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BHUTAN STANDARD

Water, Sanitation and Hygiene (WASH) in Healthcare Facilities



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BHUTAN STANDARDS BUREAU

The National Standards Body of Bhutan

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འབྲུག་གི་གསོ་བའི་མཐུན་ཁྱེན་ཚུའི་འཐུང་ཁུ་དང་གཙང་སྐྱ་འཕྲོད་བསྟེན་གྱི་གནས་ཚད།

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FOREWORD

This Bhutan Standard for Water, Sanitation and Hygiene (WASH) in Healthcare Facilities was developed by Bhutan Standards Bureau after the draft finalised by the Sub-committee on WASH Standards (TC 05/ SC 05) and Pharmaceuticals and Traditional Medicines Technical Committee (TC 05) and approved by the Bhutan Standards Bureau Board (BSB Board) on2024.

This standard is subject to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information may be directed to the concerned Technical Committee.

DBTS

INTRODUCTION

In 2018, the Secretary-General of the United Nations made a global call for a collective action to institute WASH in all Healthcare Facilities (HCF) to achieve the SDG 6 - safe water and adequate sanitation for all. Subsequently, the seventy-second World Health Assembly issued a resolution urging all Member States of the World Health Organization (WHO) to ramp up their efforts and resources to improve the provision of WASH in HCF.

Improved WASH facilities and services are prerequisite for quality healthcare. This includes reduced disease outbreak, improvements in maternal and newborn health, reductions in healthcare-associated infections and control of the spread of antimicrobial resistance (AMR). Poor WASH services for children result in stunting, malnutrition, diarrhoea, anaemia, and mortality, while lack of WASH for pregnant women can result in anaemia, malabsorption, miscarriage and death. In addition, lack of adequate and accessible WASH services undermines efforts made to improve child and maternal health, further excluding vulnerable populations, specifically people living with disabilities from health-related rights.

The lack of uniform guidance and adequate infrastructures for potable water, sanitation and hygiene (WASH), combined with impacts of climate change are exacerbating the water borne diseases, personal hygiene, menstrual hygiene management and waste management. The burden of diarrhoea cases is still high despite seeing a reduction from 51,671 cases in 2016 to 27,358 cases in 2021 [*Annual health bulletin, MoH, 2022*]. It was also identified as critical to establish standards based on baseline surveys conducted in 2019 and strategy developed in 2021. Given this, the Ministry of Health (MoH), aims to enhance WASH facilities and services to decrease the occurrence of such incidents.

Hence, the purpose for developing this standard is to;

1. Provide minimum standards and technical guidance for integrated planning, budgeting, implementation and monitoring of inclusive WASH infrastructures and services in HCF.
2. Upgrade the existing WASH infrastructures and services in HCF to meet the standards
3. Define clear roles and responsibilities and ensure regulatory mechanisms to meet the minimum standards.
4. Place a uniform and harmonized approach amongst health in-charges, health care workers, and support staff to ensure the delivery of WASH services are effective and efficient.

The standard is also compatible with international standards and requirements for HCF intended to promote innovation and diversity in the HCF. It is the responsibility of each individual or organization to adopt or comply with this standard. The standard organisation or the technical committee shall not be liable for any untoward events, either health or material losses.

Water, Sanitation and Hygiene (WASH) in Healthcare Facilities

This standard shall apply to various categories of healthcare facilities (HCF) to provide basic standards and guidance related to the provision of water, sanitation and hygiene (WASH).

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including amendments) applies.

Bhutan drinking water quality standard

Guidelines for differently-abled friendly construction

National guideline for drinking water quality surveillance 2019

National guideline for infection control and medical waste management 2018

Sanitation and hygiene guidelines 2014

Water Act, 2011

Water Regulation, 2014

WHO Guidelines for drinking-water quality 2011

For the purpose of this standard, the following terms and definition shall apply;

3.1.1 Outreach Clinic (ORC): A primary Healthcare Facility that provides outreach services on a monthly scheduled date from a parent health facility and within a walking distance of more than one hour from the parent health facility.

3.2.2 Sub-post: A primary health care facility that has a permanent structure and manned by one health professional. It is an extension of a parent health facility established to reach the services to the remote communities. It is located within a walking distance of more than 3 hours/cut off seasonally from the parent health facility. The human resource and medical supplies are met from the parent health facility.

3.2.3 Primary Health Center (PHC): A primary health care facility serving a minimum catchment population of 1500 to 3000 and has 5 observation beds. It is located at more than one hour walking distance from a nearby health facility.

3.2.4 Satellite Clinic: A primary health care facility established for every 5000 population in Thromde (30 to 50 decimal land). It has services at par with that of a PHC. Any additional service will be introduced on a need basis.

3.2.5 10 bedded Hospital: A primary health care facility serving a minimum catchment population of >3000 to 5000 and has 10 inpatient beds with dietary services.

3.2.6 Hospital II: A secondary health care facility serving a minimum catchment population of 10000 having minimum 20 to 40 (40) inpatient beds. It is strategically located to cater as a referral facility to a group of 10 bedded Hospitals. If located within the proximity of the Dzongkhag Head Quarter it is identified as the Dzongkhag Hospital. It is also a center for training of health professionals and biosocial research.

3.2.7 Hospital I: A health care facility providing secondary health care services, that has 40 to 60 (60) inpatient beds. It is strategically located and has additional services in the areas of Comprehensive Emergency Obstetric Care, Trauma Care and Essential Surgical Services only Trauma Care. It is also a center for training of health professionals and biosocial research.

3.2.8 Regional Referral Hospital: A region-based health care facility that provides tertiary services, having a minimum of 150 inpatient beds. It has some specialty services. It is strategically located to cater as a referral facility for the hospitals in the region. It is also a center for training of health professionals and biosocial research.

3.2.9 National Referral Hospital: The apex health care facility that provides tertiary services, having a minimum of 350 inpatient beds. It serves as a referral center for the country. It is also a center for training of health professionals and center of excellence in the field of medical research.

Note 1: Outreach Services: Extended services such as Mother and Child Care, Immunization, Chronic disease follow up, treatment of minor ailment, basic emergency care and health promotion.

Note 2: Walking Distance: Time taken by a service seeker like sick person, pregnant mother, mother with children, elderly persons and people with disability and approximately 2 to 4 km.

3.2 Climate Resilient Water Safety Plans (WSP)

A Climate-Resilient Water Safety Plan is a comprehensive tool designed to ensure the continuous provision of safe and reliable water in the face of climate change impacts. The approach integrates climate considerations into the development, implementation, and monitoring of water safety plans, aiming to enhance the resilience of water supply systems. The plan addresses potential climate-related challenges such as extreme weather events, changing precipitation patterns, drying up of water sources and rising temperatures, ensuring that water services remain robust and adaptable to evolving climate conditions while safeguarding public health through the maintenance of water quality and accessibility.

3.3 Hazardous materials

Substance dangerous to human or other living organisms. They include radioactive or chemical substances.

3.4 Hazardous waste

Waste materials dangerous to living organisms. Such materials require special precautions for disposal. They include biological waste that can transmit disease (for example, blood, tissues) radioactive materials, and toxic chemicals. Other examples are infectious waste such as used needles, used bandages and fluid soaked items.

3.5 Healthcare waste

Refers to waste generated by health care activities, ranging from used needles and syringes to soiled dressings, body parts, diagnostic samples, blood products, chemicals, pharmaceuticals, medical devices and radioactive materials

3.6 Hygiene

Hygiene refers to the conditions and practices that help maintain health and prevent spread of disease including hand washing, food hygiene, and menstrual hygiene management.

3.7 Infectious waste

Waste contaminated with blood and other bodily fluids (e.g. from discarded diagnostic samples), cultures and stocks of infectious agents from laboratory work (e.g. waste from autopsies and infected animals from laboratories), or waste from patients with infections (e.g. swabs, bandages and disposable medical devices)

3.8 Water Source

Water sources are those which, by nature of their design and construction, have the potential to deliver safe water. Such sources include – piped water, boreholes, protected dug wells, protected springs, rainwater, and packaged or delivered water.

3.9 Water Quality

Water quality refers to the characteristics of a water supply that will influence its suitability for specific purposes.

3.10 Sanitation

An improved sanitation is a facility that hygienically separates human waste from human contact.

3.11 Safe water

Water supply that is not contaminated by pollutants, free of disease-causing germs and does not cause any significant risk to health over a lifetime of consumption.

3.12 Sluice

Closed area in hospitals that allows for the safe and efficient disposal of human waste.

3.13 Standard

A statement of expectation that defines the structures and processes that must be substantially in place in HCF to enhance the quality of care.

4 Acronyms /Abbreviations

AMR - Antimicrobial resistance

BSB - Bhutan Standards Bureau

BDWQS - Bhutan drinking water quality standard

CFU - Colony Forming Unit

HCF - Healthcare Facilities

IPCMWM - Infection Prevention & Control, Medical Waste Management Program

MoENR - Ministry of Energy and Natural Resources

MOH – Ministry of Health

MoIT - Ministry of Infrastructure and Transport

NGDWQS - National Guideline for Drinking Water Quality Surveillance

NGICMWM - National Guideline on Infection Control and Medical Waste Management

NTU - Nephelometric Turbidity Unit

ORC - Outreach Clinic

OT - Operation Theatre

PHC - Primary Health Center

PPE -Personal Protective Equipment

SNV - Netherlands Development Organization

UNICEF - United Nations Children's Fund

USG - Ultrasonography

WASH - Water Sanitation and Hygiene

WSP - Water Safety Plans

5 Water

5.1 Water Source

5.1.1 Identify source that supplies water for 24/7. The water supply shall be a perennial source.

5.1.2 The source shall be identified in consultation with relevant stakeholders (Communities, Local Governments, Thromdes and Districts) in reference to the Water Act, 2011 and Water Regulation, 2014.

5.1.3 The source catchment area and intake shall be fenced properly.

5.1.4 A HCF shall identify an alternative water source that can be used in case of interruptions due to natural calamities (flood, earthquake etc.) or climate change impact (drying up of water sources) to the primary water source.

5.2 Water Quantity

5.2.1 The water required will depend on a number of factors such as type of HCF, number of users, level of care, climate and availability. Drinking water shall be made available to staff, caregivers and patients, including children and people with disabilities, at all times. Therefore, sufficient quantities of water shall be available to meet the minimum daily requirements in the HCF. Table 1 lists recommended minimum quantities of water required in HCF.

Table 1 — Minimum water quantity
(Clause 5.2.1)

Category of HCF	Setting	Minimum water quantity
ORC	Outpatient	10 liters/consultation
PHC and sub post	Outpatient	10 liters/consultation
	Inpatient	500 liters/bed/day
Hospitals	Outpatient	10 liters/consultation
	Inpatient	100 liters/ patient/day
	Operating theatre/ maternity unit	100 liters / intervention
	Dry or supplementary feeding centre	10 liters / consultation
	Wet supplementary feeding centre	20 liters / consultation
	Inpatient therapeutic feeding centre	50 liters / patient/ day
	Severe acute respiratory disease (eg Covid 19) isolation centre	100 liters / patient/ day

	Viral haemorrhagic fever isolation centre	400 liters/patient/ day
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5.3 Distribution Lines

5.3.1 All HCF shall have a separate water pipe network system either from source or reservoir to ensure 24x7 uninterrupted water supply.

5.3.2 The water shall be transported through a pipe that is certified by the Bhutan Standards Bureau (BSB).

5.3.3 A functional water tap shall be available at all points of care (e.g. consulting rooms, delivery rooms, etc.).

5.3.4 A functional water collection point and water use facility should be available to allow convenient access to water for drinking, hand washing, toilets, personal hygiene, food preparation, laundry, cleaning, gardening and medical purposes.

5.3.5 All pipes shall be functional with no leakages.

5.4 Water Storage

5.4.1 The storage tank shall have sufficient volume to supply the HCF with water for three full days to use as back-up in case of interruptions to the main water source.

5.4.2 For a shared water source with communities, health centers shall have separate water reservoirs.

5.4.3 Storage tanks shall be clean, covered with lid and locked to prevent contamination.

5.4.4 Storage tanks may be made from a variety of materials such as reinforced cement concrete, ferro-cement, plastic, aluminium, stainless steel or materials approved by BSB.

5.5 Water Quality

5.5.1 The quality of water for the HCF shall be as per given in Table 2.

5.5.2 All HCF shall have access to safe water supply. In absence of safe water supply, health centers shall have a point of use water treatment system (boiling, chlorination, UV disinfection, filtration system or combination of available treatment systems).

5.5.3 The minimum requirement for the treatment system shall be based on the design parameters viz; Turbidity and *Escherichia coli* (*E. Coli*).

5.5.4 The treated water shall be monitored and tested as per the water quality monitoring protocol mentioned in National Guideline for Drinking Water Quality Surveillance (NGDWQS) 2019.

5.5.5 Every HCF shall be equipped with standard water testing equipment as per required test parameters.

5.5.6 Every HCF shall have trained personnel to effectively implement the quality monitoring protocol.

5.5.7 For all the water supplies in HCF, climate resilient Water Safety Plans (WSP) shall be implemented along with routine water quality surveillance.

5.5.8 For high standard water quality required for special medical services (haemodialysis, intensive care unit and neonatal intensive care unit, neurological, dental etc), refer water quality testing of parameters described in WHO Guidelines for drinking-water quality, 2011

Table 2 - Parameters for water quality in HCF
(Clause 5.5.1)

Group	Sl.No	Parameter	Unit	Permissible Limit
Physical Parameters	1	Colour (TCU)	-	Acceptable
	2	Odour	-	Acceptable
	3	pH	-	Acceptable range 6.5 – 8.5
	4	Taste	-	Acceptable
	5	Turbidity	NTU	5**
	6	Conductivity	µS/cm	1000**
Chemical Parameters	1	Calcium	mg/L	No permissible limit but recommended < 75
	2	Free Residual Chlorine*	mg/L	Target range 0.2 – 0.5
	3	Iron	mg/L	No permissible limit but recommended <

				0.3
	4	Manganese	mg/L	0.4**
	5	Sulphate	mg/L	No permissible limit but recommended < 250
	6	Fluoride	mg/L	1.5**
	7	Nitrates	mg/L	50**
	8	Arsenic	mg/L	0.01**
	9	Lead	mg/L	0.01**
	10	Mercury	mg/L	0.006**
Microbiological Parameters	1	E.Coli	CFU/100ml	0

Note: **Maximum permissible limit

6 Sanitation

6.1 Flush toilets with water sealed shall be provided that are adequate, accessible, safe and gender-sensitive for patients, staff and caregivers.

6.2 Toilet Adequacy

The *table 3* below shows the toilet units required for the various categories of healthcare settings.

Table 3 - Toilet Adequacy

(Clause 6.2)

Setting	Requirements
Compound (outside main building)/Registration/Waiting area	<p>Female:</p> <p>Toilet ratio 1: 50</p> <p>Hand Washing basin ratio 1: 50</p> <p>At least one toilet accessible for people with disabilities</p> <p>Male:</p> <p>Toilet ratio 1:100</p> <p>Urinals ratio 1:100</p> <p>Hand washing basin ratio 1:50</p> <p>At least one toilet accessible for people with disabilities</p>
Outpatient	<p>Female:</p> <p>Toilet ratio 1: 50</p> <p>Hand washing basin ratio 1: 50</p> <p>At least one toilet accessible for people with disabilities</p> <p>Male:</p> <p>Toilet ratio 1:100</p> <p>Urinals ratio 1:100</p> <p>Hand Washing basin ratio 1:50</p> <p>At least one toilet accessible for people with disabilities</p> <p>Staff</p> <p>1 male toilet with hand washing basin</p> <p>1 female toilet with hand washing basin</p>

Inpatient	<p>Female</p> <p>1 toilet for 5 beds</p> <p>1 shower for 5 beds</p> <p>1 hand washing basin for 5 beds</p> <p>At least one toilet accessible for people with disabilities</p> <p>Male</p> <p>1 toilet for 5 beds</p> <p>1 shower for 5 beds</p> <p>1 hand washing basin for 5 beds</p> <p>At least one toilet accessible for people with disabilities</p>
Consultation room, duty room, and nursing station	<p>Attached toilet with hand washing basin</p> <p>Wheelchair friendly and handles</p>
Laundry room	1 common toilet for male and female with hand washing basin
USG room	1 toilet with hand washing in proximity
Operation Theatre (OT)	Scrub room with sluice
Laboratory	<p>1 toilet with hand washing basin in proximity</p> <p>1 hand washing basin for each compartment</p> <p>1 emergency shower room</p>
Labour room/Postpartum Room	1 toilet with hand washing basin
Delivery Room	Sluice with handwashing facility
Mortuary	<p>1 common toilet</p> <p>1 hand washing basin</p> <p>1 Shower room</p>

6.3 Toilet Accessibility, Acceptability and Quality

6.3.1 Toilets are safe, ensure privacy, and shall be easily accessible including for people with disabilities (within 30 meters from all users).

6.3.2 Separate toilets are required for males and females.

6.3.3 In multi-storeyed buildings, there shall be toilets available on all floors.

6.3.4 At least one toilet shall be available for easy access by children and people with disabilities, pregnant women, elderly and sick people.

6.3.5 If toilets are located outside the building, the stairs or steps should include an unobstructed pathway.

6.3.6 Toilets shall have a hand washing point close by or at the exit of the toilet (within 5 meters) with available soap, water, and adequate drainage.

6.3.7 Guidelines for differently-abled friendly construction shall be referred to the design of toilets for people with disabilities.

7 Hygiene

7.1 HCF shall have operational hand hygiene amenities accessible in key areas such as Outpatient department, Inpatient department, Emergency, waiting area, laboratory, maternity unit, and all restrooms. These hand hygiene facilities encompass hand washing basins or stations equipped with sinks, covered buckets, taps, and drainage facilities, along with soap.

7.2 HCF shall have accessible hand washing facilities for children and persons with disabilities in or nearby toilets, and a waiting area, maternity unit.

7.3 Bathing facilities, either within the sanitation facilities or preferably in a separate area, shall be available for staff and patients to address personal hygiene.

7.4 All HCF shall refer to the National Guideline on Infection Control and Medical Waste Management (NGICMWM) 2018 for maintaining hand hygiene and hygiene in HCF.

8 Waste management and environment

Healthcare waste management stands as a crucial element within HCF, with its primary focus on ensuring the safe and responsible elimination of waste produced within medical facilities.

8.1 Identification

8.1.1 Refer *Annex A* for classification of waste

8.2 Segregation

8.2.1 All HCF shall follow the standard color coding system for waste bins as indicated in *Annex B*.

8.2.2 There shall be designated places in all HCF to place the waste bins.

8.2.3 Infectious waste containers shall not be placed in areas where no infectious waste is generated (such as visitors' waiting areas, visitors' toilets, reception, medical records department, administrative offices, etc.) and shall be accessible to authorized personnel only.

8.2.4 In areas where both infectious and non-infectious wastes are generated, both containers shall be strategically placed near each other so as to facilitate segregation.

8.2.5 One red bin for the disposal of sanitary pads and diapers should be available in all toilets.

8.2.6 Appropriate PPE indicated in the *Annex B* shall be made available for support staff/cleaners.

8.2.7 Sufficient numbers of color coded waste bins and plastic bags with inner lining shall be available in all HCF (the basic color codes include RED, BLUE and GREEN)

8.3 Transportation, storage and recording

8.3.1 A pathway shall be identified (on site and off site) to transport infectious/hazardous medical waste to the site of treatment and disposal. If there is no separate pathway, wastes should be transported after the busy hours of the facility.

8.3.2 Waste trolleys shall be available and thoroughly washed after disinfection at the waste disposal site.

8.3.3 Specified hazardous waste trolleys or carts shall not be used for any other purposes.

8.3.4 All health facilities shall establish a designated waste storage either within or outside the facility.

8.3.5 Cytotoxic waste shall be stored separately from other medical waste in a secure and designated area and shall be under lock and key.

8.3.6 There shall be a provision to store radioactive wastes in lead containers. During radioactive decay, it shall be labelled with a type of radionuclide and date.

8.3.7 All HCF shall have a standard deep burial pit to dispose of pathological waste.

8.3.8 Sharp boxes (yellow/white) with biohazard symbols shall be available in all wards/units generating sharp waste.

8.3.9 Every waste storage facility shall incorporate the following features:

8.3.9.1 Impermeable floor such as concrete flooring.

8.3.9.2 Access to water supply and soap for all cleaning purposes including hand hygiene.

8.3.9.3 Proper drainage system.

8.3.9.4 Access to staff handling the waste and waste collecting vehicles.

8.3.9.5 Proper ventilation and space sufficient to place the waste autoclaves and shredders.

8.3.9.6 Proper signage indicating hazardous waste.

8.3.10 The storage facility shall be always kept locked when not in use making it inaccessible to animals, birds, insects, rodents and non-authorized personnel.

8.3.11 Supply of cleaning items (broom, mops, detergents/disinfectants, PPE) shall be placed close to the storage place.

8.3.12 A weighing scale designated for waste shall be available in all HCF.

8.3.13 All types of wastes shall be weighed and recorded using a standard platform.

8.3.14 The report on medical waste generation shall be submitted to the infection control focal person and program on a periodic basis

8.3.15 The Infection Prevention & Control, Medical Waste Management Program (IPCMWM) shall analyze and submit the report on Annual Medical Waste Generation to the Ministry of Energy and Natural Resources (MoENR).

8.4 Treatment and Disposal

8.4.1 All HCF shall treat and dispose of waste as indicated in *Annex C* below.

8.4.2 A separate room/area shall be designated to keep the spill kit incase of spill management.

8.4.3 Designated clean rooms shall be available to prepare bleaching solutions for cleaning and storing the cleaning equipment.

8.4.4 All HFC shall at least have one functional autoclave for infectious waste treatment.

8.4.5 In places where incinerators are available, it shall be fully functional and utilized.

8.4.6 Separate drainage/outlet shall be available for liquid waste disposal in new hospital construction.

8.4.7 National referral and regional referral hospitals generating huge amounts of biodegradable waste such as food waste may explore waste composting solutions.

8.4.8 All HCF should have a designated area for ambulance cleaning with access to water, disinfectant and proper drainage.

8.5 Management of wastewater and sewage system

8.5.1 HCF should have centralized wastewater treatment before disposal.

8.5.2 For kitchen liquid waste, every HCF should install a grease trap to remove grease, oil, and other floating materials.

8.5.4 Wastewater which contains faecal matter, urine, and significant food residues should be drained to a standard off-site sewer or a nationally approved on-site wastewater treatment system.

8.5.5 Any excreta storage (isolated septic tank) shall be no less than 30m from any water source as per given in sanitation and hygiene guideline 2014.

8.5.6 Grey waters coming from washing, bathing, laboratory processes, laundry, or technical processes such as cooling water or the rinsing of x-ray films should be drained to a nationally approved soak-away system.

8.5.7 On-site faecal sludge storage cisterns and septic tanks shall be emptied when 2/3 full.

8.5.8 Appropriate and environmentally friendly sludge emptying measures shall be in a place where sewerage septic tanks or pits are used.

9 WASH Operation and Maintenance

9.1 A dedicated and trained support staff (including technicians, caretakers, cleaners, etc.) shall be in place and they shall regularly update their skills to efficiently operate and maintain WASH facilities in every HCF.

9.2 The designated support staff shall carry out the routine inspection and monitoring of the WASH system.

9.3 Regular cleaning of water source and reservoir tanks shall be conducted at least quarterly.

9.4 Regular monitoring and cleaning schedule for toilets shall be in place. Cleaning shall take place at least twice a day with a disinfectant used on all exposed surfaces.

9.5 Ensure water is always available for hand hygiene and flushing toilets.

9.6 There shall be no leaks or structural failures in the water supply systems, toilets and hand hygiene facilities.

9.7 Female toilets shall have a bin with a lid for disposing of used menstrual hygiene products and water and soap available in a private space for washing.

9.8 The support staff shall check the toilets regularly for any signs of waste, visible dirt, excreta, insects and blockage.

9.9 The support staff shall be provided with adequate supplies; WASH caretaker tool box, spare parts and appropriate PPE (utility gloves, safety boots, facemasks, aprons, goggles etc.).

9.10 The environment shall be free from human faeces. Attention should be paid to the disposal of baby and infant faeces. The used baby diapers should be disposed off in a plastic-lined, lidded trash can.

9.11 Preventive maintenance of WASH facilities should take place regularly to ensure functionality and quality WASH services at all times.

ANNEX A

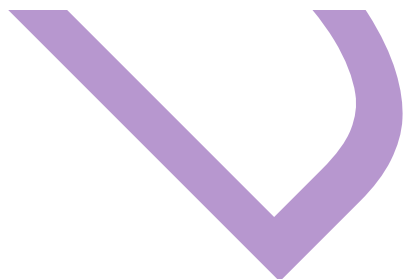
(Normative)

Classification of Waste

Waste Classifications

World Health Organization Classifications






Biological (infectious) risks			Chemical risks			Low risk
Sharps Waste	Infectious Waste	Pathological Waste	Pharmaceutical Waste	Chemical Waste	Radioactive Waste	Non-Hazardous General Waste
EXAMPLES			EXAMPLES			
Needles	Waste contaminated with blood	Body parts	Expired drugs	Chemical solvents	Radio-nuclides	Recyclable and compost-able waste
Blades	Cultures	Human tissue	Expired vaccines	Mercury	Vials with radioactive residues	Non-recyclable waste
Broken glass	Isolation waste	Animal carcasses	Cytotoxic waste	Cleaners		
				Batteries		



ANNEX B

(Normative)

Description of PPE, Waste Bin, Color Code and Biohazard Symbols

Hazardous/Infectious waste	PPE	Color-code	Bin description	Plastic bag	Symbols
Solid Infectious waste	Utility gloves, plastic apron, gumboot, mask	Red	Strong leak-proof plastic bin with swing/pedal operated lid and wheels. (place the plastic bag inside the waste bin)	Autoclavable and Biodegradable red plastic bag with Biohazard Symbol	
Sharps	Utility gloves, gumboot	Yellow or White	Puncture proof sharps container/boxes with bio-hazard symbol labeled as 'SHARPS'		
Cytotoxic waste	Mask, Goggle/face shield, Utility gloves, Gumboot & Plastic apron	Purple	Container or plastic bag with cytotoxic and biohazard symbol		
Chemical & Pharmaceutical waste	Utility gloves, plastic apron mask, and goggles/face shield	Brown	Container or plastic bag with chemical hazard symbol		
Radioactive waste	Lead apron		Lead container with radioactive symbol, labelled as "RADIOACTIVE"		

Non-Hazardous Waste	PPE	Color Code	Bin description	Symbol
General Waste	Gloves	Green with no Biohazard symbol	Strong leak-proof plastic bin with swing/pedal operated lid and wheels. <i>(place the plastic bag inside the waste bin)</i>	Not applicable
Food Waste	Gloves	Blue	Strong leak-proof plastic bin with swing/pedal operated lid and wheels. <i>(place the plastic bag inside the waste bin)</i>	Not applicable

ANNEX C

(Normative)

Waste Treatment and Disposal Method

Hazardous waste	Collection	Transportation	Treatment Method	Disposal
Solid Infectious waste	When the bin is $\frac{3}{4}$ full	Only on specified waste trolley or cart	1 Autoclaving 2. Chemical disinfection 3. Incineration	Municipal landfill
Pathological waste	When the bin is $\frac{3}{4}$ full	Only on specified waste trolley or cart	Deep burial pit	Burial pit
Liquid infectious waste	Procedure specific collecting container		Decontaminate with 0.5% bleaching solution in equal proportions (1:1) for 10 minutes	Sewage system with plenty of water
*Sharps	When the box is $\frac{3}{4}$ full		1. Incineration 2. If there are no facilities for incineration, decontaminate with 0.5% bleaching and dispose in Landfill with proper labelling	Burial pit/ landfill
Chemical waste	Collect in the dedicated container		For liquid chemical waste: Dilute with water 1:3 ratio (dilute using appropriate diluent and volume)	Discharged into sewerage
Pharmaceutical Waste	Collected and sent to pharmacy for final disposal		Incineration	Throw ash in the burial pit
Cytotoxic waste	Collect in leak-proof container and store in a designated area		Incineration	Throw ash in the burial pit
Radioactive waste	Collect in lead container		Decay by storage in a designated room	

Non-Hazardous Waste	Collection	Transportation	Treatment Method	Disposal
General Waste	When the bin is $\frac{3}{4}$ full	On specified waste trolley or cart	Not Required	Landfill/ Recycle
Food Waste	When the bin is $\frac{3}{4}$ full	On specified waste trolley or cart	Not Required	Landfill/ Composting

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- 4]** National strategy for water, sanitation and hygiene in healthcare facilities for action (2021-2030)
- 5]** National sanitation and hygiene policy 2020
- 6]** Wash in Healthcare Facilities, Bhutan - Results of a National Census and Internal Joint Sector Review 2019.

BTS

Technical Committee Composition

SUB-COMMITTEE ON WASH (Water, Sanitation and Hygiene), (TC 05/SC 05)

<i>Organization</i>	<i>Representative(s)</i>
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Royal Centre for Disease Control, MoH	Mr. Amin Ngawang Tashi (Chairperson)
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Bhutan Standards Bureau	Ms. Cheki Zangmo
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Department of Public Health, MoH	Mr. Karma Wangdi
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Department of Infrastructure Development, MoIT	Ms. Yeshay Lhaden
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National Medical Services, MoH	Ms. Kezang Wangmo
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Royal Center for Disease Control, MoH	Mr Pema Chopel
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SNV	Mr. Ugyen Rinzin
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UNICEF	Mr. Sonam Gyaltshen
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Bhutan Standards Bureau	Mr Karma Wangdi Offtg. Director General (Ex-officio member)
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Member Secretary

Ms. Cheten Zangmo
Standardization Division
Bhutan Standards Bureau

PHARMACEUTICAL AND TRADITIONAL MEDICINES TECHNICAL COMMITTEE (TC05)

Organization

Representative(s)

Menjong Sorig Pharmaceuticals Corporation Ltd.

Mr. Sherab Tenzin
(Chairperson)

Bhutan Food and Drug Authority

Ms. Sangay Choden

Competition and Consumer Affairs Authority, MoICE

Ms. Dechen Wangmo

Department of Medical Products, Ministry of Health

Mr. Jangchup Peljor

Healthcare Service and Quality Assurance Division, MoH

Mr. Kuenzang Dorji

National Biodiversity Centre, MoAF

Mr. Mani Prasad Nirola

Royal Centre for Disease Control, MoH

Mr. Amin Ngawang Tashi

Bhutan Standards Bureau

Mr Karma Wangdi
Offtg. Director General
(Ex-officio member)

Member Secretary

Ms. Cheten Zangmo
Standardization Division
Bhutan Standards Bureau