to provide sanitary toilets in the houses of the poor and in schools in rural areas and ensure an adequate drinking water supply

From Shriniwas, BAIF Development Research Foundation, Pune; [response 1](#)

Bharatiya Agro Industries Foundation (BAIF) Development Research Foundation, Pune

Dr. Manibhai Desai Nagar, Warje, Pune 411058 Maharashtra; Tel: 91-20-25231661; Fax: 91-20-25231662 baif@vsnl.com; http://www.baif.org.in/asp_x_pages/prog_water_rec.asp; Contact: Dr. Shailesh Despande; Dr_Deshpande@baif.org.in

Working towards ensuring sustainable livelihoods and rural sanitation by constructing toilets, bathrooms and undertakes projects on water, health and sanitation, including educating children

Water and Sanitation Management Organization, Gujarat

3rd Floor, Jalsewa Bhavan, Sector 10-A, Gandhinagar 382010 Gujarat; Tel: 91-079-23247170; Fax: 91-079-23247485; wasm@wasm.org; <http://www.wasm.org/eng/programmes-drinking.shtm>

Organization established by the government of Gujarat in 2002 to help achieve drinking water security, habitat improvement and environmental sanitation including in schools.

Vigyan Vijay Foundation, New Delhi (from [Sakshi Saini](#))

C-3 A/126 C, Janakpuri, New Delhi 100058 ; <http://vigyanvijay.org/jaljagren.htm>; Contact Lipika Ahuja. Tel: 9810248197 ; lipika.ahuja@vigyanvijay.org

Organization implements rain water harvesting and waste water treatment plants in various educational institutions and residential blocks.

Unified Development Association for the Amelioration of Neglected (UDAAN), Aligarh (from [Gyanendra Mishra](#))

8/140, Raghuvir Puri, G.T.Road Aligarh- 202001, Uttar Pradesh; Tel: 91-91571-2513372.; udaansociety@gmail.com; <http://www.udaansociety.org/consultancy.html>; Contact Gyanendra Mishra. Name; President; Tel: 09412416805 ;

Organization works in the area of water and sanitation and provides training to PRIs, and education officials for the promotion of WASH activities in the schools.

Recommended Documentation

Dental Hygienic Survey Report (from [M. Jahangir](#), Pakistan Water Network, Islamabad)

Project Report; Society for Education and Development ; Pakistan; May,2008;

Available at <http://groups.google.com/group/drinking-water-pakistan/web/project-on-dental-hygiene-in-schools-pakistan>

Survey report of project on dental hygiene in schools that covers observations on weight, height and Body Mass Index of students from nursery to class four.

Watsan Principles and Practices in Communities and Schools (from [Sakshi Saini](#), The Vigyan Vijay Foundation, New Delhi)

Paper; by Sakshi Saini. Vigyan Vijay Foundation; New Delhi;

Available at http://www.solutionexchange-un.net.in/environment/cr/cr_res-07070801.doc (Doc 1.36MB)

Paper describes the water and sanitation conditions in a resettlement colony of Madanpur Khadar and suggests initiatives and advocacy campaigns that can be progressed.

From [Sudakshina Mallick](#), Research Associate

School Water and Sanitation Towards Health and Hygiene in India

Article; by M. Snel and K. Shordt; IRC International Water and Sanitation Centre; Sustainable Environmental Sanitation and Water Services; Kolkata; 2002

Available at <http://wedc.lboro.ac.uk/conferences/pdfs/28/Snel.pdf> (PDF Size: 82 KB)

Article discusses a school sanitation and hygiene programme in India and cites lessons learnt from previous experiences that could help to structure existing WASH programmes.

Meeting the MDG Drinking Water and Sanitation Target - The Urban and Rural Challenge of the Decade

Report; World Health Organization (WHO) and United Nations Children's Fund (UNICEF); Switzerland; 2006

Available at http://www.who.int/water_sanitation_health/monitoring/jmpfinal.pdf (PDF Size: 1.13 MB)

Provides country-wise estimates of drinking water and sanitation coverage in 2004 and identifies the challenges to meet the drinking water and sanitation targets, including WASH education.

Community Management of School Sanitation Programme - India

Article; by Abul Kalam, Akhilesh Gautam and Somnath Basu; WES, UNICEF; Water, Engineering and Development Centre ; Nigeria; 2003

Available at <http://wedc.lboro.ac.uk/conferences/pdfs/29/Kalam.pdf> (PDF Size: 676 KB)

Article describes a case study of the "Integrated WATSAN Programme" implemented by UNICEF in Orissa where 4,000 schools established community-based school sanitation packages.

Related Consolidated Replies

Developing Learning Material on WaSH for School Children, from Sarita Thakore, Centre for Environment Education (CEE), Ahmedabad (Experiences).

Issued 19 June 2008. Available at http://www.solutionexchange-un.net.in/environment/cr/cr_sew-es-ed-27050801.pdf (PDF,130 KB)

Presents members suggestions on contents as well as teaching methodologies to engage students, sharing insights and guidance based on their experiences in developing learning material for schoolchildren on WaSH

Role of Children in Spreading Water and Sanitation Awareness, from Gyanendra Mishra, UDAAN, Aligarh (Experiences).

Issued 14 May 2007 . Available at <http://www.solutionexchange-un.net.in/environment/cr/cr-se-wes-ed-19040701.htm> (HTML,249 KB)

Provides experiences from across the country as well as tools and techniques in involving children in spreading water and sanitation (watsan) awareness.

Responses in Full

Ratnakar Gedam, Planning Commission, New Delhi

I am impressed about your views on hardware and software components. I recently visited Puducherry to review implementation of Central Sponsored Schemes (CSS) including the Total Sanitation Campaign (TSC). Total sanitation for schools/students of government schools is not much of a problem because under the Sarva Shikha Abhiyan (SSA) the construction of toilets for girls and boys is permitted under civil work. Further, students are amenable to discipline and adopt improvised sanitation practices irrespective of the situation in their homes.

Some of the houses that were constructed under Indira Awas Yojana (IAY) have toilets as the part of scheme. But several houses under IAY do not have toilets and this has created a demand for community toilets. It is noticed that though TSC is demand driven, the problems arise with community-based toilets. Though there is a demand from poor people to have closed-door flush toilets, community toilets have a common entrance for men and women or a common wall between the male and female sections. As a result, usage by women is almost nil due as they are embarrassed to use the toilets in the presence of men.

Further, usage during odd hours can be risky. Therefore, what is needed are separate community toilets complexes for men and women. Further, community toilets are built with government money, conferring the community with both rights to use the facilities as well as responsibilities on both the community and individual users.

The cost of construction of toilets in small houses under IAY goes beyond the limit prescribed, and therefore there is a need for enhancing the financial component. The cost of construction goes on increasing but government subsidy does not change as frequently.

Sulabh was the pioneer in the sanitation movement. Their experiences could be taken for evolving better toilets.

Sukanya Subramanian, United Nations Children's Fund (UNICEF), Ranchi (response 1)

The Swasthh and Swasthh Plus projects that UNICEF implemented with the Governments of Karnataka and Jharkhand will provide you with a lot of inputs for your programme. A whole lot of documents are available with UNICEF, Delhi in the Education section.

Swasthh Plus was a very holistically designed programme that threw up a slew of highly replicable strategies and the both the states where this was implemented have taken to scale several of these

strategies. The programme worked on building into the regular school routine the concept and active practicing of the health and hygiene habits. It took the community into confidence, made teachers look at the curriculum differently ... it was a life skills based approach to the entire transaction.

Maybe you would like to look at that programme.

Shriniwas, Bharatiya Agro Industries Foundation (BAIF) Development Research Foundation, Pune (response 1)

BAIF, DHRUVA, has done a lot of work in rural sanitation project. They did construction of toilets and bathrooms under total sanitation campaign. They are also part of WASMO project, which mainly deals with supply of drinking water. They have also expertise in roof water harvesting. They have a strong team which deals with health communication in Tribal blocks of Navsari, Dang district of Gujarat.

BAIF has very good work in Ashram schools also so you can contact Dr. Shailesh Despande - Dr. Deshpande@baif.org.in. At present, they are carrying out several projects related to water, health and sanitation in different states of India.

Arti Gupta, PRAKRITI, Shimla

In my experience, every new launch in any area starts with a lot of enthusiasm, but gradually when it comes to the institutions to carry forward the practice sustainability, is where the problem begins.

1. First and foremost is focus on the training and capacity building of teachers, but do also keep in mind the teachers get transferred after a period of time and then who takes charge. Make sure its an overall initiative, where students are equally responsible, as well as class four workers be it peons or sweepers.
 2. Keeping in mind that water is an asset hopefully rainwater harvesting can also be introduced. Where the wastewater from hand washing can be redirected to a nearby kitchen garden /nursery that is taken care of by a school club.
 3. Garbage can be easily converted into compost,(given the weather conditions of Punjab)which again can be another by a school group.
 4. Every facility that is designed should be a Little away from the area where classes are conducted as it becomes a menace if not properly taken care of. With water overflowing toilets stinking.
 5. Only when the students take the responsibility and your sustainable model starts working effectively will it be able to sustain itself, but if you keep taking care and no responsibility is passed on, it is sure to die out.
-

Abhishek Mendiratta, Consultant, New Delhi (response 1)

I want to share indicators of effective SSHE programmes:

Presence and use of basic provisions

- Water, latrines, hand-washing facilities, soap or substitute present & reliable (available when needed)
- Absence of garbage piles around the school

Maintenance

- Latrines kept clean (only in the sense of excreta flushed away or closed off)

- Cleaning tasks properly planned, carried out and controlled, without discrimination

Education

- Health education part of the school programme
- Education can be practiced (facilities available and can be used)
- Health education addresses local risky practices such as fertilizing home gardens with night soil
- Low/no cost participatory materials/methods present and in use (can be demonstrated)

Hygiene practices

- Latrines used hygienically by boys and girls (and teachers?)
- No open defecation in the environment of the schools (e.g. in nearby caves)
- Children can demonstrate/explain proper hand-washing methods (with soap or otherwise) & times

Participation

- Local organizations (school health committees, school health clubs) are formed and operational
- They represent all groups, are trained, achieve measurable results and continue to function
- Those using and managing the facilities have informed choices on options and can adjust designs
- Operation, maintenance and financing are planned together and upfront
- Teachers and technicians use participatory methods skilfully and creatively – not mechanically
- Participation is gender and poverty sensitive and equitable

Institutional aspects

- A range of actors solve problems together, pooling their interest areas, mandates and resources
- Funds and decision making are sufficiently decentralized for local planning and implementation
- All SSHE practitioners (educational and technical) are trained in participatory approaches
- No parallel (separate) infrastructure projects: joint decisions, education & teamwork are included
- Curricula, task descriptions and training of teachers include participatory SSHE
- Monitoring is developed to know, adjust and account for inputs, results, impacts & costs
- Monitoring checks and takes action on conditions and practices, not just knowledge
- SSHE practitioners document & share lessons and build networks for exchange and influence
- Documentation and sharing of lessons include successes and failures, and analysis of reasons

Policy

- Presence of policies on SSHE in schools and districts/countries
- School/government policies/programs for SSHE reflect growing numbers of school going children.

Kabir Vajpeyi, Vinyās, New Delhi

Our organization, Vinyās Centre for Architectural Research and Design based in New Delhi in partnership with UNICEF India's Water Environment Sanitation (WES) section and Department of Drinking Water Supply under Ministry of Rural Development of Government of India is coming up with a very comprehensive document called *An Inclusive Approach For School Sanitation & Hygiene Education: Strategy, Norms & Design*.

This comprehensive national level document reviews and evaluates existing designs from several Indian states, evolving strategies at the level of policy, planning and implementation, comprehensive set of revised design norms with focus on inclusiveness and gender sensitivity, good practices, design guiding principles, a pool of 16 new generic designs suitable / adaptable for a varied set of geo-climatic situations which can be, design selection tools, relevant child-centred anthropometric data for SSHE, comprehensive estimating and costing of designs, etc.

It also attempts to sensitise the field level functionaries on appropriate orientation and location of toilets with in schools with supporting data for effective natural ventilation and solar passive design aspects. The

designs address different school sizes (strength of boys and girls), site-specific situations and orientations, needs (if there are already existing toilets, etc.) in India. It also looks at the expandable design options based on the fact that through Sarva Shiksha Abhiyan (SSA) several schools will get upgraded / expanded now and in future. We are hopeful that this will fulfill a gap in technical support that is so critically needed in implementation of SSHE.

The focus here is obviously on the 'hardware' side, but has very clearly established linkages with the software side of SSHE, including that of the school curriculum without which effective use of such an intervention is not possible. The document is almost ready and is in its final phase of designing / printing. It is supposed to be followed up with state-level design renewal workshops for region-specific designs. Hope this information will be useful to the interested members.

Anuradha, Prithvi Innovations, Lucknow

The project proposed by you is certainly very important. Though we have not directly worked in designing any such system but we have conducted some training, awareness workshops, health camps in primary government schools in Lucknow on water, sanitation and hygiene. All the inputs were very well received by the students but unfortunately the schools lack proper toilets and sanitation facilities.

We would be happy if you could take up some schools in Lucknow also. We could certainly help you in selecting the schools and organizing the training etc. (the software component) and for the hardware side we would suggest you could contact Centre for Environment Education, Ahmedabad or Lucknow as they have worked on some eco-friendly low-cost designs of toilets for villages.

Meanwhile we will also try to find out and get back to you at the earliest.

We would like to offer ourselves to conduct workshops etc., to educate and sensitize the student community on various issues related to the above subject.

We wish you all the best and would request you to keep us informed about the progress and of any possibilities of associating with you to take this project further in other places.

Johnson Rhenius Jeyaseelan, WaterAid India (WAI), Bhopal

School hygiene is an important programme in any WATSAN programme. WAI in partnership with SSSO has worked in 20 schools in Lalitpur as a pilot. The experience was very good, positive and encouraging and this can be adapted when you expand. I am giving the input based on the experiences.

The project focussed on software and hardware activities in water and sanitation.

Key Activities

- Base line, mid term and end term survey
- Organizing hygiene promotion classes at school level
- Formation of school committees
- Activating PTA
- Organizing events: competitions
- Trainings
 - Teachers
 - Students committees
 - Master trainers
 - Adolescent girls on menstrual hygiene
 - Staff

- Residential summer camps
- Formation of student federation
- Cultural events
- Meetings with PTA
- IEC Activities: Exhibition, Rally, Wall Painting, Wall Writing etc.
- House visit – children doing house visits for hygiene promotion
- Workshop for children on hygiene and sanitation
- Provisions for safe storage and consumption of drinking water at schools
- Identification and training of peer educators
- Special education of disabled children through special teachers
- Enrolment of drop out and new disabled children in schools
- Construction
 - Household toilets
 - School sanitation complexes
 - Force Lift Hand pump
 - New Water Sources
 - Soak pits
 - Kitchen gardens
 - Hand pump platform
 - Washing and bathing platforms
 - School gardens
 - Roof top water harvesting structures
 - Play Pump
- Repair and Restoration
 - Hand pump
 - Water Sources
 - School sanitation complexes
- Networking and Advocacy
 - Workshop on school hygiene at district and state level for the sharing of the outcomes of the project and advocating it for a larger spread
- Case studies, documentation and research

With regard to hardware more details are given below:

1. School sanitary block – The focus should be mostly on urinals as all schools mostly have toilets. The urinals should be according to students' strength. WAI has designs up to 300 children developed for SSB. Water facility inside SSB created through force lift HP and separate hand washing units kept outside the SSB. The PTA and school committee was responsible for maintenance and management of the SSB.
2. Force lift HP – this is a very useful simple technology where water from HP goes to a tank and from where it is distributed for drinking, latrines and urinals. A non returning valve is connected to HP.
3. Play pump - The entire technical specification of the force lift remains the same in the case of play pump, except for a see saw connected to the handle. Every time children play on the see saw the handle starts to move, passing water through the pipe line connected to the water tank. The water tank is further connected to the Toilet, Urinal and Hand Washing platform. To assure that the water does not flow back to the hand a NRV (Non Returning Valve) and Force Lift kit are used. Water quantity that has passed through the NRV once does not come back. The cost is Rs. 30,000 including forcelfit HP.
4. IWRM – Recharge structures were implemented like roof water harvesting through soak pit and abandoned HPs inside the school or HPs located close to the school
5. Incinerators – In Junior and high schools incinerators are important so that girls/women school teachers can dispose sanitary napkins without any problem. Though environment pollution is argued against this, the quantum of smoke produced or sanitary napkins burnt are comparatively less.

Involving parents in the running of the school has the great benefit of making the school central to the community. In Jairwara (SSSO Lalitpur), the PTA describes how they were involved in the project implementation in school:

- The members of the PTA were selected by the village elders and included women
- Role in constructing the force lift handpump system (seeking out the most economic suppliers) – PTA members went to local market and procured quotations, called for a PTA meeting and selected vendor and then purchased the needed spares and materials for force lift HP system and school sanitary block

Community contribution for the installation of hardware - PTA members discussed and funded the required 3000 Rupees community contribution to the pump and urinals. This has increased their ownership feeling among them The PTA members are very happy and proud as to how water and sanitation has brought difference to their school and the impact due to this are:

- As a group now feel empowered to approach officials with grievances and applications
- Had all noticed how hygiene practise have improved, e.g. the use of latrines and hand washing
- School attendance has gone up as a result of improved health

WAI has technical manual and a school hygiene manual for school hygiene programme. Partners like SSSO in Gwalior, GS in Mahoba can be contacted for input into technical designs and field visits can be done before intervention.

We can also help in technical aspects of the programme.

[Sukanya Subramanian](#), United Nations Children's Fund (UNICEF), Ranchi *(response 2)*

I do agree with [Arti](#). As mentioned earlier the Swasthh (School water & Sanitation Towards Health & Hygiene - Putting Lessons to Use) – the pilot programme taught us several lessons. The following were put to use in the Swasthh Plus For sustainability and ownership, which alone will enable a programme to go beyond the specified programme period:

- Train / capacity build all teachers of the schools (involve them in one way or the other in the programme so everyone feels they are part of it)
 - Train children directly in a camp mode so that it becomes a whole school
 - Group children. Give children responsibility (age appropriate) and
 - Assign teachers to different groups so that all are involved.
 - Ensure the government is with you.
 - Have some interesting form of training/workshop/orientation for the
 - School department officials.
 - Have inbuilt monitoring mechanisms so that what you do does not become a
 - Stand alone and "Extra work" for anyone.
-

[Ravindra](#), Arghyam, Bangalore

I am Ravindra working as a senior consultant for the Arghyam Trust, Bangalore, responsible for implementation of the rainwater-harvesting programme in 23,683 Government schools of Karnataka through the state Rural Development and Panchayat Raj Department. Apart from that, Arghyam has initiated a concept of developing model schools in 17 villages through local NGO partners.

I would like to suggest few more components for hardware and soft ware activities:

Hardware components:

- Construction of rainwater harvesting structure in schools
- Installation of rain gage meter and board in the school premises

- Construction of ground level water tank within the school building

Software Components:

- Orientation training to the School development Management committee
- Awareness campaign on water, sanitation, health & hygiene to the village community
- Wall wittings on key messages within the school and important places of the villages
- Exposure visit to successful model schools
- Handing over of the structure to the School Development Management committee
- Development of medicinal and aromatic plants

In my experience, the above components are very much essential for developing model schools in the state.

M. Jahangir, Pakistan Water Network, Islamabad

It is suggested that observations on dental hygiene (http://groups.google.com/group/drinking-water-pakistan/browse_thread/thread/e4b11df627688365) be made a part of this program. Dental upkeep and know-how is the gateway to human health, and unfortunately a neglected part of our school hygiene studies.

Observations on weight, height and BMI will give a good indication.

Correlation of above observations with attendance and grades may also be useful to look for.

We in Pakistan are planning one such project on green schools, which will also include every student planting, owning and taking care of a tree.

Akhilesh Gautam, United Nations Children's Fund (UNICEF), Raipur

The state level fine-tuning that you have referred in your email response is already on way to field level construction in the state of Chhattisgarh.

We are also trying out these inclusive designs in the part of Dantewada district for tribal ashram schools. I have scrutinized these designs with conclusion that these are several steps better than the ones constructed under Total Sanitation Campaign (TSC) in the country. Most useful aspect is the modular designs that offer possibility of further upgrade.

After about three months, we can report on the result of field level testing of the design.

Abhishek Mendiratta, Independent Consultant, New Delhi (response 2)

Gender divisions of responsibilities during design, construction, operation and maintenance including decision-making should be considered. However, following dimensions can be still determined while selecting appropriate toilet design:

- Height of seats.
- Height of urinals.
- Height of hand-washing facilities (taps, soap, etc. are reachable?).
- Distance between the footrests of squatting platforms.
- Height of doorknobs and locks.
- Height of steps and handrails of stairs.
- Weight of the doors.
- Strength needed to open taps, fetch water, etc.

- Diameter of the squatting hole (needs oftentimes also psychological considerations because of fear of falling through)

The toilet technologies and design options are:-

Pour flush toilet with single or two (lined or washing, drainage and garbage unlined) pit with rural pan Under this pit facilities in schools technology, the water and gas of the excreta gets absorbed through the pores of the leach pit and solid gets decomposed into manure. It is a desirable technology where contents of the pit are not visible due to water seal. It needs water for flushing but with the use of rural pan the consumption of the can be minimized.

Ventilated improved pit latrine (VIP): VIP is more suitable for water scarce area where people do not use water for flushing. In this technology, solid excreta directly gets deposited in the pit and gas get evaporated through pipe

Keeping these technological options in mind, several indicative design options for Anganwadis and schools have been developed. Though, ideally active involvement of the users is essential not only during assessment but also during the design process. Whole design process will be a participatory learning experience when children, teachers, parents and community members are given the opportunity to determine their own needs, discuss possible solutions and set up operations and management systems. Indeed, there are some norms related to cost, design and construction

There are many other designs, which is published by GoI manual available in different languages.

Norms on cost, design and construction

- The average cost per toilet block should not exceed the limit of Rs. 20,000/- as per the TSC guidelines. If it exceeds, that may be met by the State Govt./District /PTA/PRIs.
- For co-ed schools, separate toilets for girls and boys should be constructed
- No septic tank but leach pit should be used.
- The site selected for the toilet complex and leach pits should be kept at a distance more than 10.0 meters from the drinking water well or the hand pump of the school or Anganwadi.
- Corner of the compound may be used to reduce the cost of the construction.
- The land should be able to absorb water so that waste water collected in the leach pit gets easily absorbed in the ground.
- Locally available material should be used as far as possible
- The no. of urinal or latrines should be in conformity with no. of boys and girls of the respective schools.
- Design should be locally acceptable and child friendly. It must be easy to use.
- Day lighting and ventilation of the facilities as well as fly control are also important aspects towards ensuring hygienic behavior.
- Hygiene and sanitation facilities must be simple enough to maintain, and facilities for hand washing and anal cleansing must be well designed, well placed and integrated into the entire package of facilities.
- Provision of sufficient water should be made for cleaning and hand washing.
- Necessary consumables like soap, cleaning powder, etc. to be replenished regularly
- Rural pan should be preferred as it consumes less of water and is cheap.
- Inside surfaces should be kept smooth.
- It is necessary to provide 2.5 to 5.0 cm size holes in the masonry of the soak-pit at the time of construction, so that water and gas collected get absorbed into the soil.
- Roofing over the urinal is desirable. The roof can be corrugated sheets, plastics or tiles. Roof will ensure protection against rain and sun. The roof should slope outwards.
- All surplus material after construction is to be removed and the site be cleared and dressed.

The names and contact details for technical professionals/organizations with experience in designing and implementing a WASH programme are:

Nirmal Gram Nirman Kendra, nirmalgram@rediffmail.com

Jupiter Knowledge Management and Innovative Concepts, Jupiterknow@gmail.com

Sakshi Saini, The Vigyan Vijay Foundation, New Delhi

I introduce myself as Sakshi Saini working as a Project Associate for the past 2 years with The Vigyan Vijay Foundation, New Delhi. Our team has implemented several Rain Water Harvesting and Waste Water Treatment plants in various educational institutions and residential blocks.

I would like to give some details of the waste and water management- Watsan principles and practices that could be implemented and progressed by and at the communities, especially educational institutions- "cradle of the society". Details given in this attachment,

http://www.solutionexchange-un.net.in/environment/cr/cr_res-07070801.doc (Size: 1.4 MB)

Basic inferences and some experiences during our working in varied projects have been furnished. All these noting would help assist Program Coordinators to evolve do-able strategies, and definitely, site-specific adjustments can be done to achieve the desired results.

Our project team has the competence to guide lower-level grass root workers and also will be able to train teachers and youth volunteers on the various aspects. Our NGO would be able to assist in formulation of checklists, questionnaires, initiate pilot-plans and evolve a strategy for the holistic program with reviews, and stage-wise action- plans for the intended school WASH programme.

Shriniwas, Bharatiya Agro Industries Foundation (BAIF) Development Research Foundation, Pune (response 2)

BAIF works in tribal areas of India and also for economically backward areas of India. We are interested in carrying out a project basically related with women's health and drudgery. It is a serious problem in tribal people and poor women in India. Anemic condition of women is serious in tribal areas and thus relates health problems are common among women and girl child.

At present, we are doing lot of work regarding health along with other developmental activities but to address health problems a focus is necessary. Is it possible to carry out project s in our south Gujarat's tribal area and some part of Maharashtra also. Our other developmental projects along with this health project will definitely be useful to community.

In Ashram schools of this area, sanitation is very poor. Basically girl children do not have proper bathrooms and toilets so they are facing problem. If possible, help us in this regard also. We are ready to submit a detail proposal in this regard.

We have very good contacts with this area and have staff located in the area. Please guide us in this regard.

Gyanendra Mishra, UDAAN Society, Aligarh

We are working in Aligarh UP in the area of water and Sanitation. Our expertise includes training to PRIs, Motivators, department of ICDS, Health, education and other stakeholders for the promotion of WASH activities in the schools, Anganwadi centre, village and community as a whole. Our activities include software as well as hardware component.

Our organization has experience of promoting Force lift hand pumps in schools of Uttar Pradesh and Rajasthan. For details, feel free to contact.

Sarvesh Singh, Independent Consultant, Lucknow

In reference to your query, there are few suggestions, which can be incorporated while designing the WASH programme.

1. Make provision of running water supply in school toilet
2. For inculcating practical hygiene education provision of hand washing facility be introduced. If schools are providing mid-day meals then additional facilities, in sufficient number be provided outside toilet block
3. Provide ceramic tiles on floors and walls (up to 3 feet at least) so that it cannot smell and is easier to maintain and clean
4. Monitoring of personal hygiene behaviour in regular curriculum of school

These suggestions are successfully implemented in Uttar Pradesh under Total Sanitation Campaign.

Vijay Gawade, Independent Consultant, Pune

I introduce myself as development professional working in WATSAN sector for the last 19 years with government, bilateral donor (DFID) and UNICEF. As you know, UNICEF's flagship programme in WATSAN sector is SSHE - School Sanitation and Hygiene Education and I have extensively worked (while working with UNICEF) in Karnataka and Andhra Pradesh on SSHE Issues including bringing hygiene behavioural change among children through capacity building, designing child friendly facilities, sustained use of watsan facilities in schools and lastly but importantly, involving SSA and Engineering departments together.

The SSHE Programme was implemented by UNICEF in over 1,000 schools across a number of Districts in both the States including tribal schools. I was also involved in SWASTH PLUS programme implemented in Karnataka.

I am no longer with UNICEF now but working in Pune as Freelancer. If needed, I am available for providing technical inputs on the SSHE Programme planned in Punjab. I look forward for my continued association with SSHE Programme.

K. J. Sathya, Independent Consultant, Karnataka

Query 1: Urinals for the girl students of age 10 and above should preferably have doors. The usage of word preferably means, the design can be modified according to the local situation.

Query 2: The type designs available now can be used as the basic design and the school specific designs can be developed at the local level. Consultations with children, teachers, parents, elected representatives provide valuable inputs for functional, need based, locally suitable designs. This exercise will also help in greater involvement and ownership of the stakeholders. This has been our experience.

Query 3: My contact details - ki.satya@gmail.com, phone - 9740154913

Gopal Kumar Jain, Centre for Environment Education (CEE), New Delhi

This is with reference to your mail regarding the School WASH Programmes.

Would like to inform you that we at Centre for Environment Education has closely worked for the School WASH programmes with support from WASH Secretariat as well as UNICEF in States such as Gujarat and Karnataka. The focus in Gujarat was both software as well as hardware and in Karnataka is mainly software.

Also, with support from UNICEF, we had involved NSS students and NYK volunteers at experimental level in 5 states focussing three districts per state, with five NSS units working per district during their 10-day NSS camps. There are number of lessons from this programme as well.

Thus, please let us know if you need any support/ input from us.

Colin L. Yarham, Health Education and Promotion International Inc., Chennai

Our team has been absolutely delighted to read of the positive and practical suggestions put forward by each of the contributors to the discussions on much needed improvement on provision of better infrastructure in schools in various parts of India. We have learned a great deal from the suggestions.

It is suggested that all of this work will be further improved by the introduction of a formal health literacy syllabus to be required in the curriculum of all school systems. Language literacy and mathematics literacy may be of little importance if the total health of the student is at risk.

Under further development for some 12 years by teachers, HMs, DIET and college lecturers, health workers and doctors, the Tamil Nadu Schools Total Health Programme is a separate, examinable health, life skills and social development syllabus required for two periods per week in standards 1 to 12 of the school system.

The 'Schools Total Health Program' objectives include to:

1. Empower children and youth so that they may enhance their own physical, emotional, social and intellectual health and that of their family and community. The student may then become the best health promoter in his/her community.
 2. Raise the self-esteem and skills of the teachers so that they may be proud to be a teacher and so enhance the whole teaching/learning process. Improve the infrastructure of all schools i.e. clean, operating, child-friendly toilets, drinking water, classrooms and the school physical and emotional environment as a whole.
 3. Outreach in a positive way to families and community so that the school may better serve its community.
 4. We would be happy to supply copies of various of the STHP Teachers Manuals in English, at no cost, to any of the contributors or organizations who forward their name and address to us.
-

Satyendra Singh, Independent Consultant, Madhya Pradesh

I couldn't reply earlier as I was traveling. Now to address your two specific questions - what is happening about 'water, sanitation and hygiene' in our schools, and measures taken under total sanitation campaign.

WASH Measures - I went to a Kendriya Vidyalaya at Rewa for my studies which only had one clogged urinal for about five hundred students, it had one fungus and moss infested water tank which had the 'sarkari nal ka paani' as basic provisions... this sure was a long time ago .. so when my folks opened this school in 1997 they made sure that the toilets and water were taken care of.

Spread across the floors, we have 24 Urinals & 16 Closed toilets for boys and 22 separate toilets for girls for a total strength of 2,900 students, we have industrial water purification unit from Eureka Forbes supplying water across the floors with one centralized tank. What our key focus area in terms of sanitation is that we have nearly 20 Safai-Karmchari's or Aaya's round the clock to make sure the toilets are clean. But frankly if you ask me this set-up has come out of a long suffering that we probably went thru as kids, and at best you can call it an exception to the general study.

In most of the schools here and mind you - I am talking about CBSE recognised ones (and not to mention the state govt. ones are one shade darker) the picture is quite dismal. They have poorly maintained toilets; most frame-works lack the basic maintenance. And I attribute the maintenance issues to two key points - non-availability of man-power, and lack of drive to wake up to the benefits - no one wants to clean the toilets when you can get the money sitting at home with the now-so-famous 'rozgar guarantee scheme' or the ongoing private road or canal contracts, which MP has suddenly seen a spurt of - they fetch better money at half the labour. Also one key aspect to this whole govt. owned - govt. aided - govt. run school scenario is, head of the institution makes all the difference and most are indifferent to even existence of a toilet in their school, leave aside getting them cleaned and keeping them functional.

Anyway, enough of story-telling, let me get to the point - the point is 'keep this whole thing simple', this would sound funny but probably the checklist for ensuring that any water-hygiene system works in the sarkar-raj era of present times is, keep the deliverables simple. Let me put my wish list in numbers here-
Make available one closed toilet (Indian style/Orissa pan) for every fifty students, with a washbasin on the inside.

1. As backward integration measure, make sure that the school has one functional water connection - with an overhead tank.
2. Provision of appropriate drainage system (closed, and possibly with a soaking pit).
3. The water tank can have a separate line for the drinking water, on which one can easily install the cheaper in-line filtration system.
4. A volunteer to visit the school on a regular (once a month is okay) basis and give the students a crash course on hygiene measures adopted.
5. Incentivize the Headmaster/Principal - financially (could be billed as a component in his salary or cash awards)

Regarding the other details - if appropriate ventilation is provided, the lighting is not needed at all I realize, one small exhaust is necessary though.

1. Push-faucets are a god-sent in saving water and we have a whole variety of them available now, use them wherever you can - for the regular taps, the washbasins, or the flush cistern.
2. The water stored in soak-pits can be utilized again in watering any plantations, but one thing to be kept in mind while doing the pipeline work is that only the water from washbasins should come to the soak-pits, rest to be channelized to the sewer line/ septic tank.
3. Only few physically challenged students attend regular schools, so a special drive to address this issue can be focused towards identifying schools with significant number of such students and providing facilities accordingly.
4. Red Cross is doing some pioneering work here in this area, they can be used as a focal point for database and research initiatives.

[Michael Lipman](#), South Asia Pure Water Initiative, Inc., Hamden, Connecticut, USA

Our organization has a small factory in Kolar, Karnataka that manufactures Bio-sand water filters and distributes them in Kolar, Bangalore and Bangalore Rural districts. We have found that village schools that have rainwater harvesting systems soon experience maintenance problems, which cause the systems to be non-functional.

One of the problems is that roof debris gets washed into the storage tanks and contaminates the water. Another problem is loose fitting tank caps that allow mosquitoes to breed in the water. Villagers will not drink the water if they find "worms" in it. This is particularly tragic in the northern areas of the district where the bore well water is contaminated with fluoride. The harvested water is fluoride free and is a tremendous benefit for the schoolchildren. Our Bio-sand filters have become an important complement to the rainwater harvesting systems in several villages. The contaminated harvested water can be passed through our filter and become potable for the children.

I have visited your office in Bangalore to introduce your staff to our filter. We have sponsorship programs in the USA that can subsidize the cost of the filters to make it very affordable for the schools to obtain the filters. Please visit our website listed below to obtain more information about our filters and programmes.

Many thanks to all who contributed to this query!

If you have further information to share on this topic, please send it to Solution Exchange for the Water Community in India at se-wes@solutionexchange-un.net.in and/or Solution Exchange for the Education Community in India at se-ed@solutionexchange-un.net.in with the subject heading "Re: [se-watr] [se-ed] Query: Technical Inputs for School WASH Program - Experiences; Referrals. Additional Reply."

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