School Sanitation & Hygiene Education Symposium
The way forward: Construction is not enough

Symposium Proceedings & Framework for Action
“In one promising initiative, in early 2000, the School Sanitation and Hygiene Education programme was launched in six countries: Burkina Faso, Colombia, Nepal, Nicaragua, Viet Nam and Zambia. By 2015, the programme aims to educate 80 per cent of primary schoolchildren about hygiene and to have all schools equipped with sanitation and hand washing facilities. Students are targeted both as direct beneficiaries and as agents of behavioural and attitudinal change within their families and their communities. The programme recognizes the importance of providing hygienic in-school sanitation facilities, taking into account the specific needs of female students.”

UN Secretary General Kofi Annan in the Report on Sanitation to the Commission on Sustainable Development, 12th Session (CSD-12) in New York, 14-30 April 2004.
Foreword

These proceedings are dedicated to the people who will be young adults in the decades of the 2010s and 2020s. Today these future adults are of school age. Our responsibility is to provide these children with a good start: an effective learning environment that is clean and has the facilities which they need. Our responsibility also includes helping these children develop behaviours for good health and hygiene. These include the skills needed to organise their environment and work together for consistent healthy behaviour. At the same time, children can communicate their new behaviours and skills at home… in their communities etc. Programmes for this are called SSHE: school water, sanitation and hygiene education.

Therefore, we were pleased that we could welcome almost 50 professionals from many different countries during the symposium ‘School Sanitation & Hygiene Education: The way forward: Construction is not enough’ which took place at IRC from 8 to 10 June 2004. The organisation of the symposium was made possible through co-sponsors: United Nations Children's Fund (UNICEF) and the Water Supply and Sanitation Collaborative Council (WSSCC) with the help of supporting partners: Plan International Headquarters, London, Plan Nederland, Amsterdam, Water Engineering and Development Centre (WEDC) – Loughborough University, Partnership for Child Development – Imperial College, London, London School of Hygiene and Tropical Medicine (LSHTM), Gender Water Alliance (GWA), Streams of Knowledge (STREAMS), United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO). Papers were also presented during the symposium by professionals from the Ministry of Education-Nicaragua, Umgeni Water (South Africa), Community Empowerment Initiative (CEI- Uganda), Centre for Community Health Research (India), and the Eindhoven University of Technology (Netherlands).

The symposium confirmed a set of basic principles for effective SSHE programmes. The principles that will serve to develop SSHE programmes are:

- Community-based water and sanitation initiatives should always be linked with activities in local schools.
- Keys to scaling up with quality are sustainability, decentralisation, participation, partnership and policies.
- Each SSHE programme needs an advocacy and information-sharing plan based on existing experience and information.
- Capacity building is needed at all levels, including develop plans for strengthening school personnel and institutional capacities.
- Flexibility of approach should not be lost in scaling up.

By working towards the implementation of this ‘Framework for Action’, we trust that the way forward for hygiene, sanitation and water in schools will be found.

Paul van Koppen
Director, IRC International Water and Sanitation Centre, Delft, the Netherlands
July 2004
# Table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>3</td>
</tr>
<tr>
<td>Table of contents</td>
<td>4</td>
</tr>
<tr>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td><strong>Keynote presentations: Summaries</strong></td>
<td>7</td>
</tr>
<tr>
<td>▪ Ms. Agnes van Ardenne, Minister of Development Cooperation, Government of the Netherlands</td>
<td>8</td>
</tr>
<tr>
<td>▪ Mr. Darren Saywell, Programme Manager, Water Supply and Sanitation Collaborative Council (WSSCC), Switzerland</td>
<td>12</td>
</tr>
<tr>
<td>The way forward in programming for hygiene, sanitation and water in schools</td>
<td>16</td>
</tr>
<tr>
<td>▪ The essentials on hygiene, sanitation and water in schools</td>
<td>16</td>
</tr>
<tr>
<td>▪ Lessons learned and opportunities for scaling up</td>
<td>24</td>
</tr>
<tr>
<td>Follow-up: SSHE Framework for Action</td>
<td>32</td>
</tr>
<tr>
<td>Annexes</td>
<td></td>
</tr>
<tr>
<td>A. Papers and presentations prepared for the symposium</td>
<td>36</td>
</tr>
<tr>
<td>B. Symposium agenda</td>
<td>38</td>
</tr>
<tr>
<td>C. List of symposium participants</td>
<td>41</td>
</tr>
<tr>
<td>D. References</td>
<td>51</td>
</tr>
</tbody>
</table>
Introduction

These Proceedings are for people who are interested in school sanitation and hygiene education (SSHE). The document has been written, in effect, by 19 professionals who contributed papers and/or made presentations at the SSHE symposium held in Delft, Netherlands 8-10 June.

The Proceedings can be used in various ways: (1) to learn about the knowledge base for SSHE, (2) to examine specific gaps and challenges, (3) to learn about current project experiences in three continents.

The symposium and these written proceedings have been organised into three parts:

1. **Introductory or key note papers** by the Minister of Development Cooperation of the Netherlands and sector leaders from UNICEF and the Water Supply and Sanitation Collaborative Council.

2. **Lessons learned and opportunities** are presented from 14 professional papers on a range of topics and experiences in SSHE. These were based on experiences in nine countries as well as on international and theoretical work. Many papers, of course, touched on the same subjects, from different points of view and there were interesting comparisons to be made. To draw out these comparisons, rather than show each paper separately in these Proceedings, the observations and findings from all the papers have been combined by topic. You can find a list of papers and authors and their e-mail addresses at the end of this report.

3. **Framework for Action**: the group statement of key issues and principles with strategies for further action that can help to ensure effective SSHE.

Almost 50 people participated in the symposium, more or less from three groups:
- Practitioners: professionals carrying out SSHE programmes, with in-depth experience about real-world issues.
- Managers: from, for example, UNICEF programmes or other programmes into which SSHE is integrated. These professionals are well aware of the challenges to be overcome in scaling up with quality.
- Facilitators: people from support agencies and institutions such as WHO and UNESCO, from international institutions and donors such as SIMAVI, the Church World Service and the Imperial College of Medicine at the University of London.
Global recognition and coordination has grown:  
A time line

| Before 1990s: | Nnon-coordinated efforts on school hygiene and provision of toilets and water points at schools |
| 1993: | First studies and workshops by IRC and WHO showing SSHE experiences but mainly at small scale |
| 1998: | UNICEF SSHE manual building on country experiences; developed in cooperation with IRC |
| 1999-2003: | Pilot SSHE programme in six countries and other interested countries |
| 1999 – 2004: | Increase in programme support for SSHE/WES in schools and advocacy and international call for action |
| Today: | Symposium SSHE: the Way Forward |

Source: presentation by L. Burgers, UNICEF
Keynote presentations: Summaries

At the opening of the symposium, three keynote speakers highlighted the need for dedication and commitment towards SSHE. Each used a different entry point to reflect concern for the successful development of future projects. However, each also showed confidence that it can be done.

- **Ms. Agnes Van Ardenne**, Minister of Development Cooperation, Government of the Netherlands, described the international context within which SSHE has developed, and particularly the VISION 21 declaration adopted at the World Water Forum in 2000. Mrs. van Ardenne noted the importance of inter-sectoral cooperation and partnerships, the need to make use of current knowledge about programming and the importance of maintaining programme quality. The Minister emphasised the continuing commitment of the Government of the Netherlands for SSHE.

- **Ms. Vanessa Tobin**, Chief, Water, Environment and Sanitation Section, United Nations Children’s Fund, noted that UNICEF has committed itself to assist governments and other partners to make substantial progress in ensuring that all school children have access to safe drinking water and appropriate sanitation by 2015. UNICEF WES country programmes have embraced school sanitation, hygiene and water programming. The number of country offices supporting projects or activities related to school-based sanitation, water and/or hygiene education programmes has increased from 36 country offices in 2000 to 72 countries in 2003.

- **Mr. Darren Saywell**, Programme Manager, Water Supply and Sanitation Collaborative Council (WSSCC), emphasised that school sanitation and hygiene education can help
  - reduce the millions of days lost at school because of diseases,
  - improve school attendance, especially of girls,
  - improve the education of girls,
  - make schools more attractive for teachers,
  - reduce environmental pollution.

More detailed summaries of their speeches can be found on the following pages.
Ms. Agnes van Ardenne, Minister of Development Cooperation, Government of the Netherlands

Using soap and water should be everyone's business

The simple act of washing hands with soap and water can reduce diarrhoea by one third. Let us start supporting these simple acts. Let us help to improve the hygiene behaviour of school children in developing countries. This not only has a direct impact on their lives, but also influences the behaviour of their parents, their neighbours, and their villages. School children are agents of change. Let us get them to school. Let us make sure that the schools are equipped with water pumps and proper toilets, for both boys and girls.

The targets for school sanitation and hygiene education are clearly set out in Vision 21, the Water for People document, presented and endorsed at the 2nd World Water Forum held in the Hague in 2000. By 2015, 80% of all primary school children will be educated about hygiene, and all schools will be equipped with toilets and hand-washing facilities. All boys and girls must have access to basic education. Maternal and child mortality must be drastically reduced. School sanitation and hygiene education greatly contribute to all these goals - and so also to poverty reduction. Let that message be clear next autumn in Dakar, when the Collaborative Council meets in preparation for the 13th session of the Commission on Sustainable Development.

And let us also try to better integrate our efforts towards these objectives on the ground. Education and water are still worlds apart in development cooperation. We need to bring them closer together. Both are priority sectors in Dutch development policy. I am keen to make sure that water and education programmes in our partner countries also devote attention to sanitation and hygiene in schools. We will continue to collaborate with UNICEF, the front-runner in this effort. UNICEF has helped to create a worldwide movement for SSHE. Let us now help to ensure that SSHE is actually mainstreamed in government policies.

What is the way forward for school sanitation and hygiene education? The past four years have represented the pilot phase. We supported the SSHE programme initiated by UNICEF and IRC. Now we need to scale up, and I see four areas that need attention.

First: quality. How do you preserve quality when expanding from one or two schools in a certain area to perhaps 100 or even 2,000 schools? What can we learn from current best practice on scaling-up? And of course competent management is vital in this.

Secondly, we must not keep reinventing the wheel. I am sure there are no blueprints for good SSHE programming, but what do we know of the impact on children and on families? How can we make use of success stories?

Thirdly: partnerships. One cannot make a difference while working in splendid isolation. Hence my call to seek crossovers between sectors. But we also need to cross the artificial boundaries between different players. Partnerships of governments, UNICEF, civil society, and the private sector are needed. Development professionals are often not keen on working
with the private sector. My view is just the opposite: we cannot work without them. I have placed the private sector firmly on the Dutch development agenda. This is a follow-up to the pledges we made during the summit on sustainable development in Johannesburg.

Ensuring that the next generation is healthy and well educated is also in the interests of business. Why not team up with them to make sure that hand pumps are built and sanitary facilities are constructed? But let us not ignore the software aspects, such as training maintenance engineers and producing textbooks and, of course, the participation of parents, user groups, farmers and so on.

This brings me to my fourth and final point. We have to fulfil our promises; so much more money is needed. I am happy to announce that the Netherlands stands ready to increase its support to school sanitation and hygiene education from one million to two million US dollars over the next three years.


Every year, over three million children under five years of age die as a result of preventable diarrhoeal diseases. The deaths of children from diarrhoeal diseases rank second only to acute respiratory infections, however diarrhoea increases deaths from respiratory infections and other opportunistic diseases by lowering children’s immunity. Diarrhoeal diseases account for over a billion episodes of child diarrhoea in developing countries, that is, four to five episodes per child every year. In addition, poor sanitation and hygiene causes 400 million school-aged children a year to suffer from intestinal infections. Household chores such as fetching water keep many girls out of schools. Even if girls do manage to go to school, when water is needed, it is they who are sent to fetch it. When family members become sick (often due to hygiene-related diseases), girls are more likely to be kept home to care for them. Providing water closer to homes increases girls’ free time and boosts their school attendance.

The water and sanitation challenge not only persists but is becoming more and more urgent, in the context of population growth and poverty. The good news is that world leaders refused to give up and let the age-old dismal situation continue; they at the UN Millennium Conference renewed their commitment to a goal on drinking water. The target they adopted is to halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation. The World Summit on Sustainable Development included the importance of providing water and sanitation facilities in schools within the plan of implementation as part of the overall strategy for poverty alleviation.

Perhaps the single most important lesson learned from the implementation of WES programmes throughout the world is that water and sanitation facilities on their own do not automatically result in improved health. While access to improved facilities is important, the
correct use of the facilities is what ultimately leads to disease reduction and healthier children. Hygiene is the key factor. People can protect themselves from diarrhoeal disease and other infections only if they are given access to appropriate information to increase awareness and encouraged to make changes in their hygiene behavioural patterns.

UNICEF has committed itself to assist government and other partners to make substantial progress in ensuring that all school children have access to safe drinking water and appropriate sanitation by 2015. The central role of schools within communities also presents opportunities to promote hygiene education and wider community action to accelerated water and sanitation coverage. There is a reinforced thrust for inter-sectoral approaches, and the results show that water, sanitation and hygiene programmes in schools enhance child-friendliness, gender-sensitivity and the overall quality of the learning environment and health of the learners. Wide-ranging partnerships, a key factor for the success of water and sanitation in schools, have been cultivated with local communities, parent/teacher organizations, donors and a variety of local, national and international NGOs. Partnerships and campaigns, such as WASH in schools and FRESH (Focusing Resources for Effective School Health), are being launched in many countries.

In 1998, UNICEF and IRC, with the support of the Netherlands Government, started the school sanitation and hygiene education initiative in six countries, namely, Burkina Faso, Zambia, Nepal, Viet Nam, Colombia and Nicaragua, which provided limited funding for physical improvements in some 10-20 schools per country, yet managed to reach a total of 11,329 schools in all by acting as a catalyst resulting in effective partnerships with others for broader leveraging of resources and investments.

School Sanitation and Hygiene Education has been a new programme initiative for the past five years, which aims at improving school environment and hygiene conditions. Overall, the Convention on the Rights of the Child is allowing UNICEF-supported programmes to become focused less as sectoral initiatives and more sensitive to all the needs of children, but with a priority on early childhood.

Children can be very effective agents of change. By focusing on school aged children (5-18 years old), giving them tools and knowledge, life skills-based health and hygiene education to change behaviour today, future generations will be better prepared to take care of their families and communities’ health and clean environment. In addition, attention to these issues in the secondary education of older girls will improve their health and nutrition and ultimately the health and nutrition of their offspring. We believe that Ministries of Education in your countries could take the lead role in advocacy and call for inter-ministry and inter-agency action to promote water, sanitation and hygiene in and through schools in this region.

The most effective way to ensure that latrines, hand washing facilities and water points meet the needs of girls in particular and children in general, is to ask them what these needs are – to fully involve girls and boys in the planning, design and implementation processes. Respecting a child’s right to participation will help to ensure that her or his right to education is fulfilled. School sanitation and hygiene education programmes should allocate sufficient time and resources prior to any construction activities to achieve meaningful participation by children.

UNICEF WES country programmes have embraced school sanitation, hygiene and water programming. According to the UNICEF annual reports, the number of country offices
supporting projects or activities related to school-based sanitation, water and/or hygiene education programmes has increased from 36 country offices in 2000 to 72 countries in 2003.

Most of the UNICEF-supported interventions are designed as a means of promoting child-friendly/gender-sensitive learning environments and the health of learners as part of the ‘packaged approach’ to human rights-based quality education which is gaining momentum. Increasing integration and joint planning within UNICEF, as well as advocacy and partnership with others is a cornerstone of many programmes, with UNICEF acting as a catalyst to formulate a joint vision, to develop policies, and to leverage funding from governments, bilateral donors, investment banks and national and international NGOs in an effort to scale up efforts. About 11% of UNICEF’s 2003 budget spent on water and sanitation is spent on water, sanitation and hygiene in schools, an increase from 3% in 2001.

Some examples of good practices from country-level interventions:

- In Chad, in addition to the establishment of water points – including in nomadic areas – the repair of pumps, and the construction of gender-separate latrine blocs in selected schools, hygiene education is being promoted with children and young people themselves participating as animators. Moreover, with the child-friendly/girl-friendly school concept promoted in the national EFA plan, the government has agreed to render integration of WES elements obligatory in all school construction projects.

- In Malawi, a pilot programme in 53 primary schools (representing 1% of the total) has evolved into an inter-sectoral programme with a variety of partners aiming at 1,020 schools (23% of the total), with UNICEF spearheading initiation of the National Steering Committee for School Sanitation and Hygiene Promotion.

- In Ethiopia, UNICEF is bringing NGOs, multilateral and bilateral organizations together around a common aim to improve water and sanitation in 60% of primary schools by 2007. UNICEF itself has provided assistance to 4,398 schools (about 35% of the total).

- In India, with UNICEF support to some 20,000 – 25,000 schools (5% of the total number of primary schools) in 270 of the 540 districts in the country, considerable progress has been made in advocating the need to match provision of infrastructure and facilities with appropriate hygiene education strategies as well as improved school and village management of facilities.

- In Bangladesh, nearly 5,000 schools are being reached, with children, teachers and parents involved in assessment, resource mobilization, school planning, facilities improvement, and hygiene education using the child-to-child approach.

- In Sri Lanka, water and sanitation is being provided to 432 primary schools in the north east conflict zone, along with support for the rehabilitation of WES facilities in schools in flood-affected areas.

- In Afghanistan, UNICEF provided – next to support to rural water supply – support for the Back-to-School Campaign which enabled 2.9 million children to return to school in 2002. WES provided support to improve the quality of the learning environment, including the rehabilitation and the addition of water and sanitation facilities. 3,552, or 52% of all primary schools were provided with water and 1,500 (22% of all primary schools) with separate latrines for girls and boys.

In several countries the provision of facilities and practical hygiene education still needs to be taken to scale but there are many successful models by UNICEF and partners that can be studied and made part of standard practice in the mainstream. The central role of schools within communities also presents opportunities for this work to influence wider community
action to accelerate sanitation coverage - and we have excellent examples of this happening in some countries.

UNICEF’s long partnership with governments has enabled it to influence and support policy change at the national level. However, more could be done in the area of working with and influencing the large sectoral programmes led by the development banks. As noted above, the projects financed by these banks – including through SWAP and PRSP mechanisms – often represent the single largest investment in the sector nationally. In countries where UNICEF does not focus on advocacy and policy development, opportunities are lost.

In the words of the UNICEF Executive Director, Carol Bellamy: “Achieving truly sustainable development means creating a world that is fit for children, and that means a world with safe drinking water and clean sanitation and hygienic facilities in schools. That is why UNICEF in the World Summit on Sustainable Development (Johannesburg, 30 August 2002) is calling on national leaders to ensure that in the course of this decade every primary school in the world be equipped with separate facilities for boys and girls – and that every school, without exception, have a source of clean and safe drinking water.

In closing, I would like to take the opportunity to stress the fact that there is no better cause around which to build partnerships than children. We would like to continue to work closely with the Netherlands Government and IRC in taking this initiative further to scale. While sustainable development will benefit tomorrow’s children, we must stay focused on today’s children as our first priority. This initiative is and will be one of the most important in placing the well being and children first and foremost on the development agenda for many years to come.

Mr. Darren Saywell, Programme Manager, Water Supply and Sanitation Collaborative Council (WSSCC), Switzerland

In preparing for today, I wanted to focus on four key questions. In short:

- **What is the level of interest in SSHE?**
- **Why does SSHE matter?**
- **What are the constraints to greater progress?, and**
- **What can be done?**

**The level of interest in SSHE.**

SSHE enjoys widespread recognition for its important role in achieving water, sanitation and hygiene for all. If you take a quick look at the international policy arena it has been recognised in several ways:

- Millennium Development Goal (MDG) 2 focuses on achieving universal primary education. The target here is to achieve a situation where all boys and girls complete primary education by the year 2015
MDG 3 focuses on gender issues and includes an associated indicator on schooling.

The Johannesburg Plan of Implementation (JPOI) from the World Summit on Sustainable Development specifically mentions the importance of school sanitation as concrete step forward in tackling the MDG on water and the target on sanitation.

The Vision 21 – Water for People document (presented and endorsed at the 2nd World Water Forum in 2000) outlined a series of targets for 2015 – including: 80% primary children educated about hygiene, and all schools equipped with facilities for sanitation and hand washing.

Looking beyond the international policy arena, one can observe that:
- Locally and nationally, there appears to be a wide body of anecdotal evidence of the interest from politicians in promoting SSHE, primarily because its practical outcomes so readily attracts voters.
- And lastly, there is also considerable practitioner interest in SSHE, as witnessed through your participation here at this symposium and the growing number of initiatives to coordinate, research or advocate on the subject (including, for example, the FRESH initiative, amongst others).

So the level of stated or written commitment appears to be high.

Why does SSHE matter?
There is a significant body of evidence about the importance of SSHE, much of which offers compelling arguments in its favour.

SSHE, children and health: appropriate environmental health interventions relating to water, sanitation and hygiene education can significantly reduce the mortality rate and incidence of sickness and disease for children under five. In Madagascar, a recent survey found that 3.5 million schooldays are lost each year due to ill-health related to poor sanitation.

School attendance: improved water and sanitation increases the opportunities for children to attend school. In Tanzania, a 12% increase in school attendance was recorded when facilities were 15 minutes away rather than an hour.

Performance at school: reducing the incidence of water related illness and disease increases children’s performance at school by promoting more effective learning. A study of 432 children from 42 primary schools in Java, Indonesia, suggested that hookworm infection, which causes anaemia, can have significant adverse effect on children’s working memory, which may affect their reasoning and their reading comprehension.

Girls’ education: more girls attend school when community water supplies are improved and when there are separate and private sanitation facilities for girls and boys. In the Noakhali district of Bangladesh, a study in 1998 indicated that the provision of water and sanitation facilities increased girls’ attendance at school by 15%.

Teachers: safe water and sanitation facilities increase the recruitment, attendance and retention of teachers.

Environmental health: through functioning and proper use of facilities, it is possible to reduce environmental pollution and promote community wide environmental health.
None of the above is new, but it needs stating and re-stating. With the political will expressed at international level and the great bank of evidence about the improvements and impacts that these investments make, why is it not happening? Why is greater progress on SSHE not being made?

**What are the constraints to greater progress?**
I suggest the following *four* factors, not an exhaustive list, cover the main roadblocks which require addressing:

- **Policy**: there is a need to involve all stakeholders in developing an intersectoral approach to SSHE that includes education, health, water and sanitation sectors. In practice, the implication is that improved coordination between those with responsibility for SSHE must occur at the right times to ensure improved quality in SSHE programmes.
- **Institutional ownership**: an institutional sense of ownership between the different actors working on SSHE is frequently lacking. Without such a mindset, SSHE programmes will continue to fall between cracks in responsibility and implementation.
- **Links between people and technologies**: constructing school sanitation facilities is straightforward; especially compared to the software aspects of SSHE. But a wider problem is the difficulty of aligning the interests of the schools, with those of parents/teachers so that construction, education and participation of all are linked together and operate in a sustainable and cost effective way.
- **Education and capacity**: the resources required to provide teaching and learning, particularly in relation to hygiene education, are frequently absent in schools. Moreover, use of creative techniques to convey these key messages are rarely part of the teacher-training programme.

**What can be done?**
There are several key ways in which to push the SSHE agenda forward, including:

- **Establish platforms for collaboration on SSHE at the local and national level**: coalitions of those working on and committed to SSHE are needed to review actions required to create a more supportive environment for SSHE.
- **Stress the interconnectedness of SSHE and development**: there is increasing recognition of the interconnectedness between the Millennium Development Goals, and water, sanitation and hygiene. Such connections need to be stressed to raise political and practitioner interest in SSHE;
- **Build a stronger evidence base**: applied research studies focused on filling in knowledge gaps are still required – especially to assess what hygiene promotion techniques have been applied and which ones work; to compile the technical designs for school sanitation in a compendium of appropriate technology solutions; and to focus on the blockages in regulatory, legislative and policy frameworks that act as a constraint to uptake of SSHE programmes;
- **Advocate**: all of the above to policy makers and to those responsible for programme implementation.
WSSCC and SSHE

What is the Water Supply and Sanitation Collaborative Council (WSSCC) doing to promote this agenda? Here, our focus has been to mix advocacy with action:

- WSSCC recognised the central importance of SSHE during the preparation of Vision 21 – Water for People, presented at the 2nd World Water Forum in The Hague in 2000, which included targets on adoption of SSHE facilities in schools by the year 2015. Moreover, the Water, Sanitation and Hygiene for All (WASH) campaign has focused one of its four core messages on the importance of reaching women and children, using the vehicle of SSHE as one means for doing so;
- WSSCC is working with a few, selected partners to try to increase the coverage given to SSHE locally, nationally and internationally. Two examples include:
  - With the Centre for Environment Education in India, we have developed teacher’s manuals to help spread SSHE messages to 2500 schools across the sub-continent
  - With UNICEF we have launched a concerted advocacy campaign, ‘WASH in Schools’, in order to highlight the pressing need for improved SSHE facilities, education and training, and the development of an appropriate supporting environment in which SSHE can flourish.

Concluding points

- The challenge for SSHE supporters and advocates is to turn the expressions of political will and case study examples of success into programmes that are widespread, integrated and supported by a wide base of stakeholders.
- The challenge for this symposium is to help identify the tools and means by which this can happen. Let us not lose this important opportunity.
The way forward in programming for hygiene, sanitation and water in schools

This part of the proceedings focus on the essentials on hygiene, sanitation and water in schools based upon evidence provided in the presentations. Further it includes lessons learned and opportunities as presented in 14 professional papers on a range of topics and experiences in SSHE. These were based on experiences in nine countries as well as on international and theoretical work. There were interesting comparisons to be made among the papers that touched on the same subjects, from different points of view.

The essentials on hygiene, sanitation and water in schools

Working in SSHE means focusing on our responsibility to provide children with an effective and healthy learning environment. Part of this learning environment is facilitated by hygiene, sanitation and water initiatives in schools. At the very least, there should be a clean environment that provides the facilities that children need for sanitation, hand-washing and water supply, and support for children to develop skills, attitudes and knowledge on good health and effective hygiene. At the same time, children can communicate their new behaviours and skills at home, in their communities and use it in future when they become parents themselves. Girls will particularly benefit from such an environment.

In summary, the essentials on hygiene, sanitation and water in schools can be clustered into five different perspectives:

1. **Health perspective**
   - Sanitation is a basic human right.
   - Dirty facilities can make children sick: improved hygiene and sanitation at school is critical to health of school children.
   - More than knowledge: hygiene habits and hand-washing practices among all children improve their overall health.

2. **Learning perspective**
   - Education and health are co-dependent: stunting, nutritional deficiencies, diarrhoea and helminth infections affect school participation and learning.

3. **Gender perspective**
   - School dropout rates and low literacy levels, especially among adolescent girls, can be attributed in part to inadequate sanitation and health conditions in schools.

4. **Change agents perspective**
   - Children can be change agents for their own families and communities.

5. **Future impact perspective**
   - Schools provide an excellent opportunity to create life-long changes in hygiene behaviour.
1. The health perspective

Diarrhoea and helminth (worm) infections are two major health concerns that affect school-age children on a large scale, and that can be reduced through improved hygiene, sanitation and water in schools.

Global prevalence (and number of cases) of intestinal helminth infection in school-age children are estimated at: roundworm 35% (320 million); whipworm 25% (233 million); hookworm 26% (239 million). Many children suffer from multiple species infections. These parasites consume nutrients from the children they infect. In doing so, they bring about or aggravate malnutrition and retard children's physical development. This can lead to stunting, weight loss and anaemia (iron deficiency anaemia, IDA).

<table>
<thead>
<tr>
<th>Disease type</th>
<th>Morbidity</th>
<th>Mortality (deaths/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoea</td>
<td>&lt; 4,000 million</td>
<td>2.5 million</td>
</tr>
<tr>
<td>Roundworm</td>
<td>250 million</td>
<td>60,000</td>
</tr>
<tr>
<td>Hookworm</td>
<td>151 million</td>
<td>65,000</td>
</tr>
<tr>
<td>Whipworm</td>
<td>42.5 million</td>
<td>10,000</td>
</tr>
<tr>
<td>Trachoma</td>
<td>146 million (+6 million blind)</td>
<td>None</td>
</tr>
<tr>
<td>Schistosomiasis</td>
<td>200,000</td>
<td>20,000</td>
</tr>
</tbody>
</table>

Adapted from Fresh Framework and World Health Report, 1998 – WHO website, 2004

Figure 1

Diseases can be spread at school. If school sanitation and hygiene facilities are absent, or are poorly maintained and used, schools become a health hazard. During the 1997-98 cholera epidemic, the Ugandan government spent 4.3 billion Ugandan shillings (US $23 million) in health care costs. Schools rapidly became a place for disease transmission and 560 schools had to be closed due to the lack of adequate and acceptable facilities.

Safe excreta disposal is important. The text box shows how dangerous human excreta can be. Of course, not every virus or bacteria is dangerous. However, the overall load can be very large.

As illustrated in the graph below there is a direct link between diarrhoea and toilet hygiene. In this study, more than 40% of the cases of diarrhoea in schoolchildren were attributed to transmission at school rather than transmission at home.

2 FRESH Focusing Resources on Effective School Health homepage, http://www.freshschools.org
Four key interventions for fighting diarrhoea are:

- **Quality** of water: bacterial and chemical
- **Quantity** of water used
- **Hygiene** including hand washing and face washing
- **Sanitation**, particularly, safe disposal of human excreta

The results of an analysis of 144 studies related to water and sanitation, somewhat counter-intuitively, showed that:

- safer excreta disposal led to a reduction in child diarrhoea of up to 36%,
- better hygiene through consistent hand and face washing, food protection and domestic hygiene brought a reduction in child diarrhoea of 33%,
- improved water supply led to a reduction in child diarrhoea of only 15-20%.

The analysis showed that hygiene promotion can have greater impact on public health than water supply provision. It also showed the importance of synergy between hardware (technical solutions) and software (behaviour change). Among hygiene behaviours, hand washing, in particular, provides a great health advantage. Hand washing can block the transmission of pathogens (germs and faecal matter) that cause diarrhoea. In school programmes this is very important. Even well-maintained latrines, without consistent hand washing, will not result in the intended health benefits.

---


A study\(^6\) suggests that sanitation and water-related diseases could be reduced by 43% if people always wash their hands after defecation. For eye health, face washing is important; for skin health, body-washing.

**Figure 3**

<table>
<thead>
<tr>
<th>Location</th>
<th>Reduction in diarrhoea</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burma</td>
<td>30%</td>
<td>Han &amp; Hlaing</td>
</tr>
<tr>
<td>USA</td>
<td>48%</td>
<td>Black et al.</td>
</tr>
<tr>
<td>Bangladesh (urban)</td>
<td>35%*</td>
<td>Khan</td>
</tr>
</tbody>
</table>

* Impact on shigellosis. S. Huttley, 1992

Experimental field studies have shown that, under similar conditions, any common cleansing agent – soil, ash or soap – produces similarly efficient results. It confirms other clinic-based studies, which showed that, if the scrubbing action is rigorous, then any of these agents removes bacteria from the hands\(^7\).

Hygiene education and health interventions should be continuous, not just one-time events. The graph below (Figure 4) shows that after a single treatment for worms (without a strong education component in the school), the infection tended to return. This implies that school interventions must be sustained beyond the life of a single project\(^8\).

**Figure 4**

---


2. The learning perspective

Figure 5

Children with worm infestation tend to perform worse in school. A study from Mali (Figure 5) demonstrates that the level of schistosomiasis infection (as measured by the number of eggs per 10 ml of urine) is related to academic performance ($p<0.01$). Although the study sample of 580 children in two primary schools is small, there is little reason to believe that the results would differ in other affected countries.

Figure 6

A study in Jamaica (Figure 6) shows that children treated for whipworm performed better in cognitive tests than children who were not treated. The use of the ‘placebo’ implies that every

---

participant thought they were being treated. This study supports the findings of the preceding study.

Children with worm infections tend to be absent from school more often. A study\textsuperscript{11}, from the same group in Jamaica (Figure7) shows that children who have greater levels of infestation (in this case from whipworm) tend to be absent from school up to one third more often.

3. The gender perspective\textsuperscript{12}

Gender is not only about women and girls. Gender is about boys and girls, men and women, not about sexual differences so much as about socially and culturally determined differences. People make these differences and therefore they can, and do, change them. The needs and demands of women and men, and of adolescent boys and girls differ particularly in personal hygiene and sanitation habits. Gender mainstreaming involves assessing all the implications that any sanitation and hygiene intervention can have for women and men. These differences need to be reflected in relevant policies, strategies and approaches that promote improved sanitation and hygiene behaviour.

Girls, who are already marginalised in accessing education, are doubly penalised because inadequate sanitation facilities allow them no privacy, especially during menstruation. The lack of private sanitary facilities for girls discourages parents from sending girls to school, contributes to girls dropping out at puberty, and is a contributing factor to fewer women teachers, who are needed to encourage girls to attend school. About 1 in 10 school age African girls do not attend school during menstruation or drop out at puberty because of lack


\textsuperscript{12} Information drawn from the presentation given by Rose Lidonde, WEDC, U.K.
of clean and private facilities. The low level of literacy among women, as a result of girls being pushed-out, can aggravate prejudices based on inferiority and superiority complexes between men and women. In Mexico, when asked why the girls were cleaning the toilets and the boys were playing basketball, the teachers said, ‘Boys do not clean toilets in Mexico’. (Source UNICEF 2002) By promoting girls’ attendance and retention in school, the sanitation project influences sound cultural patterns of conduct in future.

**Some implications of a gender perspective**
- separate toilet/urinal facilities for girls,
- designs adjusted to different needs of girls and boys,
- cleaning of facilities is shared by both sexes,
- both fathers and mothers know about the SSHE programme,
- education addresses sensitive aspects such as menstruation, initiation rites and sexually transmitted diseases.

Good programming works:
- In Bangladesh, a school sanitation programme increased girls' enrolment by 11% (Source: Cairncross, 1998).
- First results of an assessment in 1,667 schools in Alwar (India) demonstrate a synergy between good classroom practices and SSHE. Over 5 years an increased enrolment of girls by 78 % and boys of 38 % could be measured (see Figure 8 below). Significantly higher learning achievements were measured in project schools. Further, it showed that a visible change in conditions at school improves community and parent participation.

![Trends of Enrollment: Alwar District (Class I to VIII)](image)

**Figure 8**

---

13 http://www.childinfo.org/eddb/sani/
14 Results presented by Ms. Sumita Ganguly, UNICEF India, during her presentation at this symposium
4. The ‘change agents’ perspective

Organising children and teachers for cleanliness and good use of facilities is very important in each programme. But the need for cleanliness extends beyond toilets or school grounds.

A recent project in Papua New Guinea showed the huge impact when using children as ambassadors for change in their families and communities. SSHE projects in India and Nepal also described the important role children can play in changing hygiene behaviour in their family and community.

5. The ‘future impact’ perspective

How long will children retain the knowledge, attitudes and skills on hygiene that they learn in school? In a study on the long-term effect of hygiene education it was found that new behaviours do not necessarily fade as years go by and that it is not inevitable that people revert to less hygienic practices.

The research data demonstrated that hygiene behaviour is sustained beyond the end of an intervention. For the studies in five countries, 25 comparisons were made between hygiene behaviour and the end date of the project. The behaviours were: hand-washing skills, person washing hands with soap and water, location of soap/water in household, latrine showing signs of use, person using latrine consistently, latrine being maintained and cleaned, water covered/stored safely. The end dates of the projects under comparison were 1998 and 2000. In only 2 out of 25 comparisons did people practice safer hygiene behaviours in projects that ended in 2000 compared with projects that ended in 1998. This indicated that hygiene behaviours did not seem to deteriorate significantly over time.

For the study in India, women from the later projects were significantly more likely to wash both hands with soap and water and were significantly more likely to use the latrine when at home. In other words, hand-washing and latrine use practice did seem to deteriorate with time. However, the fall-off was not very great. Even when projects had ended 7 to 9 years before the survey, about 4 out of 5 of the women (80%) were reportedly still consistently using their latrines.

---

16 Verbal information provided by UNICEF representatives from India and Nepal at the symposium
17 Results of a six country study in Ghana, India, Kenya, Nepal, Uganda and Sri Lanka, coordinated by IRC and London School of Hygiene and Tropical Medicine, financed by the European Commission and DGIS. To be published in fall 2004.
Lessons learned and opportunities for scaling up

Based on the papers and presentations during the symposium (see annex A), lessons learned and opportunities created in SSHE have been identified. Main points from these are highlighted in this section.

Introduction to POSITIVE management

The subtitle of this Symposium was… Construction is not enough. Several nuances in the meaning of this came out during the symposium. It is tempting, given the current push in many countries toward high coverage of schools, to simply construct facilities in one school after another. Experience has shown, however, that such facilities will not be maintained, will deteriorate and will not be used as intended. Inevitably, the health and education impact will not materialise. What is needed is a balance between ‘hardware’ and ‘software’. Hardware refers to construction of facilities in schools for drinking water, hand-washing, going to the toilet. Software refers to a range of things such as: organising community groups, participation of teachers and parents, education and involvement of children, preparation of materials, training, tendering and control of finance, supervision and monitoring. All of these items, in short, are needed to ensure that facilities will be used, and maintained and that hygiene education will take place consistently.

It is easy for one, two or a small number of schools to have effective SSHE… but how can this be managed for 200 or 2,000 schools in a large area? What can we learn from current best practice about managing the scaling up of school programmes, while retaining quality? What inputs, precisely, are needed to create good programmes over larger areas?

Experiences shared in this symposium tend to focus on management from one perspective or another. Good or positive management is essential to achieve effective SSHE at a large-scale. P-O-S-I-T-I-V-E in this case is an acronym:

- **Policy and planning**
  Policy must be implementable and implemented. Coherent. High-level commitment.

- **Ownership**
  Ownership and participation by teachers, parents, children, and the education system, is key to success. Local ‘motors’ are needed such as school management committees and PTAs, although experience with such groups can be quite variable.

- **Supervision**
  Supervision is a catchall word that can include many activities. The important thing is that supervision continues to be effective beyond the end of the project, after construction.

- **Institutional setting**
  If possible, work through existing institutions, to ensure accountability by e.g. education, NGOs, programme personnel. Coordination and partnerships are needed at all levels.

- **Training and orientation**
  Training or orientation are also essential for teachers, for staff of education and public health engineering departments, for local government, parents and contractors. Participatory methods, joint
planning and relevant materials are needed. Retraining is also needed!!

**Institutional norms and designs**
What about some tough issues? What about the teachers who lock up latrines because they want a toilet for their own use? Are school latrine designs relevant to the home? Are the designs child-friendly?

**Very honest**
Delays and loss of money undermine a community’s sense of ownership. Timely and rational construction, including private sector involvement with community involvement are needed.

**Education**
Traditional lecture-memorisation approaches do not usually lead to behavioural change. Instead focus on values, self-management and mutual support. SSHE needs a clear position in the curriculum. Methods: participatory. Facilities must support education.

**Policy and planning** — evidence from the presentations

**General and background presentations:**
Vision building and policy development are crucial but need to be built on real experience. Where do we want to be 5-10 years from now?

Long(er) term commitment to develop methodologies, political will and policies, to show results: move away from ad-hoc projects.

Programmes need to operate at multiple levels: national/district level and local level: capacity building need to address all levels. Regional analysis shows that support in policy building is absolute need.

Continued advocacy and lobbying for political support and commitment is vital.

**India:** Geography matters, or so say the exponents of Geographical Information System (GIS) being applied innovatively in one state in India, Tamil Nadu, for improving the school sanitation programme. Under this, spatial data maps for the villages were generated. For the first time in India, with UNICEF assistance, GIS was used to create water and sanitation facility mapping for schools focusing on five indicators: drinking water, toilet, water for toilet, washing and school sanitation and hygiene education training. This triggered significant changes in planning for SSHE. When the first GIS maps were displayed during a regional workshop, they shocked officials of the SSA and TSC as no district official had any idea about the coverage of water and sanitation facilities in schools. They started comparing coverage levels between different districts and decided to take up joint planning and use pooled resources. The data has been used to prepare district action plans for SSHE, jointly owned by the education programme for universal primary education and the total sanitation programme. Higher officials as well were sensitized to the ground level problems after looking at the GIS data.

**Kenya:** Evidence shows that a child-friendly school has positive effects on concentration, learning, and health. Thus, water and sanitation systems and school planning should be integrated to reach education for all (EFA) by 2015. Water, environment and sanitation
(WES) and education are Millennium Goals to be realised while protecting the environment. Schools can play a guiding role in creating awareness, understanding, and action on sustainable development, WES and health.

**Swaziland:** The study identified a set of critical concerns such as: Absence of water points and latrines in schools, lack of personnel qualified in hygiene education, lack of national policies on health education, and inadequate resources at schools e.g. training equipment. Among the reasons identified for this state of affairs is the lack of importance placed on school sanitation facilities by national institutions and lack of harmony between what is taught at school and the realities of life in the home and community.

**Swaziland and Uganda:** SSHE needs to be implemented in an organised, step-by-step approach. In particular, construction of facilities should NOT come first. Training and community consultation are essential before construction, to ensure the facilities are built with relevant designs, in the right place and that they will be used and manufactured as intended.

**Uganda:** A Memorandum of Understanding (MOU) on sanitation was signed between three Ministries; Ministry of Health (MOH), Ministry of Water Land and Environment (MWLE) and Ministry Of Education and Sports (MOES) in December 2001. Specific areas of sanitation and hygiene promotion were: MWLE for planning investment in sewerage services and public facilities in towns and rural growth centres; MOH for household hygiene and sanitation; and MOES for school latrine construction and hygiene education.

Involvement of politicians in the sanitation program had resulted in better financial and construction accountability as well as increased implementation in some districts.

**Ownership— evidence from the presentations**

**General:** Intersectoral collaboration needs investment: right people at the right time and places: e.g. education meetings with investment banks, development of sector plans etc.

**India:** Focus on schools as an instrument for lasting social change is critical. The India paper noted that despite the principles of non-discrimination enshrined in the constitution, caste is a part and parcel of life. However, under the SSHE, school students, irrespective of class, caste or gender are supposed to clean and maintain water and sanitation facilities created. Thus SSHE represents a potentially important avenue to address entrenched culture norms in schools of today so that the citizens of tomorrow may form a society with individuals who respect each other and preserve the environment.

**Kenya:** There was a lack of consultation and participation of communities. Top-down approaches were used in school planning, while innovative, culturally-fit and cost-effective school plans lagged behind. Plans from the 1970s and 1980s have not been adapted to improve on energy efficiency, cost-effectiveness, aesthetics, flexibility and adaptability to suit current learning systems, and expectations of user comfort. Yet, the government acknowledged a need for better school environments. A Commission of Inquiry into Kenya’s education system attributed declining standards in education in part to poor school environments [Koech DK 1999]. These barriers influence the quality of learning and school environments. They are often interlinked. Analysing and solving them simultaneously, needs
coordinated efforts by multidisciplinary teams, and this is essential necessary for child-friendly environmental school planning.

**Somalia:** Caritas Switzerland is successfully implementing the Children’s Hygiene and Sanitation Training (CHAST) and Participatory Hygiene and Sanitation Transformation (PHAST) approaches in rural areas of Somaliland in combination with construction of school buildings and water and sanitation facilities. Other organisations are also implementing them in other regions and urban areas. Caritas implements CHAST in villages where community facilitators are also taking up PHAST activities with adult villagers, in order to create a bigger impact by working on parallel levels and in combination with hardware provision.

**South Africa:** Through the water education initiatives of the External Education Services Section, bridges of knowledge are being build and understanding between students and communities to ensure safer water for all in the future. Locally designed education resources enable students and communities to analyse the quality of their water, thus reinforcing concepts learned in the classroom, assisting in acquiring new skills and forging new links between the diverse communities found in Southern Africa. External Education Services promotes a spirit of water awareness and conservation for a brighter future.

**Swaziland:** It was noted that increasingly, communities are taking responsibility for improving and maintaining the school environment. This could be attributed to the fact that communities are becoming aware of the importance of education and of a healthy learning environment.

**Uganda:** Health clubs /committees have been set up in schools. In a survey done by RUWASA, it was reported that most schools (62.9 percent) had set up health clubs and parents were participating to a greater extent in school sanitation issues. Weekly health parades have increased in all schools to promote good personal hygiene.

**Supervision — evidence from the presentations**

**India** It is very important to have personnel whose work is focussed on SSHE, not merely as a part-time effort. For this, in India, the national Total Sanitation Programme provides financial support for at least one person exclusively dedicated to SSHE programmes in each district.

**India(WASH):** The environmental health interventions are regulatory in nature, and benefits accrued are indirect. They are exclusively preventive and benefits can be realised over a long period. The environmental health interventions also potentially convey considerable non-health socio-economic benefits. The WASH Campaign is now at full swing. Very good responses have been received from all stakeholders.

**Uganda:** In general, there was insufficient monitoring and supervision at the national level. The monitoring and evaluation unit in the directorate for water development developed a set of survey tools for WES management information system in 1998. Although these are very comprehensive tool, their efficient and effective use need to be reviewed. Monitoring checklists at schools were effective but time consuming. Sufficient feedback neds to be ensured so that appropriate actions are taken.
Institutional Setting — evidence from the presentations

General: Building on local experience and strengthening partnerships are crucial to leverage resources and to scaling up. It should be noted that the problems of SSHE are generic but the solutions are not. It is therefore not necessarily a question of applying the same approach in different areas. We must continue to learn from past and present experiences, to reflect on these experiences and to use them to improve programmes now and in the future.

India: For children and for some teachers, the SSHE programme is their introduction to the consistent use of latrines, cleaning toilets and to washing both hands with soap afterwards. This challenge is at the same time an entry point, because the SSHE programme, which by its nature is rather popular, can also serve, and is serving, as an entry point for improving sanitation and hygiene within the family and community. Thus, the SSHE programme in India has been linked with broader sanitation drive. In fact, SSHE has become an entry point in many places to mobilize support and demand for household and community sanitary facilities. Inter-sectoral coordination is essential at all the levels. The Department of Drinking Water Supply supports SSHE through its rural water supply and total sanitation campaign which are major national programmes. They have taken several initiatives for coordination with the concerned departments such as Department of Elementary Education & Literacy, Department of Health, Department of Women and Child Development, Ministry of Tribal Affairs, Ministry of Social justice and Empowerment. They also link with the national initiative that aims to universalize elementary education in the country.

Somalia: At the moment the Children’s Hygiene and Sanitation Training (CHAST) approach differs from the teaching methodology commonly used in Somali schools. Although the CHAST approach is fundamentally different from that of Participatory Hygiene and Sanitation Transformation (PHAST), it initially calls for trained facilitators to introduce its sessions to Somali children. Negotiations are currently ongoing with the Ministry of Education in Hargeisa, Somaliland, and UN agencies for the incorporation of CHAST tools into the formal primary school curriculum.

Uganda: The School to Home Approach, if explored further, will help to prevent water and sanitation related diseases by concretising the SSHE acquired at school, to enhance Participatory Approaches in Hygiene and Sanitation (PHAST) that can lead to sustainable change in healthy behaviour of children both at home and school. The distinct role-played by NGOs, as independent commentators on development needs to be recognised, valued and strengthened by donors. Strong partnership/network are needed among NGOs and the government sharing common interest to improve SSHE. There is need for joint planning with all stakeholders.

Training and capacity building — evidence from the presentations

India: It is challenging to ensure adequate planning of SSHE activities. This is primarily because of absence of orientation and training on SSHE interventions. Adequate capacity building and training of manpower involved in the SSHE implementation is required which calls for an increase and improved training programmes for effective and focused
implementation. These challenges have been a part of the concern for the government. For instance, to help states and districts to plan the implementation of SSHE programme, two electronic planning templates (Project Implementation Plan at district level and State Action Plan) have been developed and shared with the implementing agencies. Technical support has been provided through publications; and regional level resource centers provide training for SSHE. In many states, state and district level resource centers have been identified and are being developed to further support the capacity building.

South Africa: Environmental educators need to do away with the old approach where the educators will come up with what they think the problem is or the needs of the community. People need to identify problems themselves and relate it to their local environment. The same approach may be used with students.

Swaziland: One major constraint is that teachers almost never receive adequate training in hygiene education. Secondly, hygiene education has no specific slot in the curriculum and is not adequately addressed through other subjects. The third problem that hampers effective hygiene education is lack of appropriate teaching methodologies and materials at teachers’ disposal. Teachers also encounter difficulties because the hygiene behaviours that they teach cannot be applied within the school, because of a lack of sanitary facilities. A hand-washing lesson has little impact when no hand washing facilities are available.

Institutional norms and designs — evidence from the presentations

General: (1) There is a need to explore child-friendly technological options and those that give choices to schools. (2) Facilities for disabled children should be installed in all schools. (3) Facilities should be planned for teachers, so that they can to assume their responsibilities as role models.

Kenya: Correlations were found between student ill-health and adverse environmental conditions: flooded schools; excessive noise (traffic, industry); excessive odour (dumps, industry); solid/ fluid waste (small enterprises, sewers); polluted rivers (toxic waste); poor school conditions; and poor municipal services. Adverse environmental conditions often occur in combination with poor sanitation and water from unclean sources (water vendors). Information about sustainable construction and design is not available. Developing pilot schools may increase understanding of such technologies by communities. Introducing and using sustainable building materials will depend on their ease of maintenance, affordability, durability, availability, and appearance being equal or comparable to conventional materials already used. Guidelines about such criteria should be clear.

Papua New Guinea: Most current toilet facilities are a health risk, and students who use them believe that these toilets are the norm. This has a negative impact on their understanding of health and sanitation standards.

Uganda: As in Papua New Guinea, if toilet facilities are a health risk, students believe that they are the norm and this has a negative impact on their understanding of health and sanitation standards.
Very honest – evidence from the presentations

**General:** Financial transactions in SSHE relate to tendering and construction as well as to the collection and use of funds for recurrent expenditures such as soap, cleaning materials, etc. These financial transactions must be transparent and honest. The credibility of the whole SSHE programme in the school is at stake.

**South Africa:** A very honest assessment highlighted a number of problems that made it difficult for an outside educator to work with students, and these will be taken into account in future campaigns. Sharing information about problems was a courageous example towards creating greater transparency. Problems included: (1) Appointments were made at schools, but on arrival neither the principal nor the key contact teachers were available. This resulted in delays. (2) Lack of commitment from the teachers. On arrival at a school, students are not ready, and only then will start cleaning and setting up the venue/hall. This delays the programme. (3) Time allocated by the principal with students is not enough to cover the ground, so that it is difficult to engage students in activities like PHAST tools. (4) At some schools, the pupils are forced into a small hall, resulting in overcrowding, and pupils not being able to see the video adequately.

**Education – evidence from the presentations**

**India:** Hygiene education, which is a very important component to change behavior, remains a problematic area in many states, if it is not given a prominent place in programme implementation. There have been many initiatives to improve the focus on hygiene education. The Department of Elementary Education has agreed to incorporate hygiene education in the teachers’ training programme conducted every year. The national educational research/training agency (NCERT) has taken a pro-active role in developing the curriculum on hygiene education. The national Total Sanitation Campaign has also earmarked separate funds for hygiene education.

**Somalia:** Children’s Hygiene and Sanitation Training (CHAST) is based on the well founded premise that personal hygiene practices are usually acquired during childhood – and that it is much easier to change the habits of children than those of adults. Because the Participatory Hygiene and Sanitation Transformation (PHAST) approach was initially designed for adults, it has been carefully revised and adapted to suit the needs of young children. While children have less knowledge and experience, fewer responsibilities and a different conception of time and the future, they are also naturally inquisitive and eager to learn. The CHAST approach takes advantage of these natural attributes. In the CHAST exercises, children are encouraged to work independently in pairs or in small groups, and then to present their thoughts and findings to the larger group. Above all else, CHAST tools are meant to be fun – involving games, exercises and role-plays that prompt the children to discuss and genuinely understand the key issues related to personal cleanliness and hygiene.

**South Africa:** This is an example of the methodology used in the classroom. Learners are involved in group discussions that focus on various water issues like water supply and treatment, pollution, sanitation, health and hygiene, water borne diseases and conservation. There is recognition of prior knowledge. Guided questioning is used to find out what learners already know, to stimulate discussion and to find solutions to problems. These discussions are
supplemented by the water education videos. Due to time constraints, copies of worksheets and other activities are sent back to school with the educators. Educators use the visit to the classroom either as preamble to their lessons on water or to conclude/round up the theme. The highlight of the visit is the tour around the waterworks. This offers a very practical, hands-on approach and learners acquire a better understanding of the purification process, as well as why it is important to pay water bills.

Our message: SSHE Framework for Action

Based on the lessons learned and opportunities found while developing SSHE projects, the symposium participants developed a Framework for Action highlighting the road to be followed for the way forward in SSHE. The full text of the Framework of Action is shown on the following pages:
School water, sanitation and hygiene education (SSHE) appear in the commitments and investments of governments as well as international agencies and are relevant to international charters such as:

- Millennium Development Goals
- Johannesburg Plan of Implementation
- Convention on the Rights of the Child
- International Decade on ‘Water For Life’, 2005-2015
- Dakar Framework for Action - Education For All: Meeting Our Collective Commitments
- Vision 21 – Water for People
- ECOSOC Programme of Action for the Least Developed Countries (2001-2010)

As a reflection of the growing body of experience and recognition for SSHE, an international symposium entitled *School Sanitation and Hygiene Education Symposium; The way forward. Construction is not enough!* was held from 8 through 10 June in the city of Delft, Netherlands. Leaders and representatives from all sectors – governments, foundations, non-governmental organizations, research and multilateral organizations -- from 20 countries came together for the SSHE symposium. They reviewed experiences and identified principles and strategies for further action that can help ensure effective SSHE. One focus of the work was how to scale up SSHE while retaining quality.

This *Framework for Action* presents the conclusions and recommendations of the symposium about effective SSHE and how to achieve it.

**Benefits from effective SSHE programmes**

Evidence of past decades shows that water, sanitation and hygiene education in schools can contribute significantly to development. In particular, SSHE can:

- Contribute to improved health, nutrition and learning performance of children.
- Contribute to increased school enrolment and attendance, particularly of girls, when the school environment is safer and healthier for all children.
- Lead to sustained good practices with regard to hygiene and sanitation because new behaviours developed in schools can continue over a number of years.
- Improve sanitation, environmental and hygiene practices in the community.
• Strengthen cooperation among local institutions and through this, support sustainable development.

Thus, SSHE can help achieve the Millennium Development Goals (MDGs) for education, water, sanitation, child protection, gender equity and health.

**Lessons from experience**

Major lessons drawn from existing experiences with school water, sanitation and hygiene education programs are:

Partnerships are critically important. Donors, governments, NGOs and communities and their schools must work together. Building agreement with people and their institutions is crucial. This includes agreement about the purposes of the programme, its objectives and methods, the roles and responsibility in SSHE.

In order to succeed, the school programme must be part of the overall community sanitation and educational development programme. At the same time, SSHE needs relevant policies, adequate water/sanitation facilities and support from health services. Policy building can only be based on the ground experiences.

Programmes must be systematically planned and implemented with a road map that defines capacity building, processes, milestones and strategies for scaling up. At the same time, programmes must be flexible. Some important lessons learned about planning and implementing programmes are:

• It is essential to balance hardware and software in a step-by-step approach. There is, however, no single, fixed formula (hardware or software). Planning and implementation need to start from local reality, with the capacity to test and adapt both designs and methods.

• Local government leaders, community members, parents, teachers must be involved. Boys and girls can be active in promoting school and community hygiene improvement and environmental issues.

• Capacity building is needed at all levels.

• Hygiene education should be part of the overall school health curriculum. Experience has shown that successful hygiene education leads learners to develop and maintain specific new health behaviours. For this to occur, learners must develop not only knowledge, but also relevant attitudes and skills. Life skills-based health education, which seeks to develop a range of cognitive, personal and interpersonal skills, is more effective than education that focuses too narrowly on the provision of information alone. This approach to hygiene education goes beyond traditional, lecture-based education to incorporate learning experiences that are child-centred, participatory and interactive.

• Child-friendly designs and cost options are a critical factor for achieving minimum standards and functional systems. Designs and technologies need to be tested.
• Operation and maintenance of facilities as well as provision for replacement costs and repair responsibilities need to be thought through right at the start. All children can effectively help to maintain the facilities which they use. This requires appropriate planning and organization through teachers supported by education system and community.

In general, there is large body of experience to learn from in SSHE. Continuous learning and sharing are essential.

**Principles for action**

The symposium confirmed a set of basic principles for effective school water, sanitation and hygiene education programmes. These principles are framed as guidelines for SSHE programme development:

**Scaling up with quality:** Countries must pilot at appropriate scale, learn in an action-research mode, and, right from the start, build in the expansion of the programme. Momentum between a pilot and large scale programming should not be lost. Keys to scaling up with quality are sustainability, decentralisation, participation, partnership and policies. Flexibility of approach should not be lost in scaling up. Effective monitoring systems (such as self monitoring and participatory monitoring) can help ensure flexibility and quality.

**Policy:** Scaling up can succeed only with the support of national and sectoral policies. Long-term resources, both financial and human, need to be allocated for SSHE to ensure that all groups, rich and poor, can benefit. Policies need inputs from practitioners rooted in ground realities and there must be mechanisms to ensure that such practitioners are part of policy-making processes.

**Partnerships:** Partnership and systematic planning are needed for

- coordination,
- systematic implementation,
- keeping minimum standards, and
- ensuring the appropriate combination of software and hardware.

Multi-stakeholder involvement is crucial to successful scaling up. Roles of the stakeholders (the government departments, non-governmental and community-based organizations, institutions, private sector) should be agreed, clear and operationalised. A clear plan is needed for an integrated approach, for example, by setting up multidisciplinary teams with people such as educationists, water/sanitation specialists, community organizers, architects, planners, economists. Effective private-public partnerships can help carry out the programme and reach the poorest. SSHE programmes should link community partners to reach all children in/outside of school.

**Advocacy/Information:** Each SSHE programme needs an advocacy and information sharing plan based on existing experience and information. Advocacy is needed at all levels.
**Capacity building**, like advocacy, is needed at all levels and includes but extends beyond training. It includes the development and operationalization of plans for strengthening school personnel and institutional capacities. The people and institutions involved must be encouraged and able to use the new skills and attitudes deriving from capacity building. All teachers need to be trained in participatory and skills-based teaching methods; while evaluation information about the effectiveness of particular participatory methodologies is also needed.

**Community water and sanitation**: Schools programmes should be developed in the context of the overall community water and sanitation programme. The synergies between these can be used to advantage. Thus, school programmes can help improve conditions and practices in the home and community. Community-based water and sanitation initiatives can support facilities and activities in local schools.

Investments in SSHE will only be worthwhile when water and sanitation facilities are maintained and used as intended and when skills-based hygiene education helps children develop sustained attitudes and practices that can improve their health and well-being.
Annex A: Papers and presentations prepared for the symposium

All the relevant papers and presentations prepared for the symposium are included, although some authors were not able to participate and present. The whole set of papers is also on the SSHE symposium CD ROM provided to all symposium participants and can be downloaded from www.irc.nl.

Global:

- **Keynote.** The way forward; opportunities and lessons learned - Ms. Kathleen Shordt, IRC
- **Scaling up school sanitation and hygiene promotion and gender concerns** - Ms. Rose Lidonde, WEDC, UK
- **Water, sanitation and hygiene in schools: Developments from a global perspective** - Ms. Lizette Burgers, UNICEF-New York, USA (only available in Powerpoint)
- **Fresh initiative: Focusing resources on effective school health** - Ms. Celia Maier, Partnership for child development, UK (only available in Powerpoint)
- **Joyful learning-Participatory Education Activities for Children and Educators (PEACE)** - Ms. Christine van Wijk, IRC, The Netherlands (only available in Powerpoint)

Country-related:

- **India:** SSHE in India: An investment in children. Ms. Sumita Ganguly, UNICEF-New Delhi, India
- **India:** WASH campaign in Kerala- a holistic approach for the reduction of infant and child morbidity - Dr. M.K.P. Roy, Centre for Community Health Research, Kerala, India
- **Kenya:** Integrated water, environment, and sanitation management for community-based, participatory, and sustainable school planning: The case of Nairobi, Kenya - Mr. René John Dierkx, Eindhoven University of Technology, The Netherlands
- **Nicaragua:** Friendly and healthy school initiative - Mr. Felix Hernandez, Ministry of Education, Nicaragua (only available in Powerpoint)
- **Papua New Guinea:** Setting standards - Children as ambassadors for change - Steve Layton, AT Project, Papua New Guinea (paper sent in but not presented)
- **Somalia:**
  - CHAST (Children's Hygiene And Sanitation Training) in Somalia - Ms. Esther de Vreede, Caritas Switzerland
  - Key challenges and possible solutions on SSHE - Safia Jibril Abdi, UNICEF Somalia
- **South Africa:** Sanitation, health and hygiene education to enhance the quality of life: The Ozwathini Case - Ms. Sunita Doodhnath and Ms. Penny Gumede, Umgeni Water, South Africa
- **Swaziland:** Primary school baseline study on water supply, sanitation and hygiene education in Lubombo and Shiselweni Regions of Swaziland - Lessons learned - Ms. Poppy Dlamini and Ms. Khanyisile Mabuza, Umgeni Water, South Africa
• **Uganda:**
  o Cross-transfer of school sanitation and hygiene education to communities - Mr. Walugendo Kyesa Sulaiman, Uganda Muslim Rural Development Association (UMURDA) (paper sent in but not presented)
  o CEI experience in closing the gap in school sanitation and hygiene education: Case study of Mable Parish, Nkoma sub-county, Kamwenge District, western Uganda - Mr. Kisembo Asuman, Community Empowerment Initiative (CEI), Uganda

• **Zambia:** Fresh initiative: Focusing resources on effective school health - Ms. Celia Maier, Partnership for Child Development & Ms. Anna-Maria Hoffmann, UNESCO
Annex B: Agenda
School Sanitation and Hygiene Education Symposium
The way forward: Construction is not enough!

DAY 1  TUESDAY  8 JUNE 2004

09.30-10.30 Introduction: SSHE the way forward

- Welcome by Mr. Paul van Koppen, Director of IRC, The Netherlands
- Opening of symposium and address by Ms. A. van Ardenne, Minister of Development Cooperation, Government of the Netherlands
- Mr. Darren Saywell, WSSCC-Programme Manager, Water Supply and Sanitation Collaborative Council (WSSCC), Switzerland

10.30-11.00 Tea/Coffee

11.00-11.30 Overview and objectives of the symposium

- Ms. Marielle Snel, IRC, The Netherlands

11.30-13.00 Keynote. The way forward: Opportunities and lessons learned

- Ms. Kathleen Shordt, IRC, The Netherlands (25-30 min)
- Panel discussion:
  - Ms. Meena Raghunathan, Project Officer, Centre for Environment Education, India
  - Ms. Belinda Abraham, Project Officer, WES-UNICEF, Malawi
  - Mr. Ngo Quoc, Dung, Vietnam Program Manager, Church World Service – CWS, Vietnam
  - Dr. Celia Maier, Partnership for Child Development, Imperial College Faculty of Medicine, London

13.00–14.30 Lunch

14.30-15.30 Development of SSHE from a global and national perspective

- Water, sanitation and hygiene in schools: Developments from a global perspective. Ms. Lizette Burgers, UNICEF-New York, USA
- SSHE in India: An investment in children. Ms. Sumita Ganguly, UNICEF-New Delhi, India
- Questions and comments from the audience.

15.30-16.00 Tea/Coffee

16.00-17.30 Review of themes and issues from the day

- Plenary feedback
DAY 2  WEDNESDAY  9 JUNE 2004

9.00-11.00 Educational strategies - Presentations

- Fresh initiative: focusing resources on effective school health. Ms. Celia Maier, Partnership for Child Development, UK
- Fresh Initiative on Internet. Ms. Cindy Joerger, Consultant, UNESCO

11.00-11.30 Tea/Coffee

11.30-13.00 Educational strategies - Presentations and discussion

- CHAST (Children’s Hygiene and Sanitation Training) in Somalia. Ms. Esther de Vreede, Caritas Switzerland
- Joyful learning-Participatory Education Activities for Children and Educators (PEACE). Ms. Christine van Wijk, IRC, The Netherlands

13.00-14.30 Lunch

Launch of video ‘SSHE PHASE programme’ by PLAN International

14.30-15.30 Case studies – Presentations and discussion

- CEI experience in closing the gap in school sanitation and hygiene education: Case study of Mable Parish, Nkoma sub-county, Kamwenge District, western Uganda. Mr. Kisembo Asuman, Community Empowerment Initiative (CEI), Uganda
- WASH campaign in Kerala- A holistic approach for the reduction of infant and child morbidity. Dr. M.K.P.Roy, Centre for Community Health Research, Kerala, India

15.30-15.45 Tea/Coffee

15.45-16.30 Case studies – Presentations and discussion

- Sanitation, health and hygiene education to enhance the quality of life – The Ozwathini case. Ms. Sunita Doodhnath and Ms. Penny Gumede, Umgeni Water, South Africa.
- Primary school baseline study on water supply, sanitation and hygiene education in Lubombo and Shiselweni regions of Swaziland – Lessons learned. Ms. Poppy Dlamini and Ms. Khanyisile Mabuza, Umgeni Water, South Africa

16.30-17.30 Discussion and review of themes

- Small group discussions and plenary feedback
- Consideration elements of a framework of action on SSHE

Evening: meeting of small groups for preliminary brainstorming over community of practice in SSHE.
DAY 3                   THURSDAY     10 JUNE 2004

8.30-9.30 Presentations

Presentations of small groups work over community of practice in SSHE.

9.30-11.30 Context of SSHE – Presentations and discussion

- Friendly and healthy school initiative: Mr. Felix Hernandez, Ministry of Education, Nicaragua
- Integrated water, environment, and sanitation management for community-based, participatory, and sustainable school planning: The case of Nairobi, Kenya. Mr. René John Dierkx, Eindhoven University of Technology, The Netherlands
- Scaling up school sanitation and hygiene promotion and gender concerns. Ms. Rose Lidonde, WEDC, UK

11.30-12.30 Discussion of draft mini-declaration from working group

- Small group work on Framework for Action
- Plenary: improving the draft Framework for Action

12.30-13.30 Lunch

13.30-16.00 What are the next steps? Discovering possibilities for working together

- Group discussions

16.00-17.00 Closing remarks

- Presentation of the draft Framework of Action
ANNEX C: LIST OF SYMPOSIUM PARTICIPANTS

Bangladesh
Abdus Salam Miah
SLOPB
Project officer
1/9 Block-B, Lalmatia
Dhaka, 1207, Bangladesh
Tel: 88-029-125350
Fax: 88-0288113148
E-mail: slopd_bd@bangla.net

Burkina Faso
Mr. Soungalo Togo
UNICEF Ouagadougou
Project Officer WES
01 Boite Postal 3420
Ouagadougou, Burkina Faso
Tel: 226- 300235
Fax: 226- 300968
E-mail: stogo@unicef.org

France
Cindy Joerger
UNESCO
Fresh Consultant
7, Place de Fontenoy
75352 Paris 07SP
Tel: 33-1-45680931
Fax: 33-1- 45685621
E-mail: cynapse@noos.fr

India
Lizette Burgers
UNICEF House
Chief WES
73-74 Lodi Estate
New Delhi 100 057, India
Tel: 91-11-4690401
Fax: 91-11-4627521
E-mail: Lburgers@unicef.org
Sumita Ganguly
UNICEF House
Sanitation Co-ordinator
73-74 Lodi Estate
New Delhi 100 057, India
Tel: 91-11-4690401
Fax: 91-11-4627521
E-mail: sganguly@unicef.org

Satish Raj Mendiratta
UNICEF, UP
Project officer- WES
1/4 Vipul Khand, Gomti Nagar
Lucknow, 226010, India
Tel: 00-91-522-2303151
Fax: 00-91-11-522-2303158
E-mail: smendiratta@unicef.org

Meena Lochani Raghunathan
Centre for Environment Education
Project Officer
Thaltej Tekra
Ahmedabad, 380054, India
Tel: 00-91-79-26858002
Fax: 00-91-79-26858010
E-mail: meena.raghunathan@ceeindia.org

M.K.P. Roy
Centre for Community Health Research
Executive Director
Sadanathil bungalow, Vettikavala, Kottarakara
691538, Kerala, India
Tel: 91-11-474-2403358
Fax: 91-11-474-2746293
E-mail: roycchr@satyam.net.in

Kenya

Beth Karanja
NETWAS- Network for water and sanitation
Magadi Road, Off Langata Road
P.O. Box 15614–00503 Mbagathi
Nairobi, Kenya.
Tel: 254–2–890555/6/9/60
Fax: 254–2–890553/54
E–mail: netwas-international@netwas.org

Esther de Vreede
Caritas Switzerland, c/o CIAAS
Hygiene and sanitation co-ordinator
Kyrgyzstan

Anara Choitonbaeva
World Bank Rural Water Hygiene and Sanitation project- NGO ‘Community’
Director of NGO community of rural hygiene and sanitation
193-a Sovetskaya street, Novo-Pavlopka village, Sokuluk rayon
Kyrgyzstan
E-mail: achoitonbaeva@list.ru

Zura Mendikulova
Steering Committee Kyrgyz Section WSSCC
National Coordinator for WSSCC
513 Frunze Street, Apt. #5
Bishkek, 720033
Kyrgyzstan
Tel: 996-312-215853
E-mail: zmendikulova@hotmail.kg

Liberia

Salome M. Mwenda
UNICEF Liberia
Project officer for sanitation and hygiene promotion
Sekou Toure Avenue
Mamba Point
Monrovia, Liberia
Tel: 231-226-136/139
Fax: 231-226-136
E-mail: smendiratta@unicef.org

Malawi

Belinda Abraham
UNICEF, Lilongwe- Malawi
Project officer- WES
Lilongwe 3, P.O. Box 30375
Dorothy Khonje
Ministry of Education
School Health and Nutrition Co-ordinator
Lilongwe 3, P.O. Box 30375
Tel: 265-1-770-788/770
Fax: 265-1-773-162
E-mail: beabraham@unicef.org

Prisca Joan Kutengule
Ministry of Gender
Community Development Officer
Lilongwe 3, P.O. Box 30375
Tel: 265-1-770-788/770
Fax: 265-1-773-162
E-mail: beabraham@unicef.org

**Nepal**

Nawa Kishor Mishra
Department of Water and Sanitation
Chief of Section
Via CWE Section
P.O.Box 1157, Kathmandu
Nepal
Tel: 977-1-5523200 1142
Fax: 977-1-5527280
E-mail: Nlshrestha@unicef.org

Kishor Kumar Shakya
Department of Water Supply and Sanitation
Chief Regional Supervision and Monitoring Officer
RMSO/DWSS Shahid Chok, Pokhara
Nepal
Tel: 977-1-061-521086
Fax: 977-1-061-522628
E-mail: Nlshrestha@unicef.org

Namaste Lal Shrestha
UNICEF, Kathmandu
Project Officer
CWE Section
P.O.Box 1157, Kathmandu
Nepal
Tel: 977-1-5523200 1142
Fax: 977-1-5527280
E-mail: Nlshrestha@unicef.org
Netherlands

Rene John Dierkx  
Eindhoven University of Technology  
Architect and urban planner  
P.O. Box 513  
5600 MB, Eindhoven  
Tel: 31-40-2471050  
Fax: 31-40-2475887  
E-mail: R.j.dierkx@bwk.tue.nl

Saskia Geling  
SIMAVI  
Project Officer  
Spruitenbosstraat 6  
2012 LK, Haarlem  
Tel: 31-20-5495555  
Fax: 31-20-6444065  
E-mail: sgeling@simavi.org

Kim Hartog  
PLAN- The Netherlands  
Programme Officer for Africa  
Van Boshuizenstraat 12  
1083 BA, Amsterdam  
The Netherlands  
Tel: 31-20-5495555  
Fax: 31-20-6444065  
E-mail: kim.hartog@plannederland.nl

Martin Keijzer  
PLAN- The Netherlands  
Senior Programme Officer  
Van Boshuizenstraat 12  
1083 BA, Amsterdam  
The Netherlands  
Tel: 31-20-5495555  
Fax: 31-20-6444065  
E-mail: martin.keijzer@plannederland.nl

Lindy Laagewaard  
UNICEF, the Netherlands  
Public Relations  
Postbus 30603  
2500 GP, Den Haag  
The Netherlands  
Tel: 31-70-3339333  
Fax: 31-70-3824774  
E-mail: Llaagewaard@unicef.nl
Annemarieke Mooijman  Consultant in SSHE  
Bunderstraat 15  
6231 EH, Meerssen  
Tel: 31-43-3580781  
E-mail: amooijman@hetnet.nl

Kathy Shordt  IRC International Water and Sanitation Centre  
Senior Programme Officer  
Westvest 7  
2611 AX, Delft  
Tel: 31-15-2192939  
Fax: 31-15-2190955  
E-mail: Shordt@irc.nl

Marielle Snel  IRC International Water and Sanitation Centre  
Programme Officer  
Westvest 7  
2611 AX, Delft  
Tel: 31-15-2192939  
Fax: 31-15-2190955  
E-mail: Snel@irc.nl

Nicaragua

Felix Hernandez Bucardo  UNICEF, Nicaragua  
Officer of the Ministry of Education  
Rotonda El Gueguense  
Edificio de las Naciones Unidas Nivel I,  
Managua  
Tel: 505-268-0687  
Fax: 505-268-0694  
E-mail: srivera@unicef.org

Senegal

Lillian Okwirry Midi  PLAN, West Africa Regional Office  
Regional Water and Sanitation Advisor  
136, Sotrac Mermoz  
BP 21121, Dakar  
Tel: 211-869-7430/869 7435  
Fax: 211-860-2951  
E-mail: lillian.okwirry@plan-international.org
Moustapha Niang
UNICEF, Dakar
2 Rue Carnot X Salva
BP 429, Dakar
Senegal
Tel: 221-8890300
Fax: 221-8234615
E-mail: mniang@unicef.org

Sierra Leone

Solomon Alex A.A. Kargbo
CADO
Executive Director
108 Kissy Road
PMB 1317, Freetown
Sierra Leone
Tel: 232-22-226148/226163
Fax: 232-22-226163
E-mail: cado@sierratel.sl

South Africa

Poppy Diamini
Umgeni Water
Commercial Implementation Specialist: Scientific and Environment
P.O. Box 9
3201 Pietermaritzburg
Fax: 27 33 341 1241
E-mail: Poppy.Dlamini@umgeni.co.za

Penny Gumede
Umgeni Water
Commercial Implementation Health and Hygiene Co-ordinator
P.O.box 9
3201 Pietermaritzburg
Fax: 27 33 341 1241
E-mail: suhayl.rawhani@umgeni.co.za

Switzerland
Darren Saywell
WSSCC
Programme Manager
International Environment House
9, Chemin des Anemones
1219 Chatelaine, Geneva
Switzerland
Tel: 41-22-9178654
Fax: 41-22-9178084
E-mail: Saywelld@who.ch

Jackie Sims
World Health Organisation
Technical Officer for water, sanitation and health
20, Avenue Appia
GH-1211, Geneva 27
Switzerland
Tel: 41-22-7913755
Fax: 41-22-7914186
E-mail: simsj@who.int

Uganda

Kisembo Asuman
Community Empowerment Initiative (CEI)
Programme Co-ordinator
P.O. Box 815
Fort Portal, Uganda
Tel: 256-77-443965
Fax: 256-48-322636
E-mail: cei@spacenet.co.ug

United Kingdom

Adam Biran
London School of Hygiene and Tropical Medicine
Researcher
Keppel Street
London WC1 E 7HT
Tel: 44-2076-127862
Fax: 44-2076-367843
E-mail: Beth.Scott@lshtm.ac.uk

Shorab Baghri
PLAN International Headquarters
Christchurch way, Chobham House
Woking
Tel: 44-1483-733269
Fax: 44-1483-756505
E-mail: sohrab.baghri@plan-international.org

Rose Atemo Lidonde
Water, Engineering and Development Centre,
Loughborough University
Researcher
Leicestershire LE11 3TU
United Kingdom
Tel: 44-1509-222885
Fax: 44-1509-211079
E-mail: R.A.Lidonde@lboro.ac.uk

Celia Maier
Partnership for Child Development
Researcher
Imperial College, Faculty of Medicine
University of London
Norfolk Place
London, W2 1PG, UK
Tel: 44-20-759-4356
Fax: 44-20-726-27912
E-mail: C.Maier@imperial.ac.uk

Beth Scott
London School of Hygiene and Tropical Medicine
Researcher
Keppel Street
London WC1 E 7HT
Tel: 44-2076-127862
Fax: 44-2076-367843
E-mail: Beth.Scott@lshtm.ac.uk

United States

Vanessa Tobin
UNICEF, NY
Chief WES
3 United Nations Plaza
New York, 10017
Tel: 1-212-8246661
Fax: 1-212-8246480
E-mail: Vtobin@unicef.org

Vietnam

Chander Badloe
UNICEF, Vietnam
Chief of WES
72, Ly Thuong Kiet
Hanoi, Vietnam
Tel: 84-4-9425706 –11 ext. 205
Fax: 84-4-9425705
E-mail: cbadloe@unicef.org
Joanne Fairly
Church World Service
Vietnam Representative
218 Doi Can, La Thanh Hotel
IPO Box 176, Hanoi
Tel: 84-4-832-8569
E-mail: joanne@cws.org.vn

Ngo Quoc Dung
Church World Service
Vietnam Program Manager
218 Doi Can, La Thanh Hotel
IPO Box 176, Hanoi
Tel: 84-4-832-8569
E-mail: dung@cws.org.vn

Zambia

Daniel Banda
Ministry of Health
Senior Health Inspector
UN Building
Alick Nkhata Road, Longacres
P.O. Box 33610
Lusaka, Zambia
Tel: 260-1-254709
Fax: 260-1-253389
E-mail: Gzulu@unicef.org

Giveson Zulu
UNICEF, Zambia
Project office- WES
UN Building
Alick Nkhata Road, Longacres
P.O. Box 33610
Lusaka, Zambia
Tel: 260-1-254709
Fax: 260-1-253389
E-mail: Gzulu@unicef.org
ANNEX D: REFERENCES

1. Partnership for Child Development (1997). ‘This wormy world fifty years on’. In: *Parasitology today*, November. – Poster


12. Information drawn from the presentation given by Rose Lidonde, WEDC, U.K.

14. Results presented by Ms. Sumita Ganguly, UNICEF India, during her presentation at this symposium


16. Verbal information provided by UNICEF representatives from India and Nepal at the symposium

17. Results of a six country study in Ghana, India, Kenya, Nepal, Uganda and Sri Lanka, coordinated by IRC and London School of Hygiene and Tropical Medicine, financed by the European Commission and DGIS. To be published in fall 2004