Republic of Malawi

Ministry of Education, Science & Technology

Malawi School WASH 2008

A Status Report on Water, Sanitation, and Hygiene in Primary Schools

May 2009
Malawi School WASH 2008

A Status Report on Water, Sanitation, and Hygiene in Primary Schools

This main volume contains the School WASH national overview. In separate annexes 1-6, analyses by districts are provided; including details for each school registered.
FOREWORD

The importance of potable water, good sanitation facilities, and hygienic practices in national development has been recognized in most developed countries. Unfortunately, most developing countries, like Malawi, have in the past years not given or attached enough consideration to the provision of safe water, good sanitation facilities, and promotion of good hygienic practices. However, the Ministry of Education, Science and Technology realizes that an investment of these services through the school system could go a long way in ensuring a healthy and productive nation.

The need to have a national assessment on the water, sanitation, and hygiene in primary schools was expressed at different fora since 2002. The assessment was guided by issues raised in the National Water Policy (2007) and the National Sanitation Policy (2008). It was felt that a lack of information on the status of water, sanitation, and hygiene in primary schools was hampering the ministry’s efforts in ensuring the provision of these facilities in schools.

On average we would require only around 10 US Dollars per school child to ensure provision of water, sanitation, and hygiene facilities in adequate quantities and quality and implement hygiene education in all schools. This target is achievable considering that there are many duty bearers. In order to address the gaps identified by the survey, it is important that there is strong collaboration and partnership among the Ministry of Education, Science and Technology; Ministry of Irrigation and Water Development; Ministry of Health and Population Services; and Ministry of Gender, Child Welfare, and Community Services. In addition, it is expected that the private sector would play its role by investing in the area of water, sanitation, and hygiene in the education sector.

Considering the ministry’s resource constraints, I invite other duty bearers, both internal and external, to partner with the ministry in this important intervention. I would like, therefore, to urge all institutions that have a role to play in the provision of school water and sanitation facilities and the promotion of key hygiene practices to fulfill their mandate in order to help the Ministry of Education, Science and Technology ensure that these facilities are available in adequate quantities and quality in each and every primary school in Malawi.

Dr. George Chaponda, M.P.

Minister of Education, Science and Technology
PREFACE

Children have a right to education and to a healthy and safe environment. Unfortunately, many children today, including those who spend most of their time in school, do not have access to safe water and sanitation and remain exposed to diseases like diarrhoea, dysentery and cholera.

Providing adequate and quality water, sanitation, and hygiene in schools is critical to our efforts to promote education and reduce the burden of disease. Inadequate or poor water, sanitation, and hygiene facilities force children to drop out of school or not attend school regularly. It also makes the workplace unattractive to thousands of teachers who have dedicated their lives to this noble profession.

Improving water, sanitation, and hygiene in schools is an important strategy to reducing poverty, achieving the Millennium Development Goals, and fulfilling the promises of the Malawi Growth and Development Strategy. However, until now, the status of water, sanitation, and hygiene in schools across Malawi was unknown. Therefore, the Ministry of Education, Science and Technology in October, 2008, embarked on a national assessment of water, sanitation, and hygiene facilities in schools. The National School WASH Assessment is the country’s first ever comprehensive analysis of water, sanitation, and hygiene in primary schools. It was conducted in 5,379 of the country’s 5,460 schools.

The report paints a worrying picture. While 81 per cent of schools use a protected water source, only 23 per cent have acceptable sanitation and only 4 per cent provide hand-washing facilities with soap. As a ministry and a country, we have our work cut out. We need to construct about 1,000 boreholes, more than 8,000 hand-washing facilities and 37,000 latrines in more than 4,000 schools if we are to overturn the situation. In addition, we need to step up hygiene education nation-wide. At a cost of US$36.8 million, this target is largely achievable. Anything less undermines our efforts to protect children from disease and hinders their ability to develop to their fullest potential.

It is my sincere hope that this report will shine a much-needed spotlight on school water, sanitation and hygiene and result in improved policy implementation and financial commitments. As the lead ministry in ensuring that children are learning in a healthy environment, we will do our best to continuously improve water, sanitation, and hygiene in schools. However, we need the concerted support of all our partners, friends and well-wishers. I would, therefore, like to invite our bilateral partners, United Nations agencies, local and international Non-Governmental Organizations, and the private sector to study this report and see how and where they can assist in providing water, sanitation, and hygiene to the 3.6 million children who daily attend our schools.

Lastly, I extend my appreciation to UNICEF whose financial and technical support made it possible for the National School WASH Assessment to be undertaken.

B.H. Sande
Secretary for Education, Science and Technology
# TABLE OF CONTENTS

MAP OF MALAWI ............................................................................................................................ II

FOREWORD .................................................................................................................................... IV

PREFACE .................................................................................................................................... V

TABLE OF CONTENTS .................................................................................................................. VI

TABLE OF FIGURES .................................................................................................................... VIII

ABBREVIATIONS AND ACRONYMS ............................................................................................. X

EXECUTIVE SUMMARY .................................................................................................................. 1

## 1.0 INTRODUCTION .................................................................................................................. 2

1.1 Malawi primary education sector ................................................................................................................. 2
1.2 Purpose of this report ........................................................................................................................................... 2
1.3 Rationale for focusing on WASH in schools .......................................................................................................... 3
  1.3.1 Reduced disease burden among children and staff ........................................................................................................... 3
  1.3.2 Improved school attendance and retention .................................................................................................................... 3
  1.3.3 Improved gender balance in education ............................................................................................................................ 3
  1.3.4 Improved attraction and retention of teachers .................................................................................................................. 3
  1.3.5 WASH a necessity for universal school feeding .......................................................................................................... 3
  1.3.6 Effective learning through conducive environment ....................................................................................................... 3
  1.3.7 School children as agents for change ............................................................................................................................ 3
1.4 Research Design ........................................................................................................................................... 4
  1.4.1 Methodology and data collection ............................................................................................................................... 4
  1.4.2 Data entry and analysis .............................................................................................................................................. 4

## 2.0 WATER IN SCHOOLS ......................................................................................................... 5

2.1 Protected and Unprotected Water Sources ...................................................................................................... 5
  2.1.1 National Overview .................................................................................................................................................. 5
  2.1.2 Water sources in education divisions .......................................................................................................................... 6
  2.1.3 Water sources in urban and rural areas .......................................................................................................................... 6
  2.1.4 Water sources in education districts ........................................................................................................................ 7
2.2 Drinking Water Quality ....................................................................................................................................... 8
  2.2.1 National overview .................................................................................................................................................. 8
  2.2.2 Water quality in urban and rural areas .......................................................................................................................... 8
  2.2.3 Water quality in education districts .......................................................................................................................... 9
2.3 Water treatment and handling in schools ............................................................................................................ 11

## 3.0 SANITATION IN SCHOOLS ............................................................................................ 13

3.1 Basic and Improved Sanitation ....................................................................................................................... 13
  3.1.1 National overview .................................................................................................................................................. 13
  3.1.2 School sanitation for girls and boys ............................................................................................................................ 15
  3.1.3 School sanitation in urban and rural areas ................................................................................................................ 16
  3.1.4 School sanitation in education districts .................................................................................................................... 17
  3.1.5 School sanitation for children with special needs ...................................................................................................... 17
3.2 Urinal Facilities .................................................................................................................................................. 18
  3.2.1 National overview .................................................................................................................................................. 18
  3.2.2 School urinals for girls and boys ............................................................................................................................ 18
  3.2.3 School urinals in urban and rural schools ................................................................................................................ 19
  3.2.4 School urinals in education districts .......................................................................................................................... 20
4.0 HYGIENE IN SCHOOLS ........................................................................................................... 21

4.1 Facilities for Hand Washing .................................................................................................. 21
  4.1.1 National overview .......................................................................................................... 22
  4.1.2 School hand washing facilities in urban and rural areas ............................................. 22
  4.1.3 School hand washing facilities in education districts .................................................. 23
  4.1.4 School hand washing facilities for staff ...................................................................... 24

4.2 Hygiene Education ............................................................................................................. 24
  4.2.1 3 Key Hygiene Practices pilot ...................................................................................... 25
  4.2.2 Scaling up nation wide ................................................................................................. 26

5.0 SCHOOL WASH NEEDS AND GAPS .................................................................................. 27

5.1 Water gaps in schools ........................................................................................................... 27
  5.1.1 Needs for protected water sources ............................................................................. 27
  5.1.2 Needs for improving water quality from protected sources ..................................... 28
  5.1.3 Needs for water treatment and handling .................................................................... 28

5.2 Sanitation gaps in schools ................................................................................................... 29
  5.2.1 Needs for improved sanitary facilities ....................................................................... 29
  5.2.2 Needs for improved urinal blocks .............................................................................. 29

5.3 Hygiene gaps in schools ..................................................................................................... 30
  5.3.1 Needs for hand washing facilities .............................................................................. 30
  5.3.2 Needs for soap for hand washing .............................................................................. 31
  5.3.3 Needs for hygiene education ....................................................................................... 31

5.4 Summary of costs of School WASH interventions needed ............................................... 32
  5.4.1 Costs per type of intervention ...................................................................................... 32
  5.4.2 Costs per district .......................................................................................................... 32
  5.4.3 Costs per intervention, per pupil ............................................................................... 33
  5.4.4 Costs per district, per pupil ....................................................................................... 33
  5.4.5 Costs summary ............................................................................................................ 34

PHOTO CREDITS .......................................................................................................................... 37

APPENDICES ................................................................................................................................... 38
## TABLE OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proportion of schools using water from the various types of protected and unprotected sources</td>
</tr>
<tr>
<td>2</td>
<td>Proportion of schools in each division using water from protected and unprotected sources</td>
</tr>
<tr>
<td>3</td>
<td>Proportion of schools, urban and rural, that use drinking water from a protected water source</td>
</tr>
<tr>
<td>4</td>
<td>Proportion of schools, in each district, using a protected water source as main drinking water source</td>
</tr>
<tr>
<td>5</td>
<td>Proportion of schools in which the drinking water was tested biologically safe and unsafe</td>
</tr>
<tr>
<td>6</td>
<td>Proportion of schools, urban and rural, where the drinking water tested biologically safe</td>
</tr>
<tr>
<td>7</td>
<td>Proportion of schools, in each district, where drinking water tested biologically safe</td>
</tr>
<tr>
<td>8</td>
<td>Proportion of schools using water from a protected source, and proportion of schools where the water tested biologically safe</td>
</tr>
<tr>
<td>9</td>
<td>Proportion of schools, in each district, where in the same school the drinking water both comes from a protected source, and is tested biologically safe</td>
</tr>
<tr>
<td>10</td>
<td>Proportion of schools, in each district, where the main drinking water source is a protected source, but where the water still tested biologically unsafe</td>
</tr>
<tr>
<td>11</td>
<td>Proportion of schools, in each district, that have water storage buckets with tap and lid available</td>
</tr>
<tr>
<td>12</td>
<td>Proportion of schools that have sanitary facilities; quality and quantity</td>
</tr>
<tr>
<td>13</td>
<td>Proportion of schools with piped water, flush toilets, and both</td>
</tr>
<tr>
<td>14</td>
<td>Proportion of schools that have sanitary facilities for girls; quality and quantity</td>
</tr>
<tr>
<td>15</td>
<td>Proportion of schools, urban and rural, with improved sanitary facilities in adequate numbers</td>
</tr>
<tr>
<td>16</td>
<td>Proportion of schools in urban education districts that use flush toilets; adequate and inadequate quantities</td>
</tr>
<tr>
<td>17</td>
<td>Proportion of schools, in each education district, with adequate quality and quantity of sanitary facilities: 60 girls or less, or 60 boys or less, per 1 improved sanitary facility</td>
</tr>
<tr>
<td>18</td>
<td>Proportion of schools with urinal blocks for girls and boys; improved, basic, and none</td>
</tr>
<tr>
<td>19</td>
<td>Proportion of schools; national, urban and rural; with improved urinal blocks for boys and girls</td>
</tr>
<tr>
<td>20</td>
<td>Proportion of schools, in each district, that have improved urinal blocks, for girls and boys</td>
</tr>
<tr>
<td>21</td>
<td>Proportion of schools with hand washing facilities available and in use</td>
</tr>
<tr>
<td>22</td>
<td>Proportion of schools, urban and rural, with hand washing facilities in use</td>
</tr>
<tr>
<td>23</td>
<td>Proportion of schools, in each district, that have hand washing facilities in use</td>
</tr>
<tr>
<td>24</td>
<td>Proportion of schools, in each district, that have hand washing facilities in use for staff</td>
</tr>
<tr>
<td>25</td>
<td>Estimated costs of necessary School WASH investments, for each type of intervention</td>
</tr>
<tr>
<td>26</td>
<td>Estimated costs of necessary School WASH investments, for each district</td>
</tr>
<tr>
<td>27</td>
<td>Estimated costs of necessary School WASH investments, each type of intervention, per pupil reached</td>
</tr>
<tr>
<td>28</td>
<td>Estimated costs of ensuring acceptable WASH standards in all schools, by school child reached in each district</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1: Interventions needed for ensuring protected water sources in schools..........................................................27
Table 2: Interventions needed for water handling and treatment ................................................................................28
Table 3: Interventions needed for ensuring improved sanitation in all schools .........................................................29
Table 4: Interventions needed to ensure improved urinal blocks in all schools ..........................................................30
Table 5: Interventions needed for ensuring hand washing facilities in all schools .......................................................30
Table 6: Interventions needed to ensure availability of soap for hand washing in all schools ........................................31
Table 7: Interventions needed for ensuring hygiene education in all schools ...............................................................31
Table 8: Summary budget of costs, of ensuring that acceptable levels of water, sanitation, and hygiene in schools is reached........35
## ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>CBCC</td>
<td>Community-Based Childcare Centre</td>
</tr>
<tr>
<td>CBO</td>
<td>Community-Based Organization</td>
</tr>
<tr>
<td>CHAST</td>
<td>Child Hygiene and Sanitation Transformation</td>
</tr>
<tr>
<td>CPEA</td>
<td>Coordinating Primary Education Advisor</td>
</tr>
<tr>
<td>DA</td>
<td>District Assembly</td>
</tr>
<tr>
<td>DC</td>
<td>District Commissioner</td>
</tr>
<tr>
<td>DEM</td>
<td>District Education Manager</td>
</tr>
<tr>
<td>DSS</td>
<td>Direct Support to Schools</td>
</tr>
<tr>
<td>EMAS</td>
<td>Education Methods Advisory Service</td>
</tr>
<tr>
<td>EMIS</td>
<td>Education Management Information System</td>
</tr>
<tr>
<td>GoM</td>
<td>Government of Malawi</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>HSA</td>
<td>Health Surveillance Assistant</td>
</tr>
<tr>
<td>IMR</td>
<td>Infant Mortality Rate</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MDHS</td>
<td>Malawi Demographic Health Survey</td>
</tr>
<tr>
<td>MGDS</td>
<td>Malawi Growth and Development Strategy</td>
</tr>
<tr>
<td>MIE</td>
<td>Malawi Institute of Education</td>
</tr>
<tr>
<td>MoEST</td>
<td>Ministry of Education, Science and Technology</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MoIWD</td>
<td>Ministry of Irrigation and Water Development</td>
</tr>
<tr>
<td>MoWCD</td>
<td>Ministry of Women and Child Development</td>
</tr>
<tr>
<td>NESP</td>
<td>National Education Sector Plan</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organisation</td>
</tr>
<tr>
<td>NSP</td>
<td>National Sanitation Policy</td>
</tr>
<tr>
<td>NWP</td>
<td>National Water Policy</td>
</tr>
<tr>
<td>PEA</td>
<td>Primary Education Adviser</td>
</tr>
<tr>
<td>PHAST</td>
<td>Participatory Hygiene &amp; Sanitation Transformation</td>
</tr>
<tr>
<td>PTA</td>
<td>Parents and Teachers Association</td>
</tr>
<tr>
<td>SHN</td>
<td>School Health and Nutrition</td>
</tr>
<tr>
<td>SSHP</td>
<td>School Sanitation and Hygiene Promotion</td>
</tr>
<tr>
<td>TA</td>
<td>Traditional Authority</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
</tr>
<tr>
<td>VDC</td>
<td>Village Development Committee</td>
</tr>
<tr>
<td>VHWC</td>
<td>Village Health and Water Committee</td>
</tr>
<tr>
<td>WASH</td>
<td>Water, Sanitation, and Hygiene</td>
</tr>
<tr>
<td>WFP</td>
<td>World Food Programme</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Continuous efforts to improve the situation of water, sanitation, and hygiene in primary schools in Malawi have for a long time been constrained by lack of appropriate data for use in strategizing interventions. Recognizing insufficiencies in quantity and quality of data available on School WASH in Malawi, MoEST decided to carry out a first-time nation-wide School WASH assessment. Indicators were agreed upon based on the new National Sanitation Policy; questionnaires were developed; and all Primary Education Advisors were involved in data collection including water quality testing. Out of a total of 5,460 primary schools in Malawi the assessment was completed in 5,379 schools, giving an outstanding response rate of 98.5%.

The results show that the current water situation in Malawi’s primary schools is not ideal but quite encouraging. A full 81.5% of schools use drinking water from a protected water source; however, an unprotected water source is still used as the main drinking water source in 18.5% of schools. Water quality is not as good as coverage of protected sources; in 67.2% of schools is the water biologically safe for drinking.

The sanitation situation is more difficult. In 23% of primary schools are sanitary facilities present in acceptable quality and quantity, with less than 60 learners per improved sanitary facility. Improved facilities are in use in another 40% of schools, but in inadequate numbers. There are 33% that have only basic sanitation, and 4% of schools have no facilities available for disposal of human waste. Improved urinals are recommended in order to keep the acceptable ratio of pupils to latrine at 60:1, -if there are no urinals the recommended ratio would be only 25 pupils per latrine. However, only 12.8% of schools in the country have improved urinals for girls, and 17.2% have likewise for boys.

The situation on hygiene is rather alarming. Only 4.2% of primary schools have hand washing facilities in use and with soap available. Another 14% have hand washing facilities in use, but without soap; and a full 81% of schools do not provide the learners with any facilities for washing hands while in school. But hygiene in schools also depend on good knowledge and practices among teachers and learners, and the Ministry is taking important steps in improving this at present.

Having appropriate data available for the first time has made it possible to analyze the situation through use of data disaggregated by gender, pupils/teachers, urban/rural, and geographical levels such as nationwide, by regions, or by districts. In addition to this main volume there are also annexes 1-6, for each education division, and in those annexes more details are found; down to school zones and even individual schools.

The extensive analysis of data has, from the analysis of the current situation, gone further to analyze the gaps; and what is needed in order to ensure that all schools have acceptable facilities for water, sanitation, and hygiene, and systematic hygiene education in all schools. The analysis shows that ensuring that all schools reach acceptable levels in terms of both quality and quantity for all School WASH components, is likely to cost approximately USD 36,786,804. Out of this amount approximately USD 8,171,248 will be required for interventions related to safe drinking water; USD 23,715,500 for interventions related to sanitation; and USD 4,900,056 for interventions related to hygiene.

The figure may seem high; but there are 3,6 million school children enrolled in the primary schools. Currently their right to a healthy learning environment, including their right to health and education, is compromised. Protection of their rights is not only the obligation of all duty bearers, near and far, but in the interest of all, as the children represent the future. Ensuring the rights of all children to have safe water, adequate sanitation, and good hygiene in school, is estimated to cost only USD 10.2 per pupil. For this amount the necessary improvements can be made, and partners are encouraged to morally scrutinize their duties, and rights, to assist, or not, in this undertaking.
1.0 INTRODUCTION

1.1 Malawi primary education sector

The Education sector is guided by core policy documents: the Education Act (1962); the National Education Sector Plan (NESP, 2008); The Education Policy and Investment Plan (PIF 2002); and the National Strategy for Community Participation in Primary School Management (2004). Other related guiding documents include the National Water Policy (2007); the National Sanitation Policy (2008); the National Decentralization Policy (2005); the National Gender Policy (2004); and the National HIV Policy, among others. These policies provide a framework for facilitating improved water supply, sanitation, and hygiene, in enhancing quality education in primary schools.

Primary education is administratively organized by 6 education divisions; 34 education districts; 411 zones; and 5460 primary schools, both public and private. The total enrolment registered by 2008 is 3,600,771. In 1994 with introduction of multiparty democracy government liberalized the provision of education services to involve private sector. And also important was the introduction of Free Primary Education Policy in response to make primary education universally accessible to school age children. These events had an impact on the quality of education as well as on water, sanitation, and hygiene facilities in schools. New schools were established in sites that in some cases were not suitable for the purpose, and this was particularly serious with the private sector; and with the introduction of free primary education the number of pupils became disproportionate to the facilities available, particularly on school water, sanitation, and hygiene (School WASH).

Water, sanitation and hygiene in schools significantly contribute to the quality of education. For this reason School WASH is led institutionally by the Ministry of Education, Science and Technology (MoEST), particularly guided by the water and sanitation policies under Ministry of Irrigation and Water Development (MoIWD). MoEST has for many years collected data on various education indicators, including indicators on water and sanitation, through operating an Education Management Information System (EMIS), with information based on school censuses carried out annually. Until now, however, these data have put less emphasis on the component of Schools WASH.

Considering the importance of WASH in schools for quality education, and together with introduction of policies for water and sanitation, a new approach was required to align School WASH indicators to the policy. Recognizing and moving to address this, in 2008 the Ministry of Education decided to conduct a nation-wide School WASH census in order to assess the water, sanitation, and hygiene situation in primary schools throughout the country.

1.2 Purpose of this report

The overall purpose of this report is to present, for the first time, the current situation on water, sanitation and hygiene in the primary education system, as collected during a nation-wide survey. The report highlights the existing needs and gaps in School WASH, and it provides an estimate of how much it would cost to ensure that all schools attain a minimum acceptable standard.

The three key hygiene practices known to most effectively reduce hygiene related diseases are: (1) drinking safe water; (2) consistent use of sanitary facilities; and (3) hand washing with soap. The extent to which these key hygiene practices are carried out in schools is not covered by this report; the recent data collection focused on physical availability of WASH facilities on school grounds, rather than on practices, since studies which evaluate practices are very comprehensive and resource demanding. Therefore, most of the report is centred around the physical availability of WASH facilities, based on the nation-wide School WASH assessment. However, this report also presents some observations on hygiene education, made from a one-district pilot which is being scaled up.

---

1 Education Management Information System (EMIS), MoEST 2008 statistics.
1.3 Rationale for focusing on WASH in schools

Reasons for focusing on WASH in schools are that adequate provision of safe water, sanitation, and hygiene in schools has a number of positive effects, as follows:

1.3.1 Reduced disease burden among children and staff

There are several water-, sanitation- and hygiene-related diseases in Malawi, such as diarrhea, malaria, cholera, dysentery and others. It is therefore important to have adequate water supply, sanitation, and hygiene facilities in schools in order to reduce the prevalence of these diseases. Most schools serve communities that have a high prevalence of diseases related to inadequate water supply, sanitation and hygiene. Schools with poor water, sanitation and hygiene (WASH) conditions, and intense levels of contact between pupils, are high-risk environments; whereas schools with good WASH conditions carry low risk of transmitting diseases to school children.

1.3.2 Improved school attendance and retention

WASH is among the factors contributing to low attendance and retention levels. Attendance is affected by lack of WASH facilities in schools, due to the school children being prone to diarrhoeal diseases and other WASH related infections, which force many schoolchildren to be absent from school. In addition, a nice school environment with appealing WASH facilities make the school attractive, and this increases attendance and retention.

1.3.3 Improved gender balance in education

School children are more likely to come to school if facilities are of good quality and adequate quantity, and this is particularly true for older girls. Proper facilities for menstrual hygiene contribute to girls attending school during days of their period instead of staying at home, or even dropping out altogether at puberty. Therefore provision of WASH in schools alleviates problems of retention of girls and improves gender equity.

1.3.4 Improved attraction and retention of teachers

WASH is among the factors influencing whether teachers accept to work at a particular school. The country is currently lacking around 15,000 primary school teachers, most of them in rural schools. In order to attract and retain teachers to work in schools it is important to have at least the basic facilities for water, sanitation, and hygiene in place: to offer them a protected water source; facilities for washing hands; and improved sanitary facilities separately from the learners and at least one for female staff and one for male staff, all in a nice and clean school environment.

1.3.5 WASH a necessity for universal school feeding

Currently a school feeding programme exists in about 700 schools nation wide, but has been proposed to be scaled up to cover all schools. School feeding will be a challenge for schools that do not have adequate and safe water supply, hand washing, and sanitation facilities. Water, sanitation, and hygiene are crucial for a school feeding programme because children need to wash their hands before eating; safe water is needed for cooking; cooking utensils need to be cleaned; and staff and children need to be properly trained on practicing safe hygiene practices.

1.3.6 Effective learning through conducive environment

Conducive environmental conditions make both teaching and learning easy. Healthy pupils and healthy teachers have a direct impact on teaching performance and learning outcomes.

1.3.7 School children as agents for change

Children can be agents for change in their families and the wider community, and can learn and practice life-long positive hygiene behaviors. Children who have adequate water, sanitation and hygiene conditions in school are more able to integrate hygiene practices into their daily lives and
on to people around them. The hygiene behaviors that children learn in school through a combination of hygiene education and suitable water and sanitation facilities, are skills that they are likely to maintain as adults and pass on to their children.

1.4 Research Design
The data for the School WASH assessment is based on self-reporting by Head teachers. The data was collected in October 2008, and this report therefore shows the situation of that time.

1.4.1 Methodology and data collection
Realizing the need to conduct a School WASH assessment of all schools in the country, MoEST decided to initially conduct a one-district pilot assessment in order to verify the suitability of indicators; pretest the assessment tools, data collection procedure, data processing; and the overall feasibility for conducting a nation-wide assessment.

MoEST revised the indicators and designed a simple one-page data collection questionnaire. The pilot study took place during the month of July 2008, involving all 227 public schools in Lilongwe Rural West education district. In this pilot, Primary Education Advisors (PEAs) distributed the questionnaires to head teachers at every school in their respective zones, whereby the Head teachers then completed the questionnaires. Drinking water quality was determined by testing with an H₂S testing strip, which, if water contains bacteriological agents that make it unsafe for drinking, the water sample turns black. To ensure accuracy of water quality data, PEAs examined the H₂S test after the testing was completed, then collected the completed questionnaires from each school, and delivered them to district educational offices for forwarding to MoEST headquarters for analysis.

Following the pilot effort, some adjustments were made to the instrument to ensure that accurate, consistent, and reliable statistics could be collected. The national assessment was conducted in October 2008 and followed the same procedures as in the pilot. Of the total 5460 primary schools 5,379 schools completed and returned the data questionnaires, for an outstanding response rate of 98.5%.

1.4.2 Data entry and analysis
For capturing of the data EMIS developed a separate data base using MS Access 2007, which was then linked to the existing EMIS data base. The analysis of the data was quantitative as the questionnaire contained only closed questions, and MS Excel 2007 was used for this analysis, including for creating tables and graphs.

---

2 Please refer to the appendix at the end of this report.
2.0 WATER IN SCHOOLS

Safe drinking water can be achieved through: (1) ensuring that the water comes from a protected water source; (2) is safely handled, for example safely transported, safely stored, and safely ingested; (3) is treated at the point of use, for example through boiling, filtering or adding chlorine/WaterGuard; or (4) through a combination of all of the above.

2.1 Protected and Unprotected Water Sources

Water supply sources are categorized as protected or unprotected. Protected water sources include tap water distributed by authorized agencies such as water boards; boreholes; protected hand dug wells with hand pumps; and protected springs. Unprotected sources include hand dug wells without a hand pump; unprotected springs; and all surface water bodies which as not undergone treatment, such as rivers and lakes.

2.1.1 National Overview

In primary schools the situation on use of protected water sources is rather encouraging; 81.5% of primary schools, or a total of 4,385 primary schools, use a protected water source as their main drinking water source. However, there are still 994 schools, or 18.5% of schools, that have to use water from an unprotected source. Graph 1 illustrates the various types of water sources used for drinking water in schools in Malawi.

As can be seen, the most common type of protected water source is a borehole; the children in a total of 3567 schools (66.4%) use drinking water from a borehole. In 702 schools (13.1%) do children use drinking water from a piped water system.

---

3 EMIS classification for the purpose of this report
4 This assessment has neither taken into consideration issues of ownership of the main drinking water source used by a school, nor distance to the drinking water source in use, but focused on whether the actual main source which is used by the school is protected or unprotected. Therefore, a recorded protected water source may for instance be a community borehole, located at some distance from the school, but the school uses water from a protected source for drinking.
The most common type of unprotected water source is an unprotected hand-dug well; a total of 588 schools (10.9%) use water from an unprotected hand-dug well. There are 28 schools (0.5%) that use drinking water from a lake, and 231 schools (4.2%) use drinking water from a river.

2.1.2 Water sources in education divisions

The distribution of protected and unprotected water sources which are used for drinking by schools varies between education divisions, and between education districts. Figure 2 illustrates the distribution of protected and unprotected water sources used by schools for drinking.

Figure 2: Proportion of schools in each division using water from protected and unprotected sources

As can be seen from Graph 2, South Eastern division has the highest proportion of schools using water from a protected water source, with a total of 88.4% (691 schools); then followed by Shire Highlands with 86.9% (452 schools) using water from a protected source. The division with the lowest proportion of schools using water from a protected source is Central West division, with 74.6% (857 schools).

2.1.3 Water sources in urban and rural areas

All though the national coverage for protected water sources is 81.5%, when looking at urban and rural schools there is a marked disparity, as indicated in Figure 3.
2.1.4 Water sources in education districts

When it comes to districts, the proportion of schools using water from protected or unprotected sources also varies. Figure 4 illustrates the proportion of schools in each of the 34 education districts that are using drinking water from protected and unprotected sources.

As is shown in Figure 4 the highest proportion of schools using protected water sources is in Lilongwe City and Zomba Urban, both with 100%. This is followed by Chiradzulu with 99%, then Blantyre City (97%) and Phalombe (95%). The district with the lowest proportion is Likoma where only 50% of schools use water from a protected source. However, in this island district there are only 10 schools, therefore the situation may be seen to be even worse in larger districts, in terms of actual numbers of schools. For instance, in Nkhata Bay district there are 67% of schools using water from protected sources, however in actual terms there are 119 schools using water from protected sources, and 60 schools where school children drink water from an unprotected water source. Therefore it is important to pay attention also to actual numbers of schools, and not just percentages, for a better picture of the situation on the ground.

---

5 This analysis is based on the 179 schools that responded, out of 185 schools registered in Nkhata Bay.
6 Analyses by districts, including details for each school, are provided in separate annexes 1-6. For further information please refer to Annex 1: School WASH assessment results for Northern Division.
2.2 Drinking Water Quality

In order to establish the quality of drinking water three characteristics of the water may be measured; biological, chemical, and physical. The most common reason for water being unfit for human consumption is biological contamination of the water, which may be easily tested using an H₂S strip test\(^7\), and this method was utilized by schools in this assessment. For chemical and physical tests, analysis of the water must be done in laboratories and has not been conducted through this assessment. Out of the total 5,379 schools that responded, 103 schools, (1.9%), did not test for water quality.

2.2.1 National overview

For this assessment schools tested the water from the main drinking water source which is used by the school, and the results are presented in Figure 5 below.

![Figure 5: Proportion of schools in which the drinking water was tested biologically safe and unsafe](image)

<table>
<thead>
<tr>
<th>Percentage of schools by Water Quality Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water safe for drinking</td>
</tr>
<tr>
<td>Water unsafe for drinking</td>
</tr>
<tr>
<td>Water not tested</td>
</tr>
</tbody>
</table>

The results of the H₂S strip tests show that 3,612 schools, or 67.2%, use drinking water which tested biologically safe; while 1,664 schools, representing 30.9%, use drinking water which tested biologically unsafe. This implies that almost 1 out of every 3 primary schools in the country use unsafe drinking water\(^8\).

It is important to note that although 81.5% of all schools use water from a protected source, there is only 67% of schools that actually tested the drinking water to be safe. There are 866 primary schools in Malawi that use a protected water source, yet their water quality nevertheless tested as biologically unsafe to drink. In other words, 20% of “protected” water sources used by the schools are delivering contaminated water. This means that existence of a protected water source must be considered a necessary condition, but not a sufficient one.

2.2.2 Water quality in urban and rural areas

Although the national coverage for biologically safe water is 67%, when looking at schools in urban and rural education districts there is a marked disparity. Figure 6 shows the difference between schools in urban education districts\(^9\) as compared to schools in rural education districts.

---

\(^7\) The time of testing was October 2008.

\(^8\) From the data available the various reasons for this cannot be determined, but possibilities could be that water is contaminated from latrines or graveyards that are situated too close to boreholes; that boreholes were constructed without proper sanitary seals; that soak ways for excess water are broken/ short/ unclean, allowing contamination from pits of stagnant water; combined with shallow borehole/ high water table; or other problems.

\(^9\) Out of the 34 education districts, the ones considered urban education districts are Lilongwe City, Blantyre City, Mzuzu City, and Zomba Urban.
2.2.3 Water quality in education districts

When it comes to quality of the water which is used for drinking in schools, there are variations between districts. Figure 7 shows the proportion of schools in each district that tested their drinking water to be biologically safe.

It is noted that Zomba Urban has the highest proportion of schools (96%) that use drinking water which is tested biologically safe, followed by Lilongwe City schools (90%) and Blantyre City schools (88%). The districts with the lowest proportion of schools using safe drinking water is Nkhata Bay (54%), followed by Machinga (55%), Dowa and Nsanje (57%).

Interestingly, it is noted that Mwanza, which is a rural education district, has higher proportion of schools using safe drinking water, than Mzuzu City which is an urban education district. In principle it is expected that schools in urban areas should have safe drinking water, given that there is existence of piped water from Water Boards.

As has been noted, having a protected water source is not a guarantee of having safe water. Figure 8 shows the proportion of schools using a protected water source, schools using biologically safe water, in each district.
Figure 8: Proportion of schools using water from a protected source, and proportion of schools where the water tested biologically safe.

It is noted from Figure 8, findings from Chiradzulu show that 99% of schools use water from a protected source, but only 61% of schools tested the water to be safe.

Although the graph above shows both the proportion of schools that use a protected water source, and the proportion of schools that use biologically safe water, the correlation is not clear from the above graph. Therefore an additional graph is provided below:

Figure 9: Proportion of schools, in each district, where in the same school the drinking water both comes from a protected source, and is tested biologically safe.
Likewise it is also worth noting the proportion of schools that use water from a protected water source but where the water tested unsafe. There may be various reasons for this scenario. Possibilities could be that there are latrines nearby, situated too close to boreholes; that boreholes are situated in a downward slope from latrines or graveyards; that boreholes were constructed poorly without proper sanitary seals; that soakway drains are cracked or short and with stagnant water, or some other problem. The extent of schools facing this problem in each district is outlined in Figure 10 below.

Figure 10: Proportion of schools, in each district, where the main drinking water source is a protected source, but where the water still tested biologically unsafe

As can be seen from the graph in Figure 10, the district of Chiradzulu has a very big problem of using unsafe quality water even in cases where the water source is a protected one; in this district 38% of the schools that use water from a protected source still tested the water to be biologically unsafe. This problem is also very high in Machinga (32%), followed by Phalombe (31%) and Mulanje (26%). Clearly intervention is needed in these schools to investigate the reasons for contamination and to provide guidance on how to improve the quality of the water.

2.3 Water treatment and handling in schools

As it has been noted above that 31% of schools use drinking water which tested biologically unsafe, it is important to also look at the practices of treating water to be safe for drinking. Water may be treated by boiling, filtering, or treating with chlorine, for example WaterGuard. Boiling in schools is not recommended as it is demanding of firewood or charcoal and thereby adds to the problem of environmental degradation. Chlorine solutions may be supplied by District Health Offices during rainy seasons or where the water source is known to be unprotected. Or where this is not available schools may purchase and apply a simple liquid chlorine solution known as WaterGuard; which is a widely available commercial product intended for point-of-use treatment.

The results of the assessment show that WaterGuard is available in only 86 schools, or 1.6%, and it is found available only in schools in the 3 districts of Lilongwe Rural West, Blantyre City, and Neno.

Apart from the treatment of water, it is important to ensure safe storage and handling. For this purpose a bucket with a tap and a lid is of importance, as water can then be drawn from the tap without the possibility of the water being contaminated in the process. Buckets with tap and lid can be placed at classroom level to: (1) ensure availability of safe treated water; (2) to reduce problems of congestion at the water point during break times\(^\text{10}\); and (3) as a means to teach and demonstrate safe water handling practices to the learners.

\(^{10}\) Average enrolment is 600 pupils per school, so when school children rush to the water point to drink during break time this causes congestion. Congestion has been identified as a major problem particularly for younger schools.
The assessment found that buckets with tap and lid are not readily available in schools. The availability of buckets with tap and lid in schools, for each district, is shown in Figure 11.

Figure 11: Proportion of schools, in each district, that have water storage buckets with tap and lid available

Figure 11 shows that availability of water storage buckets with tap and lid is generally low, with most of the districts having this available in less than 20% of schools. In Lilongwe Rural West such pails are however available in 56% of the schools. This may be attributed to the pilot project on 3 Key Hygiene Practices that involved 102 schools in this district, where water treatment, storage and handling by use of buckets with tap and lid was an integral part. Blantyre Rural is noted with 41% of schools having such buckets available, followed by Mwanza and Blantyre City with 32% each.

The lowest proportion of schools is in Mzimba North with 0.4%. With so many districts having low coverage for buckets for water handling and point-of-use treatment, and yet significant proportions of schools with unsafe water, this illuminates the health risks that school children are exposed to.
3.0 SANITATION IN SCHOOLS

Sanitation may be said to be the safe disposal of feaces away from human contact\(^ {11} \); and this can be achieved by having the necessary facilities to this end available; and having practices that ensure that such facilities are used consistently. In school settings it is important to consider both the quality and the quantity of facilities, to ensure that the children’s right to a healthy learning environment is fulfilled. On quality, the National Sanitation Policy provides a guide to the difference between basic sanitation and improved sanitation.

3.1 Basic and Improved Sanitation

The National Sanitation Policy spells out characteristics for “basic” and “improved” sanitation. As laid out in the policy, basic sanitation should allow for safe disposal of feaces; be located at least 30 meters from a ground water source; be functional and not full; and offer the user safety and privacy. Improved sanitation is defined similar to basic sanitation with the addition that there should be an impermeable floor and a tight fitting lid to the latrine, or in the case of ecological sanitation (ecosan) where no lid is needed, the ecosan latrine should be properly looked after with the regular addition of soil, ash and other organic material.

When it comes to sanitation in schools, the policy does not quantify a ratio of sanitation facilities per pupils; rather, it reads “provide separate and adequate improved latrines or toilets and urinals for boys and girls and also ensure provision of functioning hand washing facilities with soap and running water” (NSP, art 3.4.4.1), where “adequate” is not further defined. The Education Act (1962) states that there should be 1 latrine for every 25 pupils, however, since the introduction of urinal blocks for girls as well as boys it is widely recognized that this may be not necessary\(^ {12} \). Instead, one improved latrine per every 60 pupils is seen to be a minimum acceptable goal as long as there are improved urinal blocks for both boys and girls available, and this has been the working figure in Malawi for some years.

3.1.1 National overview

Based on current enrolment patterns, and the distribution of improved latrines in schools, there is need to have a total of almost 67,000 improved latrines in place, in order to reach a ratio of 60 pupils per 1 improved latrine in all schools.

Currently there is a total of approximately 29,500 improved latrines in use. To meet a goal of no more than 60 pupils per 1 improved latrine in every school, there is need to add a total of 37,142 new improved latrines in 4142 schools\(^ {13} \), that is, there is need for more than twice the current number of improved latrines.

Figure 12 shows the distribution of improved and basic latrines in schools.

---

11 This is a definition used by the World Health Organization and UNICEF, Joint Monitoring Programme
12 On the 1:25 ratio, concerns have also been raised about spatial limitations in schools with high enrolment figures, as for instance a school with 3,000 pupils would need no less than 120 latrines, and this is regarded not to be possible in most school compounds. Therefore, a ratio of 1:60 plus provision of urinal blocks, is seen to be more suitable in such settings.
13 The number of facilities needed to achieve this 60:1 ratio in each school has been calculated according to the current enrolment, disaggregated by gender, in each school. For detailed information about any particular school please refer to Annexes 1-6, which contain lists of what is needed in each school.
This analysis of schools which have sanitary facilities where both quality and quantity is acceptable, shows that about a quarter of the schools, 1237 schools (23%), have acceptable sanitation facilities, of improved latrines at a ratio of 1:60 pupils or less. Another 14% of schools have a ratio of 61-100 pupils per 1 improved latrine, and 26% of schools have a ratio of more than 100 pupils for every 1 improved latrine.

One-third of the schools (33%), have only basic sanitation facilities on site. In these schools the school children's right to a healthy learning environment is not fulfilled, because issues of hygiene, safety, and privacy are compromised. There are also 235 schools, or 4.3%, that have been registered to offer no latrine facilities at all for their learners. Intervention is urgently needed in these schools to avoid practices of open defecation and ensure a healthy environment. In order to reach 60 pupils or less per improved facility is it necessary to construct improved sanitary facilities in a total of 4142 schools, representing 77% of all.

This analysis is made based on current enrolment, and as school population increases the number of latrines will also have to increase. Also, as long as there are no systems in place to have pit latrines in rural areas emptied, it should be expected that this figure will go up in time as latrines fill up and will have to be closed. In order to reduce on costs for superstructures when latrines are

14 The traditional log-and-mud floors cannot be hygienically cleaned with water and antibacterial detergent; logs deteriorate in the course of time and become unsafe; without covers flies easily move to transmit bacteria; and in cases where walls are made from grass privacy is compromised.
closed, other technologies could be considered, like Ecosan latrines or detachable mobile superstructures.

When it comes to issues of sanitation by sewerage, it is worth noting that the Sanitation Policy calls for flush toilets for institutions that have piped water\textsuperscript{15}, and this has implications for schools especially in the urban areas. Figure 13 shows the proportion of schools with piped water, with flush toilets, and those with both.

**Figure 13: Proportion of schools with piped water, flush toilets, and both**

Currently there are 703 schools that use piped water, and there are 142 schools that have flush toilets in use. Out of the 703 schools that use piped water, there are only 126 that also use flush toilets. Those 126 schools represent 2.3\% of all schools, or 18\% of the schools with piped water\textsuperscript{16}.

### 3.1.2 School sanitation for girls and boys

Since sanitary facilities are provided according to gender in schools, and the enrolment figures for girls and boys often differ at a particular school, it is important to analyze the availability of sanitary facilities in respect of girls and boys separately. Figure 13 shows the proportion of schools with sanitary facilities, and the quality and quantity for those facilities: schools with adequate quality and quantity (60 pupils or less per improved sanitary facility); schools with adequate quality but inadequate quantity (61 pupils or more per improved sanitary facility); schools with inadequate quality; and schools without any facilities for excreta disposal at all.

**Figure 14: Proportion of schools that have sanitary facilities for girls; quality and quantity**

---

\textsuperscript{15} “Rehabilitate and construct sewerage systems for institutions served with piped water systems.” NSP, article 3.4.4.9.

\textsuperscript{16} These proportions, however, indicate whether the facilities are present and in use, but do not indicate whether they are found in adequate numbers.
Figure 13 shows that about a quarter of the schools, 24.2%, have adequate quantity and quality of sanitary facilities for girls, whereas only about 1/5 of the schools, 20.7% have adequate quantity and quality of sanitary facilities for boys. Reasons for this may be either that in some schools there are more sanitary facilities constructed for girls, or that in those schools the enrolment for girls is lower. It should also be noted that in 5.3% of schools there are no sanitary facilities at all for girls. And there are no sanitary facilities for boys in 6.2% of schools.

### 3.1.3 School sanitation in urban and rural areas

Looking at the data for schools in urban education districts as compared to schools in rural education districts, shows that there is a large discrepancy in availability of sanitary facilities.

**Figure 15: Proportion of schools, urban and rural, with improved sanitary facilities in adequate numbers**

<table>
<thead>
<tr>
<th>Proportion of schools that have 60 pupils or less per every 1 improved sanitary facility</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.3</td>
<td>23.0</td>
<td></td>
</tr>
</tbody>
</table>

There are 42.25% of the schools in urban education districts that have sanitary facilities of adequate quantity and quality, however the same is true for only 23% of schools in rural education districts.

For availability of flush toilets there is need for piped water, and piped water is not common in rural areas, therefore the coverage of flush toilets in the urban education districts of Lilongwe City, Mzuzu City, Blantyre City, and Zomba Urban is looked at separately. Figure 16 shows the proportion of schools in urban areas with flush toilets for girls and boys, and their corresponding quantities.

**Figure 16: Proportion of schools in urban education districts that use flush toilets; adequate and inadequate quantities**

<table>
<thead>
<tr>
<th>Proportion of schools in urban areas that use flush toilets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
</tr>
<tr>
<td>17.6</td>
</tr>
<tr>
<td>10.9</td>
</tr>
<tr>
<td>71.5</td>
</tr>
</tbody>
</table>

It is noted that in the urban areas 17.6% of schools have flush toilets in adequate quantities for girls, with another 10.9% having flush toilets but in inadequate numbers. Similarly there are 16.4% of schools in urban areas that have adequate numbers of flush toilets for boys, and 12.1% that have flush toilets but not enough of them. In the urban areas about 71% of schools do not have flush toilets, for either girls or boys.

---

17 It may be noticed that the figures for no sanitary facilities (6.2% and 5.3%) differ slightly from the national overview in Figure 12, of 4.2%. It is possible that the reason may be that in a few schools latrines are not differentiated between girl and boy users, and hence a latrine may have been recorded in two places, for both girls and boys.
3.1.4 School sanitation in education districts

When it comes to adequate quantity and quality of sanitary facilities for both girls and boys, there are variations between districts. Figure 17 is provided to show the proportion of schools in each district that have sanitary facilities in acceptable quality and quantity for both sexes; with 60 girls or less, or 60 boys or less, per 1 improved latrine or flush toilet.

Figure 17: Proportion of schools, in each education district, with adequate quality and quantity of sanitary facilities: 60 girls or less, or 60 boys or less, per 1 improved sanitary facility.

From Figure 16 it is seen that by far the best coverage is found in Nchisi district, where 70% of the schools have sanitary facilities for girls of adequate quantity and quality, and 67% of the schools in the district also have this for boys. In fact, Ntchisi is the only district in the country where more than half of the schools have reached an acceptable minimum standard. Nchisi is followed by Zomba Urban with 52% for girls and 39% for boys, and then Likoma where 50% of schools have adequate quantity and quality for both girls and boys. On the lower end we see Zomba Rural where only 9% of schools have acceptable standards for both girls and boys, and close to this Mulanje (6% for boys and 11% for girls).

3.1.5 School sanitation for children with special needs

School children with special needs have different requirements for sanitary facilities, compared to school children that have full abilities. Special consideration should be given for their needs; for instance, provision of sit latrines instead of drop holes; access ramps instead of steps; and well positioned hand rails. The National Sanitation Policy calls for at least one facility for girls with disabilities and one for boys in every school\(^\text{18}\). Currently the sanitary facility situation for school children with disabilities is not known\(^\text{19}\), but expected to be poor. The sanitation policy further calls for targeting subsidies especially for improved sanitation facilities for the vulnerable and disadvantaged\(^\text{20}\).

---

\(^\text{18}\) “Ensure that at least one latrine or toilet for boys and girls in all schools is provided with facilities for pupils with disabilities;” (NSP 2008, art 3.4.4.6).

\(^\text{19}\) Capturing of sanitary facilities for school children with disabilities will be incorporated into the next school census questionnaire.

\(^\text{20}\) “Provision of targeted subsidies for improved sanitation facilities for vulnerable and disadvantaged persons shall be promoted” (NSP 2008, art 2.3.20).
3.2 Urinal Facilities
Provision of urinal blocks lessen traffic and congestion at, and dependency on, latrines and flush toilets; they lessen congestion during school break times and extend the life of latrines. Most of the time that school children go to relieve themselves they go for urinating only. It is considerably more cost effective to build urinal blocks and ensure a 60:1 ratio of latrines, rather than having no urinal blocks and build more latrines. Therefore it is recommended that all schools have at least 1 improved urinal block for boys and 1 improved urinal block for girls.

For the purpose of this assessment improved urinal blocks are defined as those with an impermeable (concrete) floor and urine drainage. Basic urinal blocks are defined as those without impermeable floor and urine drainage.

3.2.1 National overview
Currently more than half of the schools nationwide have some urinal blocks of either basic or improved type; however, they are more common for boys than for girls, and improved urinal blocks are still few for both genders.

3.2.2 School urinals for girls and boys
When analyzing the data on school urinals separately for girls and boys it is evident that urinals for girls are not so common as for boys yet. Figure 18 shows the proportion of schools that have either improved urinal blocks, basic urinals, or no urinals; for either girls or boys.

---

21 The Education Act (1962) stipulates one latrine for every 25 children, and does not mention urinal blocks. Therefore, schools without urinal blocks would still have to reach the ratio of 1 latrine to 25 children.
22 Basic urinals are sometimes also known as ‘urinal fences’, where commonly a pit is dug and filled with rocks, and a fence (usually grass) is erected around for privacy.
The results of this assessment show that for girls there are 679 schools, or 12.6%, that have improved urinal blocks for girls to use, and 1223 schools (22.7%) where basic urinal blocks for girls are available. In 3477 schools (64.6%) are there no urinal blocks for girls.

For boys the coverage is higher: 914 schools, or 17%, offer improved urinal blocks for boys, and in 2091 schools (38.9%) are there basic urinals for boys. There are 3005 schools (44.1%) that have no urinal blocks for boys.

### 3.2.3 School urinals in urban and rural schools

When analyzing the availability of improved urinal blocks by schools in urban and rural areas, some disparity is noted. Figure 19 provides an overview of the availability of improved urinal blocks, for boys and girls, nationally and by schools in urban education districts as well as rural districts.

It is noted that urban areas have far better coverage of urinal blocks for boys, with 43.8% of schools having such facilities. In comparison urinal blocks for girls are available in only 17.6% of schools in urban areas, and in 12.4% of rural schools.
3.2.4 School urinals in education districts

There are also variations between district on the extent to which their schools have improved urinal blocks available for both girls and boys. Figure 21 shows the proportion of schools, in each district, where improved urinal blocks are available for girls, and for boys.

**Figure 20: Proportion of schools, in each district, that have improved urinal blocks, for girls and boys**

It is noted that Ntchisi has the highest proportion of improved urinal blocks for boys with 58% of the schools, however, in the district only 27% of the schools have improved urinal blocks in use for girls. Phalombe has more equitable distribution, with 53% of their schools having improved urinals for boys and 52% for girls. On the lower end is Karonga with 2% for boys and 1% for girls, and Neno with 3% for boys and no schools with improved urinal blocks for girls. The overall picture for improved urinals is not satisfactory, and considerable investment is required to attain acceptable standards.
4.0 HYGIENE IN SCHOOLS

Hygiene in schools is a combination of: (I) appropriate facilities being available; (II) staff and learners having appropriate knowledge about hygiene; and (III) safe hygiene practices actually being carried out. When both the facilities and the knowledge are there, hygiene practices are more likely to improve.

As previously mentioned, the three key hygiene practices known to most effectively reduce hygiene related diseases are: (I) drinking safe water; (II) consistent use of sanitary facilities; and (III) hand washing with soap. Having focussed on school water and sanitation in the two preceding chapters, this chapter will deal with hygiene; first, in terms of availability of facilities for hand washing; and next, it will deal with the importance of hygiene education in school.

4.1 Facilities for Hand Washing

All schools should provide school children with suitable facilities for washing their hands after they visit the latrine and before they eat. It is recommended that such facilities be located in very close proximity to the latrines or toilets, and that at least one is located inside an individual girls’ latrine compartment, in order to alleviate challenges related to proper menstrual hygiene during the school day, and thus contribute to improved attendance for older girls during those days. Further it is recommended that all hand washing facilities must provide water which is running or in a pour system; that is, the water must be used by only 1 person and communal basins should be discouraged; and all schools should provide soap at the hand washing facilities, in order to allow the children to hygienically clean their hands, and learn to practice consistent use of soap for hand washing while they are still at a formative age.

School hand washing facilities may come as many types of technology. In schools where there is no piped water supply, permanent tanks with taps may be provided close to the latrines, and the tank is filled every morning by the school children themselves from a duty roster. In some schools such tanks are connected to a roof-top rainwater harvesting system for easier refill during the rainy season, and taps may be welded to the tank in order to avoid theft.

Although permanent hand washing facilities are recommended, schools can also make use of low-tech solutions made from locally available materials, in order to provide school children with facilities to wash hands close to the latrines, while awaiting more expensive technologies. From a hygiene point of view there are many types of technology that are acceptable, as long as soap is available and the water is running and used by only 1 person. Low-tech facilities could also be appropriate in areas where theft of water taps is a problem.
4.1.1 National overview

The current availability of hand washing facilities in schools is presented in Figure 21 below.

Figure 21: Proportion of schools with hand washing facilities available and in use

![Proportion of schools with hand washing facilities available and in use](image)

Figure 21 shows that there are 4.2% of the schools that have hand-washing facilities in use and with soap available, while 14.7% of schools have hand-washing facilities in use but do not have soap available at the site.

A total of 81.1% of schools (74.2% of schools have no hand-washing facilities, and 6.9% have hand-washing facilities but not in use) do not provide any means to allow their school children to wash their hands after visiting the latrine and before eating.

4.1.2 School hand washing facilities in urban and rural areas

As presented in Figure 21 the national coverage for hand washing facilities in schools is 18.9% when counting both facilities with and without soap, but when comparing schools in urban and rural

---

23 In order to determine whether hand washing facilities were functional and in use, only hand washing facilities with actual presence of water, indicating that they had recently been filled and thus in use, were recorded.
districts, as in Figure 22, the data shows that there is a big difference in availability of hand washing facilities.

Figure 22: Proportion of schools, urban and rural, with hand washing facilities in use

<table>
<thead>
<tr>
<th>Percentage of primary schools that have handwashing facilities in use, with presence of water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>42.8</td>
</tr>
</tbody>
</table>

Only 17.1% of schools in rural areas have hand washing facilities in use, -with and without soap combined; while 42.8% of schools in urban areas have the same.

4.1.3 School hand washing facilities in education districts

There are also large variations between districts when it comes to hand washing facilities in use in schools. Figure 23 shows the distribution, by education districts, of schools with hand washing facilities in use.

Figure 23: Proportion of schools, in each district, that have hand washing facilities in use

As is clear from Figure 23 Lilongwe Rural West has the highest proportion of schools (55%) that have hand washing facilities in use, and is the only district where more than half of the schools have such facilities in use. Ntchisi is followed by Zomba Urban and Lilongwe City at 46%, and the 3 districts of Mzuzu, Ntchisi, and Blantyre City at 40%. The lowest proportion of schools with hand washing facilities are reported in Likoma at 0%, then Chiradzulu and Machinga at 5%.
4.1.4 School hand washing facilities for staff

It is assumed that hand washing is more likely to be practiced if facilities are easily available, and it is therefore recommended that hand washing facilities should be located in close proximity to the toilets. As teachers’ toilets are often located at some distance apart from those for pupils, it is useful to have separate hand washing facilities, especially in light of teachers being important role models.

Figure 24: Proportion of schools, in each district, that have hand washing facilities in use for staff

Staff-dedicated hand washing facilities tend to be even rarer than student facilities: 83.2% of primary schools have either no or non-working hand washing facilities for their staff members. 714 primary schools (13.3%), have functioning hand washing facilities available for staff but do not provide soap at these facilities, while 192 primary schools (3.6%) have hand washing facilities with soap available for staff use. Given that staff may be involved in food preparation activities, these numbers are particularly troubling.

4.2 Hygiene Education

Many children learn some of their most important hygiene skills at school, and for many this is where they are introduced to hygiene practices that may not be known or promoted in the home. Teachers can be very effective hygiene promoters, through hygiene education and acting as role models for schoolchildren.

The National Sanitation Policy states that “every person shall be encouraged to wash hands with clean running water and soap”\textsuperscript{24}. However, it has been noted as one of the problem statements that “school curricula have inadequate content on sanitation and hygiene promotion”\textsuperscript{25}, and moves to address this through: “build capacity for sanitation and hygiene promotion in schools”\textsuperscript{26}, “facilitate the incorporation of life skills training on sanitation in school curriculum”\textsuperscript{27}; and “ensure delivery of structured health and hygiene education for all children at primary school level through participatory methods.”\textsuperscript{28}

The World Health Organization recommends that “Water supply, sanitation, and hygiene should be given a central place in the training and supervision of all teachers, as they provide role models

\textsuperscript{24} article 2.3.9 NSP p. 8
\textsuperscript{25} NSP (2008), p.2
\textsuperscript{26} NSP (2008), article 3.4.2
\textsuperscript{27} NSP (2008), article 3.4.3.2
\textsuperscript{28} NSP (2008), article . 3.4.3.3
for schoolchildren and are largely responsible for encouraging the participation of schoolchildren in maintaining a healthy school environment”

4.2.1 3 Key Hygiene Practices pilot

Hygiene education has been taught in primary schools for some time, however with limited resources and intensity and hence hygiene practices are still not up to preferable levels. Realizing the potential for improvement in this area, a new strategy was developed, of training teachers on 3 Key Hygiene Practices (3KHP): (1) Correct method and frequency of hand washing with soap; (2) Consistent use of sanitation facilities; and (3) Drinking safe water.

An NGO, InterAide, in addition to providing school water and sanitation facilities, had been piloting a project in Lilongwe district where teachers, through holiday courses, were facilitated with pedagogic knowledge and skills for educating children, and provided with IEC materials. In 2006 MoEST entered into a partnership with UNICEF and InterAide to modify the model to focus solely on the 3 Key Hygiene Practices. Reference booklets for teachers on 3KHP were developed through a highly participatory process, the booklets were differentiated by class and language, and additional teaching materials were developed.

A pilot on training teachers on the 3KHP was then conducted in seven education zones, in order to test the replicability and scalability. All teachers in seven zones were targeted, and with 95% attendance, more than 800 teachers and Primary Education Advisors were trained on use of the materials and teaching methods. As indicated by the post training evaluation, the teachers exhibited an increase in their hygiene knowledge up to an average 80%. All schools in the seven zones were provided with hygiene materials for classroom demonstration on safe drinking water, and construction of their own improvised hand washing facilities outside the latrines. 102 schools with more than 75,600 young learners were part of the pilot, with teachers integrating hygiene into lessons.

Monitoring carried out after intervention in the 102 schools indicated that about 90% of the schools had drinking water facilities, pails with tap and lid present with water; and had constructed hand washing facilities, with an average of 4 per school. In order to evaluate the pupils knowledge, attitudes, and practices (KAP) of hygiene, a baseline KAP survey was conducted at onset of pilot in March 2008 on a sample of pupils prior to commencement of pupil training, and then after 8 months a follow-up survey, in October 200830. A questionnaire was designed, and learners were interviewed orally. Two schools were selected from each of the 7 education zones; involved pupils from standards 3, 5 and 7; and ten (10) pupils were randomly selected from each class, giving a total of 420 learners interviewed.

According to the analysis of the pre- and post test, the intervention had a very positive impact on pupils knowledge, attitudes and practices. On hygiene knowledge, more than 95% of the surveyed pupils answered correctly after interventions. Big impacts were noted on practices, as pupils had substantive lack of proper hygiene practices before the intervention. For instance, the proportion of school children who used a latrine when defecating at school ‘last time’ went up from 78% to 92%, and the proportion of school children who washed their hands at school ‘yesterday’ went up from 13% to 85%. Another significant improvement in practices concerned discontinuation of urination in the open: use of facilities for urination went up from 54% before to 91% after. The intervention had a great impact on pupils practices related to hand washing: use of soap for hand washing increased from 48% to 81% of surveyed pupils, and more than three times more pupils washed their hands after visiting the latrines: 27% before the intervention and 81% after.

29 Draft-WASH Standards in Schools in Low Cost Settings, WHO (2009), p.18
30 The survey also noted that there no so big variations between the pre and post survey. This can only be attributed to the fact that the first survey was conducted whereas the intervention has already started. However the results are representative of the situation after the intervention.
Random visits to schools showed that teachers are integrating the 3 key hygiene practices in their lessons, and pupils use soap to wash hands after visiting the latrine. Before the intervention pupils used to drink water at the boreholes, and in some schools had to go some distance to drink water. This contributed to congestion at the water sources and pupils could miss lessons, and younger pupils were at a disadvantage. After introduction of buckets for drinking water in class this problem has been largely alleviated. Interviews with teachers, school administrators and parents indicate that improved hygiene practices are also practiced at home.

### 4.2.2 Scaling up nation wide

Following the pilot some lessons were learnt, and MoEST through Education Methods Advisory Services and Malawi Institute of Education revised the teacher’s booklets, making them more activity based and user friendly. The booklets were approved for use in primary schools by MoEST, and 46,000 copies, one for each of the primary school teachers, have been printed and are ready for use. The Ministry has also developed training manual for trainers of the primary school teachers. A nation-wide scale-up plan has been formulated, with detailed plans to implement the training; now awaiting availability of funds.

The plan will provide universal access to improved hygiene knowledge and practices among all 3.6 million primary school children in Malawi. The up-scaling plan includes training of all 46,000 teachers in all 5,460 primary schools in order to ensure that the hygiene practices of each and every school child are transformed.

The ministry will roll out the hygiene education programme nationwide in steps. First, training of District Core Training teams mainly consisting of PEAs, and next, the District Core Training teams train all teachers in each school on the 3KHP during 3-day school holiday training sessions. The number of training sessions per educational zone has been calculated based on the number of teachers in each zone, and as this activity involves all 46,000 teachers in the country, the whole training plan has been costed at approximately USD 2.5 million.

Part of this training programme has already begun. In July 2009 there will be trainings of 230 PEAs (out of 440 total) in 15 education districts (out of 34 total). The trained PEAs will in teams train all teachers of selected schools in their districts during school holidays in August. When additional funds are made available the programme will be expanded to cover all schools in the 15 districts. With further funding the programme will open up to the remaining 19 districts, with training of District Core Trainers and subsequently training of all teachers.
5.0 SCHOOL WASH NEEDS AND GAPS

The analysis of the current situation presented in the previous chapters makes it clear that accelerated interventions are needed in order to improve the school environments and thereby ensure quality education in a healthy learning environment. As duty bearers for quality education it is important to have the extent of the gaps identified, and also how much it will cost to reach our goals. This chapter therefore outlines the current needs that are to be met, and our estimation of how much the necessary interventions will cost.

Based on the results of the School WASH assessment as presented in the previous chapters, gaps have been identified. This chapter therefore presents the gaps, the needs, and potential interventions which have been identified to address those gaps. These potential interventions are discussed in this chapter; and efforts have been made to cost some of these interventions. The total costs of closing the gaps, according to the interventions identified, is estimated at USD 34,1 million, as presented in table 1. The gaps are presented in order similar to the previous chapters, in categories of water gaps, sanitation gaps, and hygiene gaps.

5.1 Water gaps in schools

In order to close the gaps in provision of safe drinking water in schools, there are several interventions that need to be undertaken; (I) in schools that currently draw water from an unprotected water source, a protected source must be provided; (II) in schools that currently use water from a protected source but where this delivers unsafe water, the causes for contamination need to be identified and the schools given guidance on ways to improve the quality; and (III) in schools that use unsafe water, the water needs to be treated and safely stored and handled.

5.1.1 Needs for protected water sources

Every primary school should have a protected water source. Boreholes are the most common protected water source in Malawi, and we therefore use the price of constructing a borehole to generate our cost estimates. In some schools another type of protected water source, such as piped water, may be the most appropriate method of establishing a protected water source. This is mainly applicable to urban schools where there is existence of water boards, and where drilling of boreholes is not permitted; and a few areas where gravity-fed piped systems are available. However, costs for piped water supply have not been considered.

The estimated unit cost of constructing a borehole is USD 8,000,- for purposes of this report. The exact costs for construction at any individual school would vary based on transportation, material, labour, and other costs. There are a total of 994 schools that currently use water from unprotected sources, and are in urgent need of a protected water source. With our estimation of USD 8,000 per borehole, it will cost almost USD 8 million to reach this goal.

With an average of 600 children per school, the USD 8 million will ensure the right to water from a protected water source to almost 600,000 school children. This means that having the right fulfilled of these school children comes at a cost of only USD 13.3 per school child.

Table 1: Interventions needed for ensuring protected water sources in schools

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached</th>
<th>Number of school children reached (average 600 per school)</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boreholes</td>
<td>994</td>
<td>$8,000</td>
<td>$7,952,000</td>
<td>994</td>
<td>596,400</td>
<td>$13.33</td>
</tr>
</tbody>
</table>

31 This assessment has neither taken into consideration issues of ownership of the main drinking water source used by a school, nor distance to the drinking water source in use. Therefore, a recorded protected water source may for instance be a community borehole, located at some distance from the school, but the school uses water from a protected source for drinking. The number 994 schools, that need a protected water source, would probably be higher if taking ownership and distance into consideration.
5.1.2 Needs for improving water quality from protected sources

There are 866 schools that use water from protected water sources but where nevertheless the water tests unsafe for drinking. In these schools, possible causes of the water being contaminated could be that latrines are situated too close to boreholes; that boreholes were constructed without proper sanitary seals; that soak ways for excess water are broken/short/unclean, allowing contamination from stagnant water; combined with shallow borehole/high water table; or other problems. There is need for intervention in these schools for the causes of contamination to be identified, and also guiding schools on ways to improve the quality. Possible interventions could be development of guidelines and training of Primary Education Advisors, responsible for each school zone, on regular testing, problem solving, and a monitoring system. However, there is currently no detailed plan for this, as such the potential costs are not known, and therefore costs of such interventions are not included in the cost analysis.

5.1.3 Needs for water treatment and handling

In the 1664 schools that use unsafe drinking water it is important to ensure point-of-use water treatment and safe water handling practices. This may be facilitated by use of water storage buckets with a tap and a lid, together with a chlorine solution such as WaterGuard. Since such items represent recurrent costs, issues of sustainability comes in, and it is stressed that such interventions are not necessarily needed when all schools have a protected water source which delivers safe drinking water.

In order to ensure the rights of school children to safe drinking water, while awaiting the more expensive interventions of providing protected water sources and improving the water quality of those, these 1664 schools should be assisted to ensure safe water treatment, storage and handling. This may happen either through provision of the material items to schools, or through provision of funds for the schools to purchase these items themselves. Providing these material items to schools on a regular basis could prove not very practical, and financial support through the Direct Support to Schools package should be considered.

The estimated costs are based on 1 bottle of 150 ml WaterGuard being used for treatment of 1000 litres of water (50 buckets of 20 litres each, or 25 pails of 40 litres each); that 1 pupil may consume 2 litres of water per school day; that there is an average of 600 pupils per school; and 195 school days in a year. Further that one pail with a tap and a lid is provided to each class in the 1664 schools, with an average of 11 classes per school, please refer to Table 2.

In total it is estimated that it will cost USD 219,248 to ensure that both buckets with tap and lid, as well as WaterGuard, can be made available for those 1664 schools with unsafe drinking water to treat their water; and with almost one million children reached this will cost in total only USD 0.2 per pupil.

Table 2: Interventions needed for water handling and treatment

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached</th>
<th>Number of school children reached (average 600 per school)</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottles of WaterGuard for water treatment in 1664 schools for 1 year</td>
<td>389,376</td>
<td>$0.14</td>
<td>$54,512</td>
<td>1664</td>
<td>998,400</td>
<td>$0.05</td>
</tr>
<tr>
<td>Buckets with tap and lid for water storage and treatment for 1664 schools for 1 year (average 11 per school)</td>
<td>18,304</td>
<td>$9</td>
<td>$164,736</td>
<td>1664</td>
<td>998,400</td>
<td>$0.17</td>
</tr>
</tbody>
</table>

---

32 Water treatment by pouring chlorine into an unprotected water source, such as an open shallow well, is not recommended, because estimation of the amount of chlorine needed is very difficult and the potential is high for leaving the water with unsafe levels of chlorine; either too low or too high levels. This practice is also known to provide a false sense of having safe water. Therefore the water should be treated at point-of-use using careful measurements; such as one capful of WaterGuard per one 20 litre pail of water.

33 These are the common measurements of the plastic pails found with tap and lid.
5.2 Sanitation gaps in schools

In order to close the gaps in school sanitation there is need for construction of improved sanitary facilities, including latrines for the physically challenged school children; latrines for staff; and improved urinals for both boys and girls.

5.2.1 Needs for improved sanitary facilities

Every primary school should have sanitary facilities of adequate quality and quantity: at least 1 improved sanitary facility for every 60 girls, and 1 for every 60 boys, provided that there are also improved urinals available. The number of facilities needed to achieve this 60:1 ratio in each school has been calculated according to the current enrolment of both girls and boys in each school\(^34\), and currently a total of 37,142 improved sanitary facilities are needed, in 4142 schools.

A pit latrine with a concrete floor slab is the most common type of improved sanitary facility in schools, and therefore the price of constructing such a facility is used to generate the cost estimate. However, in schools with piped water systems, particularly in urban settings, this may not be an appropriate technology and flush toilets rather than latrines may be provided. The cost of this is however not included in our estimates, and for interventions in urban schools this will have to be considered in planning.

The cost of constructing one improved pit latrine is estimated at USD 500,-. However, the cost of constructing improved latrines can vary considerably, depending on construction materials used, water table levels, distances for transportation, economies of scale when multiple facilities are built, or other factors. With a total of 37,142 latrines needed, the total cost for reaching this minimum goal in school sanitation will be around USD 18,5 million. Reaching 600 school children in those 4142 schools gives almost 2,5 million school children reached, at a cost of around USD 7,5 per child, please refer to Table 3.

In order to ensure that at least one facility for girls and one for boys is appropriate for children with special needs in all schools, some additional costs must be considered, such as for construction of a seat for the latrine, appropriate doors, access ramp, and installation of suitable handrails for support. This is estimated to cost an additional USD 100,- per school, or a total of USD 546,000.

The total costs of constructing the improved sanitary facilities currently needed, including ensuring that one each for girls and boys is appropriate for disabled children, is estimated at USD 19.1 million. Closing today’s gap in school sanitation and making sure that all 3,6 million pupils have the necessary improved sanitary facilities available will cost only USD 5.3 per pupil.

Table 3: Interventions needed for ensuring improved sanitation in all schools

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached</th>
<th>Number of school children reached (average 600 per school)</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Sanitary Facilities (latrines)</td>
<td>37,142</td>
<td>$500</td>
<td>$18,571,000</td>
<td>4142</td>
<td>2,485,200</td>
<td>$7.5</td>
</tr>
<tr>
<td>Modifications/construction costs to ensure that minimum one latrine for girls and one for boys are appropriate for school children with disabilities</td>
<td>5460</td>
<td>$100</td>
<td>$546,000</td>
<td>5460</td>
<td>3,600,771</td>
<td>$0.15</td>
</tr>
</tbody>
</table>

5.2.2 Needs for improved urinal blocks

Every primary school should have minimum 1 improved urinal block for girls and 1 for boys. If urinal blocks are not present there would be need for even more latrines, which would be even more costly.

\(^34\) For detailed information about any particular school please refer to Annexes 1-6, which contains details on needs and gaps by division, district, zone; and a list of what is needed in each particular school.
The school WASH assessment has shown that an improved urinal block for girls is needed in 4,701 schools, and for boys in 4,496 schools\textsuperscript{35}, giving a total of 9,197 improved urinal blocks needed. Based on an estimated unit cost of USD 500,- per improved urinal block\textsuperscript{36} it will cost about USD \textbf{4.6 million} to ensure that all schools have improved urinal blocks for both girls and boys. With an estimated 2.8 million school children reached in those 4,701 schools that currently do not have improved urinals, it will cost USD\textbf{1.63} per school child reached, -please to Table 4.

### Table 4: Interventions needed to ensure improved urinal blocks in all schools

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached</th>
<th>Number of school children reached (average 600 per school)</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Urinal Blocks</td>
<td>9,197</td>
<td>$500</td>
<td>$4,598,500</td>
<td>4,701</td>
<td>2,820,600</td>
<td>$1.63</td>
</tr>
</tbody>
</table>

5.3 **Hygiene gaps in schools**

In order to close gaps on hygiene in schools there is need to (I) construct hand washing facilities; (II) ensure that soap is available for hand washing in all schools; and (III) ensure that school children receive proper hygiene messages from teachers that have been well trained on hygiene education.

#### 5.3.1 Needs for hand washing facilities

Every primary school should have at least 2 hand washing facilities: 1 for girls and 1 for boys. and we include the costs of constructing 2 such facilities in each school in this cost estimate\textsuperscript{37}. The results of the School WASH assessment has shown that there is need for a total of 8,608 hand washing facilities, or two each in 4,304 schools.

Technologies for hand washing facilities vary considerably, but a permanent tank constructed with welded taps is recommended. The cost of constructing such a structure could vary widely, but an estimated unit cost of USD100,- is used for this cost analysis, giving an estimated total cost of USD 860,800 to ensure availability of hand washing facilities for both girls and boys in all schools. And with almost 2.6 million school children reached in those 4,304 schools, the estimated cost is at only USD 0.33 per school child, please refer to Table 5.

In order to ensure that at least one latrine for girls have a washing facility inside the latrine compartment to facilitate hygiene for older girls, there is need for 1 additional washing facility in each of the 4,304 schools. With the unit cost estimate of USD 100,- the estimated cost of washing facilities for girls is USD 430,400. The total cost for ensuring one hand washing facility for girls and boys each, and a washing facility inside a girls' latrine compartment is USD \textbf{1,291,200}.

### Table 5: Interventions needed for ensuring hand washing facilities in all schools

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached</th>
<th>Number of school children reached (average 600 per school)</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand Washing Facilities, close to girls' and boys' sanitary facilities</td>
<td>8,608</td>
<td>$100</td>
<td>$860,800</td>
<td>4,304</td>
<td>2,582,400</td>
<td>$0.33</td>
</tr>
<tr>
<td>Washing facilities inside one latrine compartment for girls</td>
<td>4,304</td>
<td>$100</td>
<td>$430,400</td>
<td>4,304</td>
<td>1,291,200</td>
<td>$0.33</td>
</tr>
</tbody>
</table>

\textsuperscript{35} Note that these figures are based on the 5,379 schools from which information was received for the School WASH assessment; there are 5,460 schools registered in the country but for the remaining 81 schools the situation is not known.

\textsuperscript{36} The estimated unit cost is based on experience on construction of a package of 10 latrines, 2 urinal blocks, and 2 hand washing facilities, which is a package that has been promoted by UNICEF in Malawi for the past years. This will however vary based on material prices, labour prices, distances for transportation, or other potential costs.

\textsuperscript{37} In some smaller schools it may be possible for girls and boys to share the same hand washing facility, but since schools are advised to keep sanitary facilities for girls and boys separated, and to keep hand washing facilities close to sanitary facilities, having only one shared hand washing facility is not recommended.
5.3.2 Needs for soap for hand washing

Every hand washing facility should have soap available at all times. The school WASH assessment has shown that only 4.2% of the schools have hand washing facilities with soap. Knowing that use of soap for hand washing significantly reduces instances of diarrhea and other hygiene related infections, it is recommended that soap should be universally used in schools.

Soap can be used in all schools at a cost of about one dollar per day per school\(^{38}\), and with average 200 school days in a year it will cost an estimated USD 1,092,000 to ensure soap in all schools. Like with the issue of buckets and WaterGuard, soap may be provided either as material items to schools, or as funds for the schools to purchase these items themselves. Through the Direct Support to Schools (DSS) package, schools are empowered to make their own priorities on supplies needed, and soap is one of the items schools are encouraged to prioritize. As regular sending of material items may prove less practical, and hence in order to ensure that availability is sustained, it could be recommended that the strategy for ensuring soap for hand washing universally in schools should be the DSS.

Table 6: Interventions needed to ensure availability of soap for hand washing in all schools

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached</th>
<th>Number of school children reached (average 600 per school)</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soap for hand washing</td>
<td>1,092,000</td>
<td>$1</td>
<td>1,092,000</td>
<td>5,460</td>
<td>3,600,000</td>
<td>$0.30</td>
</tr>
</tbody>
</table>

5.3.3 Needs for hygiene education

A strategy for scaling up hygiene education through training all 46,000 teachers on the 3 Key Hygiene Practices has been formulated and costed. Training and teaching materials have already been developed and printed. The cost estimates include per diem and transport expenses for training of district training teams, consisting primarily of PEA's, and for those in turn to train teachers in all schools, through a 3-day training session at the nearest training centre. No salary expenses, however, are included in these budget lines, since this would be within the scope of work for education professionals.

The number of training sessions per educational zone has been calculated based on the number of teachers in each zone, and involves all 46,000 teachers in the country. The total estimated budget for this national effort, from training of trainers to having all teachers trained, is approximately USD 2.5 million.

Table 7: Interventions needed for ensuring hygiene education in all schools

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached</th>
<th>Number of school children reached (average 600 per school)</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training of Teachers on 3 Key Hygiene Practices</td>
<td>46,000</td>
<td>$55</td>
<td>$2,516,856</td>
<td>5,460</td>
<td>3,600,000</td>
<td>$0.69</td>
</tr>
</tbody>
</table>

\(^{38}\) Bars of soap come in various sizes but may be cut to accommodate each of the hand washing facilities in schools, as such it is estimated that 1 dollar per day, or USD 200 per year per school would be sufficient.
5.4 **Summary of costs of School WASH interventions needed**

### 5.4.1 Costs per type of intervention

In the preceding paragraphs, the total costs of the necessary interventions have been estimated. Figure 25 provides an overview of how much each intervention is estimated to cost in order to close gaps on School WASH.

Figure 25: Estimated costs of necessary School WASH investments, for each type of intervention

![Figure 25](image)

Figure 25 shows that the largest expected cost will be for construction of improved latrines; this is estimated to cost about USD 18.5 million; and to close gaps on protected water sources by drilling boreholes is estimated to cost about USD 8 million. The interventions which will cost the least is ensuring safe water treatment, storage and handling through use of WaterGuard and buckets with tap and lid, at about USD 54,000 for one year; and about USD 164,000, respectively.

### 5.4.2 Costs per district

Efforts have also been made to analyze costs of selected interventions by districts. Figure 26 provides an overview of the estimated costs, of selected interventions, for each district.

Figure 26: Estimated costs of necessary School WASH investments, for each district

![Figure 26](image)
Figure 26 shows that the district where the necessary interventions will cost the most is Lilongwe Rural West, with close to USD 1.9 million. The district is followed by Dedza and Kasungu with above USD 1.8 million. The districts where the necessary investments will cost the least is Likoma and Zomba Urban, where making the necessary improvements is estimated to cost less than USD 100,000; and Mwanza with slightly above USD 200,000. For details on how the cost estimates were arrived at please refer to Annexes 1-6, which contain current situation, needs and gaps, and cost estimates for each district.

5.4.3 Costs per intervention, per pupil

All of these interventions are necessary in order to reach acceptable minimum standards for school WASH. However, it may be of interest to identify the types of interventions that may be more cost effective, i.e. reach a higher number of children for the same amount of money. In a situation where funds are not readily available, this may provide guidance on prioritization of scarce resources while awaiting availability of funds for all. Figure 27 provides costs per pupil reached for each type of School WASH intervention.

Figure 27: Estimated costs of necessary School WASH investments, each type of intervention, per pupil reached

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Estimated Cost per Pupil Reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boreholes</td>
<td>$13.33</td>
</tr>
<tr>
<td>Improved latrines</td>
<td>$7.50</td>
</tr>
<tr>
<td>Improved Urinal Blocks</td>
<td>$1.63</td>
</tr>
<tr>
<td>Teachers’ Training on Hygiene</td>
<td>$0.76</td>
</tr>
<tr>
<td>Hand Washing Facilities</td>
<td>$0.33</td>
</tr>
<tr>
<td>Soap for Hand washing girls’ latrine</td>
<td>$0.33</td>
</tr>
<tr>
<td>Water pails with tap &amp; lid</td>
<td>$0.30</td>
</tr>
<tr>
<td>Modifications for physically challenged</td>
<td>$0.17</td>
</tr>
<tr>
<td>WaterGuard; annual cost</td>
<td>$0.15</td>
</tr>
<tr>
<td>WaterGuards; annual cost</td>
<td>$0.05</td>
</tr>
</tbody>
</table>

When taking into account the number of children reached for each intervention, it is encouraging to note that each of these types of interventions are estimated to cost less than $15 per child, with drilling of boreholes having the highest cost per pupil reached, at $13.33. This intervention is followed by construction of improved latrines at $7.5 per pupil reached, and construction of improved urinal blocks at $1.63 for each pupil. All other interventions are estimated to cost less than one (1) dollar per child reached.

5.4.4 Costs per district, per pupil

For each of the districts, the picture changes when analyzing cost per pupil. Figure 28 shows the estimated costs of selected School WASH interventions in each district, per pupil.

---

39 The estimated costs for providing protected water sources is based on the cost of drilling boreholes. For Likoma this option is not suitable, and plans are underway to construct a piped water scheme on Likoma island. This will however cost more than drilling of boreholes, as such the figure for Likoma may not be a very accurate estimate.
Figure 28: Estimated costs of ensuring acceptable WASH standards in all schools, by school child reached in each district

The table shows that Likoma district will have the highest cost per pupil, at USD 18.9, followed by Rumphi with 15.9 dollars per pupil reached, and Chitipa with a cost of 14.3 dollars per pupil. These are districts with relatively low population, which would be some of the explanatory factors here. The districts which will have the lowest costs per pupil are Zomba urban, where it will cost only 3.9 dollars per pupil; Chiradzulu with 4 dollars, and Lilongwe City with 4.5 dollars.

5.4.5 Costs summary

As has become evident by now, School WASH interventions are very inexpensive in relation to their ability to ensure rights of a large number of children. Table 8 summarizes the estimated costs explained previously in this chapter. Please note that the total necessary School WASH costs are estimated at about USD 36.7 million, and there are about 3.6 million school children. Hence it will take just slightly above ten (10) dollars per school child to make the necessary improvement on School WASH, so that all schools in the country provide suitable environments for the children to learn, grow, and stay healthy in.
Table 8: Summary budget of costs, of ensuring that acceptable levels of water, sanitation, and hygiene in schools is reached.

<table>
<thead>
<tr>
<th>Item / Intervention needed</th>
<th>Number Needed Nationwide</th>
<th>Approx. Cost per Item</th>
<th>Total Costs</th>
<th>Number of schools reached (average 600 per school)</th>
<th>Number of school children reached</th>
<th>Cost per child reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boreholes</td>
<td>994</td>
<td>$8,000</td>
<td>$7,952,000</td>
<td>994</td>
<td>596,400</td>
<td>$13.33</td>
</tr>
<tr>
<td>Bottles of WaterGuard for treatment in 1664 schools for 1 year</td>
<td>389,376</td>
<td>$0.14</td>
<td>$54,512</td>
<td>1664</td>
<td>998,400</td>
<td>$0.05</td>
</tr>
<tr>
<td>Buckets with tap and lid for 1664 schools for 1 year (average 11 per school)</td>
<td>18304</td>
<td>$9</td>
<td>$164,736</td>
<td>1664</td>
<td>998,400</td>
<td>$0.17</td>
</tr>
<tr>
<td>Improved Sanitary Facilities (latrines)</td>
<td>37,142</td>
<td>$500</td>
<td>$18,571,000</td>
<td>4142</td>
<td>2,485,200</td>
<td>$7.5</td>
</tr>
<tr>
<td>Modifications/construction costs to ensure that minimum one latrine for girls and boys is appropriate for school children with disabilities</td>
<td>5460</td>
<td>$100</td>
<td>$546,000</td>
<td>5460</td>
<td>3,600,771</td>
<td>$0.15</td>
</tr>
<tr>
<td>Improved Urinal Blocks</td>
<td>9,197</td>
<td>$500</td>
<td>$4,598,500</td>
<td>4,701</td>
<td>2,820,600</td>
<td>$1.63</td>
</tr>
<tr>
<td>Hand Washing Facilities, close to girls' and boys' sanitary facilities</td>
<td>8608</td>
<td>$100</td>
<td>$860,800</td>
<td>4,304</td>
<td>2,582,400</td>
<td>$0.33</td>
</tr>
<tr>
<td>Washing facilities inside one girls' sanitary facility</td>
<td>4,304</td>
<td>$100</td>
<td>$430,400</td>
<td>4,304</td>
<td>1,291,200</td>
<td>$0.33</td>
</tr>
<tr>
<td>Soap for hand washing; annual cost</td>
<td>1,092,000</td>
<td>$1</td>
<td>$1,092,000</td>
<td>5,460</td>
<td>3,600,000</td>
<td>$0.30</td>
</tr>
<tr>
<td>Training of Teachers on 3 Key Hygiene Practices</td>
<td>46,000</td>
<td>$55</td>
<td>$2,516,856</td>
<td>5,460</td>
<td>3,600,000</td>
<td>$0.69</td>
</tr>
<tr>
<td>TOTAL for ensuring WASH Facilities in adequate quantity and quality, and implementing Hygiene Education, in all schools:</td>
<td></td>
<td></td>
<td><strong>$36,786,804</strong></td>
<td>5,460</td>
<td>3,600,000</td>
<td><strong>$10.2</strong></td>
</tr>
</tbody>
</table>
PHOTO CREDITS

Front page:
Top, left: ©UNICEF Malawi/d’Elbe
Top, middle: ©UNICEF Malawi/Pirozzi
Top, right: ©UNICEF Malawi/Pirozzi
Bottom, left: ©UNICEF Malawi/d’Elbe
Bottom, middle: ©UNICEF Malawi/WES
Bottom, right: ©UNICEF Malawi/van de Merwe

Page 6, left: ©UNICEF Malawi/Pirozzi
Page 6, right: ©UNICEF Malawi/WES
Page 12: ©Dowa District Assembly/Mvula
Page 14, left: ©UNICEF Malawi/WES
Page 14, right: ©UNICEF Malawi/WES
Page 18, left: ©UNICEF Malawi/
Page 18, right: ©UNICEF Malawi/van de Merwe
Page 22, left: ©UNICEF Malawi/WES
Page 22, middle: ©Dowa District Assembly/Mvula
Page 22, right: ©InterAide/Rigo
APPENDICES

Data collection tool 1: Instruction provided to PEAs following assessment training sessions;
Data collection tool 2: Questionnaire used for recording WASH data at school level.

Ministry of Education, Science, and Technology

Malawi National Primary School WASH Assessment

Information for Primary Education Advisors

1. Make sure you go to all primary schools in your school zone, where you will give the Head Teacher the following:
   - The one page School WASH Assessment Questionnaire
   - One bottle H2S strip for testing water quality.

2. Explain to the Head Teachers that they must record the actual status of the Water, Sanitation, and Hygiene facilities in their school, and explain to them how to fill the questionnaires.

3. Explain that they must leave the pink section blank until next day when they have the result of the H2S test.

4. Explain that the same day they must fill one bottle, without touching the top, of water from the drinking water source which is normally used by the pupils. Explain that they must keep the bottle for a full 24 hours, away from direct sunlight, and after 24 hours observe whether the water has turned black.

5. After at least 24 hours have passed, the Head Teacher must record the result in the pink section of the questionnaire.

6. One day after you have delivered the questionnaires and test bottles, or maximum two days later, you -the PEA- return to the same school to collect the questionnaires only. Before leaving the school, ask to see the H2S bottle, to verify that the test result recorded is indeed correct.

7. Return all the questionnaires to the DEM’s office within three days, where they will be sent to Ministry of Education HQ for analysis.
### Availability and Type of Sanitary Facilities

Note: As defined in the National Sanitation Policy, a basic sanitation facility should allow for safe disposal of feaces; be located at least 30 meters from a ground water source; and offer the user safety and privacy. An improved sanitation facility in addition has an impermeable (concrete) floor and a lid.

<table>
<thead>
<tr>
<th>Users:</th>
<th>No. of flush toilets</th>
<th>No. of pit latrine drop holes</th>
<th>No. of urinal blocks</th>
<th>No. of hand washing facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In Use</td>
<td>Under construction</td>
<td>In Use</td>
<td>Under construction</td>
</tr>
<tr>
<td>Girls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MAIN Drinking Water Source**

Please tick only one of the options!

- * Record only pit latrines which have an impermeable (concrete) floor
- ** Record only pit latrines without an impermeable (concrete) floor but in current use
- *** Record only urinal blocks which have a concrete floor and with urine drainage
- **** Record only traditional urinals without concrete floor and urine drainage
- ***** Record only hand washing facilities with actual presence of water, indicating that they are in fact being used

**Drinking Water Quality**

Please tick the appropriate box indicating the result of the H2S test:

- Negative/Clear or brown sample/safe water
- Positive/Black sample/unsafe water
- H2S strip test not conducted

**Drinking Water Facilities in Classrooms**

- No. of classrooms in use
- No. of buckets with tap and lid
- No of cups available for drinking
- WaterGuard available (Y/N)

Developed with support from

unicef
unite for children