1/4/2015

WASH in Healthcare facilities

(Mongar,Samtse & Samdrup Jongkhar)

Rural Sanitation and Hygiene Program
Public Health Engineering Division
Department of Public Health
Ministry of Health

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Acknowledgement

Public Health Engineering Division (PHED), Department of Public Health,Ministry of Health wishes to express its appreciation to all, whose efforts made this WASH in Healthcare facilities study possible. In particular, PHED gratefully acknowledge the contributions of the Health assistants in Mongar,Samdrup Jongkhar and Samtse BHU's and the surveyors who collected the data from the field.Also,thanks are due to officials who contributed and provided valuable insights and comments for the conduct of this study. The district health sector in these three districts are also thanked for providing unstinted administrative support and logistics to make this study complete in all aspects.

Thanks are also due to all those who had provided valuable comments and reviewed this study report. The funding for this study was provided by WHO SEARO and in assistance by WHO,Thimphu .

Foreword

Public Health Engineering Division has embarked on a mission to achieve the 2015 MDG's by 2018 for improved sanitation and hygiene in rural Bhutan.With the launch of the Rural sanitation and hygiene program for nationwide scale up and with special attention given to lowest performing districts with respect to improved sanitation and hygiene, it was imperative to understand the status of WASH facilities in these districts including the healthcare facilities. In this context,a program initiative to comprehend and improve the WASH in healthcare facilities has been prioritized to achieve the MDG goal, including the households in rural Bhutan. Inadvertently, WASH in healthcare facilities has been not considered in the overall sanitation and hygiene improvement activities since the inception of the program in Bhutan. With this initial small scoping study, it is envisaged that various elements for improving the WASH in healthcare facilities will be brought to attention of the program officials, facility designers and policy makers alike. By same extension, a nationwide study for WASH in healthcare facilities can be initiated with valuable insight and information gained from this study.

It is hoped that this study will be useful to all the readers.

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Executive Summary

Bhutan has made significant progress in extending the access to safe drinking water and sanitation, increasing the access to primary education in the last fifty years . However, communicable diseases as in many south Asian countries present the most dominating reason for cases of health issues in Bhutan. Water and sanitation related infectious diseases account for almost 30 % of health problems reported for rural areas. Diarrhoea and dysentery are the most common and leading cause for morbidity . Hence, improvement of water and sanitation services to decrease the incidence is a central objective of the Ministry of Health (MoH) of the Royal Government of Bhutan (RGB).Referring to the WHO and UNICEF (2010) the total sanitation coverage in Bhutan accounts to 62 % with improved sanitation in total, whereas 54 % in rural areas and 87% in urban areas have access to improved sanitation. Unimproved facilities still are predominant with an occurrence of 35 % in rural areas. Open defecation, with an occurrence of 11%, is relatively rare to find.

While attention was focused in rural areas and households, the health care facilities in Bhutan was left unattended. This crucial gap has been left unaddressed due to programmatic constraints.Further,there was little understanding of the importance of WASH in healthcare facilities.Health care facilities (HCF) are settings where basic water, sanitation and hygiene (WASH) and health care waste management are essential for effectively treating and preventing disease. It is estimated that 15% of patients in low-income countries develop one or more infections during a hospital stay, of which WASH is a contributor (*Allegranzi et al*, 2011). Infections account for a third of the 3.6 million neonatal deaths each year and for 15% of maternal deaths (Black 2003; Lawn 2010).

Till date, there are no data available on WASH in healthcare facilities. Further at regional level, available data and evidence suggest that many countries have poor WASH conditions in HCF although there has been no previous global review or compilation of national and sub-national datasets for comparison. With encouragement and initiation from WHO, this study will try to examine the status of WASH in HCF, describe existing monitoring initiatives, identify gaps in the evidence base, and review the status of WASH in HCF and in addition to policies and regulations. It is hoped that this study will help guide programs efforts and those of other stakeholders committed to and working on improving WASH in HCF.

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Study Objectives

This study being the first of its kind, an initial study has been started in the current rural sanitation and hygiene program intervention priority districts. The study will provide the program an opportunity to simultaneously start intervention works in the rural households and healthcare facilities in these districts. Study was conducted in the three districts of Mongar,Samtse and Samdrup Jonkhar which are the program priority districts.Incidentally,it also gives a fair regional coverage in Bhutan being located in the east, center and western parts of Bhutan.

Methodology

Study protocol was developed in consultation with the relevant stakeholders and various reports existing regionally was referred to ascertain the various variables for the study. The survey questionnaire was finalized with variables that need focus and in reference to current status of the WASH in health care facilities. Only BHU's have been surveyed for this study even whilst ORC's also needs attention with regard to water supply and sanitation.

The surveyors conducted both verbal, visual and physical survey of the BHU's under the three districts.

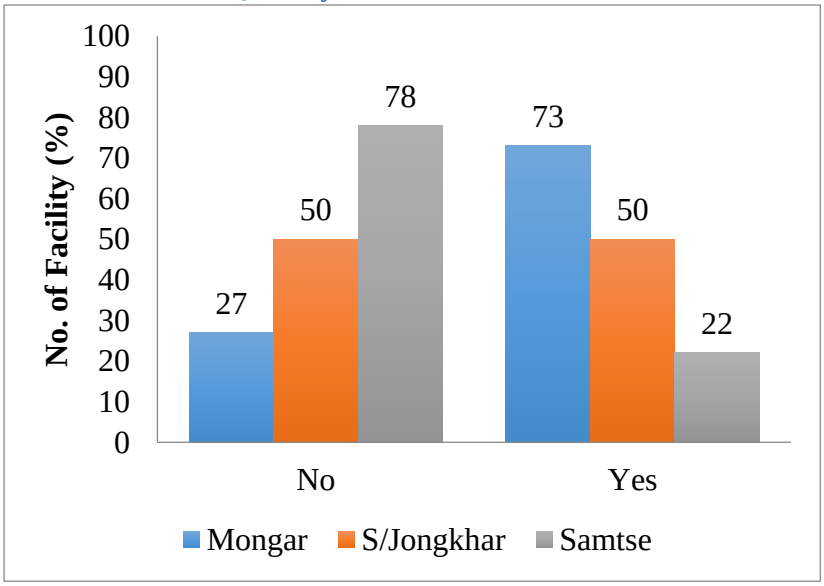
Sample Profile

This survey was conducted in three districts. The following table represents the percentage of health facilities surveyed.

District	No. of Facility Surveyed	Percent
Mongar	22	63
S/Jongkhar	4	11
Samtse	9	26
Total	**35**	**100**

Water Quantity

Sufficient Water Quantity



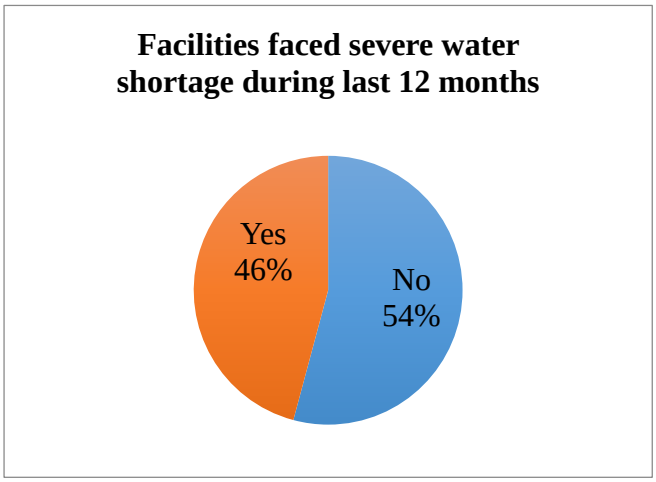
The graph represents the availability of sufficient water quantity for the daily needs in the health facility in three districts. In Mongar district 73% of facilities have reported that water is sufficient in the health facility while in Samdrup Jongkhar only

50% of the facilities have reported as having sufficient water supply. Likewise in Samtse district only 22% of facilities have sufficient water supply at health facilities. A typical scenario at all BHUs with water source shared with community (picture below).

Continuous water supply at health facility is of paramount importance and therefore a back-up water supply for atleast 24 hours was assessed.Results show that health facilities need separate water storage within premises to secure constant water supply.In the field it was seen that most of the health facilities still have their water sources shared or common storage tanks with the villages.

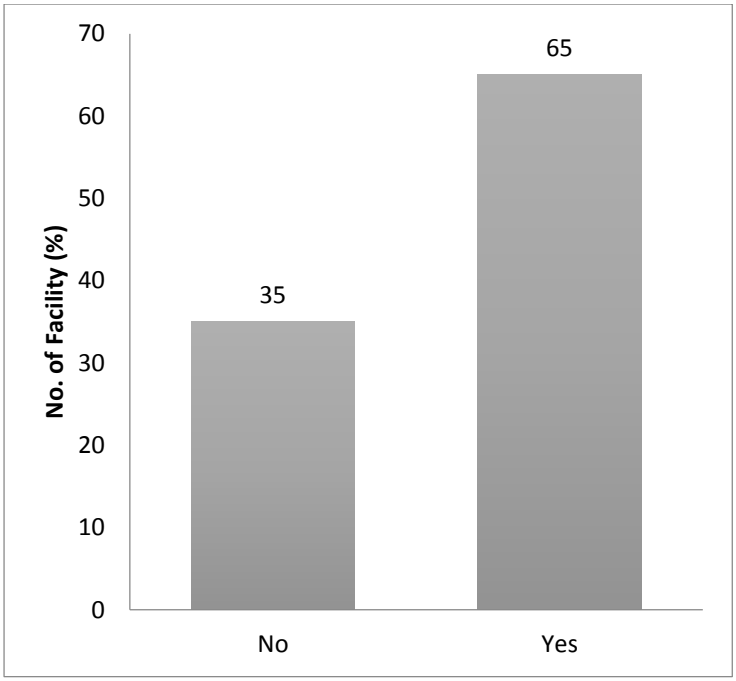
Dzongkhag	No (%)	Yes (%)
Mongar	14	86
S/Jongkhar	50	50
Samtse	67	33

Did Your Facility Face Problem of Sever Water Shortage during Last 12 Months?



46% of the health facility of three districts had reported that they faced severe water shortage problem during last 12 months.

Was Water Supply Interrupted More Than 2 Hours ?



The above graph shows 65% of the health facilities in three district has water supply source interrupted for more than two hours at a time.

Water Quality

Water Source

The table below represents the main water source for the facilities in districts.

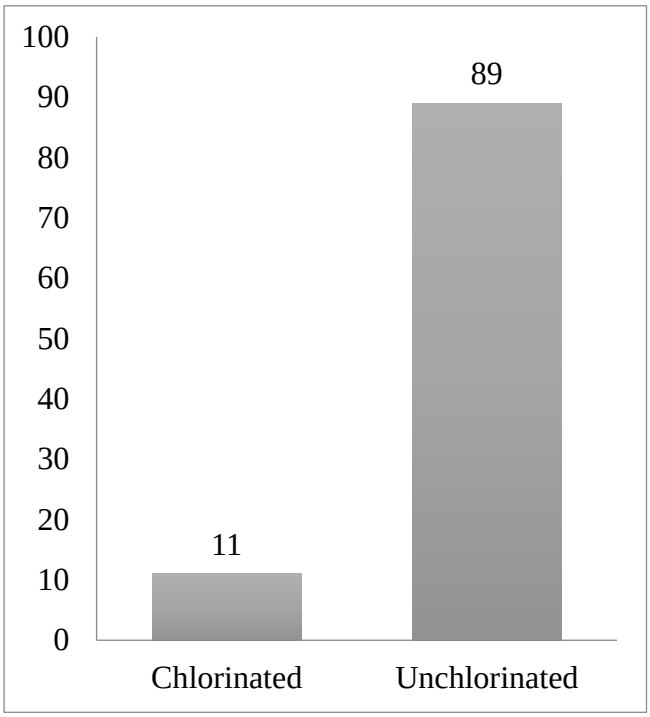
Main Water Source	No. of Facility	Percent
Spring	22	63
Steam	13	37
River	0	0
Ground water	0	0
None of Above	0	0
Total	35	100

Crosstab With Water Source And Water Supply

Water Source	Water supply interrupted > 2Hrs		Water shortage in last 12 months	
	Yes (%)	No (%)	Yes (%)	No (%)
Spring	59	75	62	63
Steam	41	25	38	37

Above result indicates that water supply is interrupted more frequently when water source is spring as compared to stream.

Is Water Chlorinated?



The above graph represents the percentage of facilities those chlorinate or does not chlorinate water in the facility. Only 11% of facilities chlorinate and 89% of the facilities have reported as water being not chlorinated. It was found that most of the facilities do not chlorinate their drinking water as shown in table below.This could pose a serious health risk to users within the health facility.

Dzongkhag	Chlorinated (%)	Not Chlorinated (%)
Mongar	14	86
S/Jongkhar	100	0
Samtse	11	89

No of Days Water is Turbid

The table below shows that for 60 days 25% of facilities water is turbid and for 90 days, 19% of the facilities water is turbid. On average, water is turbid for 32 days in a year.

No of days	Frequency	Percent
0	18	56
60	8	25
90	6	19
Total	32	100

*No. missing value: 3

The number of days during which the facility received turbid water supply as given in the table below seems to suggest that there are facilities which receives turbid water more than two months at a time.For those facilities that are served by spring water, turbidity is not a problem and fortunately,many facilities are served by spring sources. Attention is required for those facilities that face longer duration of turbid water in the facilities.

Dzongkhag	Number of Days		
	0 Days (%)	60 Days (%)	90 Days (%)
Mongar	48	33	19
S/Jongkhar	75	0	25
Samtse	72	14	14

Water Treatment Unit

The table below shows 85% of health facilities have water treatment units such as filters while 15% of the facilities have no water treatment unit available in their facility. Almost all BHUs had water filters as shown in picture.

Treatment: filter (eg)	Frequency	Percent
No	5	15
Yes	29	85
Total	34	100

*No. missing value: 1

Water point

Number of People Using Water Point

The below table shows that 300 is the maximum number of people that uses health facility water points. Results also suggests that there are huge variation in terms of number of people using water points in respective health facilities (standard deviation: 52).

Variable	Mean	Std. Dev.	Min	Max
No. of people of using Water Point/day	28	52	1	300

Number of Water Point Within the Facility

The maximum number of water points within facility is reported as 25 water points with an average of 9 water points available.

Variable	Mean	Std. Dev.	Min	Max
No. of water points	9	5	1	25

Number of Water Point Functioning Currently

The below table shows that maximum of 300 water point in the facility are functioning currently. On average 16 are functional currently. The higher standard deviation suggests that there is huge variation within the facility in terms of functional water points.

Variable	Mean	Std. Dev.	Min	Max
Functioning WP	16	50	1	300

Sanitation Access

Toilet Facility

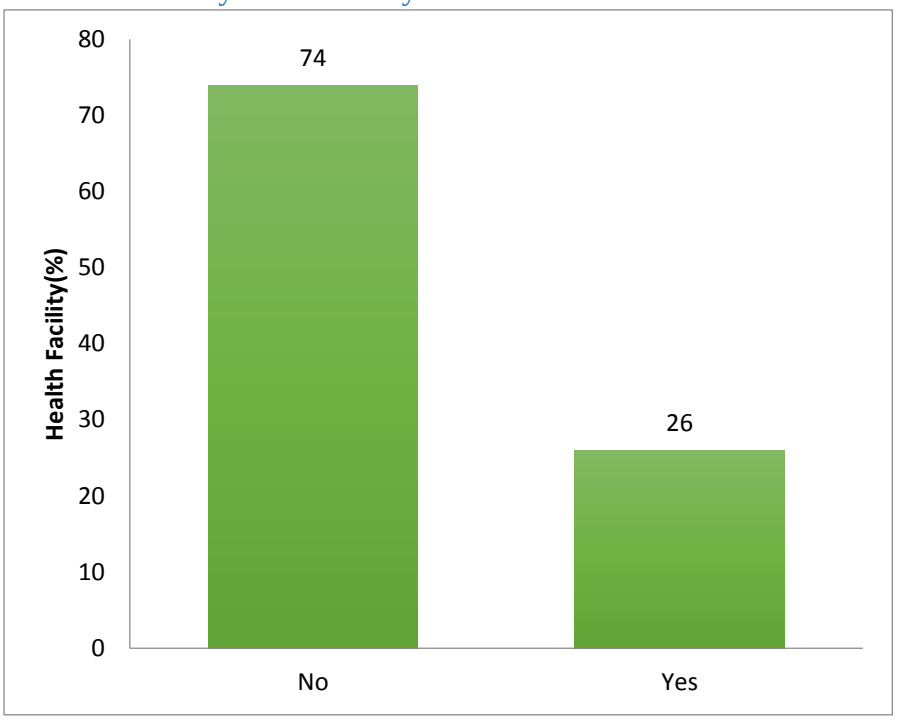
Table below shows the distribution of toilet (mean) by Dzongkhags and shows the toilet facilities in the health facilities on average have access to 5 units of flush toilet.It has been reported that HCF in Samdrup Jongkhar district have the highest mean toilet facilities compared to Mongar and Samtse Dzongkhag.

Dzongkhag	Mean			Number of HCF
	Flush Toilet	VIP Toilet	Pit Toilet	
Mongar	4.58	0.4	0	22
S/Jongkhar	9.00	0	0	4
Samtse	4.50	0	0	9

In-Out Patient Toilet

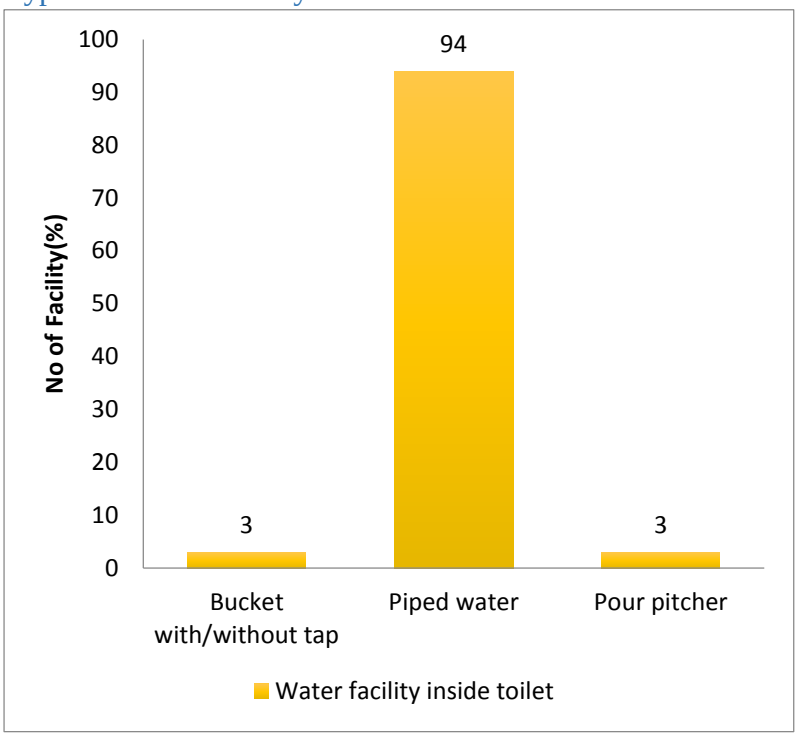
It was reported that all the health facilities have access to flush toilets for in-out patients.

Disabled Friendly Toilet facility



About 79% of health facilities have reported as not having disabled friendly toilet facility as against 26% of the facility reporting as having disabled friendly toilet. The maternity toilet in the MCH room was made disable people friendly focusing primarily on mothers and was being reported as having disable friendly toilet by Health assistants (picture below).

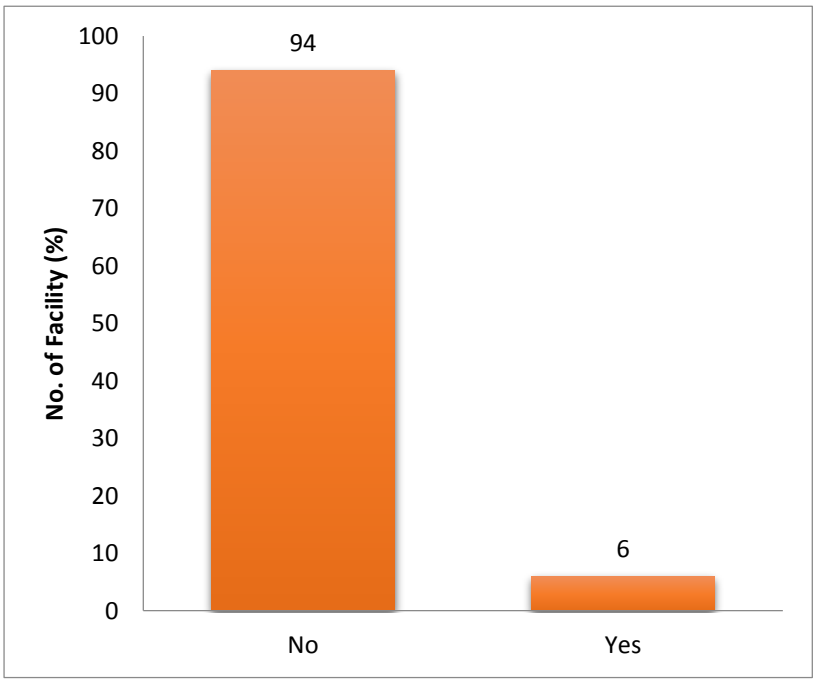
Types of Water Facility inside the Toilet



The above graph represents the kind of water facility that is available inside the toilet. It has been reported that 92% of the health facilities have piped water inside the toilet.

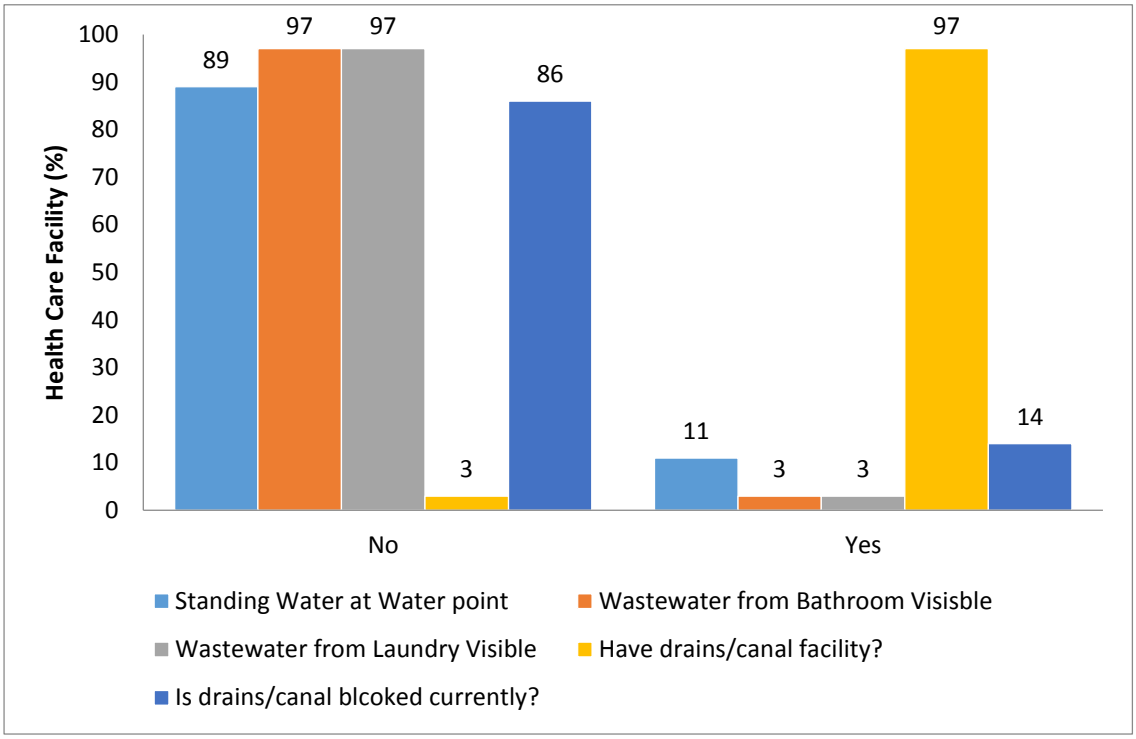
Sanitation Functionality

Sign of Open Defecation



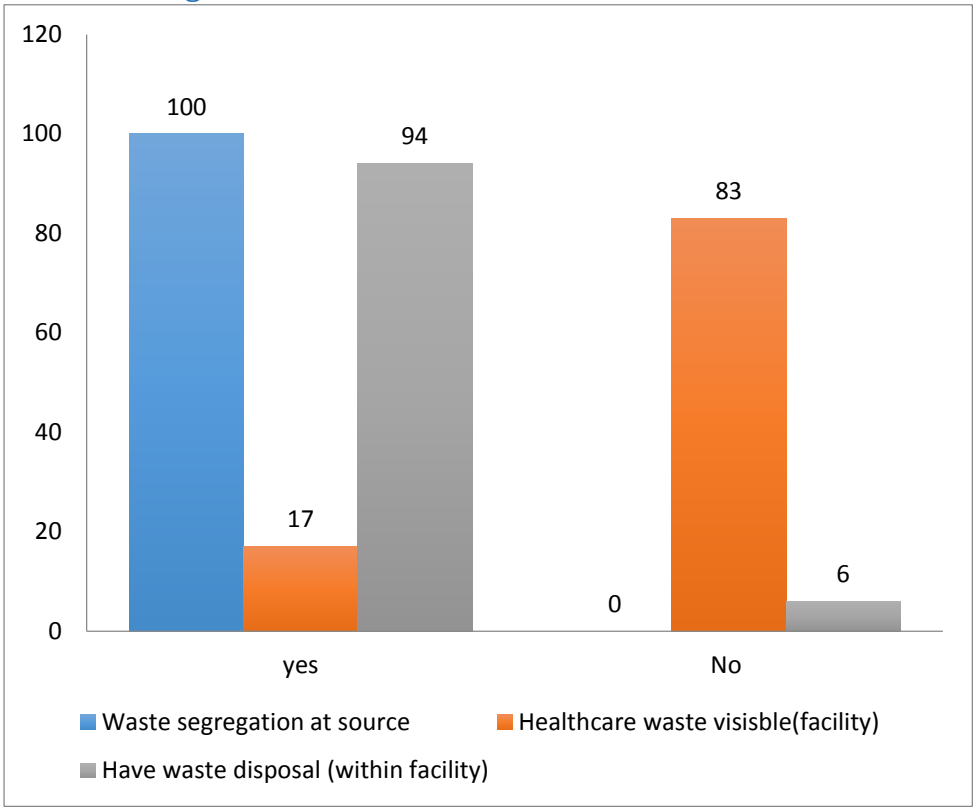
The graph shows that the sign of open defecation is minimal within the facility compound.

Drainage



The above graph shows the drainage facility available within the health facility. The 97% of the health facility have drains/canal facility while 86% of the facility's drain is not blocked. 97% has reported that waste water from laundry and waste water from bathroom is visible in the health facility and 89% of the facility have no standing water point. Some BHUs had no outlet for drains beyond their premise ,like in the picture below.

Waste Management



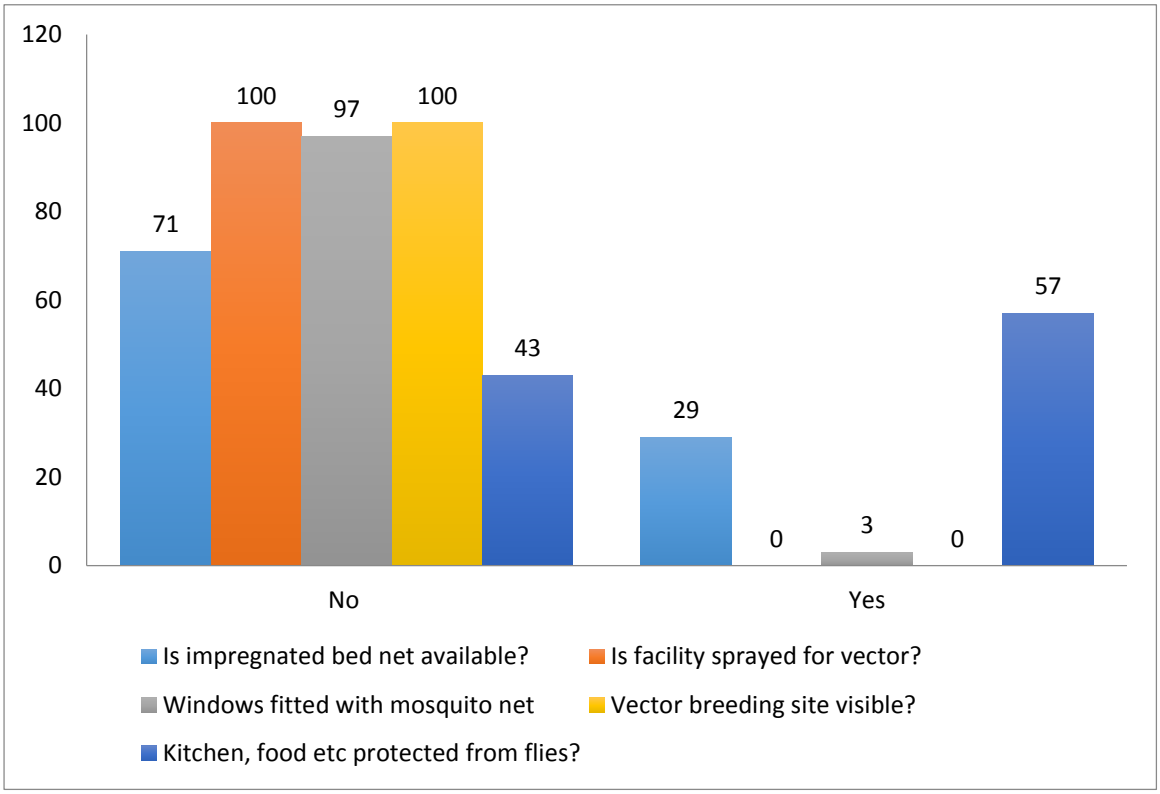
All the health facilities have reported as waste being segregated at source. 83% have reported that healthcare waste is not visible within compound. 96% percent of health facilities have reported has having waste disposal site/pit within facility compound.

Waste Container

Variable	Mean	Std. Dev.	Min	Max
No of Waste Container	5	3	2	14
Volume of Waste Container (litre)	18	11	1	60

On average, a health facility has a five numbers of waste containers with average volume of 18 liters each. The pits were often used for dumping all sort of wastes even while it was segregated at source (picture below).

Vector Disease Control



It has been reported that impregnated bed net are not available in any of the facility. 97% of the windows are not fitted with mosquitoes net.

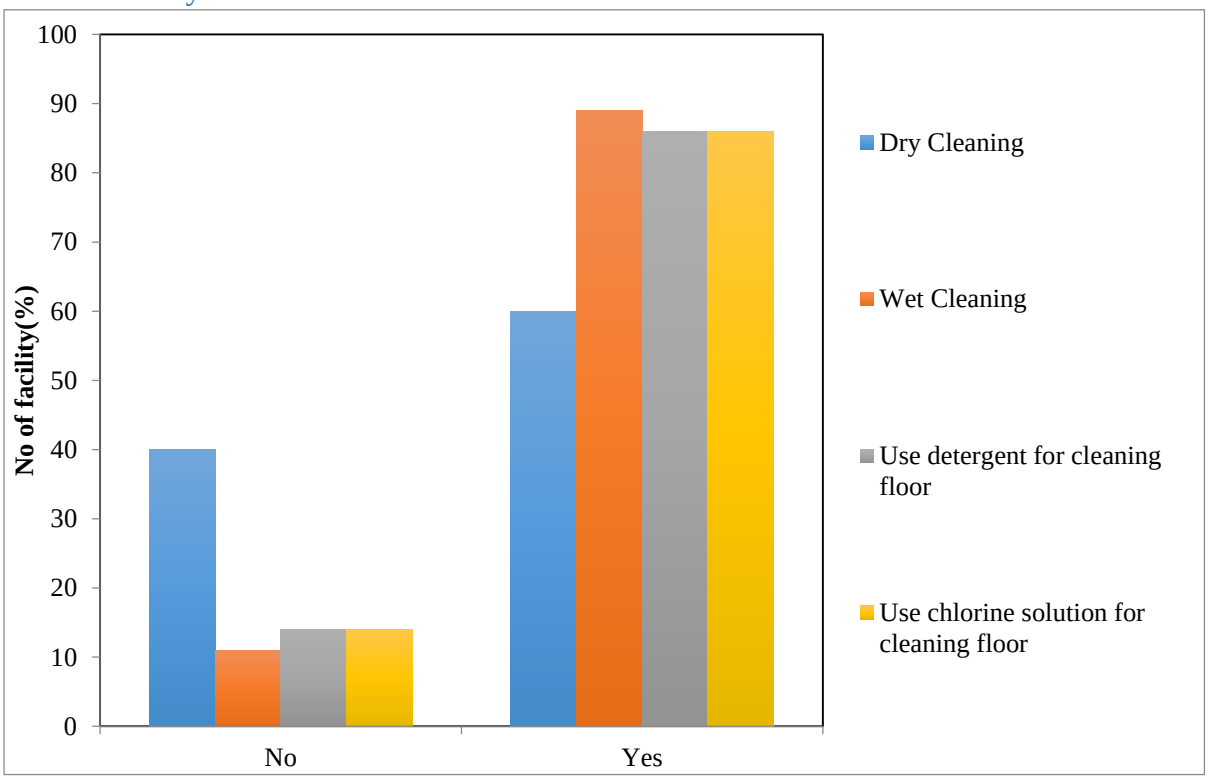
Infection Control

Frequency of Cleaning

The table represents represents the frequency of cleaning the floor as a measure for infection control. It shows that 65% of the facilities are cleaned only once a day.

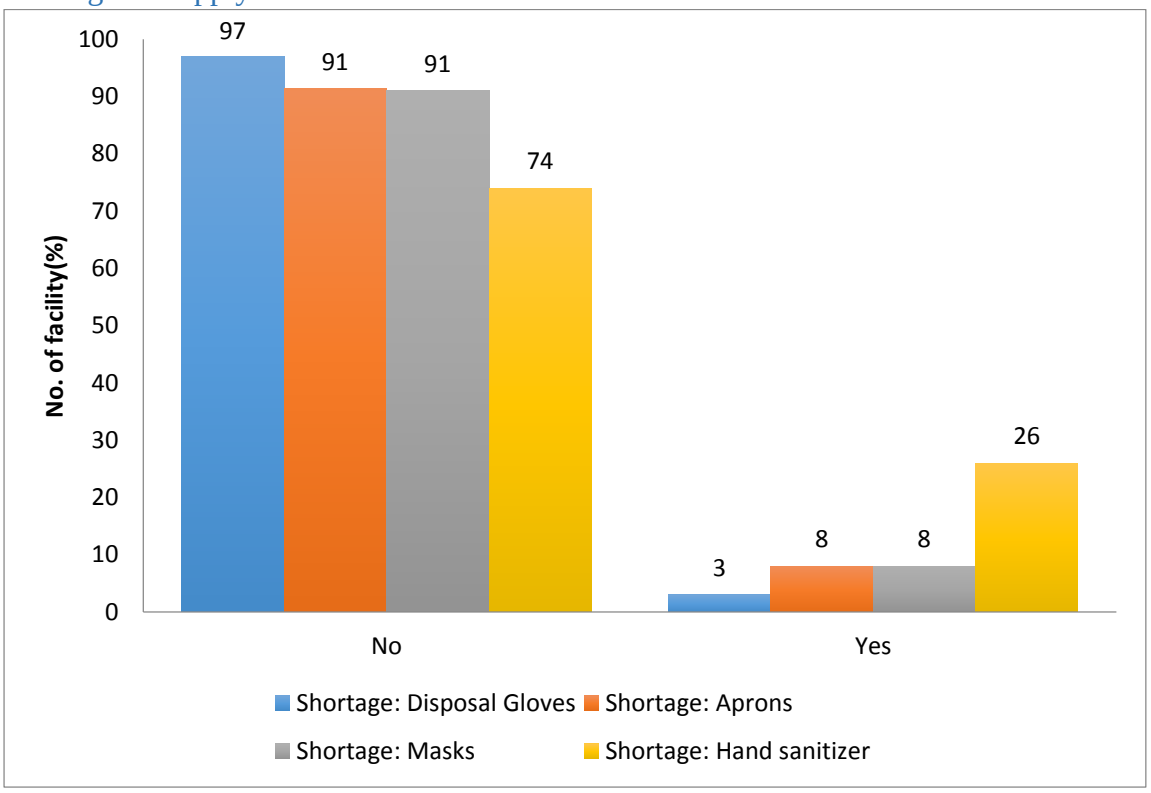
Frequency of floor cleaned/week	Frequency	Percent
1	3	9
3	1	3
4	1	3
7	22	65
14	4	12
31	3	9
Total	34	100

How is Facility Floor Cleaned?



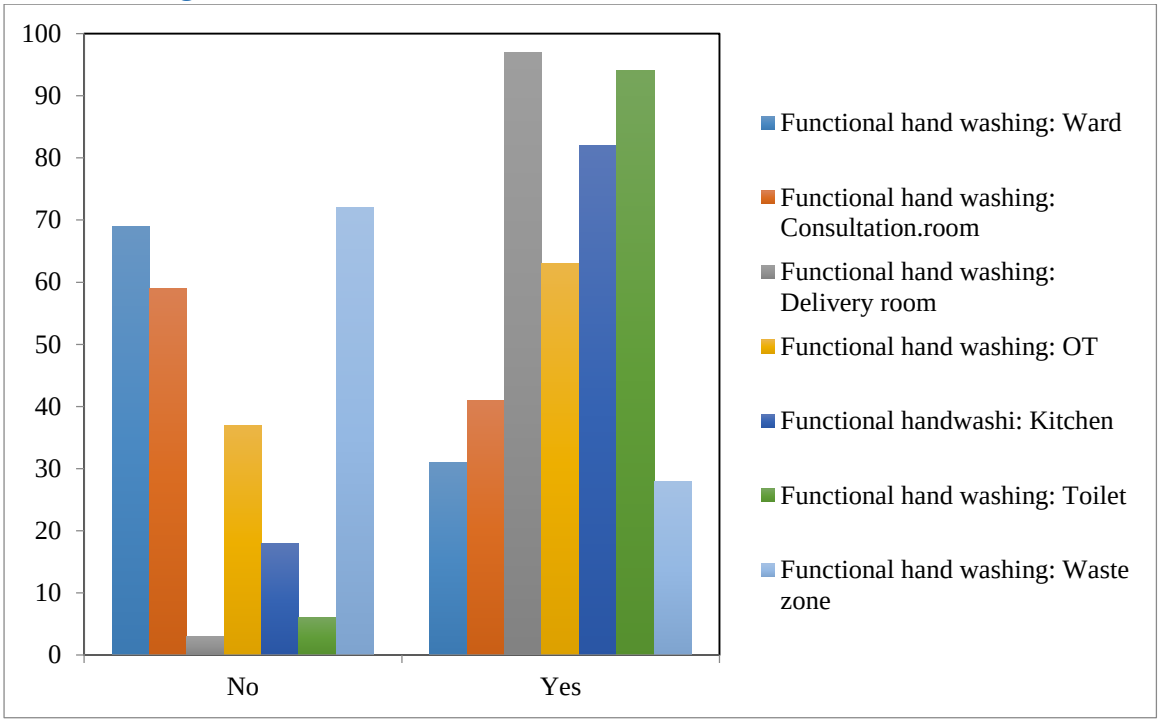
Majority of health care facilities have reported that floor is wet cleaned using the cleaning protocols.

Shortage of Supply of Infection Control Items



The above graph represents that there is sufficient supply of infection control items. Supplies were made available through annual indent process.

Hand Washing Points



It has been reported than 60% of the health facilities does not have functional hand washing points in wards and waste zones. On the other hand higher percentage of the functional hand washing points in consultation room, delivery room, OT and toilet facility had been reported.

Dzongkhag wise segregated data table below shows the functional hand washing point at different locations in the health facility. The figures represent the percentage of functional hand washing points at different locations. Overall,Samtse dzongkhag facilities show the need for attention as hand washing points are dismally low.

Is hand washing point functional at:	Mongar		S/Jongkhar		Samtse	
	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)
Ward	59	41	50	50	100	0
Consultation Room	57	43	25	75	78	22
Delivery Room	0	100	0	100	11	89
Operation Theatre	33	67	50	50	40	60
Kitchen	14	86	25	75	25	75
Toilet	0	100	0	100	22	78
Waste Zone	67	33	75	25	86	14

Risk Analysis

Risk based on the nine indicators or module are assessed. It is assessed based upon the most critical subindicators identified for each of the indicators. The risk coefficients are determined in terms of sample size of this surveyed. Therefore risk level will range from 0 to 35 where 0 is no risk and 22 is the highest level of risk.

Based on the overall risk level, our results show that ensuring the quality water supply to health facilities may be risk. It is then followed by having access to toilet facility particularly indicated by lack of disabled friendly toilet facilty. Ensuring sufficient water quantity in health facilities are identified as the third risky among the nine indicators. The indicators such as “vector disease control”, “sanitation functionality” and “handwashing point” seem to have the least risk.

Assessment was also made to understand how this level of risk changes with the change or increase in distance from the District Health Office. The result indicates that on an average, the level of risk is higher with those health facilities within 20KM and above 80KM away from district health office. The risk is assessed in terms of not being able to meet the standard practices.

Table 1: Assessment of Level of Risk with Respect to Indicators and Distance from District Heath Office

Indicators	Sub-Indicators	Distance from District Head Office					Overall Level of Risk
		0 to 20 KM	21 to 40 KM	41 to 60 KM	61 to 80 KM	80 KM and Above	
Water Quantity	Insufficient Water at Facility	4	1	1	5	4	**15**
Water Quality	Water not Chlorinated	5	7	4	7	8	**31**
Sanitation Access	No Disabled Friendly Toilet	7	4	3	6	6	**26**
Sanitation Functionality	Have Signs of Open Defecation within Facility	0	0	0	0	2	**2**
Drainage	Facility Drains Currently Blocked	1	1	0	2	1	**5**
Waste Management	Hospital Waste Visible in Compound	0	1	1	0	0	**2**
Vector Control	Vector Breeding Sites Visible	0	0	0	0	0	**0**
Infection Control	Do not Use Chlorine Solution for Cleaning	1	0	0	1	3	**5**
Hand Washing	Have No Hand Washing Point in Toilet	1	0	1	0	0	**2**
Risk level with Reference to Distance from District		**19**	**14**	**10**	**21**	**24**	

Recommendations

Following are some of the recommendations based on the above findings:

1. It is highly recommended to conduct nation wide survey to assess the current status and assess the risk for each indicators.
2. The highest level of risk in a health facility is from poor water quality and quantity. This can be rectified by providing standard water supply facility depending on the health facility grade and patients served. It was seen that most of the health facilities shared water supply with communities and making the facility vulnerable to water shortages.
3. The level of risk for ensuring quality water supply is at stake and also it was found that water sources for all the health facilities are depending on unimproved water sources (based on WHO standards). Therefore, ministry may consider to build/construct water treatment units/plants to ensure quality water supply.
4. It has also been observed that the level of risk are higher with those facilities within 20 KM and above 80 KM from district health office. Therefore, at policy level, it might be useful to identify some measures to ensure that all health facilities have quality WASH facilities and are monitored regularly.
5. The health facilities caretakers' capacity to repair and maintain minor WASH repairs should be assessed and means to equip them with minor tools be given consideration.
6. Standards need to be developed for the health facilities so that all health facilities have standard set of waste bins, waste pits, number of toilets and hand washing points.
7. Health facilities need to provide at least one unit of disabled friendly toilet. While the existing ones were presumably developed for the maternity room which is inside the MCH room, outpatient toilets maybe fitted with disable friendly toilets.
8. The windows in the healthcare facilities in southern districts like in Samdrup Jongkhar and Samtse maybe provided with net fittings, being malaria endemic areas.
9. The waste pits in the health facilities need attention as currently, it was observed that all sorts of wastes (glasses,plastics,bandages etc) were all burnt or dumped into same pit. Proper disposal protocol needs to be developed for wastes in health facilities.
10. The kitchens in the health facilities had poor or no clean shelves for food / vegetable storages. Food hygiene storage units maybe provided in kitchens so that they are not accessible to flies, cockroaches and rats.

Appendix

1.Survey questionnaire

WASH IN HEALTH FACILITIES SURVEY FORM

Assessor(s):_____

Contact Details: _____

Date of Assessment: _____/_____/_____

SECTION I: HEALTH FACILITY GENERAL INFORMATION

1. Contact Person:_____ Phone No. _____
2. Health Facility Name:_____
3. Location:Dzongkhag_____Gewog_____Village_____
4. Distance from District Health Office: _____KM
5. Altitude:_____ GPS Long:_____ GPS Lat:_____
6. Year of establishment:_____
7. Health facility type:_____ (BHU I, II)
8. Number of staffs: Male_____ Female_____
9. Number of inpatients:_____ No. of beds_____

SECTION II: WATER QUALITY

1. Is there sufficient water quantity for all the daily needs in the health facility?
   Yes_____ No_____
   Comments_____
   _____
2. Is there routinely a time of year when the facility has a severe shortage or lack water?
   Yes_____ No_____
   Comments_____
   _____
3. During the past 12 months, how many times was the water supply from this source interrupted for more than two hours at a time?
   Yes_____ No_____
   Comments_____
   _____
4. Do you have sufficient water storage tank (more than 24 hours backup supply)?
   Yes_____ No_____
   Comments_____
   _____

SECTION III: WATER QUALITY

1. What is the main source of water for the facility? [Tick appropriate source]
   a) Spring
   b) Stream
   c) River

d) Groundwater
e) None of the above (specify)S_____

2. Is water chlorinated?
   a) Unchlorinated
   b) Insufficiently chlorinated
   c) Chlorinated
   d) Don't know
3. On an average, for how many days is your facility water turbid (cloudy)?
   No. of days_____
   Comments_____
   _____
4. Does your facility have water treatment units like filters available in the rooms?
   Yes_____ No_____
5. Is water heating facility like geysers or water heaters fitted in bathrooms?
   Yes_____ No_____

SECTION IV: WATER POINTS

1. Provide the maximum number of people [in/out-patient, staffs and all visitors] that uses health facility water points in a day?
   No._____
2. How many water points do you have within your facility?
   No:_____
3. How many of the total are functioning currently?
   No:_____

SECTION V: SANITATION ACCESS

1. How many following toilet facilities do you have?
   a) No. of flush toilets:_____
   b) Ventilated improved toilet_____
   c) No. of pit toilets:_____
2. What type of toilet (latrine) is available for inpatients?
   a) Flush toilet
   b) Ventilated improved toilet
   c) Pit latrine
   d) Not available
3. What type of toilet (latrine) is available for outpatients?
   a) Flush toilet
   b) Ventilated improved toilet
   c) Pit latrine
   d) Not available
4. Do you have toilet facilities that are friendly for disabled people?
   Yes_____ No_____
5. What kind of water facility is available inside the toilet?
   a) Piped water
   b) Bucket with/without tap
   c) Pour pitcher
   d) None of the above (Specify what you use)_____

SECTION VI: SANITATION FUNCTIONALITY

1. How many of the total toilets are functioning?
   No. of toilets: _____
2. Do you have any signs of open defecation within the facility compound?
   Yes_____ No_____

SECTION VII: DRAINAGE

1. Do you have pools of standing water at water points?
   Yes_____ No_____
2. Is wastewater from bathing visible in the health facility?
   Yes_____ No_____
3. Is wastewater from cleaning and laundry visible in the health facility?
   Yes_____ No_____
4. Does your facility have drains or canals facility?
   Yes_____ No_____
5. Is your facility's drains or canals blocked currently?
   Yes_____ No_____

SECTION VIII: WASTE MANAGEMENT

1. Do your facility have system of separating waste at source by providing different types of waste container? (e.g. infectious, non-infectious, sharps).
   Yes_____ No_____

2. How many waste containers do you have in your facility?
   No of containers:_____

3. What is the volume of waste container?
   Liters:_____

4. Do you observe health care waste such as needles and dressing materials within your facility compound?
   Yes_____ No_____

5. Do you have waste disposal facility or pit available in the compound?
   Yes_____ No_____

SECTION IX: VECTOR DISEASE CONTROL

1. Is impregnated bed nets available in your facility?
   Yes_____ No_____
2. Is your facility regularly sprayed for vectors?
   Yes_____ No_____
3. Are windows (of your facility rooms) fitted with mosquito screens?
   Yes_____ No_____
4. Is vector breeding sites (stagnant pools, food waste etc.) visible in your facility compound?
   Yes_____ No_____
5. Is kitchen stores or prepared food protected from flies, other insects or rats.
   Yes_____ No_____

SECTION X: INFECTION CONTROL

1. How many times facility floor is cleaned in a day?
   No. of times:_____
2. How is floor cleaned? (Choose more than one if applicable)
   a) Dry clean
   b) Wet clean (with water)
   c) None of the above
   d) Others (specify)_____
3. Do you use detergent for cleaning the floor?
   Yes_____ No_____
4. Do you use chlorine solution for cleaning the floor?
   Yes_____ No_____
5. How many times your facility received the supply of detergent and chlorine solution for cleaning during last 12 months?
   No. of times:_____
6. Does your facility have hand and feet disinfectants at entry and exit of isolation areas?
   Yes_____ No_____
7. During last 12 months, did your facility face shortage of supply of any of following: (if faced shortage, indicate as "yes", otherwise "no")
   a) Disposal gloves: _____
   b) Aprons: _____
   c) Mask: _____
   d) Hand sanitizer_____(eg: soap, liquid disinfectants)

SECTION XI: HANDWASHING

8. Do you have functional handwashing points at following health care units: (Indicate as "yes", otherwise "no")
   a) Wards: _____
   b) Consultation rooms:_____
   c) Delivery rooms: _____
   d) Operation theatre: _____
   e) Kitchen: _____
   f) Laundry: _____
   g) Toilets: _____
   h) Waste zone: _____
9. Do you have soaps/hand sanitizers for washing hands at following washing points? (Indicate as "yes", otherwise "no")
   a) Wards: _____
   b) Consultation rooms:_____
   c) Delivery rooms: _____
   d) Operation theatre: _____
   e) Kitchen: _____
   f) Laundry: _____
   g) Toilets: _____
   h) Waste zone: _____
10. Do you have posters at strategic locations reminding users of correct handwashing procedures?
    Yes_____ No_____

Any Comments:

_____
_____
_____
_____
_____
_____
_____
_____
_____

2.List of health facilities in Mongar,Samdrup Jongkhar and Samtse

District	Hospital	Basic Health Unit	Sub-post	No. of ORC	
				With Shed	Without Shed
Monggar	Monggar			3	0
		Balam		3	0
		Baanjar		0	0
		Boompazor		3	0
		Chagsskhar		4	0
		Dramedtse		4	0
		Daagsa		1	1
		Gyalpoizhing I		0	0
		Jurmed		3	0
		Kengkhar		2	0
		Lingmethang		5	2
		Nagor		3	0
		Ngatshang		0	0
		Serzhong		3	0
		Tsamang		0	0
		Thang-Rong		4	0
		Tsakaling		3	0
		Yangbari		2	0
		Yadi		1	0
		Chhaling		1	0
		Na-Rang		1	0
		Ganglapong		0	0
			Silambi	0	0
			Muhoong	0	0
			Tongla	0	0
			Pangthang	0	0
			Resa	0	0
			Takambi	0	0
Total	**1**	**21**	**6**	**46**	**3**
Samtse	Samtse			3	0
	Gomtu			4	0
	Sipsu			5	0
		Bara		3	0
		Chengmari		4	0
		Chisopani		0	0
		Doongtoed		3	0

		Duenchukha		2	0
		Dorokha		3	0
		Ganthog		0	0
		Ghumauney		5	0
		Panbari		2	0
		SangaCholing		0	0
		Sengteng		1	0
		Tendruk		3	0
		Ugyentse		0	0
Total	**3**	**13**	**0**	**38**	**0**
Pemagatshel	**Pemagatshel**			5	0
		Tsatsi		2	0
		Nanong		2	0
		Gonpasingma		3	1
		Yurung		1	0
		Chhimoong		1	0
		Tsebar		2	0
		Dungmaed		2	0
		Thrumchung		2	0
		Dechhenling		3	0
		Norboogang		0	1
		Nganglam I		2	1
		Chhoekhorling		0	1
			Borangma		
			Chongshing		
			Khangma		
			Mikuri		
			Naskhar		
			Thongsa		
Total	**1**	**12**	**6**	**25**	**4**