

Water and Sanitation Hygiene in Hospitals and Schools

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My Experience

- Completed Peace Corps in Uganda 2007-2009, worked with a local community based organization on WASH education in schools, fuel efficient stoves, built a water system, worked with debate teams for two secondary schools
- First arrived in Haiti in August 2010, worked in Pignon, Saint Raphael, La Viktwa and La Gonave
- Worked with MSF in Central Africa Republic and Myanmar
- Currently working with CEEPCO in Cap Haitian for the permanent shelter project



Outline

- General description of the needs and standards for WASH in hospitals and schools
- How WASH impacts the environment
- WASH during mobilization and construction

Minimum Requirements

- Water
 - Hospitals: Outpatient 5L per patient, Inpatient 40-60L per patient, Operating theatre 100L per intervention, Cholera Treatment Center 60L per patient
 - Schools: 5L per student or staff for day school, 20L per student or staff for boarding schools additional water needed based on type of toilets on the grounds
 - Note: up to 20% of the water can be lost through leaks and spillage


Water Quality

- No Pathogens
- Low turbidity
- Low concentration of compounds that are toxic
- Acceptable to the users

Minimum Requirements

- Sanitation

- Hospitals: In patient 1 latrine for 20 users (1+1 for staff) + $(\text{number of beds} \times 2)/20$, Out patient 1 staff + 1 male + 1 female + 1 children
- Schools: 1 toilet and urinal for 50 boys and 1 for 25 girls; 1 toilet for male and 1 for female staff
- Ensure proper area for the girl child and female staff to clean during menstruation
- At least one latrine/toilet is appropriate for those with disabilities

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- Pit Latrines > 5 m and < 30 m from buildings and > 30 m from water resources
 - Septic Tanks should be sized appropriately and emptied frequently
 - Showers – Inpatient 1 shower for 40 users (1+1 for staff) + (number of beds \times 2)/40





Disinfection

- Use of Chlorine for disinfection of water or in a health structure
 - For chlorinating drinking water use a 1% mother solution ensure residual chlorine concentration of .2 mg/L to .5 mg/L
 - 6 main solutions used for disinfections in health centers 2%, 1%, 0.5%, 0.2%, 0.1%, 0.05%

Hand Washing

- Importance of hand washing is widely known and understood, but still not everyone washes their hands at the critical time
- Hand Washing Stations need to be appropriate; always have water and soap
 - Easy to fill and clean
 - No stagnant water



Environmental Impact of WASH

- Proper Water and Sanitation approach in Schools and Hospitals not only provides a safe area for students and patients but protects the environment and reduces the overall impact of the site

Treating Wastewater

- There are health risks due to pollution carried by wastewater and stagnant water
 - Water from tap stands, hand pumps (no grease or soap)
 - soak away pits, infiltration trenches,
 - Grey Water – Grease Trap then to soak away pits, infiltration trenches or sewer system
 - Black Water – properly sealed sewer system with drainage field
 - Rain and runoff water – need natural drainage

Medical Waste

- Safe and secure segregation, collection and temporary storage and treatment (if needed) before final disposal
- Sharps – needles, glass
- Soft Waste – bandages, plastics, plasters,
- Organic Waste – blood, urine, faeces, placentas, body parts

Disposal of Waste

- Incineration – materials that can be incinerated depends on the temperature of incineration
- Encapsulation – drugs, sharps, ashes to be surrounding by concrete or block wall to prevent any future access
- Dilution – only possible for certain drugs
- Landfill – if available can be used to dispose of household and non-infection waste



Operation and Maintenance

- A plan must be in place that will allow the school or hospital to operate and maintain the water or sanitation system. A non-working system provides no help and in some cases creates a more dangerous and environmentally damaging situation
- Education and training must be done to ensure proper usage of the toilets, incinerator, separation of waste, treatment of water, etc.

WASH during Mobilization and Construction

- Toilets and hand washing stations for workers
- Separate or lockable toilets and changing areas for women workers
- Drainage of water used on site
- Proper disposal of waste (organic and construction waste)
- Treatment of human waste
- Training for workers on site

References

- “Public Health Engineer in Precarious Situations”
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