Key Considerations for WASH Infrastructure in Health Care Facilities

The following categories and questions have been developed by practitioners during one of the learning labs at the global WASH in HCF meeting in Zambia. The group's goal was to discuss strategies for improving and maintaining water, sanitation and hygiene (WASH) infrastructure and services in health care facilities. These questions represent potential key factors to be considered *prior to* constructing or upgrading WASH infrastructure at health care facilities to ensure that the systems or technologies selected are contextually appropriate.

These questions can be adapted, added to or subtracted as needed to facilitate planning discussions. The questions represent some suggested results from discussion at a short working group session rather than a more comprehensive stakeholder consultation, so may need to be modified to specific contexts.

The answers to these questions should always be followed by the next question – "… and what are the implications of this on the choice of [water, sanitation, hygiene, waste management] infrastructure or system?"

1. **Environmental considerations**
    a. Is the area where the infrastructure is to be installed prone to flooding or drought?
    b. What is the depth of the groundwater table, during wet and dry season?
    c. Is there any known water quality issue in the area (including chemical and radiological issues or brackish water)?
    d. What is average annual rainfall and length of wet season?
    e. How much land is available for the proposed infrastructure?
    f. How permeable is the ground/soil and geology where the proposed infrastructure is to be constructed? Do more detailed sources of information on these factors need to be consulted if knowledge is limited?
    g. From what direction are the prevailing winds?
    h. What is the annual average and range in temperature (inside and outside) where the proposed infrastructure would be located?

2. **Safety considerations**
    a. What are the needs of any potential users (women, men, children, elderly, limited mobility) to safely use the proposed infrastructure?
    b. What are the needs of operators and managers to safely operate and maintain the proposed infrastructure?
    c. Are there any safety considerations for the surrounding community (e.g., runoff, emissions) related to the proposed infrastructure?
    d. Are there any safety and security considerations for the proposed infrastructure related to the surrounding community (e.g., theft, damage)?

3. **Cultural considerations**
    a. What are the social and cultural norms of any potential users?
    b. What are the religious beliefs of any potential users and do they involve WASH practices (e.g., ritual washing)?
    c. What are the WASH infrastructure and systems commonly used in the community?
    d. Are there any other common WASH practices among any potential users?

4. **Economic considerations**
    a. What are the funds available for upfront or capital costs?

b. What are the funds available (monthly, annually) for operation and maintenance (including staff, supplies and equipment)?
c. What are the funds available (monthly, annually) for repair, upgrades or replacement (life cycle)?
d. Is there any opportunity for revenue generation from the proposed infrastructure?

5. Technological considerations

a. What is the availability of power/electricity and energy/fuel for the proposed infrastructure?
b. What is the availability of local technical knowledge and expertise to operate and maintain the proposed infrastructure?
c. What is the daily capacity or yield of the proposed infrastructure? (e.g., litres of water supplied, kg of waste disposed)
d. What are the daily needs of all potential users for the proposed infrastructure? (e.g., litres of water, kg waste produced)
e. Are there established supply chains and local distributors/sources for supplies and equipment needed to operate and maintain the proposed infrastructure available?
f. Are there established supply chains and local distributors/sources for supplies and equipment needed to repair the proposed infrastructure available?

6. Human resource and training considerations

a. What is the availability (#) of personnel to operate the proposed infrastructure?
b. What is the availability of personnel to maintain or repair the proposed infrastructure?
c. What is the level of training needed to safely operate, maintain and repair the proposed infrastructure?
d. What is the level of education and literacy of all potential users?
e. What is the level of education and literacy of those who will operate and manage the proposed infrastructure?
f. Are instructions available in local language(s) for operation, maintenance and repair of the proposed infrastructure?
g. Are there local bodies or associations (e.g., governmental, academic, professional) which provide training or technical guidance related to the proposed infrastructure?

7. Regulatory considerations

a. Are there national or sub-national standards, guidelines or policies which include the proposed infrastructure?
b. Are there regulatory or monitoring bodies which provide oversight to the proposed infrastructure?
c. Are there accreditation or licensing processes for the health care facility?

8. Climate considerations

a. What kinds of natural emergencies or disasters (e.g., hurricane) may affect the area that should be planned for?
b. Is there possibility that the facility could receive additional patients in the event of a natural or manmade emergency?
c. What are climate-related stressors that could affect the proposed infrastructure (e.g., severe storms, drought, sea level change)?

Helpful Resources:

WHO, 2019. *Overview of treatment technologies for infectious and sharp waste from health care facilities*. World Health Organization, Geneva.https://www.washinhcf.org/resource/overview-of-technologies-for-the-treatment-of-infectious-and-sharp-waste-from-health-care-facilities/

WHO, 2019. Guidelines on sanitation and health. World Health Organization, Geneva. https://www.who.int/water_sanitation_health/sanitation-waste/sanitation/sanitation-guidelines/en/

WHO/UNICEF 2018. Water and Sanitation for Health Facility Improvement Tool (WASH FIT). http://www.who.int/water_sanitation_health/publications/water-and-sanitation-for-health-facility-improvement-tool/en/

WHO, 2017. *Safe management of wastes from health care activities: a summary*. World Health Organization, Geneva. http://www.who.int/water_sanitation_health/publications/safe-management-of-waste-summary/en/

UNICEF, 2016. Manual Drilling Toolkit. United Nations International Children's Emergency Fund, New York. https://www.unicef.org/wash/3942_59785.html

UNICEF. Programming for Sustainability in Water Services – A Framework. United Nations International Children's Emergency Fund, New York. https://www.unicef.org/wash/files/Programming_for_Sustainability_in_Water_Services_A_Framework.pdf

WHO, 2014. *Safe management of wastes from health care activities.* Second Edition. World Health Organization, Geneva. http://www.who.int/water_sanitation_health/publications/safe-management-of-wastes-from-healthcare-activities/en/

WHO/WEDC, 2013. *Updated technical notes on WASH in emergencies (set of 15 notes)*. World Health Organization, Geneva. http://www.who.int/water_sanitation_health/publications/technotes/en/index.html

UNEP, 2012. Compendium of Technologies for Treatment/Destruction of Healthcare Waste. United Nations Environment Programme, Japan. https://wedocs.unep.org/bitstream/handle/20.500.11822/8628/IETC_Compendium_Technologies_Treatment_Destruction_Healthcare_Waste.pdf?sequence=3&isAllowed=y

WEDC. WASH Technical Briefs. Water Engineering and Development Centre, UK. https://www.lboro.ac.uk/research/wedc/resources/pubs/guides/

WHO, 2011. *Guidelines for drinking-water quality, 4th edition*. World Health Organization, Geneva. http://www.who.int/water_sanitation_health/publications/dwq-guidelines-4/en/

WHO, 2002. *Environmental health in emergencies and disasters.* World Health Organization, Geneva. http://www.who.int/water_sanitation_health/emergencies/emergencies2002/en/