

Preventive Maintenance Guide WASH in Schools



hands4health project

hands4health is a research project to develop, test and evaluate a systemic approach to improve WASH services for schools and health care facilities not connected to a functional water supply system. The project is implemented in four specific contexts by 10 consortium members led by the University of Applied Sciences and Arts Northwestern Switzerland (FHNW).

Systemic approach

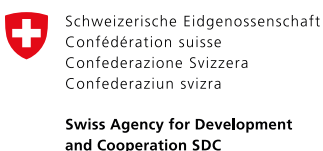
The systemic approach is a methodology for tackling water, sanitation and hygiene (WASH) challenges, focusing on strengthening actors and existing systems in the local context. It combines technology, management, monitoring and behaviour change concepts into well-designed interventions oriented towards rethinking the entire WASH system and aimed at achieving systemic change. The systemic approach takes into consideration the needs of users and implementers in a specific context, with the goal to make WASH interventions more effective and sustainable.

This document is part of a series of tools that make up the systemic approach. More information about the systemic approach is available here:
 › <https://hands4health.dev/systemic-approach>

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Introduction

OVERVIEW OF WASH IN SCHOOLS

Water, Sanitation, and Hygiene (WASH) in schools are vital for ensuring a safe, healthy, and conducive learning environment. Adequate WASH facilities, when properly maintained, play a critical role in preventing the spread of diseases, promoting good hygiene practices, and supporting the overall health and well-being of students and staff. In Nigeria, where many schools face challenges such as inadequate water supply, poor sanitation infrastructure, and limited access to hygiene education, the importance of WASH facilities cannot be overstated. Ensuring that students have access to clean water, safe toilets, and handwashing facilities is a key step toward improving health outcomes and fostering a positive learning experience.

Evidence from authentic studies and reports indicates that functional WASH facilities in schools lead to measurable improvements in attendance and academic performance. For

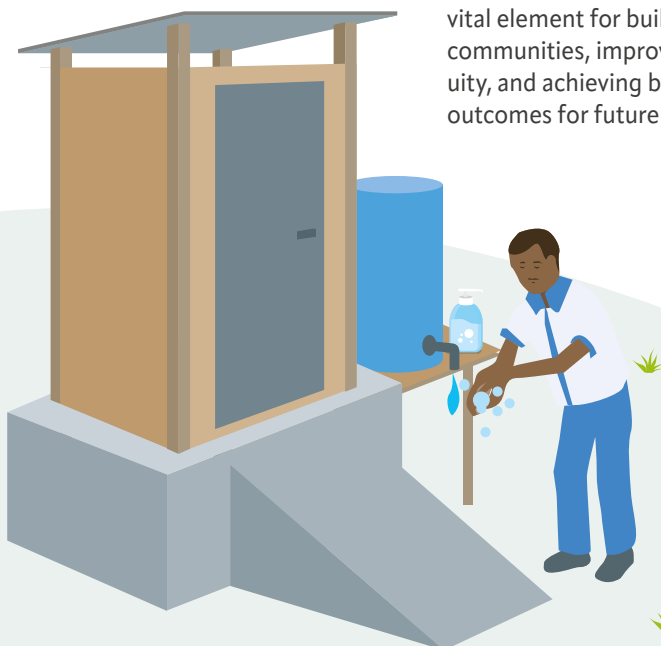
instance, reducing waterborne diseases like diarrhea allows children to attend classes consistently, while hygiene education fosters lifelong habits of cleanliness and health awareness. The availability of well-maintained toilets and handwashing stations has been particularly impactful for adolescent girls, enabling them to attend school during their menstrual cycles and reducing stigma around menstruation. These benefits emphasize the interconnected nature of WASH, health, and education, making it a cornerstone for sustainable development in the Nigerian context.

Sustaining WASH facilities requires not only investment in infrastructure but also a commitment to preventive maintenance and community engagement. Schools that involve students, teachers, and local stakeholders in maintaining WASH systems create a sense of ownership and responsibility, ensuring long-term functionality. Addressing the unique challenges faced by Nigerian schools, such as limited funding and resource constraints, targeted interventions can help bridge the gaps in access and quality. WASH in schools is more than an infrastructure project; it is a vital element for building healthier communities, improving gender equity, and achieving better educational outcomes for future generations.

IMPORTANCE OF PREVENTIVE MAINTENANCE

Preventive maintenance involves the regular inspection, cleaning, and repair of WASH facilities to ensure their continued functionality and efficiency. This proactive approach addresses minor issues before they escalate into major problems, reducing the costs associated with large-scale repairs or complete replacements. Keeping facilities in good working condition, schools can provide students and staff with uninterrupted access to safe water, clean toilets, and functional handwashing stations. Such consistency is vital for preventing the spread of diseases, fostering good hygiene practices, and supporting a healthy learning environment.

In addition to its practical benefits, preventive maintenance helps to extend the lifespan of WASH infrastructure, ensuring long-term usability and sustainability. It also fosters a culture of hygiene and responsibility within schools, as students, teachers, and community members learn the value of preserving essential resources. In Nigeria, where financial and logistical challenges often limit the effectiveness of WASH programs, preventive maintenance offers a cost-effective solution that maximizes the impact of available resources. Schools that prioritize this approach experience fewer disruptions in their operations, improved health outcomes, and enhanced overall educational performance.



01

Understanding School WASH Components

School WASH components encompass essential infrastructure and practices that ensure the provision of safe water, adequate sanitation, and proper hygiene for students and staff. These components include clean and reliable water sources, functional toilets or latrines, handwashing stations with soap, and systems for waste management. Additionally, hygiene education is a critical aspect, promoting knowledge and behaviors that support long-term health and well-being. In the Nigerian context, where many schools face gaps in these facilities, understanding and addressing these components holistically is key to creating a supportive learning environment. A well-designed WASH program not only improves health outcomes but also encourages regular school attendance and academic success, particularly for vulnerable groups such as girls and children with disabilities.



TOILETS AND LATRINES

✔ **Flush Toilets:** Flush toilets use water to remove waste through a sewer system or septic tank. They are hygienic and convenient but require a reliable water supply and proper plumbing infrastructure. Common in urban areas, they are less suitable for regions with water scarcity or poor drainage systems.

✔ **Pour-Flush Toilets:** Pour-flush toilets require users to manually pour water into the pan to flush waste. They are cost-effective and water-efficient, making them ideal for schools in areas with limited water resources. Proper installation and maintenance are essential to ensure hygiene and functionality.

✔ **Maintenance:**

- Regular cleaning of the toilet bowl and surrounding area.
- Unclogging drains to prevent blockages.
- Repairing leaks in pipes or tank connections.
- Ensuring proper flushing mechanism and water pressure.
- Replacing worn-out flappers or seals in the tank.

✔ **Ventilated Improved Pit (VIP) Latrines:** VIP latrines use a simple pit design with a ventilation pipe to minimize odors and flies. They are affordable and easy to construct, making them suitable for rural schools. Regular emptying and maintenance ensure long-term usability and hygiene.

✔ **Maintenance:**

- Regularly clean the latrine structure and surrounding area to prevent odors and maintain hygiene.
- Keep an eye on the waste level; empty the pit when full or dig a new one.
- Ensure the vent pipe is clear and functioning to control odors.
- Inspect and repair any roof, walls, or seating area damage.
- Check for blockages in the drainage system to avoid water pooling around the latrine.



Pit Latrines



Pour-Flush Toilets



Flush Toilets

HANDWASHING STATIONS

✔ Handwashing stations require regular maintenance to remain functional, hygienic, and child friendly. Daily cleaning is vital to prevent dirt and contamination buildup, while water containers should be consistently refilled to maintain availability. Soap dispensers must be checked, refilled, or replaced to encourage proper hand hygiene. Child-friendly features, such as accessible heights, colorful designs, and easy-to-use taps or push systems, should be maintained to ensure usability and engagement. Regular inspections are essential to identify and repair leaks, blockages, or damage, keeping the stations safe, appealing, and reliable for children and all users.

WATER SUPPLY SYSTEMS

✔ Preventive maintenance of water supply systems is essential to ensure uninterrupted access to clean and safe water. It involves regular inspection, cleaning, and servicing of key components such as pumps, pipes, storage tanks, valves, and filtration systems. Routine tasks include checking for leaks, corrosion, and blockages, as well as testing water quality to detect contamination. Ensuring proper alignment of mechanical parts, replacing worn-out components, and maintaining adequate water pressure are critical for system efficiency. Preventive maintenance also includes training operators and engaging communities to report issues promptly. Proactively addressing potential problems, these efforts reduce downtime, minimize repair costs, and extend the lifespan of the infrastructure, ensuring a reliable water supply for the community.

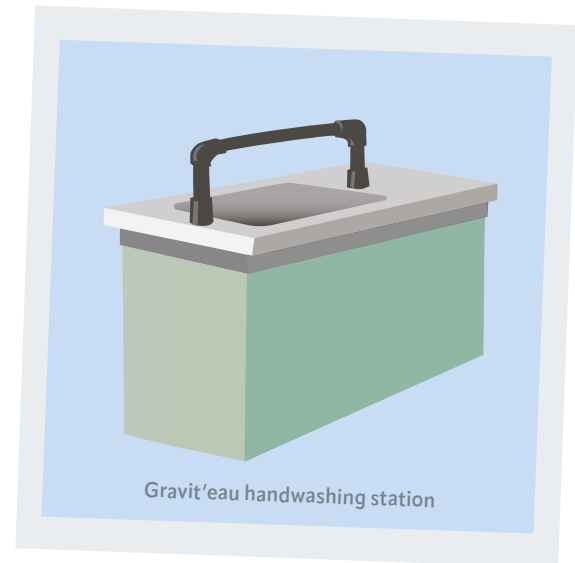
WASTE MANAGEMENT SYSTEMS

✔ Waste management systems, including waste bins and dumping sites, require diligent maintenance to ensure cleanliness and proper waste disposal. Waste bins should be emptied regularly to prevent overflow, reduce odors, and avoid attracting pests. They must also be cleaned frequently to maintain hygiene and durability. Dumping sites require proper management to prevent waste spillage, contamination of surrounding areas, and health hazards. Regular monitoring, waste segregation, and adherence to disposal protocols are essential to ensure safe and sustainable waste management practices while minimizing environmental and public health impacts.

MAINTENANCE

✔ Regular Emptying

- Schedule daily or weekly collection depending on usage and bin capacity.
- Use appropriate tools like gloves and liners for hygienic handling.



✔ Cleaning

- Wash bins with water and disinfectant regularly to prevent odor and bacterial growth.
- Allow bins to dry completely before reuse.

✔ Proper Disposal

- Sort waste into categories (organic, recyclable, non-recyclable).
- Ensure the waste is transported to appropriate recycling centers or dumping sites.

02

Preventive Maintenance Framework

A preventive maintenance framework ensures the longevity and efficiency of systems through scheduled inspections, routine servicing, and timely repairs. Proactive efforts to address potential issues minimize downtime, reduce costs, and enhance safety. This systematic approach promotes optimal performance while preventing unexpected failures in WASH equipment or infrastructure.

OBJECTIVES

- ✔ Ensure the continuous functionality of WASH facilities to support daily operations.
- ✔ Identify and address potential issues through regular inspections and assessments.
- ✔ Maintain a clean and sanitary environment conducive to learning and well-being.
- ✔ Establish a culture of proactive maintenance within the school community.
- ✔ Reduce reliance on emergency repairs by resolving small issues early.

- ✔ Enhance the efficiency of resource utilization for repair and maintenance activities.

BENEFITS

- ✔ Improved Student Attendance and Health.
 - > Minimized disruptions due to facility breakdowns.
 - > Reduced incidence of waterborne illnesses and hygiene-related diseases.
- ✔ Prolong Lifespan of WASH Facilities.
 - > Regular upkeep prevents accelerated wear and tear.
 - > Investments in infrastructure yield

sustained returns over time.

- ✔ Enhanced Community Trust in School Hygiene Standards:
 - > Visible improvements in facility cleanliness and functionality build confidence.
 - > Reinforces the importance of hygiene and sanitation education.
- ✔ Cost Savings:
 - > Avoids expensive emergency repairs by addressing issues early.
 - > Reduces the need for frequent replacements of equipment or fixtures.
- ✔ Increased Safety:
 - > Identifies and mitigates hazards such as leaks, structural damage, or contamination risks.
 - > Promotes a secure environment for students, staff, and visitors.
- ✔ Operational Efficiency:
 - > Ensures consistent access to water, sanitation, and hygiene services.
 - > Supports a seamless educational experience without interruptions.

Key Steps in the Preventive Maintenance Process

1

CONDUCT REGULAR INSPECTIONS

- ✓ Perform routine checks to identify potential issues before they escalate.
- ✓ Document findings to track the condition of WASH facilities over time.

2

DEVELOP A COMPREHENSIVE MAINTENANCE SCHEDULE

- ✓ Establish a clear timetable for routine servicing, repairs, and replacements.
- ✓ Prioritize tasks based on urgency and potential impact.

3

ALLOCATE RESOURCES EFFECTIVELY

- ✓ Ensure availability of tools, materials, and skilled personnel for timely maintenance.
- ✓ Plan budgets to cover both immediate and long-term needs.

4

ASSIGN CLEAR RESPONSIBILITIES

- ✓ Designate specific roles for maintenance tasks among staff or external contractors.
- ✓ Foster accountability by defining expectations and deadlines.

5

MONITOR AND EVALUATE PROGRESS

- ✓ Track the completion of scheduled tasks and assess their effectiveness.
- ✓ Use feedback to improve future maintenance plans and address recurring issues.



03

Daily, Weekly, and Monthly Preventive Maintenance Activities

1

DAILY TASKS

- ✓ Clean all toilets, handwashing stations, and waste bins thoroughly to maintain hygiene.
- ✓ Refill soap and water in all handwashing stations to ensure consistent availability.
- ✓ Inspect WASH facilities for visible leaks, damage, or other urgent issues.

2

WEEKLY TASKS

- ✓ Deep clean all sanitation facilities to prevent the buildup of dirt and bacteria.
- ✓ Check plumbing systems for blockages or slow drainage and address issues promptly.
- ✓ Test water quality using simple testing kits to ensure safety for users.

3

MONTHLY TASKS

- ✓ Conduct comprehensive facility inspections to identify potential wear or hidden damage.
- ✓ Replace worn-out or damaged parts, such as taps, pipes, or seals, to prevent failures.
- ✓ Organize meetings with key stakeholders to review maintenance reports and discuss improvements.

04

Detailed Maintenance Guidelines

Toilets and Latrines

- ✓ **Daily:** Clean floors and surfaces with disinfectant and cleaning items.
- ✓ **Weekly:** Check for blockages and leaks in pipes.
- ✓ **Monthly:** Inspect the structural integrity of latrines.

Handwashing Stations

- ✓ **Daily:** Refill water tanks and soap dispensers.
- ✓ **Weekly:** Scrub tanks and taps to prevent scaling.
- ✓ **Monthly:** Replace damaged components if missing. Conduct integrity testing of the handwashing station once refilled.

Water Supply Systems

- ✓ **Daily:** Ensure water is free from visible contamination.
- ✓ **Weekly:** Flush pipes to prevent blockages. Ensure taps and connection pipes are intact and free from leakages.
- ✓ **Monthly:** Test water quality and sanitize tanks. Replace missing parts.

Waste Disposal Units

- ✓ **Daily:** Empty waste bins and clean surrounding areas.
- ✓ **Weekly:** Dispose of waste appropriately.
- ✓ **Monthly:** Inspect and maintain pits or incinerators.

05

Monitoring and Evaluation

1

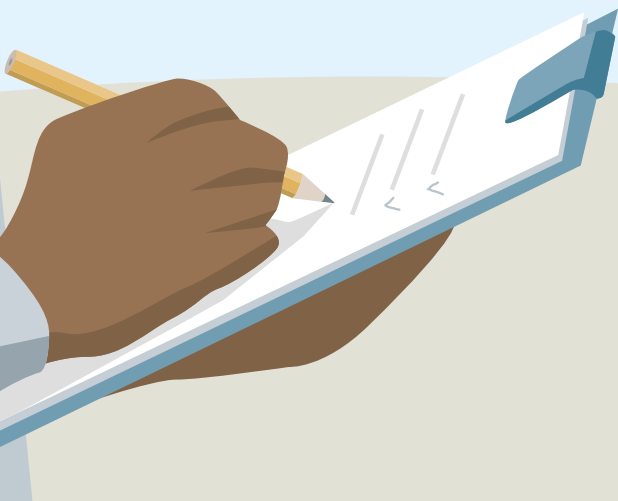
TOOLS FOR MONITORING

- ✓ Checklists for daily and periodic tasks.
- ✓ Maintenance logs to track completed activities.

2

DATA COLLECTION AND REPORTING

- ✓ Use surveys and feedback forms to assess facility conditions.
- ✓ Prepare monthly reports for school management and stakeholders.



06

Roles and Responsibilities

1

SCHOOL MANAGEMENT



Allocate sufficient funds for WASH activities and maintenance.



Oversee the creation and implementation of maintenance schedules to ensure consistency.



Conduct regular reviews of WASH facilities and address identified gaps.



Facilitate training programs for staff on effective hygiene and maintenance practices.



Engage with stakeholders, including parents and the community, to strengthen support for WASH initiatives.



2

SCHOOL-BASED MANAGEMENT COMMITTEE (SBMC)

- ✓ Support the development and enforcement of WASH policies within the school.
- ✓ Advocate for adequate budget allocation for WASH activities during planning meetings.
- ✓ Monitor the implementation of maintenance schedules and hygiene practices.
- ✓ Facilitate collaboration between the school, parents, and community to address challenges.
- ✓ Mobilize resources (financial, material, or expertise) to support WASH activities.
- ✓ Organize awareness campaigns to promote hygiene and sanitation in the school and community.
- ✓ Provide regular feedback to school management and stakeholders on the progress of WASH initiatives

3

TEACHERS

- ✓ Monitor and guide daily hygiene practices among students, such as proper handwashing.
- ✓ Educate students on the correct use and care of sanitation facilities.
- ✓ Incorporate hygiene education into the curriculum to raise awareness.
- ✓ Identify and report maintenance issues to the school management promptly.
- ✓ Encourage student-led initiatives, such as cleanliness clubs, to foster ownership.



4

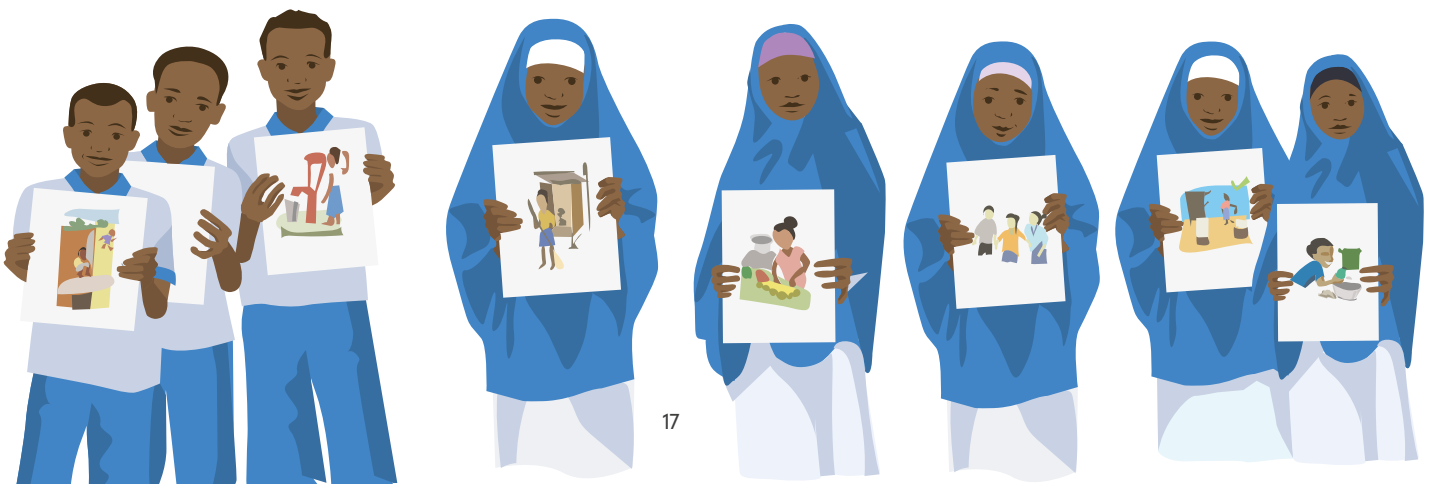
STUDENTS

- ✓ Practice good hygiene, including regular handwashing and proper use of facilities.
- ✓ Report damages, leaks, or shortages in WASH facilities to teachers or school staff.
- ✓ Actively participate in school cleanliness drives and peer education activities.
- ✓ Promote a culture of hygiene by encouraging fellow students to follow good practices.
- ✓ Assist in maintaining shared spaces, such as classrooms and common areas, clean.

5

COMMUNITY MEMBERS

- ✓ Provide support through resources, expertise, or voluntary services for maintenance tasks.
- ✓ Participate in awareness campaigns to emphasize the importance of WASH practices.
- ✓ Advocate for community-driven solutions to improve school sanitation.
- ✓ Partner with schools to conduct periodic evaluations of WASH facilities.
- ✓ Donate supplies, such as cleaning materials or testing kits, to support daily maintenance.



07

Common Challenges and Solutions

In Nigerian schools, especially in public and rural settings, preventive maintenance is critical to sustaining a safe and effective learning environment. Unfortunately, many schools face ongoing challenges that make regular upkeep difficult. Below are two major issues and realistic solutions suited to the Nigerian context.

ADDRESSING RESOURCE LIMITATIONS

✓ Common Challenges:

- Many public schools in Nigeria operate with very limited budgets, leaving little or no funds for maintenance.
- Access to basic tools, spare parts, and repair materials is often poor, especially in rural or conflict-affected areas.
- Schools lack trained personnel like technicians or facility managers to handle routine maintenance tasks.
- Education funding is often stretched thin, with more focus placed on salaries, feeding programmes, or exam fees than infrastructure upkeep.

✓ Practical Solutions:

- **Prioritize Maintenance Needs:** Categorize tasks based on urgency, starting with those that affect safety (like broken windows, toilets, or leaking roofs).
- **Engage the Local Community:** Involve the SBMC (School-Based Management Committee), PTA, and local artisans (e.g., carpenters, plumbers) who may volunteer their services or support with materials.
- **Use Preventive Measures:** Regularly inspect school facilities and address small issues before they escalate into major problems. This approach is more cost-effective in the long run.
- **Train Non-Teaching Staff:** Provide basic maintenance training to security

guards, cleaners, or even teachers who can report or handle simple repairs.

- **Seek Support from Government and NGOs:** Apply for support under UBEC/SUBEB interventions, RUWASSA or work with NGOs implementing WASH in Schools, Safe Schools, or Education in Emergencies programs.

MANAGING BEHAVIORAL ISSUES

✓ Common Challenges:

- Vandalism, misuse of furniture, writing on walls, and damaging toilet facilities by students are common in many schools.
- Some staff may overlook their responsibilities regarding facility care or misuse equipment and resources.
- There is often a general culture of indifference toward public property due to a lack of ownership or awareness.

✓ **Practical Solutions:**

- **Awareness and Orientation:** Regularly sensitize both students and staff on the importance of maintaining school property through assemblies, classroom talks, or visual campaigns using posters and charts.
- **Involve Learners in Maintenance Culture:** Encourage students to form health and hygiene clubs, environ-

ment prefects, or “maintenance champions” who report issues and promote cleanliness.

- **Establish Rules and Consequences:** Develop clear school rules for responsible facility use and enforce them consistently, with appropriate disciplinary actions for offenders.
- **Introduce Incentives:** Recognize and reward well-behaved students or

clean classrooms through announcements, certificates, or even small gifts (e.g., exercise books).

- **Lead by Example:** Head teachers, teachers, and other staff should model responsible behavior by keeping their offices clean, promptly reporting maintenance needs, and encouraging positive habits.

YOUR NOTES

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NOTES**



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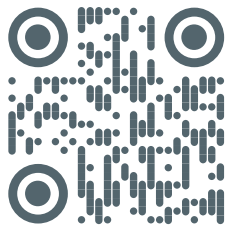
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