

sustainable sanitation alliance

SuSanA factsheet

Sustainable sanitation for schools

July 2011

1 Summary

The aims of this factsheet are to:

1. Advocate for sustainable sanitation in schools in developing countries and countries in transition
2. Highlight existing challenges
3. Explore various innovations both in hardware and software using examples from developing countries
4. Identify the common principles that are needed to achieve the desired outcomes.

The guiding principles for successful and sustainable school sanitation are:

- Stakeholder involvement in decision making and planning, particularly to ensure children's participation and good leadership.
- Creating demand through stakeholder involvement (demand-driven approaches) and identification of suitable sanitation technologies for local conditions including reuse options in school gardens if possible.
- Monitoring outcomes, impacts and processes, including health and hygiene assessments, school attendance and usage of facilities.
- Using many channels and different media for sanitation and hygiene advocacy beyond health benefits only (multi-faceted approach) including advocacy through working with local institutions.
- Establishment of an enabling environment at policy level with relevant government ministries through the development of guidelines and standards, legislation and enforcement and sufficient budget provision.

This document's target audience includes practitioners, policy-makers, researchers and the general public who would like to learn more about sustainable sanitation in schools.

2 Background

Sustainable sanitation systems in schools include both hardware (facilities) and software (sensitisation, monitoring, training and advocacy) components. Toilet options may be selected from a wide range of simple to more complex technologies.

Sustainable sanitation is defined as promoting and improving health and hygiene, protecting environmental and natural resources, and being technologically and operationally appropriate, financially and economically viable and socio-culturally and institutionally acceptable (SuSanA, 2008).

Sustainable sanitation solutions must be implemented against the backdrop that "acceptable levels of safe water, sanitation and hygiene are not met in many schools worldwide" (WHO, 2008). In developing countries two-thirds of schools do not have sanitation facilities (CARE et al., 2010). Also many countries in transition, for example in Central and Eastern Europe, have low coverage of access to safe water and sanitation in schools (Deegener et al., 2009). Even many schools in industrialised countries have challenges of hygienic use and maintenance of their toilet facilities.



Figure 1: Pupils at a school in Epworth, Harare in Zimbabwe learn to build their own toilets: digging the shallow pit of an Arborloo inside a concrete ring beam (source: Aquamor). More photos of this school available here: <http://www.flickr.com/photos/gzecosan/sets/72157626300000229/>.

Schools, the very places to *educate children* and *provide a healthy environment*, are unable to fulfil these obligations mostly due to the lack of political motivation and attention for sanitation and hygiene. This leads to:

- Schools with inappropriate, poorly managed and insufficient facilities for children, especially for children with disabilities, adolescent girls and young children under the age of eight years old.
- A lack of financial resources for cleaning and maintaining toilet facilities in schools.
- Lack of proper hand washing facilities and anal cleansing material such as water, toilet paper, leaves etc.





- Lack or poor enforcement of regulations and guidelines related to school sanitation and keeping the premises clean.
- Insufficient or non-existing budgets and financing for new sanitation facilities and also operation and maintenance of existing facilities.
- Lack of awareness of the importance of safe school sanitation.

Access to safe sanitation is a human right that has to be recognised and fulfilled (Stock, 2011). The major challenge to reach the Millennium Development Goal for improved sanitation (MDG 7)¹ is not merely technical nor economic, but lies in raising awareness on preventable sanitation-related diseases, changing traditional views and encouraging habits for good hygiene (UNICEF and WHO, 2008).



Figure 2: School children in Epworth, Harare, learning how to make simple low-cost hand washing devices (source: Aquamor, Zimbabwe).

Behaviour is formed during childhood and therefore education on health and hygiene in schools is vital to improving conditions of people's lives from childhood to adulthood. School sanitation and hygiene programs can have important outreach functions for targeting households. Children have demonstrated that they can be effective agents of change as demonstrated in School-led Total Sanitation programs in Asia, Latin America and Sub-Saharan Africa.

Children are change agents. Schools are important links to reaching individual families and communities. Children pass on their knowledge from school to their families and thus influence the community.

Sanitation issues for *urban* schools tend to differ somewhat from those at *rural* schools. For example, urban schools often have less space, but sometimes have the possibility to connect to a centralised sewer system. Some technologies like pit

¹ Toilets at schools are not counted in the MDG monitoring system of WHO and UNICEF, called Joint Monitoring Program (JMP), and thus do not directly support reaching the MDG Number 7 for sanitation. However sustainable school sanitation leads to lasting behaviour change which will result in a higher degree of demand for sanitation amongst the children once they are adults and their communities.

latrines and Arborloos might be feasible for rural schools but not for most urban schools. The involvement of parents and the wider community might also have a different intensity at urban schools. Nevertheless, the same guiding principles apply to school sanitation in all settings.

3 Defining the problems

A number of challenges for sustainable school sanitation are described below. Many of these are not specific to schools but relate to sanitation in general. Where this is the case, the specific school factors are highlighted.

a.) Poor access and use of sanitation facilities

It is estimated that approximately two-thirds of primary schools in the developing world do not have adequate sanitation (CARE et al., 2010). Lack of sanitation leading to diarrhoea in children is attributed to 272 million school days lost each year and to intestinal worm infestation of an estimated 400 million children. Where facilities do exist, as many as 150 children have to share one toilet in some schools. At that ratio, pupils have to queue up to use the facilities; also the toilet pits fill up quickly (in the case of pit latrines) and toilets become smelly making them both unattractive and unhygienic for the pupils to use (Zomerplag and Mooijman, 2005).

A study in Colombia found that 40% of diarrhoea cases were transmitted at schools and not at the children's home, further underlining the importance of the availability and proper use of school sanitation facilities (CARE et al., 2010).

Moreover, the provision of hand washing facilities in schools and day-care facilities resulted in a 30% reduction in cases of diarrhoea (CARE et al., 2010). In spite of these findings, most schools in developing countries do not provide appropriate hand washing facilities with soap. Where these facilities do exist, they are often poorly located, have insufficient hand washing materials or have other shortcomings (World Bank, 2005). Hand washing facilities are possible to implement with innovations to bring water to the schools such as by rainwater harvesting, carrying water from home in jerry cans or tanks filled by water trucks. Soap can also be made locally.

b.) Lack of policy framework and institutionalisation of school sanitation

Generally, there is a lack of political framework for sanitation at all levels to guide implementation, operation and maintenance. Where sanitation policies do exist, they are often unclear, or even contradictory, in their aims and objectives (Elledge, 2003). There is also a lack of responsibility for school sanitation by head masters or even school inspectorates who do not prioritise the responsibility to maintain toilets.

Headmasters or schools are more likely to implement sustainable sanitation approaches if guided by a policy or strategy. Policy influences incentives and can encourage positive institutional behaviours and actions through



regulation, enforcement, economic measures, as well as related information and education programs. Policies are pivotal in assigning rights and responsibilities for providing services (Elledge, 2003). Therefore, school sanitation and hygiene policies are likely to create the enabling environment for access, use and maintenance of facilities. Policies also provide the foundation for scaling-up initiatives.

However, many countries still do not have adequate policies for school sanitation, as it falls under the responsibility of three or even four ministries. Education ministries are responsible for schools, but technical support for sanitation, hygiene and water supply comes from Ministries of Water, Health and or even Public Works (or Infrastructure). Where decentralisation or devolution of government services is taking place, local government also has a role in coordination and management of budgets for water and sanitation facilities at schools. This leads to the need for complex new working arrangements.

Institutional reform is necessary to delineate roles and responsibilities such that facilities can be properly managed by schools and communities, get the necessary technical back-up from NGOs, community-based organisations and the private sector through a facilitated and regulatory process (World Bank, 2005).

Where national standards do exist for school sanitation, they may also be stifling innovation, as they tend to prescribe technologies which are based on “Western” influences and norms, such as flush toilets connected to sewer systems. If schools cannot afford to operate such types of toilets, they often do not get enough institutional support to look for alternative, low-cost solutions.

Schools play an important role as refuge and relief centres during an emergency. Having good sanitation facilities and hygiene practices at schools before, during and after an emergency, will serve a wider community beyond the school.

c.) Lack of budget allocation for operation and maintenance

Public schools, like most public institutions, are generally not oriented towards being particularly economical and cost-effective. This is because of the lack of incentives to do so since they are not fully in charge of their own annual budgets.

There is also a lack of supporting policy environment, therefore finding economically viable solutions or maintaining existing sanitation facilities in a cost-effective manner is unfortunately not a priority for many schools. Muellegger et al. (2011) provide more details on operation and maintenance (O&M) problems and solutions for sustainable sanitation systems in general.

Facilities may not be regularly cleaned because there is no consideration or availability of funds for cleaning. Cleaning is not seen as a necessity, as documented in an Ethiopian study, where cleaning averaged only once a week (DeGabriele and Porto, 2007). Project funds are allocated to the construction of toilets but no arrangements are made to support schools for maintenance or cleaning materials. Government operational budgets for schools rarely consider routine maintenance,

cleaning supplies, soap or toilet paper as they have a perceived lower priority in relation to other needs of the school. Schools then often rely on parents to make contributions for these supplies.

When given choices for sanitation facilities, the real or “hidden” operation and maintenance costs for toilet facilities are not presented to schools to make informed choices. This is an issue for example for flush toilets connected to a septic tank which will need regular desludging.

Lockable toilet doors are another issue where the costs and benefits carefully need to be weighed up. The doors are also important for privacy, particularly for girls. But they are also prone to vandalism and deterioration due to wind and rain. Once the door is broken, the facility is rendered useless if the school does not replace or repair the door. Blind corners or spiral designs with lockable gates at the end of the spiral could be alternative options, requiring less maintenance. These different door options need to be discussed during the planning phase.²

Providing mirrors can make toilet use more attractive. Being able to see the visible difference with a clean face has an attraction for girls and boys. Adolescent girls in particular value mirrors.



Figure 3: Two of the winning posters during the “My School Loo” city-wide contest in Cagayan de Oro, Philippines (source: Meiyoshi Acabal Masgon). More photos on this campaign available here: <http://www.flickr.com/photos/qtzecosan/sets/72157626926206066/>.

d.) Inappropriate designs for children, especially girls, small children and children with disabilities

Sadly, the few toilet facilities present at schools often do not meet children’s needs. Small children are affected in terms of the size of the drop hole in the case of pit latrines, size of squatting pan or pedestal as well as issues of darkness in

² Another disadvantage of lockable doors can be that they are locked to keep children from using the toilets because children make the toilets “dirty”. Here again, doors for privacy end up being a barrier for girls to use facility (example from UNICEF Cambodia).





the toilets which creates fear. Children with disabilities are often excluded altogether by the lack of accessible facilities. Adolescent girls are affected and distressed in terms of privacy, security and menstruation management.

Facilities intended for children are often not designed with the children in mind. This is primarily because approaches for sanitation and hygiene do not involve let alone consult user groups in the decisions of design, location or numbers. This has led to facilities being too large for children to use, such as pit latrines with wide-spaced foot rests, or hand washing facilities too high for children to use unassisted.

Toilets which are not designed to be “child friendly” may be scary or difficult to use for small children, as in Malawi where children feared falling into the large drop holes of pit latrines or entering the dark facilities with little light or ventilation. The results were that children defecated in the entrance to the latrine and in the corners of the latrine – rendering them filthy and unhygienic to the next user (B. Abraham, personal communication, 2010).

Issues of access are particularly challenging for children with disabilities, as schools and toilets are not adequately designed to cater for their needs. Children with disabilities are unable to use facilities without assistance because of poor design choices. Children with mobility or vision challenges may be forced to crawl or feel their way to a toilet often coming into contact with faeces on the ground (Bwengye, 2004). To further exacerbate the situation, there is frequently not an accessible hand washing facility either.

In the case of urine diversion dehydration toilets (UDDTs), it is important to use the bench type design or to build ramps in order to cater for the needs of wheelchair users. This is required because UDDTs have the faeces vaults fully or partly above ground and have stairs towards the entry of the toilet cubicle except for the bench UDDTs (Rieck and von Muench, 2011; von Muench and Duering, 2011).



Figure 4: School girls inspecting the faeces chamber of a urine diversion dehydration toilet in Nakuru, Kenya³ (source: Raphael M. Gacheiya). More photos of this school available here: <http://www.flickr.com/photos/gtzecosan/sets/72157624069945409/>

³ This project at Crater View Secondary School is also described further in a SuSanA case study: <http://www.susana.org/lang-en/library?view=ccbkttypeitem&type=2&id=125>.

For adolescent girls, considerations for menstrual hygiene, privacy and security are often overlooked. Fearing the possibility of not being able to change menstrual hygiene products or the embarrassment of soiling oneself, teenage girls often choose to stay home during their menstrual period (Nahar and Ahmed, 2006).

Given the fact that girls on average begin menstruating at around 12 years old, and menstruate for about 3-5 days per month, the total number of school days lost during schooling years of a teenage girl can be significant (approx. 40 school days per year). If the girl is not attending classes during her menstruation, these missed school days likely lead to low performance and eventual drop-out from school.

Listen to the girls! We are learning from examples in Malawi and India that girls want a washing facility inside the toilet to wash the rags which they use for menstrual hygiene management (DeGabriele et al., 2004).

e.) Social and cultural norms against dealing with human excreta

Sustainable sanitation solutions with a component of reuse of treated excreta or wastewater are generally perceived to be more complex to operate and maintain than conventional technologies without reuse. On the other hand, they can be utilised to teach children about growing vegetables in school gardens, using compost and fertiliser from “productive” sanitation systems; see Section 5 in this document.

In terms of ecological sanitation (ecosan), which is part of sustainable sanitation, human excreta are regarded as a resource which can be used as a fertiliser in agriculture or to produce biogas. However, for many people, the idea of handling raw excreta brings a strong feeling of disgust, related to unpleasant past experiences of strong odours, flies and the unsightliness to the immediate environment.

Hence methods to bury excreta, flush it away or just walk away from it have become the practice of millions of people worldwide – in order to avoid having to “deal with” human excreta. The resulting solution usually has a low degree of sustainability and can lead to abandoned pit latrines after the pits are full or environmental pollution in the case of flushing without wastewater treatment.

f.) Lack of stakeholder involvement

The importance of stakeholder involvement is addressed in detail in Section 6.

4 Examples of what is working well and lessons learned

There are many examples of sustainable sanitation projects and programmes in schools throughout the world. See for example the case studies on the SuSanA website here: http://www.susana.org/lang-en/case-studies?showby=default&vbls=5&vbl_5=22&vbl_0=0



5 Linking sanitation and nutrition

Malnutrition, iron and zinc deficiencies are major nutritional shortfalls from which pre-school and primary school children suffer. This makes a good case for sustainable sanitation linked to school gardens with three main objectives: 1) an educational objective to teach children about growing healthy foods; 2) a nutritional objective to provide children with healthy foods and; 3) an economic objective to providing supplementary income to schools (Drescher, 2002; Morgan and Shangwa, 2010).

One of the advantages with choosing those types of sustainable sanitation technologies which emphasise reuse of treated excreta (such as urine diversion dehydration toilets (UDDTs), Arborloos and Fossa Alternas) is that human waste can be used as fertiliser and soil conditioner after sanitisation (see for example Richert et al. (2010)). Also, the children can be involved during the construction of these toilets.

Sanitised human excreta can be used for nutrient recycling in school gardens, where children can be taught how to grow their own vegetables (see for example Morgan and Shangwa (2010) in Zimbabwe). Biogas produced from human waste and other organic matter in biogas digesters can be used for cooking in the school kitchen. Treated wastewater can be applied in the school garden for irrigation.

If the local socio-cultural norms do not support the reuse of excreta, additional awareness rising is necessary by demonstrating the nutritional and economic benefits for the schools. Planning needs to be done in collaboration with school staff and adjacent farmers to investigate possibilities for transport and use of urine and treated faecal matter at nearby farms.

Selling vegetables from a school garden which is more productive due to the additional “toilet fertiliser” could give the school a small income, covering for example provision of soap and toilet paper. This incentive may also lead to greater care for the school toilet by users and cleaning staff as the fertiliser production would have a real value for the school.

Without proper consideration of the reuse part of toilets which were designed for reuse, facilities can become obsolete and not used, as observed by SNV in Rwanda (Verweij and Nyirishema, 2010). By providing back-up support and an incentive for the reuse of faeces and urine, an inherent incentive for schools can be created to adopt and maintain productive sanitation for better nutrition and supplementary income.

6 Guiding principles for sustainable sanitation in schools

General factors for achieving long term success in implementing sustainable school sanitation are:

- Awareness raising among the decision-makers on the importance of school sanitation.
- Stakeholder involvement in decision making and planning, particularly children’s participation and good leadership
- Creating demand through stakeholder involvement by employing demand-driven approaches.

- Monitoring outcomes, impacts and processes, including health and hygiene assessments, school attendance and usage of facilities.⁴
- Using many channels and media for promotion of sanitation and hygiene emphasising also benefits beyond health benefits alone (multi-faceted approach).
- Having an enabling legal, technical, economical and social framework in place for the implementation of new and sustainable sanitation concepts for schools.

Sustainable sanitation in schools does not need to be expensive. A simple, low-cost toilet can meet all the principles of sustainable sanitation (health, hygiene, environment, economical, technologically appropriate and socio-culturally acceptable). However, superstructures made of cheap materials might need to be renovated faster (and re-investment money is difficult to find again). Investments for school sanitation should focus on the long-term maintenance and operation to ensure sustained use and the health benefits for children.



Figure 5: School children in the Philippines practising to wash hands with soap (source: Robert Gensch). More photos on this project:

<http://www.flickr.com/photos/gtzecosan/sets/72157611890084172/>

Conditions for successfully planning and building sustainable school toilets with the involvement of *key stakeholders* include (Deegener et al., 2009):

- The school ensures the training of all *pupils* before and after the toilets are constructed. Training for pupils must be carried out every year again when new pupils come to school.
- The same type of toilet should be installed for the teachers.
- The pupils can even be involved in building their own toilets (see Figure 1 and Morgan and Shangwa (2010)).
- All *teachers and staff members* participate in the trainings. Information on operation and maintenance of the toilet facility is available for *school staff and caretakers*.

⁴ An impressive example for a well set-up monitoring and evaluation system in the school health context is the large scale “Fit for School” program in the Philippines (www.fitforschool.ph).





- The school employs *paid cleaning staff* who cleans the toilet several times a day, ideally after each break.
- In the case of UDDTs: The toilet products are ideally reused as fertiliser by the school or a nearby *farmer*.
- The *school or community* takes the responsibility for maintenance and repair of the facility.
- The *school administration* is ready and able to provide the hand washing facilities, water, soap, towels, toilet paper etc.
- All legal aspects must be considered and discussed with the *local authorities* in advance if a technology with reuse is implemented.

Further specific factors for achieving sustainable school sanitation are:

a.) Children at the centre: Child-friendly facilities⁵

The involvement of children in planning and design of both hardware and software is essential. Without a child-centred approach, the sanitation system may remain unused and unhygienic behaviours may prevail (such as open defecation and no hand washing).

Child-friendly facilities should (more details provided in IRC, 2007):

- Have appropriate dimensions for children to be able to use them correctly and at any time.
- Offer enough capacity and minimise waiting times, otherwise children may resort to open defecation.
- Use appropriate locations for young children considering cultural, environmental and practical aspects which encourage regular use.
- Address gender roles and needs, particularly those of adolescent girls during menstruation.⁶
- Address the needs of children with special needs, particularly those with disabilities.

b.) Demand-driven approach

School-led Total Sanitation uses schools as the entry point for total sanitation in communities. This was demonstrated with some positive examples in Nepal, Indonesia, India and Kenya (UNICEF, 2008; Kurniawan, 2008; Otieno, 2008). School children have provided the impetus through self-respect, pride, guilt, shame and disgust to end open defecation in schools and the communities, and have created a demand for sanitation.

c.) Multi-facet approach to advocating and promoting sustainable sanitation through skills-based education

Construction of sanitation facilities alone is not enough to make significant impacts on health and livelihoods (World Bank, 2005). Based on the experiences of Community-led Total Sanitation (CLTS), advocating for sanitation purely on health benefits alone is also not enough to elicit change in behaviour and encourage households and pupils to adopt new behaviours (Kar, 2010). A multi-faceted approach which uses different

concepts and methodologies to encourage people to assess their situation and find appropriate solutions is essential.

In schools, skills-based hygiene education which includes songs, drawings and demonstration sites are more likely to reach a wider audience and raise the interest of more children including their parents. Moreover, building arguments with demonstrated successes based on improved livelihood, increased attendance rates, convenience, economic advantages, environmental improvements, or pride and status, go a lot further to mobilise key decision-makers in schools and communities to support sustainable sanitation.

7 Conclusions

Sustainable sanitation in schools can contribute to reaching Millennium Development Goals 2, 3, 4 and 7 for primary education, gender equality, reduction of child mortality and access to sanitation. With greater attention to guiding principles (stakeholder involvement, demand-responsive approaches and skills-based education) and adequate financial instruments, schools have the potential to reach hundreds of millions of school children and their families with sustainable sanitation including good hygiene behaviours.

The examples mentioned in this document show how various considerations in different conditions are having positive benefits for children in terms of improved attendance rates, better health as well as economic and nutritional benefits from the safe reuse of treated excreta in gardening or farming.

Fortunately, a growing database of initiatives throughout the world is providing evidence that a lot can be done to improve sanitation in schools. Firstly, promotion of sustainable sanitation must consider the development of high quality advocacy campaigns which convince decision-makers of the “value-added” and benefits for society through effective targeting and awareness programs. Secondly, monitoring of sustainable sanitation systems must go beyond the focus on counting facilities to include health and hygiene baselines as well as monitoring regular use, quality of technology, operation, maintenance, and socio-cultural acceptability.

The over-riding element for success is stakeholder involvement and ownership. Beyond a superficial or passive engagement, stakeholders – in particular the pupils, teachers, parents, caretakers and school administration – should ideally be involved in the selection, design and if possible construction of facilities, as well as organisation of management, long-term monitoring and problem solving. Stakeholder involvement and subsequent ownership ensures that local and appropriate solutions are applied, making the sanitation system sustainable.

⁵ A number of resources exist when planning child friendly facilities. See for example: <http://www.washinschools.info/>.

⁶ This goes far beyond physical infrastructure but requires significant education and awareness for the girls and boys, too (see Wendland et al, 2011)



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Authors and contributors

Main authors:

- Belinda Abraham, UNICEF Cambodia (babraham@unicef.org, belinda.abraham@googlemail.com)
- Madeleine Fogde, EcoSanRes/SEI, Stockholm (Madeleine.fogde@sei.se)
- Elisabeth von Muench, GIZ, Germany (elisabeth.muench@giz.de)
- Claudia Wendland, WECF, Germany (Claudia.wendland@wecf.eu)

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More photos of sustainable school sanitation are available here:

<http://www.flickr.com/photos/gtzecosan/collections/72157626092939057/>

For questions or comments please contact the SuSanA secretariat at info@susana.org or susana@giz.de. This document is available from www.susana.org.

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