

**KINGDOM OF CAMBODIA  
NATION RELIGION KING**



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**NATIONAL GUIDELINES  
FOR WATER, SANITATION AND HYGIENE  
IN HEALTH CARE FACILITIES**

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Department of Hospital Services



## FOREWARD

The provision of adequate water, sanitation and hygiene (WASH) services is an essential component of health care and serves to prevent infections, protect staff and patients, and uphold the dignity of vulnerable populations, including women and those with disabilities. Yet, in Cambodia, recent analysis shows that the WASH situation in health care facilities (HCF) requires further improvement to ensure safety and quality of care.

There are numerous consequences of poor WASH services, including increased risk of health care associated infections. This infection burden is especially high in newborns, who are particularly susceptible to fatal cases of sepsis and severe infections. Furthermore, lack of access to water and sanitation in health care facilities may discourage women from giving birth in these facilities or cause patients to delay seeking care. Conversely, high quality WASH conditions can help establish trust in health services, which encourages patients to seek preventative care and mothers to give birth in health care facilities, rather than at home.

Although there are a number of national guidelines that include some areas of WASH, there is currently no national policy document that clearly and comprehensively outlines recommendations for water, sanitation and hygiene for health care settings. Recognizing the deleterious effect that poor WASH services can have on human health and the lack of comprehensive guidelines, the Ministry of Health, Kingdom of Cambodia formulated the National Guidelines for Water Sanitation and Hygiene in Health Care Facilities in February 2018. These guidelines will provide recommended standards and best practices for water supply, sanitation and hygiene in health care settings. In preparation of this guideline, consideration has been given to the Ministry of Health National Guidelines for Infection Prevention Control, Ministry of Rural Development guidance on water quality, and various other internationally recognized standards on environmental health.

These guidelines should be used as a reference for policy-makers, planners, managers and practitioners in Health and WASH sector in Cambodia. Ministry of Health strongly believes that adherence to these guidelines will provide a safer work environment for health care staff and a higher quality of care for patients.

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## ABBREVIATIONS

AMR	Antimicrobial resistance
CM	Centimetres
CPA	Complementary package of activities
HAI	Health care-associated infection
HC	Health centre
HCF	Health care facilities
HMIS	Health management information systems
IPC	Infection prevention and control
JMP	Joint Monitoring Programme
M	Metres
MNCH	Maternal, newborn and child health
MOH	Ministry of Health
MPA	Minimum package of activities
MRD	Ministry of Rural Development
NIPH	National Institute of Public Health
OD	Operational district
OPD	Outpatient department
PDRD	Provincial Department of Rural Development
PHD	Provincial Health Department
RH	Referral hospital
RWSSH	Rural water supply, sanitation and hygiene
SDG	Sustainable Development Goals
UHC	Universal Health Coverage
UNICEF	United Nations Children's Fund
WASH	Water, sanitation and hygiene
WASH FIT	Water and sanitation for Health Facility Improvement Tool
WHO	World Health Organization
WSP	Water safety plan

## 1. Introduction

### 1.1. Background

Water, sanitation and hygiene (WASH) services in health care facilities are essential for improving quality of care within the context of Universal Health Coverage. Universal Health Coverage is a global health priority and part of the Sustainable Development Goals (SDGs) under target 3.8.<sup>1</sup> In addition, improving and maintaining WASH services in health care facilities is a critical element for achieving health aims linked to infection prevention and control, and maternal, newborn and child health.

WASH in health care facilities is captured in SDG Targets 6.1 and 6.2, which recognise that access to water and sanitation is a basic human right. The WHO/UNICEF Global Action Plan for WASH in health care facilities recognises that sustained improvements in WASH in health care facilities require integration between quality of care efforts and WASH. Focused attention to this triangulation between quality, UHC and WASH can catalyse improvements in a number of other areas, including:

- **Health and safety:** reduced health care-associated infections, reduced antimicrobial resistance and improved occupational health and safety.
- **Disease prevention and treatment:** improved outbreak prevention and control of communicable diseases (e.g., cholera and Ebola) and improved diarrhoeal disease prevention and control.
- **Staff morale and performance:** improved satisfaction and ability to provide safe care.
- **People-centred care:** increased uptake of services (e.g. births and vaccinations).
- **Community WASH:** health staff model good hygiene behaviour, which leads to improved hygiene practices at home.
- **Health care costs:** more effective and efficient services lead to disease/deaths averted.
- **Climate change and disaster resilience:** facilities better prepared to continue to provide health services in disasters, including climate-related events.

WHO and UNICEF, along with health and WASH partners across the globe, have committed to the following vision: “By 2030, every health care facility, in every setting, has safely managed, reliable water, sanitation and hygiene facilities and practices to meet staff and patient needs in order to provide quality, safe people-centred care”.<sup>2</sup> In 2015, WHO and UNICEF launched a Global Action Plan on WASH in health care facilities, with one of the five key change objectives being that all countries have national standards and policies on WASH in health care facilities, and dedicated budget for improving and maintaining services.<sup>3</sup>

### 1.2. Situation in Cambodia

#### 1.2.1. Status of WASH in health care facilities

In 2015, the Cambodia National Institute of Public Health conducted a policy review of assessment tools and documents related to Universal Health Coverage, to identify key linkage points between Universal Health Coverage and WASH services. This review concluded that Cambodia lacks specific policies, guidelines and monitoring and evaluation systems related to WASH in health care facilities.<sup>4</sup>

Although a number of documents include relevant guidance on WASH, namely the Building Brief for Health Center Minimum Package of Activities (2007), the National Guideline on Health Care Waste Management (2012), and the National Guidelines for Infection Prevention and Control for Health Care Facilities (2017), none provide detailed and sufficient guidance on WASH infrastructure and resources required in health care facilities.

With support from WHO, WaterAid and UNICEF, a comprehensive assessment of WASH conditions in 117 health care facilities (101 health centres and 16 referral hospitals) across five provinces was carried

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<sup>1</sup> SDG Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

<sup>2</sup> WHO (2015) *Delivering quality, people-centered health care for all* (online), available at [www.who.int/water\\_sanitation\\_health/facilities/wash-and-quality-uhc.pdf](http://www.who.int/water_sanitation_health/facilities/wash-and-quality-uhc.pdf)

<sup>3</sup> WHO (2015) *Water, sanitation and hygiene (WASH) global action plan* (online), available at [www.who.int/water\\_sanitation\\_health/facilities/wash-and-quality-uhc.pdf](http://www.who.int/water_sanitation_health/facilities/wash-and-quality-uhc.pdf)

<sup>4</sup> Por, I (2015) *Towards safer and better quality health care services in Cambodia: a situation analysis of water, sanitation and hygiene in health care facilities*. Phnom Penh, Cambodia: WaterAid.

out to provide baseline data on key indicators for WASH in health care facilities.<sup>5</sup> The results of this assessment are listed in Table 1.

**Table 1:** Current status of WASH in health care facilities in Cambodia

Indicators	Status
Access to basic water supply (water available from improved sources on premises)	All health care facilities: 91% Health centres: 90% Referral hospitals: 93.8%
Access to limited sanitation (at least three improved and usable toilets, but not meeting or meeting some of the needs of specific groups)	All health care facilities: 39% Health centres: 36% Referral hospitals: 63%
Access to basic hand hygiene (functional hand hygiene stations available at outpatient department, delivery room/area and within five metres of toilets)	All health care facilities: 15% Health centres: 14% Referral hospitals: 19%

It should be noted that based on this assessment, none of the health care facilities had access to basic sanitation, as defined by the WHO/UNICEF Joint Monitoring Program (JMP) core indicator (at least three improved and usable toilets available and usable, separated for patients and staff, separated for women, and meeting the needs of people with limited mobility). However, 39% of health care facilities had access to limited sanitation, as defined by Cambodia standards (at least three improved and usable toilets not meeting or meeting some of the needs of specific groups).

A recent detailed situation analysis supported by WHO in 2017 revealed that although WASH is included in Cambodian health policies, particularly in quality of care improvement mechanisms, it is not consistently represented across all policy documents and monitoring mechanisms. More importantly, there are no agreed minimum standards for WASH in health care facilities, and no formal coordination on alignment of targets for WASH in health care facilities between the Ministry of Health and other ministries responsible for WASH, such as the Ministry of Rural Development.<sup>6</sup>

## 1.2.2. Government commitment

The government of Cambodia is committed to achieving universal access to WASH by 2025 as specified in the 2011-2025 National Strategy for Rural Water Supply, Sanitation and Hygiene (RWSSH). Furthermore, the Ministry of Rural Development has set a target of 70% access to improved WASH in health care facilities, as specified in the 2014-2018 National Action Plan for RWSSH.

Within the Ministry of Health Strategic Plan 2016-2020, the Ministry has set targets for water and sanitation coverage in health care facilities by 2020, as listed in Table 2.

**Table 2:** Key WASH targets set in the Ministry of Health Strategic Plan 2016-2020

Indicators	Status as of 2016	Target 2020
Percentage of public health care facilities with access to basic water supply (water available from improved sources on premises)	91%	100%
Percentage of public health care facilities with access to limited sanitation (at least three improved and usable toilets, but not meeting or meeting some of the needs of specific groups)	39%	90%

Although there are no specific targets for health care waste management or hygiene in the Ministry of Health Strategic Plan 2016-2020, these topics are covered in the National Guideline on Health Care Waste Management (2012), and the National Guidelines for Infection Prevention and Control for Healthcare Facilities (2017) respectively.

<sup>5</sup> Por, I (2017) *Public health care facilities assessment on water, sanitation and hygiene of five provinces in Cambodia*. Phnom Penh, Cambodia: National Institute of Public Health.

<sup>6</sup> WHO (2017) *Achieving quality universal health coverage through better water, sanitation and hygiene services in health care facilities: a focus on Cambodia and Ethiopia*. Geneva, Switzerland: WHO Press, World Health Organization.

### 1.3. Rationale for National Guidelines

#### *Strengthened focus on improving quality of care*

Cambodia has seen a significant decline in maternal mortality ratio, from 472 deaths per 100,000 live births for the period 1999-2005,<sup>7</sup> to 170 deaths per 100,000 live births for the period 2008-2014.<sup>8</sup> However, there has been a much slower decrease in the rate of neonatal mortality, which now accounts for half of all deaths in children under five. As a result, there has been a renewed focus on improving quality of care provided at health care facilities. Ensuring effective water, sanitation and hygiene services is critical to improving quality of care in many health areas, including maternal, newborn and child health, infection prevention and control, and antimicrobial resistance.

The Health Strategic Plan 2016-2020 of the Ministry of Health, entitled “Quality, Effective and Equitable Health Services”, includes the following as one of the strategic objectives: “Public Health Facilities have appropriate basic infrastructure, advanced medical equipment and information and communication technologies.” Basic infrastructure in this context is defined to include water, sewage and waste disposal systems. Furthermore, under this strategic objective, a key outcome includes, “Appropriate hygiene and sanitation in health facilities, contributing to overall quality.”

#### *A need for comprehensive guidelines*

As previously mentioned, Cambodia still lacks specific policies, standards and monitoring and evaluation systems related to WASH in health care facilities. Although a number of relevant documents include some guidance on WASH, none provide detailed and sufficient guidance on WASH services.

To address this need for clear guidance on WASH in health care facilities, the Ministry of Health’s Department of Hospital Services initiated the development of minimum guidelines for WASH in health care facilities in close coordination with the National Institute of Public Health, Department of Maternal and Child Health, Department of Preventive Medicine, Ministry of Rural Development and key partners, particularly WHO, UNICEF, WaterAid, RainWater Cambodia and Emory University.<sup>9</sup> These guidelines incorporate recommendations provided by representatives of the health and WASH sectors in Cambodia, and by global WASH in health care facilities experts through a series of consultation meetings.

### 1.4. Purpose and scope

The purpose of this document is to provide comprehensive guidance on basic WASH services in health care facilities in Cambodia. The intended use of these guidelines is to be a reference for policy-makers, planners, managers and practitioners in the health and WASH sectors to:

- Provide specific guidance on basic WASH services that are appropriate in health care settings.
- Guide the assessment of WASH infrastructure in existing health care facilities.
- Guide necessary WASH improvements in health care facilities, including infrastructure, operation and maintenance and behaviour practices.
- Provide minimum requirements for accreditation and regulation of health care services.

These guidelines focus specifically on minimum requirements for basic service provision, and do not include advanced guidance for higher levels of care. These guidelines cover the following components:

- Water supply
- Sanitation
- Hygiene
- Management
- Monitoring and evaluation

All health care facilities in Cambodia are expected to comply with these guidelines for basic WASH services.

<sup>7</sup> Cambodian Demographic and Health Survey 2010.

<sup>8</sup> Cambodian Demographic and Health Survey 2014.

<sup>9</sup> Emory University has been supporting WASH improvements in HCFs with funding support from General Electric Foundation since 2015.



## 2. Water supply, sanitation and hygiene guidelines

### 2.1. Water supply

For water supply in health care facilities, these guidelines focus on water source, quantity, storage and quality.

#### 2.1.1. Water source

- Health care facilities must have an improved source on the premises that supplies water at all times (i.e. water available throughout the year and not affected by seasonality, power outages, etc.). Improved water sources include piped water, borehole well, protected well, protected spring, rainwater and packaged or delivered water from a licensed supplier.
- A functional water collection point should be available at all points of care (e.g. consulting rooms, delivery rooms, etc.).
- A functional water collection point and water use facility should be available to allow convenient access to water for drinking, handwashing, toilets, personal hygiene, food preparation, laundry, cleaning, gardening and medical purposes.
- Water piping must be functional (i.e. no major leaks, all end points are connected to an available water supply).
- Drinking water should be made available to staff, caregivers and patients, including children and people with limited mobility, at all times.
- A health care facility should have a secondary improved water source that can be used in case of interruptions to the primary water source.

#### 2.1.2. Water quantity

- The actual quantities of water required will depend on a number of factors such as climate, availability and type of facility, number of patients, level of care and local water use practices.
- Sufficient quantities of water should be available to meet the minimum daily requirements in the health care facility for patients, visitors and staff. Table 3 lists recommended minimum quantities of water required in health care facilities.

**Table 3:** Minimum water quantities in health care facilities<sup>10</sup>

Health care settings	Water quantities*
Outpatients	5 litres/consultation
In-patient	40-60 litres/patient/day
Maternity ward	100 litres/intervention
Dry or supplementary feeding centre	0.5-5 litres/consultation
Wet supplementary feeding centre	15 litres/consultation
In-patient therapeutic feeding centre	30 litres/patient/day
Cholera treatment centre	60 litres/patient/day
Severe acute respiratory disease isolation centre	100 litres/patient/day
Viral hemorrhagic fever isolation centre	300-400 litres/patient/day

\*To calculate water requirements for individual health care facilities, the above standard quantity for each department should be added up accordingly.

#### 2.1.3. Water storage

- Health care facilities should have a water storage tank that has the capacity to supply the facility with water for two full days, to be used as back-up in case of interruptions to the main water source.
- Health care facilities should have sufficient water storage for drinking, handwashing, sanitation facilities, personal hygiene, food preparation, laundry, bathing, cleaning and medical activities.
- Storage tanks should be clean, covered with a tight lid and be well maintained to prevent contamination from entering (i.e. free from any cracks, leaks, etc.).
- Storage tanks should allow for water to be extracted without hands or other potentially contaminated surfaces touching the water (i.e. through use of a tap).

<sup>10</sup> Adams, J., Bartra, J., & Chartier, Y (2008) *Essential environmental health standards in health care*. Geneva, Switzerland: WHO Press, World Health Organization. Pages 29-30.

- Storage tanks can be made from a variety of materials, including ferro-cement, plastic or stainless steel, etc.

#### 2.1.4. Water quality

- In general, two levels of water quality are necessary for a health care facility:<sup>11</sup>
  - Clean water: water used for drinking, handwashing, toilets, personal hygiene, food preparation, laundry, cleaning and gardening.
  - Sterilised water: water used for specific medical purposes including, but not limited to, disinfection of medical devices, dialysis, surgery, dental operations and respiratory devices (e.g., respirator, humidifier apparatus, etc.)
- Clean water should meet the following standards:
  - Clean water should either be provided by a certified water supplier licensed by the Ministry of Industry and Handicraft, or treated to ensure water is safe (free from microbial and physical contamination) up to the point of consumption.
  - Clean water quality should be below permissible limits set by the Ministry of Rural Development's National Rural Drinking Water Quality Guidelines. See Annex V for a full list of parameters and permissible limits.
  - Microbial water quality parameters should be tested every six months, while chemical and physical water quality parameters should be tested annually to verify compliance with permissible limits, as outlined in Annex V.
  - Clean water should not have a taste, odour or colour that would discourage consumption.
  - Clean water should be safely stored in a clean container with lid and tap. Such containers must be cleaned regularly to remove the bacterial layer (bio-film) and/or particles that have accumulated in the tank.
  - Clean water should be placed somewhere that is accessible to all patients, visitors and staff, including those with limited mobility or children.
  - Water taps and containers should be clearly labelled to inform users of its designated use.
  - Particular care is needed to ensure that clean drinking water is supplied to immune-compromised patients because of their high susceptibility to infection.
- Sterilised water should meet the following standards:
  - Sterilised water should, at a minimum, meet all the criteria for "clean water" and be sterilised on-site by boiling or disinfecting in batches before use.
  - Sterilised water should be clearly labelled to inform users of its designated uses.
  - Sterilised water should not have any microbial or chemical contamination, such as chlorine or aluminum.
  - Sterilised water should have an appropriate pH and chemical composition so as not to affect medical equipment.
  - Sterilised water should be stored in a clean, covered container. Sterilised water must be changed every day, and containers must be cleaned when the water is changed.

## 2.2. Sanitation

Sanitation in health care facilities refers to safely-managed sanitation systems for human excreta, waste water (grey water and black water), and uncontaminated runoff water. If the health care facility is located in a flood-prone area, sanitation facilities should be designed to ensure they are flood-proof<sup>12</sup> and functioning at all times. Sanitation facilities should be placed at least 25 metres away and downhill from any water source, and at least two metres above the water table to prevent contamination. Sanitation systems in health care settings include improved toilets and disposal of waste water and runoff water as described below.

### 2.2.1. Improved toilets

Health care facilities must have improved toilet facilities located on the premises (or inside the building). The toilets must be available, functional and clean at all times. In addition, there must be at least one toilet designated for men and one for women, with facilities to manage menstrual hygiene needs. There must also be at least one toilet that meets the needs of people with limited mobility (e.g. pregnant

<sup>11</sup> Ministry of Health (2017) *National guidelines for prevention and control of healthcare facilities*. Phnom Penh, Cambodia: Ministry of Health. Pages 82-83.

<sup>12</sup> Overflow of sanitary latrines during flood events can pose a serious health risk by infiltrating ground or surface water. In flood-prone areas, latrines should be designed to minimise these risks by elevating latrines and/or lining latrine drainage pits. See: [https://www.ctc-n.org/sites/www.ctc-n.org/files/resources/flood\\_proof\\_sanitary\\_latrines.pdf](https://www.ctc-n.org/sites/www.ctc-n.org/files/resources/flood_proof_sanitary_latrines.pdf)

women, elderly persons, and/or persons with a physical disability). Health care facilities should comply with the following guidelines regarding improved toilets:

- Improved toilets in health care facilities include flush or pour flush toilets.
- Improved toilets should be of sufficient number to meet the needs of all patients, staff and visitors, as follows:
  - For outpatient settings (e.g. health centres), there should be at least four toilets (one for staff, one for women/girls, one for men and one for people with limited mobility).
  - For in-patient settings and larger facilities (e.g. hospitals), more than four improved toilets should be built to meet the needs of the facility. The actual number of toilets/latrines required will depend on the average number of persons at the facility per day. There should be a minimum of one toilet for every 20 users (staff, patients, visitors and caregivers).
- Toilets for women must be equipped for menstrual hygiene management (i.e. a bin with a lid on it within the cubicle for disposal of sanitary pads/cloths, and water and soap available for washing).
- All toilet facilities should have a functioning handwashing station inside the toilet room or outside within five metres.
- Water should be available at all times in the toilet room for flush/pour flush toilets.
- All improved toilet facilities should have clear signposts indicating men, women or people with limited mobility.
- All toilets should have a door that can be locked from the inside during use to ensure privacy.
- All toilets should have enough light to ensure safety and accessibility for nighttime use.
- To meet the needs of persons with limited mobility, at least one toilet in the health care facility must have the following features:<sup>13</sup>
  - Accessible without stairs or steps.
  - Include an unobstructed pathway, if outside the building.
  - Fitted with handrails for support, attached either to the floor or sidewalls.
  - Built with sufficient room within the cubicle/stall for a wheelchair to turn around.
  - Door must be at least 80cm wide.
  - Toilet seat height must be between 40cm and 48cm above the floor of the toilet stall.
  - Toilet stall must have sufficient space for a caretaker to assist someone using the toilet, and enough space for maneuvering (150cm x 150cm).
  - The hand hygiene station outside the latrine should be accessible, and the top of the sink 75cm from the floor.
  - Switches for lights should be at an accessible height (max 120cm).
  - Other elements should be added when appropriate (e.g. guide rope for people with a visual impairment).

### **2.2.2. Cleaning and maintenance of toilets**

Toilets should be cleaned and maintained in a way that they remain hygienic and do not become a centre for disease transmission. Toilets in health care facilities should meet the following standards in regard to cleaning and maintenance:

- Cleaning materials (i.e. water, soap, disinfectant, mops, scrub brushes, etc.) should be made available for performing regular cleaning (minimum of twice per day).
- Toilets should be clean as noted by absence of waste, visible dirt, excreta, insects and stagnant water.
- A routine cleaning programme should be in place to ensure regular cleaning practices (a minimum of two cleanings per day) that result in cleanliness at all times.
- Cleaners should understand their important role and be trained on cleaning practices, including making disinfectant solution. They should be provided with adequate cleaning supplies and personal protective equipment.
- At a minimum, personal protective equipment for cleaners should include rubber gloves, rubber boots and an impermeable apron. When there is a risk of splash in the face, cleaners must wear eye protection and surgical masks.
- The surrounding environment should be free from human faeces, with attention especially paid to the disposal of baby and infant faeces. Soiled disposable diapers should be rolled onto themselves, with the clean part of the diaper facing outward, and taped closed to isolate the faeces. Then, diapers should be disposed of in a plastic-lined, lidded trashcan.

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<sup>13</sup> Specifications are based on ISO 21542:2011 0 *Building construction accessibility and usability of the built environment*, available at: <https://www.iso.org/standard/50498.html>

- A maintenance programme should be in place to ensure functionality at all times.
- Toilets should be connected to a safely managed on-site treatment and disposal system (i.e. septic tank followed by drainage pit), or sent to an existing sewer system, if available.
- Septic tank emptying should be scheduled for every six months or when tanks are full, if sooner. This activity should be included in the health care facility's annual budget.
- Faecal sludge from the septic tank should not be used for agricultural purposes, but should be disposed of following safe procedures.<sup>14</sup>
- There should be no major holes, cracks or leaks in the toilet structure.
- Toilets should be maintained to ensure there is no blockage.

### 2.2.3. Disposal of runoff water and waste water

Health risks associated with contaminated waste water as well as the presence of standing water include the following: spread and multiplication of pathogens, pollution of surrounding ground water and surface water, and breeding of insect vectors. Additionally, poorly managed runoff water causes erosion around structures, roads, pits and other critical facilities.

There is a clear distinction between runoff water (e.g. uncontaminated water, mainly rainwater, that does not infiltrate into the ground) and waste water (e.g. used water that has come into contact with contaminants). Runoff water does not need to be treated, but efforts should be made to reduce standing water on the health care facility premises. Waste water can be classified by its origin into the following categories:

- Black water: waste water carrying human excreta.
- Grey water: waste water from sinks, showers and baths.

All runoff and waste water should be disposed of rapidly and safely, and managed in such a way to avoid contamination of the health care facility and the broader environment. The process of runoff and waste water management consists of the following: removal, pre-treatment and disposal.

- 1) Removal: a removal system should be used to transport water away from its source to avoid stagnant water, and direct water to the treatment/disposal site. The collection surface should be gently sloped at least at a 1% grade. Examples of acceptable removal techniques are an open channel or pipe.
- 2) Pre-treatment: if possible, waste water and runoff should be directed off-site and into an existing sewer system that is connected to an adequate treatment plant. If the sewer does not lead to a treatment facility, or if there is no off-site sewer system, on-site pre-treatment through septic tanks or grease traps will be necessary before waste water is discharged. Grey water and black water may be treated in the same septic tank to eliminate faecal material and any other solids or grease in the waste water.
- 3) Disposal: runoff water (i.e. rainwater) that has not been contaminated can be evacuated directly into surface waters (e.g. lakes and streams) or sewer systems, if available. Waste water can be disposed of through soak away pits, infiltration trenches, or directly into sewer systems. Waste water disposal systems should be covered to prevent risk of breeding of insect vectors and of contamination through direct exposure. Pits and trenches should not overflow into health care facility premises, and should meet the following minimum standards:
  - The bottom of infiltration systems should be at least 1.5m from the groundwater table.
  - The infiltration system should be at least 25m away from any groundwater well.

Small quantities of infectious liquid wastes (e.g. blood or body fluids) may be poured into sinks or toilets. Most pathogens are inactivated by a combination of time, dilution and the presence of disinfectants in the waste water. Water that contains toxic waste (e.g. reagents from a laboratory) should be treated and disposed of according to the safest feasible available method recommended in the National Guideline on Health Care Waste Management (2012).

## 2.3. Hygiene

Hygiene in these guidelines focuses on hand hygiene and bathing facilities. Hygiene is important to prevent and minimise the spread of infection within health facility environments. Hand hygiene includes handwashing with soap and water and/or using alcohol-based hand rub. By regularly washing hands or performing hand

<sup>14</sup> Chartier, Y., Emmanuel, J., Piper, U., Pruss, A., Rushbrook, P., Stringer, R., Townend, W., Wilburn, S., Zghondi, R. (2014) *Safe management of wastes from health-care activities second edition*. Geneva, Switzerland: WHO Press, World Health Organization. Page 155.

hygiene, health care facility staff, patients and visitors decrease the risk of getting infections and/or spreading pathogens to others. Bathing, also covered here, is important for personal hygiene, patient recovery and cleanliness of staff and caregivers.

### **2.3.1. Hand hygiene**

To facilitate hand hygiene, health care facilities must have functioning handwashing stations available within the health care compound accessible to patients, visitors and staff. A handwashing station is defined as a dedicated, easy-to-access location where both soap and water are available for handwashing. A minimum recommended number of handwashing stations are as follows:

- At least one in the waiting area for visitors.
- At least one in each delivery room.
- At least two in a ward with more than 20 beds.
- At least one anywhere there will be physical contact with patients (i.e. consultation area).
- At least one within 5m of toilet facilities.
- At least one in the mortuary.
- At least one near any waste disposal area.
- At least one in area where ultrasound and/or X-ray facilities are provided.
- At least one handwashing station accessible for patients with limited mobility, with the top of the sink 75cm from the floor with knee clearance underneath.
- At least one in the canteen facility/kitchen.

All handwashing stations must meet the following requirements:

- Handwashing stations must have a tap and appropriate drainage to avoid stagnant water.
- Handwashing stations must have the following materials available at all times: water, soap, and clean, single use paper or material towel. Multi-use towels must not be used, as they are potential sources of infection.
- Handwashing stations should be cleaned daily and drains should be monitored to avoid blockages and pooling of water.
- Hand hygiene promotion/instruction materials must be clearly visible and understandable at all handwashing stations.
- Water used at all handwashing stations must be from an improved water source.

Health care staff may use alcohol-based hand rub for disinfection between points of care. Instructions for making alcohol-based hand rub on-site can be found in the National Guidelines for Infection Prevention and Control for Health Care Facilities (2017). However, health care staff must wash hands with soap and water when their hands are soiled with dirt or body fluids, and after using the toilet. Alcohol-based hand rub cannot be substituted in these cases. Staff hand hygiene compliance should be monitored regularly, and training should be routinely provided.

### **2.3.2. Bathing facilities**

For in-patient settings, bathing facilities should be made available for staff and patients in order to address personal hygiene needs. Bathing facilities should meet the following requirements:

- Bathing facilities should be provided at a ratio of one facility for every 40 users, which includes staff, patients and visitors.
- Separate bathing facilities should be available for staff and patients/visitors.
- Patient/visitor bathing facilities should be separate for males and females.
- Bathing facilities should be private and lockable from the inside.
- Bathing facilities should include chairs, railings and other aids to ensure accessibility and usability of those with limited mobility.
- Water in bathing facilities should be sufficient and from an improved water source.
- Bathing areas should be adequately lit, including at night.

## **3. Management**

This section outlines the roles and responsibilities for implementing these guidelines. It also describes the water and sanitation for health facility improvement tool (WASH FIT) to support facility-level improvements in WASH services. Stakeholders at all levels of the health care system should be able to effectively plan, fund, manage and implement essential WASH services based on these guidelines. They should align with broader quality improvement mechanisms and contribute to improving quality of clinical care.

### 3.1. Roles and responsibilities

The provision of WASH services in health care facilities lies primarily within the health sector. However, other actors responsible for water supply and sanitation play a critical role in ensuring that WASH services and standards in health care facilities are sustainably met and financed. Table 4 gives an overview of the roles and responsibilities of primary stakeholders involved in WASH in health care facilities.

**Table 4:** Roles and responsibilities for WASH in health care facility stakeholders

Stakeholder	Roles and responsibilities for WASH in health care facilities
Patients, visitors and caregivers	<ul style="list-style-type: none"> <li>• Responsible use and maintenance of facilities.</li> <li>• Support maintaining cleanliness of facilities.</li> <li>• Provide essential and honest feedback on the quality of WASH services.</li> <li>• Practice good hand and personal hygiene.</li> </ul>
Health Centre Management Committee (HCMC)	<ul style="list-style-type: none"> <li>• Promote accountability, good management and community ownership of facilities (including WASH facilities in health centres).</li> <li>• Provide a communication channel between the community and the health centre.</li> <li>• Mobilise resources to support the health care facility's operation and maintenance.</li> </ul>
Cleaners	<ul style="list-style-type: none"> <li>• Clean and disinfect all floors and surfaces.</li> <li>• Waste collection, treatment and disposal.</li> <li>• Care for and maintenance of water and sanitation and hygiene facilities.</li> <li>• Practice good hand and personal hygiene.</li> <li>• Ensure availability of soap and paper towels at all hand hygiene stations.</li> </ul>
Health care facility staff	<ul style="list-style-type: none"> <li>• Carry out infection prevention duties in compliance with the Ministry of Health's National Guidelines for Infection Prevention and Control for Health Care Facilities.</li> <li>• Sterilise all multi-use patient care equipment.</li> <li>• Encourage patients, visitors and caregivers to adopt appropriate hygiene behaviours and act as role models of good behaviour.</li> <li>• Participate actively in maintaining WASH facilities, and report when systems are not functioning.</li> <li>• Advise patients, visitors, caregivers and new staff on the use of handwashing stations, toilets and bathrooms.</li> </ul>
Health care facility managers	<ul style="list-style-type: none"> <li>• Ensure compliance with standards, policies and procedures relating to water supply, sanitation and hygiene as specified in these guidelines.</li> <li>• Ensure all standards, protocols and standard operating procedures related to WASH and infection prevention and control are available, up-to-date and accessible to all staff at all times.</li> <li>• Plan, budget for and implement programmes to monitor and maintain WASH facilities and practices, such as supporting and leading the implementation of WASH FIT.</li> <li>• Ensure staff are adequately trained and that roles and responsibilities are clear.</li> <li>• Mobilise political and financial support for WASH improvements.</li> <li>• Serve as a champion and role model for hygiene and encourage health care staff to practice appropriate hygiene behaviours.</li> </ul>
Operational district	<ul style="list-style-type: none"> <li>• Provide advice and guidance on identifying problems and recommending solutions for WASH in health care facilities.</li> <li>• Provide periodic assessment and monitoring of WASH services and behaviour practices.</li> <li>• Undertake reviews and routine compliance checks of WASH and infection prevention and control conditions.</li> </ul>
Provincial Health Department	<ul style="list-style-type: none"> <li>• Provide resources and direction for setting, achieving and maintaining WASH targets.</li> <li>• Mobilise political, financial and technical support for WASH improvements.</li> <li>• Champion clean and safe facilities across the province and ensure compliance with infection prevention and control and WASH guidelines and standards.</li> </ul>
Ministry of Health	<ul style="list-style-type: none"> <li>• Formulate national policy and strategy.</li> <li>• Set standards and guidelines.</li> <li>• Ensure all relevant national health priorities and activities include targets and plans related to WASH.</li> <li>• Regulate activities of medical professionals and facility managers to ensure compliance with WASH and infection prevention and control guidelines and standards.</li> </ul>

**Table 4:** Roles and responsibilities for WASH in health care facility stakeholders

Stakeholder	Roles and responsibilities for WASH in health care facilities
	<ul style="list-style-type: none"> <li>• Ensure adequate budgets are available to improve WASH at the facility level in order to reach national targets.</li> </ul>
Provincial Department of Rural Development	<ul style="list-style-type: none"> <li>• Provide technical support in ensuring correct design and construction of WASH infrastructure in health care facilities.</li> <li>• Monitor water quality at health care facilities to ensure compliance with national standards.</li> <li>• Collaborate with Provincial Health Department in mobilising funding resources for WASH improvements in health care facilities.</li> <li>• Collaborate with Provincial Health Department in monitoring coverage of WASH in health care facilities.</li> </ul>
Ministry of Rural Development	<ul style="list-style-type: none"> <li>• Collaborate with Ministry of Health in formulating national policy and strategy, setting standards and developing guidelines on WASH infrastructure in health care facilities.</li> <li>• Support the inclusion of WASH in health care facilities in Ministry of Rural Development policies and activities.</li> <li>• Collaborate with Ministry of Health in monitoring coverage of WASH in health care facilities and driving the achievement of WASH targets.</li> </ul>
Private sector contractors and suppliers	<ul style="list-style-type: none"> <li>• Provide skilled services that comply with national guidelines for construction, maintenance and repair of WASH infrastructure in health care facilities.</li> </ul>
National and international funding bodies	<ul style="list-style-type: none"> <li>• Provide funding support for new infrastructure, upgrades to existing infrastructure and ongoing maintenance.</li> <li>• Provide ongoing technical support, training and professional development to WASH and health stakeholders.</li> <li>• Support Ministry of Rural Development and Ministry of Health efforts to advocate for improved WASH services in health care facilities.</li> <li>• Support efforts for strengthening cross-sectorial collaboration between development partners and government ministries.</li> </ul>

## 3.2. WASH in health care facility improvements

Facility-level improvements in WASH infrastructure and behaviour practices should aim to reach the optimal level of service through incremental improvements. Improvement activities should follow a continuous cycle of assessment, risk prioritisation and targeted actions. These improvement efforts should be integrated into a facility's existing activities, such as infection prevention and control, antimicrobial resistance and other quality of care improvement activities.

### 3.2.1. WASH FIT (water and sanitation for health facilities improvement tool)

To guide WASH in health care facility improvements and sustainable maintenance, WHO and UNICEF have developed the WASH FIT tool.<sup>15</sup> With support from WHO, UNICEF and WaterAid, the Ministry of Health has adopted WASH FIT at several health care facilities in Cambodia. WASH FIT is summarised below.

- WASH FIT is a comprehensive and systematic tool for health care facilities to use internally to prioritise and maintain WASH improvements, focusing on actions.
- Covers seven key domains: water, sanitation, personal hygiene, cleaning/disinfecting, health care waste management, environmental management and facility management.
- Draws upon WHO's Water Safety Plan and Sanitation Safety Planning, as well as WHO recommendations for infection prevention and control.
- Intended for primary, and in some instances secondary, care facilities as part of broader quality improvements in health care settings.

<sup>15</sup> A PDF version of WASH FIT can be found here: <http://apps.who.int/iris/bitstream/10665/254910/1/9789241511698-eng.pdf?ua=1>

### 3.2.2. Technology choice, operation and maintenance

Facilities should be resilient, durable and able to be maintained WASH infrastructure without specialised skills or equipment. Choice of technology should take into account local capacity for maintenance and repair. Responsibilities for operation and maintenance should be clearly defined, and appropriate expertise should be available for undertaking necessary activities. Maintenance and repair of all water, sanitation and hygiene facilities should be planned and budgeted in all health care facility management systems.

## 4. Monitoring and evaluation

Improving and managing WASH services requires strong and consistent monitoring mechanisms to measure progress and direct efforts where needs are greatest. Monitoring is required at national, sub-national and facility level. WASH indicators should be built into routine monitoring for health and WASH sectors.

### 4.1. Monitoring WASH in health care facilities

Existing Health Management Information Systems (HMIS) and/or annual facility inventory surveys may provide an opportunity for regular monitoring of WASH in health care facilities. Annex IV provides a suggested expanded set of WASH in health care facilities monitoring questions that go beyond the Sustainable Development Goal criteria. These monitoring questions have already been used in a national WASH in health care facility assessment in 117 health care facilities across five provinces.<sup>16</sup> These monitoring questions can be considered for regular use among existing Ministry of Health monitoring systems.

Regular monitoring of WASH in health care facilities should be conducted according to the following guidance:

- Monitoring should be conducted at the following levels:
  - Facility level: infection prevention and control committee conducts regular (minimum quarterly) assessment of WASH infrastructure and behaviour practices.
  - Provincial Health Department/Operational District level: integrate WASH monitoring into existing Health Equity Quality Improvement Programme monitoring.
  - National level: conduct regular monitoring through national assessments.
- It is best to use indicators that are easily and frequently measured to identify problems and correct them in a timely manner.
- Monitoring records should be developed at the national or sub-national level, so that monitoring reports and data can be compared across health facilities and tracked over time.

### 4.2. Indicators

The WHO/UNICEF Joint Monitoring Programme (JMP) is responsible for global monitoring of Sustainable Development Goal targets on drinking water, sanitation and hygiene (targets 6.1 and 6.2).<sup>17</sup> In regards to WASH in health care facilities, JMP has established definitions for basic service levels (see Table 5). See Annex II for the detailed JMP service ladder for WASH in health care facilities. Any indicators used to monitor WASH in health care facilities in Cambodia should reference these global indicators and levels of service.

**Table 5:** WHO/UNICEF basic service levels for water, sanitation and hygiene in health care facilities

Water	Sanitation	Hand hygiene
Water from an improved source is available on-premises.	Improved sanitation facilities are available and usable, separated for patients and staff, separated for women and allowing menstrual hygiene management, and meeting the needs of people with limited mobility.	Hand hygiene materials, either a basin with water and soap or alcohol hand rub, are available at points of care and toilets.

<sup>16</sup> Por, I (2017) *Public health care facilities assessment on water, sanitation and hygiene of five provinces in Cambodia*. Phnom Penh, Cambodia: National Institute of Public Health.

<sup>17</sup> SDG Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all. SDG Target 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.



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## Annex I: Glossary

**Black water:** waste water from toilets that contains human excreta.

**Clean water:** drinking water obtained from improved water sources, such as protected deep pump well, protected shallow pump well, protected well and protected rainwater, which is of a quality in compliance with the National Guidelines on Rural Water Quality.

**District referral hospitals:** facilities that provide treatment for referred cases, complicated tuberculosis cases, medical, surgical and obstetrical emergency cases, some surgery, maternal, newborn and child health services, provision of x-ray, ultrasound and laboratory services, and rehabilitation services.

**Faecal sludge:** sludge of variable consistency collected from on-site sanitation systems such as toilets, non-sewered public toilets and septic tanks that contain solids from human excreta.

**Grey water:** water from the kitchen, bath and/or laundry, which generally does not contain significant concentration of excreta

**Guidelines:** recommended practices to achieve desirable minimum environmental health standards in health care settings. They are not law, but should be used as guidance.

**Health centres:** facility that is the first point of contact and acts as gatekeeper to higher levels of care, providing (i) maternal, neonatal and child health services, mother and child immunisation, nutritional education, integrated management of childhood illness, birth spacing, screening for breast and cervical cancer, safe abortion; (ii) treatment and prevention of communicable diseases, including diarrhoeal diseases, sexually transmitted infections (STIs) and HIV/AIDS, tuberculosis and leprosy, malaria and dengue fever, avian influenza; (iii) treatment and prevention of noncommunicable diseases and injuries, including high blood pressure, diabetes, breast and cervical cancers, oral health, mental health, eye problems, small surgery; and (iv) outreach activities (once a month per village).

**Hygiene:** conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness and disinfection.

**Improved sanitation:** a flush or pour flush latrine connected to sewage, a septic tank or a covered pit, or a pit latrine with a slab or a ventilated improved pit (VIP) latrine.

**National hospital:** facility that provides the highest level complementary package of activity nationwide – national hospitals include general hospitals and hospitals specialised in paediatrics, maternal, newborn and child health and tuberculosis.

**Operational district:** the basic functional unit of the Cambodian health system with two levels of health services. The first contact level for the public is a health centre, which provides a minimum package of activities. Each operational district covers a population of 100,000-200,000, with at least one referral hospital and a number of health centres that each cover 10,000-20,000 people.

**Point of care:** the place where three elements come together: the patient, health care workers, and care or treatment involving contact with the patient or his/her surroundings (within the patient zone).

**Provincial hospital:** facility that has a special status as it plays both a role for a referral hospital in the operational district in which it is located, and also for other operational districts within the province.

**Runoff water:** uncontaminated water, primarily rainwater, that does not infiltrate into the ground.

**Sanitation:** management and disposal of human urine, excreta, domestic waste water, grey water, and runoff water.

**Standards:** requirements that must be met to achieve minimum essential environmental health conditions in health care settings. They must be clear, essential and verifiable statements.

**Sterilisation:** the use of a physical or chemical procedure to destroy all microbial life.

**Waste water:** liquid waste discharged from homes and other residential premises, commercial and industrial premises and similar sources, to individual disposal systems or to municipal sewer pipes. It contains mainly human excreta and used water.

**Water source:** the point at which water can be abstracted, such as a spring or well. An 'improved' water source is one that is more likely to provide 'safe' water, such as a piped connection or borehole.

## Annex II : WHO/UNICEF Joint Monitoring Program (JMP) indicators

Source: <https://washdata.org/monitoring/health-care-facilities>

JMP monitoring of WASH in health care facilities includes tracking basic water, sanitation, hand hygiene and health care waste. Definitions of basic services have been developed by a global task team convened by the JMP and incorporated into new JMP service ladders for WASH in health care facilities. JMP estimates for WASH in health care facilities will be based on the new harmonised core indicators.

### Water

Health care facilities with an improved water source on-premises, with water available at the time of the questionnaire or survey, will be classified as having basic service. Health care facilities with an improved water source, but without water available or that is off-premises, are classified as having limited service, and those with unimproved or no water source will be classified as no service. In countries where basic service is already the norm, a country-defined advanced service level may be appropriate based on the national context, priorities and resources. Criteria for an advanced level might include normative elements such as water quality and water quantity.

	Advanced: to be defined at national level.
	Basic: water from an improved source is available on-premises.
	Limited: water from an improved source is available off-premises; or an improved source is on-site but no water is available.
	No service: unprotected dug well or spring, surface water, or no water source.

### Sanitation

Health care facilities with improved latrines or toilets which are usable, separated for patients and staff, separated for women with menstrual hygiene facilities, and meet the needs of people with limited mobility, are classified as having basic service. The term usable here refers to toilets or latrines that are accessible to patients and staff (doors are unlocked or a key is available at all times), functional (the toilet is not broken, the toilet hole is not blocked, and water is available for flush/pour flush toilets), and private (there are closable doors that lock from the inside and no large gaps in the structure).

Health care facilities with improved latrines or toilets which do not meet all the criteria for basic service are classified as having limited service. Health care facilities with unimproved or no toilets are classified as having no service. In countries where an advanced service level is appropriate, elements might include toilet cleanliness, toilet lighting or patients per toilet ratios.

	Advanced: to be defined at national level.
	Basic: improved facilities are usable, separated for patients and staff, separated for women and providing menstrual hygiene facilities, and meeting the needs of people with limited mobility.
	Limited: improved sanitation facilities are present but are not usable, or do not meet the needs of specific groups (women, people with limited mobility, staff).
	No service: pit latrines without a slab or platform, hanging latrines, or there are no toilets or latrines at the facility.

### Hand hygiene

Basic hand hygiene in health care facilities is defined by two main criteria: (1) either alcohol hand rub or a basin with water and soap are available at points of care, and (2) handwashing facilities with water and soap are available at the toilets. Points of care are defined here as any location in the outpatient setting where care or treatment is delivered (i.e. consultation/exam rooms).

Health care facilities with hand hygiene materials at either points of care or the toilets, but not both, are considered to have limited service, while those with no hand hygiene stations or with no cleansing materials are classified as having no service. An advanced level for hygiene might include availability of hand hygiene promotional materials near hand hygiene stations and/or the patient waiting area, or if hand hygiene facilities are accessible to all staff and patients.

	Advanced: to be defined at national level.
	Basic: hand hygiene materials, either a basin with water and soap or alcohol hand rub, are available at points of care and toilets.
	Limited: hand hygiene station at either points of care or toilets, but not both.
	No service: hand hygiene stations are absent, or present but with no soap or water.

### **Annex III: Guidance for improved water supply sources**

Dug well: any dug wells shall comply with the following minimum requirements:

- A well shall be located at least 25m away from any latrine or waste pit.
- Wells should be on higher ground than the closest latrine or waste pit.
- Platform shall be well drained so as to prevent any stagnation.
- Above-ground wall/barrier shall be well sealed and without cracks.
- Well shall be adequately covered at all times.
- Rope and bucket/collection shall be stored safely away from any likely source of contamination.

Tube well: any tube wells shall comply with the following minimum requirements:

- Tube wells shall be more than 25m away from a latrine or waste pit.
- Nearest latrine shall be at lower ground level than the well.
- Platform shall be minimum 150mm above ground level, and drainage shall be adequate to prevent any pooling.
- Handpump shall be well sealed and anchored appropriately at the base to prevent.
- Well shall be fenced to prevent access by animals.

Rainwater harvesting system: any rainwater harvesting system shall comply with the following minimum requirements:

- Rainwater storage tank shall be covered at all times.
- The tank shall have faucet outlet for water collection.
- Tank shall have a concrete footing with good drainage.
- Guttering and roofing shall be free of mould, rust free and of general good quality.
- First flush shall be used as a minimum to prevent contamination.

Piped water: any piped water through the health care facility shall comply with the following minimum requirements:

- Any pipework within the facility shall be buried at least 1m below the ground.
- All pipework shall be of PVC quality or higher.
- All exposed pipework shall be safely mounted via brackets to walls to prevent damage by weather, animals etc.

## Annex IV: Suggested WASH in HCF monitoring questions

<b>1. WATER SUPPLY</b>			
1.1	<p>What is the most commonly used (main) source of water for the referral hospital to use for general purposes, including drinking, washing and cleaning?</p> <p><i>(Choose one answer. In case of water being available at multiple points, report the response closest to the outpatient area)</i></p>	<p>0 = No water source            1 = <i>Piped water on premises</i>            2 = <i>Tube well or borehole on premises</i>            3 = <i>Protected dug well on premises</i>            4 = <i>Rainwater collection on premises</i>            5 = Improved source (1-4) off-premises within 500m            6 = Improved source (1-4) off-premises over 500m            7 = Unprotected dug well            8 = Cart with small tank or drum/tanker truck            9 = Surface water            10 = Other source, specify: _____</p>	=> If No, skip to SECTION 4
1.2	<p>If the main source is one of the improved sources on premises (answer 1-4 to Q301), is it FUNCTIONING now? <i>(FUNCTIONING: water available from this source at the time of assessment)</i></p>	<p>0 = No            1 = Yes  <i>(Confirm by e.g. checking that taps or pumps deliver water during referral hospital walkthrough)</i></p>	
1.3	<p>Does the main source of water provide enough water for all the referral hospital's needs when it is fully functional?</p>	<p>0 = No, never enough water            1 = Yes, sometimes, only seasonally            2 = Yes, enough water all year            99 = Don't know</p>	
1.4	<p>Does this referral hospital have a secondary source of water (besides the main one)?</p>	<p>0 = No            1 = Yes</p>	=> If No, skip to Q306
1.5	<p>If Yes, what is the secondary source of water for this referral hospital?</p> <p><i>(Choose one answer besides the main source above)</i></p>	<p>1 = <i>Piped water on premises</i>            2 = <i>Tube well or borehole on premises</i>            3 = <i>Protected dug well on premises</i>            4 = <i>Rainwater collection on premises</i>            5 = Improved source (1-4) off-premises within 500m            6 = Improved source (1-4) off-premises over 500m            7 = Unprotected dug well,            8 = Cart with small tank or drum/tanker truck            9 = Surface water            10 = Other source, specify: _____</p>	
1.6	<p>Are these water sources (main and secondary sources) used for drinking water at all?</p>	<p>0 = No            1 = Yes</p>	=> If No, skip to Q310
1.7	<p>Does the referral hospital treat the water for drinking purposes?</p>	<p>0 = No            1 = Yes</p>	If No, skip to Q309
1.8	<p>If Yes, what treatment methods are used?</p> <p><b><i>(Multiple answers possible)</i></b></p>	<p>1 = Filtration            2 = Disinfection by boiling            3 = Disinfection by using chlorine            4 = Other, specify: _____</p>	

1.9	If No, why?  <b>(Multiple answers possible)</b>	1 = The drinking water source is considered safe 2 = Referral hospital does not have filter or purification materials 3 = None of the staff know how to do it 4 = No time to treat the water 5 = Other, specify: _____	
1.10	Is there any source of drinking water provided for clients?	0 = No 1 = Yes  <i>(Confirm by observing if drinking water for clients is available at the patient waiting areas, e.g. of the outpatient department/triage, during referral hospital walkthrough)</i>	If No, skip to Q312
1.11	If Yes, what is the source of drinking water provided for clients?	1 = Available referral hospital water sources 2 = Bottled water bought by the referral hospital 3 = Other, specify: _____	
1.12	What is the source of drinking water for staff?  <b>(Multiple answers possible)</b>	1 = Available referral hospital water sources 2 = Bottled water bought by the referral hospital 3 = Staff bring their own bottled water 4 = Other, specify: _____	
1.13	In total, do all water sources provide enough water for all the needs (drinking, food preparation, personal hygiene, medical activities, cleaning and laundry) of the referral hospital throughout the year?	0 = No, never enough water 1 = Yes, sometimes, only seasonally, even when only used for general purposes other than drinking 2 = Yes, enough water all year only for general purposes other than drinking 3 = Yes, enough water all year for all purposes, including drinking 99 = Don't know	
1.14	If Yes, what treatment methods are used?  <b>(Multiple answers possible)</b>	1 = Filtration 2 = Disinfection by boiling 3 = Disinfection by using chlorine 4 = Other, specify: _____	
1.15	If No, why?  <b>(Multiple answers possible)</b>	1 = The drinking water source is considered safe 2 = Referral hospital does not have filter or purification materials 3 = None of the staff know how to do it 4 = No time to treat the water 5 = Other, specify: _____	
1.16	Is there any source of drinking water provided for clients?	0 = No 1 = Yes  <i>(Confirm by observing if drinking water for clients is available at the patient waiting areas, e.g. of the outpatient department/triage, during referral hospital walkthrough)</i>	If No, skip to Q312
1.17	If Yes, what is the source of drinking water provided for clients?	1 = Available referral hospital water sources 2 = Bottled water bought by the referral hospital 3 = Other, specify: _____	
1.18	What is the source of drinking water for staff?  <b>(Multiple answers possible)</b>	1 = Available referral hospital water sources 2 = Bottled water bought by the referral hospital 3 = Staff bring their own bottled water 4 = Other, specify: _____	

1.19	In total, do all water sources provide enough water for all the needs (drinking, food preparation, personal hygiene, medical activities, cleaning and laundry) of the referral hospital throughout the year?	0 = No, never enough water 1 = Yes, sometimes, only seasonally, even when only used for general purposes other than drinking 2 = Yes, enough water all year only for general purposes other than drinking 3 = Yes, enough water all year for all purposes, including drinking 99 = Don't know	
1.20	If Yes, what treatment methods are used?  <i>(Multiple answers possible)</i>	1 = Filtration 2 = Disinfection by boiling 3 = Disinfection by using chlorine 4 = Other, specify: _____	
1.21	If No, why?  <i>(Multiple answers possible)</i>	1 = The drinking water source is considered safe 2 = Referral hospital does not have filter or purification materials 3 = None of the staff know how to do it 4 = No time to treat the water 5 = Other, specify: _____	
1.22	Is there any source of drinking water provided for clients?	0 = No 1 = Yes <i>(Confirm by observing if drinking water for clients is available at the patient waiting areas, e.g. of the outpatient department/triage, during referral hospital walkthrough)</i>	If No, skip to Q312
1.23	If Yes, what is the source of drinking water provided for clients?	1 = Available referral hospital water sources 2 = Bottled water bought by the referral hospital 3 = Other, specify: _____	
1.24	What is the source of drinking water for staff?  <i>(Multiple answers possible)</i>	1 = Available referral hospital water sources 2 = Bottled water bought by the referral hospital 3 = Staff bring their own bottled water 4 = Other, specify: _____	
1.25	In total, do all water sources provide enough water for all the needs (drinking, food preparation, personal hygiene, medical activities, cleaning and laundry) of the referral hospital throughout the year?	0 = No, never enough water 1 = Yes, sometimes, only seasonally, even when only used for general purposes other than drinking 2 = Yes, enough water all year only for general purposes other than drinking 3 = Yes, enough water all year for all purposes, including drinking 99 = Don't know	

<b>2. SANITATION FACILITIES and WASTEWATER (FOR OUTPATIENT DEPARTMENT OR EMERGENCY WARD)</b>			
2.1	How many toilets/latrines are there in the outpatient department block (or emergency ward) of the referral hospital at this time?	_____ (Record 0 if there are none) (Verify by the counted number during referral hospital walkthrough – 7.f)	If 0, skip to Q407
2.2	How many of them are IMPROVED toilets/latrines? (IMPROVED: flush toilets, ventilated improved pit latrines, pit latrines with slab, composting toilets)	_____ (Record 0 if there are none) (Verify by referral hospital walkthrough – 7.e)	If 0, skip to Q407
2.3	Are there separate improved toilets/latrines for men and for women/girls (at least one for each group)?	0 = No  1 = Yes	
2.4	Are there separate improved sanitation facilities for staff and for clients (at least one for each group)?	0 = No  1 = Yes	
2.5	Does at least one of these improved toilets/latrines meet the needs of (designated for) people with reduced mobility? (MEETING THE NEEDS OF PEOPLE WITH REDUCED MOBILITY: improved toilets/latrines that are accessible without stairs or steps, having handrails for support attached to the floor or side walls, the door at least 80cm wide, the door handle and seat within reach of people using wheelchairs or crutches/sticks)	0 = No  1 = Yes	
2.6	How are faecal wastes from the improved, usable toilets/latrines managed?	1 = Flush to sewer 2 = Onsite storage in septic tank 3 = Onsite storage in latrine 99 = Don't know	
2.7	Is there a FUNCTIONING system in place to adequately drain rainwater away from the facility and facility grounds? (FUNCTIONING: no visible flooding of the health facility grounds and drainage canals free of debris and lead away from the facility)	0 = No 1 = Yes 99 = Don't know	



3. HYGIENE AND GENERAL CLEANLINESS			
3.1	Are floors, surfaces and toilets/latrines of the referral hospital cleaned on a routine basis (routinely)?	0 = No 1 = Yes	If No, skip to Q506
3.2	If Yes, how often (at what frequency) are floors, surfaces and toilets/latrines of the referral hospital cleaned?	1 = At least once a day 2 = Every 2 days 3 = Once every 3-4 days or twice per week 4 = Once a week (weekly)	
3.3	Are floors, surfaces and toilets/latrines cleaned with water and detergent/disinfectant (e.g. chlorine 0.05%)?	0 = No 1 = Yes <i>(Check at the store of cleaning materials if there is detergent/disinfectant available during referral hospital walkthrough)</i>	If No, skip to Q505
3.4	If Yes, how often (at what frequency) are floors, surfaces and toilets/latrines of the referral hospital cleaned with water and detergent/disinfectant?	1 = At least once a day 2 = Every 2 days 3 = Once every 3-4 days or twice per week 4 = Once a week (weekly)	
3.5	Is there cleaning equipment/materials separately for floors, points of care delivery and toilets/latrines?	0 = No 1 = Yes <i>(Check at the store of cleaning materials if there is detergent/disinfectant available during referral hospital walkthrough)</i>	
3.6	Does the referral hospital have any appliances available for sterilising medical equipment?	0 = No, there is none or a broken one 1 = Yes <i>(Check at the sterilisation room if there are functioning sterilisers available during referral hospital walkthrough)</i>	If No, skip to Q508
3.7	If Yes, what type of appliances does your referral hospital use to sterilise medical equipment? <b><i>(Multiple answers possible)</i></b>	1 = Electric autoclave 2 = Non-electric autoclave/pressure cooker 3 = Electric dry heat steriliser 4 = Electric boiler or steamer 5 = Other, specify: _____	
3.8	Does the referral hospital have any infection prevention and control (IPC) guidelines for health care facilities?	0 = No 1 = Yes	If Yes, ask to see it
3.9	Has there been any IPC training offered to referral hospital staff?	0 = No 1 = Yes	If No, skip to Q511

Annex V: National rural drinking water quality parameters

Parameter	Parameter		Exceptions	Minimum examination frequency		Acceptable intervention
	Unit	Permissible limit		a (every six months)	b (Annually)	
<b>Category</b>						<b>if non-complying</b>
<b>Microbial</b>						
E.coli (or Thermo-tolerant coliforms)	CFU or MPN/ 100ml	0		A		HWTS if water has <100 CFU/ 100 ml
<b>Chemical</b>						
Arsenic (As)	mg/l	0.05	For ground water		B	
Chlorine (free residual) (Cl <sub>2</sub> )	mg/l	Between 0.2 and 0.5	Only applicable where chlorine is used as residual disinfectant	<i>When chlorine is used by community management or Water Sanitation Users Group, chlorine residual to be tested every week.</i>		
Fluoride (F <sub>I</sub> )	mg/l	1.5	Only where source is ground water		B	Use fluoride removal technology

Parameter  Category	Parameter		Exceptions	Minimum examination frequency		Acceptable intervention  if non-complying
	Unit	Permissible limit		a (every six months)	b (Annually)	
Iron (Fe)	mg/l	0.3			B	Use alternative source, or HWTS (e.g sand filter)
Manganese (Mn)	mg/l	0.1			B	
Nitrate (NO <sub>3</sub> <sup>-</sup> )	mg/l	50			B	
Nitrite (NO <sub>2</sub> <sup>-</sup> )	mg/l	3			B	
<b>Physical</b>						
TDS or Conductivity	mg/l or μS/cm	800 or 1600			B	
pH	n/a	6.5-8.5			B	
Taste and Odour	n/a	Acceptable			B	
Turbidity	NTU or FTU	10			B	
CaCO <sub>3</sub> Total hardness (as CaCO <sub>3</sub> )	mg/l	500			B	

