WaterAid

Towards safer and better quality health care services in Cambodia

A situation analysis of water, sanitation and hygiene in health care facilities

Acknowledgements

This report was written for WaterAid by Dr Ir Por of the Health System Development Support Unit in the National Institute of Public Health.

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Front cover image: WaterAid/Kim Hak

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Abbreviations

AusAID Australian Agency for International Development

BEmONC Basic Emergency Obstetric and Newborn Care

CEmONC Comprehensive Emergency Obstetric and Newborn Care

CPA Complementary Package of Activities

DPHI Department of Planning and Health Information

EmONC Emergency Obstetric and Newborn Care

HAI Healthcare Associated Infection

HC Health Centre

HCF Health Care Facility

HCWM Health Care Waste Management

HMIS Health Management Information System

HSD Hospital Services Department

HSP Health Strategic Plan

HSP2 Health Strategic Plan 2008-2015

HSP3 Health Strategic Plan 2016-2020

HSSP2 The Second Health Sector Support Programme

MDG Millennium Development Goal

MInt Malteser International

MOH Ministry of Health

MPA Minimum Package of Activities

NIPH National Institute of Public Health

NMCHC National Maternal and Child Health Centre

OD Operational District

PMD Preventive Medicine Department

RACHA Reproductive and Child Health Alliance

RDC Resources Development Consultant

RH Referral Hospital

RHAC Reproductive Health Association of Cambodia

RWC RainWater Cambodia

SARA Service Availability and Readiness Assessment

SDG Sustainable Development Goal (Post-2015)

SDI Service Delivery Indicator

SPA Service Provision Assessment

URC University Research, Co., LLC

WASH Water, Sanitation and Hygiene

WHO World Health Organization

1. Executive summary

Background

Water, sanitation and hygiene (WASH) in health care facilities broadly refers to the quantity and quality of facilities, and access to water, toilets/latrines, waste management, the cleanliness of the environment, availability of hygiene facilities (water, soap or alcohol-based hand rubs), and knowledge and practices of safe hand hygiene (handwashing) in all kinds of public and private sector health care facilities and their surrounding environment or compound.

Access to safe and quality WASH services is fundamental to infection prevention and control in health care facilities, and to good health outcomes. WASH is integrated in the post-2015 Sustainable Development Goals (SDGs). Adequate WASH in health care facilities is crucial for achieving universal health coverage. It helps ensure safe, high quality care, minimises the risk of infection for patients, caregivers, health care workers and surrounding communities, and upholds the dignity of vulnerable populations including pregnant women and disabled people. Poor WASH services in health care facilities has numerous consequences for health care seekers, including health care-associated infections and poor health seeking behaviour, and such consequences are particularly important during and around the time of delivery and in resource-poor settings.

While there is increasing attention from governments, donors and the international public health community to improving WASH in health care facilities in low- and middle-income countries, WASH services in many facilities are currently poor or absent, compromising the ability to provide safe care and presenting serious health risks to patients and health care providers. Moreover, specific WASH-related policies, standards and monitoring and evaluation systems are lacking. Cambodia, a low-income country, is no exception. The country's particular health context, with very high overage of births in health care facilities, stubbornly high neonatal mortality rates and increasing concerns around quality of care, makes WASH in health care facilities in Cambodia more important. While some studies on WASH have been carried out in Cambodia, so far there is no comprehensive study to specifically understand the situation of WASH within health care facilities. Therefore, WaterAid and its main partners commissioned the National Institute of Public Health to conduct a situation analysis of WASH within health care facilities.

This study aims to analyse the situation of WASH in health care facilities, in particular within the health centres of Cambodia. More specifically, the analysis focuses on: (1) policies and planning, including standards and coverage targets related to WASH in health care facilities; (2) related monitoring and evaluation mechanisms, tools and data, in particular routine data collected through the government's Health Management Information System (HMIS), and health facility assessment data and tools; and (3) key actors involved in or working on WASH in health care facilities, and their related roles and responsibilities.

Methodology

This review was conducted in early 2015. Data was collected primarily through a desk review of existing national and international policy documents, as well as reports and tools on WASH in health care facilities, including assessment frameworks and datasets. In addition, we also conducted key informant interviews.

The collected data was manually coded and analysed by themes and key research questions. We used different conceptual and analytical frameworks, mainly the World Health Organization (WHO's) 11 guidelines on Essential Environmental Health Standards in Health Care in 2008, and WaterAid's Safer Health Facilities assessment tool.

We strictly followed all necessary ethical procedures. We submitted the study protocol and related tools to the National Ethics Committee for Health Research in Cambodia for review, and received approval on 02 January 2015 with reference number: 001 NECHR.

Findings

There is no single policy document that comprehensively describes national policies and planning, including standards and coverage targets, on WASH in health care facilities in Cambodia. Surprisingly, the Health Strategic Plan 2008-2015 – currently the main health sector policy document – does not include any policy statement or strategy to specifically improve WASH in health care facilities, or address related issues. However, our review discovered a number of national policy documents that stipulate one or more WASH-related elements within health care facilities, including standards and indicators as reflected in the WHO guidelines. The table below summarises these documents, their content related to WASH in health care facilities, and the WHO's 11 guidelines.

List of policy documents on WASH in health care facilities in Cambodia and their relation to WASH

No	Name of the policy document, publication year	WASH-related content of the document	As reflected in WHO guidelines
1	Guidelines on Minimum Package of Activities for HC Development, 2007 (Khmer version)	Broad standards, policies and procedures, principles, important measures for hygiene, waste management, water supply and physical infrastructure for HCs	Not specific to any of the guidelines
2	Guidelines on Complementary Package of Activities for Referral Hospital Development, 2014 (Khmer version)	Standard physical infrastructure, guided procedures for hygiene and infection prevention and control, standards on water supply facilities, the quality and quantity of water, wastewater disposal, incinerator and placenta pit and standards on sanitation facilities and toilets required for referral hospitals	Guidelines 4, 5, 6: Excreta, wastewater and medical waste disposal
3	Infection Prevention and Control Guidelines for Health Care Facilities, 2010	Comprehensive technical specifications and guidance on standard measures and practices for infection control in HCFs	Guidelines 4, 5, 6: Excreta, wastewater and medical waste disposal Guideline 11: Information and hygiene promotion
4	National Guideline on Health Care Waste Management, 2012	Technical specifications and guidance on health care waste management	Guideline 6: Health care waste disposal
5	Building Brief for HCs, 2007	Standards for design and construction of HCs with WASH related facilities	Guideline 9: Building design, construction, and management
6	Building Brief for RHs, 2003	Standards for design and construction of RHs with WASH related facilities	Guideline 9: Building design, construction, and management
7	Drinking Water Quality Standards, 2004	Standards for Drinking Water Quality	Guideline 1: Water quality

There is no reliable national monitoring and evaluation mechanism for WASH in health care facilities in Cambodia. Of the 95 core indicators and related targets laid out in the current Health Strategic Plan 2008-2015, none is specific to WASH or to WASH in health care facilities. The list of these core indicators is being revised for the new Health Strategic Plan 2016-2020, but probably will not include any WASH-specific indicators unless a strong advocacy and effort to do so is made on time. Moreover, as is the case in many other countries, a reasonably well functioning web-based national HMIS system that collects monthly health service data by individual health care facilities in Cambodia does not capture any specific data on WASH in health care facilities.

In the absence of a reliable WASH monitoring and evaluation mechanism, we found a number of health facility assessments, with some related tools and data, which have been carried out occasionally and separately in Cambodia since 2008 (see the summary in table below). They are varying in terms of their scope (number of facilities covered), specificity to WASH, and capacity to capture WASH-specific data in health care facilities. Among these assessments, the HSSP2 health centre assessment on WASH infrastructure is the largest, collecting data on the availability and status of infrastructure and related facilities for electricity supply and WASH in almost all health centres in Cambodia. Quality of Care Assessments Level 1 and 2 are also nationwide, which collect data on not only availability and condition of WASH infrastructure and facilities, but also some WASH practices in both health centres and referral hospitals. The most specific to WASH, with the highest capacity to capture data on WASH in health care facilities, may be the assessment and related tool of WaterAid, as it has been designed specifically for that purpose. It incorporates questions from different reliable references, and has been successfully tested. However, it also has some limitations, including a lack of questions on water quality and WASH behavioural practices. While the assessment results are different, the available data and results from these large-scale assessments suggest that the situation WASH in health care facilities in Cambodia remains poor, as compared to current WHO standards, and requires further improvement.

Summary of health facility assessments, tools and data in Cambodia, their WASH-related characteristics and findings				
No	**Name of the health facility assessment**	**Time of the study**	**Implementing agency**	**Coverage/Scope of the assessment**
1	HSSP2 Health centre assessments on WASH infrastructure	2011-2013	Health facilities & Resources Development Consultants	Self-assessment by 1,019 health centres and external assessment of 565 health centres
2	HSSP2 assessment of 30 referral hospitals for health infrastructure facility improvement	2013	Resources Development Consultants	30 referral hospitals selected based on HSSP2 Comprehensive EmONC improvement plan
3	Quality of Care Assessment level 1	2008-2012	Health facilities and external assessors, led by Ministry of Health Hospital Services Department	Over 80% of health centres and almost all referral hospitals
4	Quality of Care Assessment level 2	2013-present	External assessors, led by Ministry of Health Hospital Services Department and University Research Co.	564 health centres and 41 referral hospitals in 8 provinces were already assessed, and an additional 538 health centres and 53 referral hospitals in other 15 provinces are being assessed
5	Emergency Obstetric and Newborn Care Assessment 1	2009	National Institute of Public Health, led by National Maternal and Child Health Centre	230 health centres, 73 referral hospitals, 4 national hospitals and 40 private health facilities
6	Emergency Obstetric and Newborn Care Assessment 2	2014	Mao Bunsoth, research team, led by National Maternal and Child Health Centre	180 health facilities to be upgraded to EmONC facilities (44 comprehensive EmONC and 136 basic EmONC)
7	HC WASH Assessment in Kampong Speu	2010	RainWater Cambodia	21 health centres in Kampong Speu
8	Health Impact Evaluation Health 2008	2008	Multiple national partners and Health Impact Evaluation Consortium	447 health facilities in seven selected operational districts
9	Pilot healthcare facility WASH assessment	2015	WaterAid in partnership with RainWater Cambodia and WHO	12 health facilities in Kampong Speu and Prey Veng

List of policy documents on WASH in health care facilities in Cambodia and their relation to WASH		
No	**WASH-related data captured by the assessment**	**WASH-related content of the document**
1	Availability, type and condition of health centre WASH infrastructure and facilities: water supply facilities, broad water quality, sanitation and hygiene facilities	Of the 1,019 assessed health centres, the self-assessment allowed selecting 565 for external assessment, which further selected only 280 health centres for infrastructure and WASH facilities improvement. The findings shows that of the total assessed health centres: 16% had no or a damaged water supply facility; 15% relied solely on collected rainwater; 47% had at least one working hand dug and/or drilled well, with or without other type of water source; and only 20% had piped water supply. Only 52% had at least a functioning toilet for staff and 39% had at least a functioning toilet for patients; 39% had at least a working sink; 16% had no or a damaged electricity supply system and 11% relied on battery only; 28% had functioning solar panel with/without other type of electricity supply; another 8% had a working generator with/without battery; and only 38% had access to urban electricity supply
2	Availability and condition of general RH infrastructure and facilities, including related WASH facilities	The assessment allowed selecting 15 of the 30 assessed referral hospitals for renovation and construction. These 15 were in urgent need of a particular infrastructure renovation and construction, mainly maternity unit and operation theatre. There was no comprehensive report and data on WASH-specific findings. However, available data suggest that there was no major problem on water supply, electricity, sanitation and waste management facilities in these referral hospitals
3	Availability and condition of WASH infrastructure and facilities with some evidence of WASH practices in health centres and referral hospitals: water supplies, waste management, sanitation facilities and cleanliness in general and key departments/ rooms	No data or report on the results of the assessments
4	Standard precautions and hygiene practices at in key departments/rooms of health centres and referral hospitals: waste disposal, hand hygiene (washing and using personal protective equipment) and cleanliness of the rooms and patient care equipment	Preliminary data show that the average score for WASH-related component (standard precautions and hygiene) was below the average, although it was not among the worst

List of policy documents on WASH in health care facilities in Cambodia and their relation to WASH		
No	**WASH-related data captured by the assessment**	**WASH-related content of the document**
5	Water supply infrastructure and facilities, and with a focus on delivery-related departments (including operation theatre for C-section)/rooms: there is also a broad question on sanitation (functioning toilets)	All assessed hospitals and 98.3% of the assessed health centres had access to clean water. For 57% of the hospitals and 59% of the health centres, the main source of water was either a well or bore hole. However, on room-by-room basis, the supply of water is variable. In EmONC facilities, water was available to 77% of operating theatres, 84% in postnatal rooms and 100% in delivery rooms. These figures are lower for facilities to be upgraded
6	Water supply infrastructure and facilities, and with a focus on delivery-related departments (including operating theatre for C-section)/rooms: There is also a broad question on sanitation (functioning toilets)	The second assessment is being conducted and the results were not available yet
7	WASH infrastructure and facilities, capturing availability, condition and functionality	Most of the 21 assessed health centres owned WASH infrastructures (tube well, galvanised tank or cement ring tank to collect rainwater, latrine or incinerator). However, the rainwater collected with such infrastructures did not meet the demand, and some WASH assets were old, did not function properly, and had low capacity for rainwater storage. While six health centres could connect with the piped water system, they still used insecure water sources and appreciated the use of rainwater. Sanitation improvement was considered by the health centres as lower priority than water supply. Based on the findings, a proposal for WASH infrastructure renovation and construction was made.
8	Access to water (availability of running water source within 500 metres)	Of the total of 447 assessed, only 67% of all the assessed (non-pharmacy) health facilities had improved running water source within 500 metres. Such access is much poorer for rural health centres.
9	Comprehensive overview of WASH in health care facilities addressing most of the WHO's 11 guidelines (except water quality and hygiene behavioural practice), including not only physical availability, but also functionality and accessibility of WASH facilities	The results show that access to water and sanitation was high. In almost all facilities there was access to both an improved water supply and sanitation facility. All assessed health facilities had access to a squat flush toilet and all had a secondary source of water available. But the availability of drinking water was less frequent; only two of the facilities surveyed provided some form of drinking water for their clients. Sanitation facilities at referral hospitals were more accessible than at health centres. The only toilet facilities seen to be designed with disabled access in mind were at two referral hospitals. Functionality of the toilets was measured through the availability of water for the flush, with all referral hospitals and 75% of health centres having functional, improved sanitation with a safe method of excreta disposal

A number of government ministries are involved in or working on WASH in Cambodia. These include (but are not limited to) the Ministry of Rural Development, the Ministry of Industry and Handicrafts, the Ministry of Education, and the Ministry of Health. The latter is specifically involved in/working on WASH in health care facilities. In addition to the Ministry of Health and its related departments, there are other non-governmental key actors involved in or working on WASH in health care facilities, including NGOs, bilateral agencies and donors. Within the central level Ministry of Health, there are two departments closely involved in and having a dominant role in policy development, implementation and monitoring and evaluation of WASH in health care facilities, namely the Hospital Services Department and the Department of Planning and Health Information. However, there is no clear WASH-specific leadership and effective coordination mechanism. The table below summarises the names of the institutions and organisations, their involvement in or work on WASH in health care facilities, their potential roles and responsibilities, and their leaders and contact details.

List of institutions/organisations involved in or working on WASH in health care facilities in Cambodia and their related roles and responsibilities

Key actors	Involvement in/work on WASH in health care facilities	Potential role and responsibilities	Leaders and their contact details
Hospital Services Department	• Leading the development of MPA and CPA Guidelines, Infection Prevention and Control Guidelines for Health Care Facilities, National Guideline on Health Care Waste Management • Participating in development of tools and coordinating Quality of Care Assessments level 1 and 2	Policy development, policy implementation and monitoring/ evaluation	Dr Sok Srun, Department Director 012 912 122 soksrun@online.com.kh or soksrun@camnet.com.kh
Department of Planning and Health Information	• Leading the development of Health Sector Strategic Plans and Health Coverage Plans • Managing and hosting HMIS • Leading the Quality of Care Assessment 2	Policy development, policy implementation, planning and monitoring/ evaluation	Dr Lo Veasnakiry, Department Director 012 810 505 veasnakiry@gmail.com
HSSP2	• Funding and supervising the health centre assessments on WASH infrastructure and the assessment of 30 referral hospitals for health infrastructure facilities improvement • Supporting the development of building briefs for health centre and referral hospitals • Funding the Quality of Care Assessments level 1 and 2	Funding, technical assistance and policy advice	HE Prof Eng Huot, MOH Secretary of State and HSSP2 Programme Director Dr Lo Veasnakiry, Programme Coordinator Dr Khuon Vibol, Senior Planning Officer 012 931 881 vibol.hssp@online.com.kh

List of institutions/organisations involved in or working on WASH in health care facilities in Cambodia and their related roles and responsibilities			
National Maternal and Child Health Centre	• Supervising EmONC Assessments	Policy development, policy implementation and monitoring/ evaluation	Dr Tung Rathavy, Director of NMCHC 012 222 773 rathavy.tung@gmail.com or rathavy@online.com.kh
National Institute of Public Health	• Technical support for the implementation of Quality of Care Assessment level 2 • Conducting EmONC Assessment 1 in 2009 • Conducting WASH-related research, e.g. this analysis and a cluster randomised controlled trial on Newborn Infection Control and Care Initiative for Health Facilities	Technical support and research	Dr Chhea Chhorvann, NIPH Director 012 503 844 cchhorvann@niph.org.kh
WaterAid	• Working with local partners to improve access to WASH • Development and testing of comprehensive tool for assessment of WASH in health care facilities • Supporting and funding studies and research, including this analysis, to gather evidence to inform policy and action	Policy advocacy, project implementation, technical support, innovations, research and funding	James Wicken, Director of WaterAid Cambodia James.Wicken@wateraid.org.au
URC	• Supporting the development of tools and implementation of Quality of Care Assessments level 1 and 2 • Supporting the development and implementation of HMIS • Developing health facility training curriculum and tools for hand-washing	Policy advocacy, technical support and funding	Katherine Krasovec, Chief of Party, USAID Quality Health Services Project 012 328 509 kkrasovec@URC-CHS.COM Tapley Jordanwood, Chief of Party, USAID Social Health Protection Project 089 965 738 tjordanwood@URC-CHS.COM
RainWater Cambodia	• Implementing community and health facility-based WASH projects • Conducting WASH assessment in health care facilities	Project implementation and research	Keo Vicheka Programme Coordinator 012 53 17 14 Keo_vicheka@yahoo.com

List of institutions/organisations involved in or working on WASH in health care facilities in Cambodia and their related roles and responsibilities			
RACHA	• Implementing community and health centre-based WASH projects, mainly on water supply and food safety	Project implementation and research	Dr Chan Theary, Executive Director of RACHA 012 333 383 ctheary@racha.org.kh
RHAC	• Implementing community and health centre-based WASH projects • Conducting WASH-related research, e.g. studies on Environmental Factors and WASH Practices in the Perinatal and Period in Cambodia and a cluster randomised controlled trial on Newborn Infection Control and Care Initiative for Health Facilities	Project implementation and research	Dr Var Chivorn, Executive Director of RHAC 017 608 888 chivorn@rhac.org.kh
Malteser International	• Implementing community and health facility-based WASH projects in Siem Reap	Policy advocacy and project implementation	Mr Richard Hocking, Malteser International, based in Siem Reap: 063 967 089 or 089 478 636
WHO	• Developing WASH-related standards • Supporting the development of WASH-related policy and tools • Supporting WASH assessments in health care facilities and project implementation	Standard and policy advocacy, technical support, research and funding	Phan Sophary NCD and Environmental Unit 012 257 968 phans@wpro.who.int
UNFPA	• Supporting and funding EmONC Assessments	Policy advocacy, technical support, research and funding	Dr Sok Sokun Reproductive Health Specialist 012 992 847 sok@unfpa.org

Discussion and conclusions

Despite some limitations in methods, this study provides useful insights into the situation of WASH in health care facilities in Cambodia in terms of policies and planning – including standards and coverage targets, monitoring and evaluation mechanisms, and data and tools. The findings suggest that the situation of WASH in health care facilities requires further improvement to ensure safe and quality care, especially for mothers and newborn babies during and immediately after birth. In order to do so, the above shortcomings on policy and planning, monitoring and evaluation, and leadership and coordination among key actors need to be effectively addressed. We would like to provide some considerations for future national policies and actions as follows:

- Identify a focal point within the Ministry of Health for WASH, or in particular WASH in health care facilities.
- A sub-technical working group on WASH in health care facilities should be created, preferably within the Ministry of Health and led by the Ministry's focal point, with members from other relevant departments and possibly other sectors, such as the Ministry of Education, Youth and Sports, Ministry of Rural Development, etc., as well as health partners such as WHO and WaterAid.
- Based on the new Sustainable Development Goals, indicator framework and available data on WASH in health care facilities in Cambodia, the working group should immediately consider developing some WASH-specific strategies, as well as a set of indicators and targets to be incorporated into the new Health Strategic Plan 2016-2020.
- Through the working group, and under the guidance of the HSP3, gradually develop national policies, plans and a monitoring and evaluation framework, including standard indicators and tools for routine data collection and periodic assessments for WASH in health care facilities. More specifically, some available WASH-related policies and guidelines, as identified in this study, should be updated and their impact assessed. Fragmented assessments, if to be continued, should be better coordinated and integrated, using standardised processes and tools as much as possible.
- As part of the developed WASH-related monitoring and evaluation framework, and in line with the WASH-specific indicator framework proposed in the HSP3, national baseline data on WASH in health care facilities should be collected, using the national standard tools.

2. Background

This section provides a general background on what WASH in health care facilities means, the reasons why a study to analyse the situation in Cambodia is essential, the purpose and objectives of the study, and the structure of this report.

2.1 What WASH in health care facilities means

WASH stands for water, sanitation and hygiene, in which: (1) water broadly includes water quantity, water quality, water facilities and access to water; (2) sanitation refers to quantity, quality of and access to toilets/latrines, waste management, and the cleanliness of the environment; and (3) hygiene focuses on availability of hygiene facilities (water, soap or alcohol-based hand rubs), and knowledge and practices of safe hand hygiene such as handwashing. Health care facilities comprise all kinds of public and private sector facilities, including private for-profit and not-for-profit facilities (See Box 1: Public and private health care facilities in Cambodia).

WASH in health care facilities means WASH in health care settings, which embraces not only WASH inside the facilities, but also in their surrounding environment or compound.

Box 1: Public and private health care facilities in Cambodia

By the end of 2014, there were 1,316 public health care facilities and 5,757 registered private health care facilities in Cambodia. Public facilities include 1,105 health centres and 106 health posts providing primary health care (known as the minimum package of activities), 97 referral hospitals (both provincial and district), and eight national hospitals offering secondary and tertiary care, including specialised care (known as a complementary package of activities). Private health care facilities include private hospitals, polyclinics, clinics, general and maternity and dental consultation facilities, and mainly private medical cabinets.

Source: National Health Congress Report 2015[1]

2.2 Why a situation analysis is essential

Access to safe, quality WASH facilities and practices is fundamental to infection prevention and control in health care facilities, and to good health outcomes. Adequate WASH in health care facilities helps ensure quality and safe care, minimises the risk of infection for patients, caregivers, health care workers and surrounding communities, and upholds the dignity of vulnerable populations including pregnant women and disabled people. Patients who seek care at health facilities are more vulnerable and susceptible to infection, and rely on a clean environment for effective treatment. Poor WASH services have numerous consequences for health care seekers, including direct consequences such as health care-associated infections,[i] and indirect consequences such as poor health seeking behaviour. Available evidence shows that health care-associated infections affect hundreds of millions of patients every year, with 15% of patients estimated to develop one or more infections during a hospital stay.[2] The risk is particularly high during and around the time of delivery – when mothers and newborn babies are most susceptible to infection – and in resource-poor settings. Some estimates suggest that such infections cause up to 56% of all neonatal deaths among hospital-born babies in developing countries, with three quarters occurring in the South-East Asia region and sub-Saharan Africa.[3] According to Oza and colleagues,[4] of the 2.8 million neonatal deaths across the 194 WHO member states in 2013, 430,000 deaths (15%) were caused by sepsis and other severe infections, and the risks associated with sepsis are 34 times greater in resource-poor settings than those with better facilities. In addition to these direct consequences, poor WASH may discourage women from giving birth in health care facilities or cause delays in care-seeking, and vice versa.[5]

In low- and middle-income countries, WASH services in many health care facilities are poor or absent, compromising the ability to provide safe care, and presenting serious health risks to patients as well as health care providers. A recent review of data from 54 countries, representing 66,101 facilities, shows that 38% of health care facilities do not have an improved water source; 19% do not have improved sanitation; and 35% do not have water

and soap for handwashing.[6] In Cambodia, the review also includes data from 447 health care facilities collected in 2008, which shows that 33% did not have an improved water source. Furthermore, the GLAAS survey 2014,[7] a UN-Water initiative coordinated by WHO, revealed that only 25% of the 86 countries responding to the survey reported having a fully implemented plan or policy for drinking water and sanitation in health care facilities. A review of 68 Health Management Information Systems through the WHO health metrics network found that none included indicators on WASH. Only fragmented national data occasionally collected under a different system was available. This indicates a large gap in the national monitoring frameworks for WASH in health care facilities in Cambodia.

There is increasing attention from governments, donors and the international public health community to improving WASH in health care facilities. In her keynote speech at the Budapest water summit, the director general of WHO has declared that improving WASH in health care facilities is an 'urgent priority'.[8] WHO is in the process of developing a strategy on WASH in health care facilities, focusing on monitoring/risk assessment, the development and implementation of norms and guidelines, and advocacy/building partnerships. WASH in health care facilities is gaining higher momentum at the international level, with the adoption of the post-2015 SDGs, where indicators and targets feature in two of the 17 SDGs (Goal 3 and Goal 6).[9] A proposed target of universal basic coverage of WASH in health care facilities by 2030 has been recommended for inclusion in these two SDGs,10 including the target, "to achieve universal access to basic drinking water, adequate sanitation and hygiene in health facilities by 2030". Goal 3.8 aims to achieve universal health coverage, including financial risk protection, access to quality essential health services, and access to safe, effective, quality and affordable essential medicines and vaccines for all. Adequate WASH in health care facilities, which is fundamental to infection prevention and control and improved health seeking behaviour, is considered essential for achieving universal health coverage (See Box 2: WASH aid universal health coverage). The large number of actors and funds committed to universal health coverage provides an opportunity to achieve this Goal.[11] Furthermore, global health initiatives such as Every Woman Every Child, the integrated Global Action Plan against pneumonia and diarrhoea, and quality of care during childbirth highlight the importance of basic, universal WASH services in health care facilities.[7]

Box 2: WASH aid universal health coverage

Universal health coverage can be defined as, "ensuring that all people have access to promotive, preventive, curative and rehabilitative health services of sufficient quality to cover the variety of their needs, and at the same time, that they do not suffer financial hardship by paying for these services". Universal health care is widely regarded to be a central tenet of a health-related goal or target, either as the aim itself or as the means to achieving health outcomes. Achieving universal health care is one of the post-2015 Sustainable Development Goals. Many countries are committed to universal health care, and have initiated health system and financing reforms to move towards it.

WASH plays an important role under each aspect of universal health coverage. The ability to provide quality and safe health services is a necessary condition for universal health coverage, and necessitates provision of adequate WASH in all health care facilities. On the other hand, poor WASH can result in poor progress on public health targets and an undue financial burden on health systems, which undermines progress toward universal health coverage. Efforts to achieve universal health coverage can also improve WASH conditions, as WASH is often neglected in terms of political priority and investment, and universal health coverage efforts offer an opportunity to redress this neglect and embed WASH into key functions of the health system.

Therefore, WASH concerns should be integrated into national strategies for achieving universal health coverage. Situating WASH within the context of universal health coverage provides a powerful entry point within the health sector.

The particular health context in Cambodia makes WASH services in health care facilities even more important. This context includes the very high overage of births in a health facility (83%), mostly in a health centre,[12] the stubbornly high neonatal mortality rate, and the increasing concern around quality of care.[13] While some studies on WASH have been carried out in Cambodia, so far there is no single comprehensive study to understand the situation of WASH within health care facilities. A recent study on environmental factors and WASH practices in Cambodia by Bazzano and colleagues[14] revealed important gaps in optimal practices, and both structural and social barriers to maintaining infection prevention and control during delivery and post-partum in health centres and at home. Therefore, an analysis to understand the situation of WASH in health care facilities in this country is particularly essential and timely. Considering this rationale and need, WaterAid and its main partners commissioned the National Institute of Public Health to conduct a situation analysis of WASH in health care facilities. For more information about WaterAid and its main partners, see Box 3.

2.3 The purpose and objectives of the study

The purpose of this study is to analyse the situation of WASH in health care facilities, in particular in health centres, in Cambodia. More specifically, the analysis focuses on:

- Policies and planning, including standards and coverage targets related to WASH in health care facilities.
- Related monitoring and evaluation mechanisms, data and tools, in particular the routine data collected through the Health Management Information System and health facility assessments data and tools.
- Key actors involved in or working on WASH in health care facilities, and their related roles and responsibilities.

For health facility assessment data and tools, we focus on whether information on WASH services and practices in health centres is captured in the assessments, and make recommendations on how future assessments or discrete pieces of research

Box 3: WaterAid and its main partners in brief

WaterAid is a non-government organisation with a focus on WASH. WaterAid works with local partners to help communities access safe water and sanitation, and seeks to influence decision-makers to see access to WASH as an essential element to achieve health, education and poverty reduction goals.

WHO has developed guidelines on environmental health in health care facilities, and in 2008 published a manual on Essential Environmental Health Standards in Health Care, which aims to enable health care workers in resource-constrained health care settings with advice on solutions to infection control through water supply, excreta disposal, drainage, health care waste management, cleaning and laundry, food storage and preparation, control of vector-borne diseases, building design, construction and management, and hygiene promotion. WHO has also developed health facility assessment tools, such as the Service Availability and Readiness Assessment (SARA).

Rainwater Cambodia, a local NGO, has provided WASH facilities in a number of health centres, including facility assessments prior to this project, and conducted research into the sustainability of these interventions.

Source: WaterAid

can capture this information and make it available to decision-makers, enabling them to take action to make these environments safer for mothers and young children.

2.4 The structure of this report

This report is divided in four main sections. After the background in section 2, a brief description on the study methodology is provided in section 3. Section 4 will be dedicated to a description of the findings, which includes sub-sections aligning to the three specific objectives: national policies and planning on WASH in health care facilities; monitoring and evaluation mechanisms, tools and data on WASH in health care facilities; and key actors involved in or working on WASH in health care facilities. We will discuss the findings and draw conclusions in section 5. This report will end with a list of annexes and references.

3. Methodology

This is a scoping review of the situation of WASH in health care facilities, especially in health centres, in Cambodia. This study is conducted in early 2015, as part of a larger WaterAid project on access to WASH in health care facilities in Cambodia, which also includes the development of a health facility assessment tool, called the Safer Health Facility assessment tool.

3.1 Data collection

Data was collected primarily through a desk review of existing national and international policy documents, reports and tools on WASH in health care facilities, including facility assessment frameworks, tools and datasets. In addition, we also conducted key informant interviews.

Through our network and with the guidance of experts from WaterAid and WHO, a first few key informants from the Ministry of Health and key partner organisations were identified and invited for interview. Through a snowballing technique, other necessary key informants were identified and invited for interview. These key informant interviews not only allowed collecting of additional information and data, but also provided guidance for tracking additional key documents for review.

The interviews were guided by a list of questions, shown in Annex 1. In principle, we could not limit the number of key informants, but continued the interviews until saturation of answers to investigated questions. In total, we have interviewed 12 key informants (see Annex 2). We did not tape the interviews, but took notes.

3.2 Data processing and analysis

The collected data from document review and key informant interviews was manually coded and analysed by themes and key questions.

First, we grouped the data by specific objective, whether the data was about: (1) policies and planning, including standards and coverage targets related to WASH in health care facilities; (2) monitoring and evaluation of WASH in health care facilities , in particular routine HMIS data and occasional health facility assessments, data and tools; or (3) key actors involved in or working on WASH in health care facilities, and their related roles and responsibilities. Second, we further analysed the data by group, using different conceptual and analytical frameworks.

The WHO's Essential Environmental Standards in Health Care in 2008[15] sets out the essential environmental health standards required for varying levels of health care settings in low- and middle-income countries. The document contains a set of 11 guidelines, with a set of indicators, guidance notes and checklist for assessing the implementation of each guideline (see Box 4: Summary of the WHO's 11 guidelines on Essential Environmental Standards in Health Care). Among these 11 guidelines, some are particularly essential for WASH in health care facilities. A recent WHO publication[6] summarises these essential guidelines as the WHO-recommended standards on WASH in health care facilities, to serve as a basis for establishing national standards for various types of health care facilities in low- and middle-income countries (Table 1). We used these concepts and indicators for assessing Cambodian national policies and planning on WASH in health care facilities as well as related national monitoring frameworks, especially the national HMIS. More specifically, we analysed whether any of the national policy and planning documents address one or more of the standards and indicators set in these 11 guidelines, or lays out any objectives or coverage targets related to the standards and indicators.

Box 4: Summary of the WHO's 11 guidelines on Essential Environmental Standards in Health Care

1. **Water quality:** water for drinking, cooking, personal hygiene, medical activities, cleaning, and laundry is safe for the purpose intended.
2. **Water quantity:** sufficient water is available at all times for drinking, food preparation, personal hygiene, medical activities, cleaning and laundry.
3. **Water facilities and access to water:** sufficient water collection points and water use facilities are available in the health care setting to allow convenient access to, and use of, water for medical activities, drinking, personal hygiene, food preparation, laundry, and cleaning.
4. **Excreta disposal:** adequate, accessible and appropriate toilets are provided for patients, staff, and carers.
5. **Wastewater disposal:** wastewater is disposed of rapidly and safely.
6. **Health care waste disposal:** health care waste is segregated, collected, transported, treated and disposed of safely.
7. **Cleaning and laundry:** laundry and surfaces in the health care environment are kept clean.
8. **Food storage and preparation:** food for patients, staff and carers is stored and prepared in a way that minimises the risk of disease transmission.
9. **Building design, construction and management:** buildings are designed, constructed and managed to provide a healthy and comfortable environment for patients, staff and carers.
10. **Control of vector-borne disease:** patients, staff and carers are protected from disease vectors.
11. **Information and hygiene promotion:** correct use of water, sanitation and waste facilities is encouraged by hygiene promotion and by management of staff, patients and carers.

Source: Velleman et al., 2014[5], adapted from WHO 2008[15].

Table 1: WHO's standards on WASH in health care facilities

Elements	Dimension	Recommendation	Explanation
Water	Quantity	5–400 litres/person/day.	Outpatient services require less water, while operating theatres and delivery rooms require more water. The upper limit is for viral haemorrhagic fever (e.g. Ebola) isolation centres.
	Access	On-site supplies.	Water should be available within all treatment wards and in waiting areas.
	Quality	Less than 1 Escherichia coli/ thermotolerant total coliforms per 100 ml. Presence of residual disinfectant. Water safety plans in place.	Drinking water should comply with WHO guidelines for drinking water quality for microbial, chemical and physical aspects. Facilities should adopt a risk management approach to ensure drinking water is safe.
Sanitation	Quantity	1 toilet for every 20 users for inpatient setting. At least 4 toilets per outpatient setting. Separate toilets for patients and staff.	Sufficient number of toilets should be available for patients, staff and visitors.
	Access	On-site facilities.	Sanitation facilities should be within the facility grounds and accessible to all types of users (females, males, those with disabilities).
	Quality	Appropriate for local technical and financial conditions, safe, clean, accessible to all users including those with reduced mobility.	Toilets should be built according to technical specifications to ensure excreta is safely managed.
Hygiene	Availability of hygiene facilities	A reliable water point with soap or alcohol-based hand rubs available in all treatment areas, waiting rooms and near latrines for patients and staff.	Water and soap (or alcohol-based hand rubs) should be available in all key areas of the facility for ensuring safe hand hygiene practices.

Source: WHO, 2015[6]

In addition to the WHO guidelines, we also used WaterAid's Safer Health Facilities assessment, combined with some internationally recognised tools for assessing WASH in health care facilities, such as Service Availability and Readiness Assessment (SARA), Service Provision Assessments (SPAs) and Service Delivery Indicators (SDIs).

The WaterAid Safer Health Facilities assessment has been designed to capture as much relevant data as possible on access and behaviours relating to WASH in health care facilities (see the complete tool in Annex 3). The assessment contains three modules of questionnaires and checklists, including a photo checklist at the end. Module 1 has several sections

of WASH-related questionnaires to be administered to respondents through interviews. These include section 6, with 22 questions on water availability; section 7 with 10 questions on sanitation facilities; section 8 with 7 questions on waste disposal and management; and section 10 with 6 questions on hygiene knowledge and practices. Module 2 is a checklist for toilet and handwashing, whereas module 3 is a checklist for ward walkthrough, focusing on maternity wards. These checklists are to be completed through direct observation. This tool has been tested in some health facilities in Cambodia, and findings on the tool's ability to capture WASH data, including its strengths and limitations, are documented.[16] We will discuss more about this tested health facility assessment in the findings of this report.

SARA is a tool designed by WHO, with implementation coordinated by WHO and USAID. The aim of the tool is to assess service delivery in health facilities, and their ability to provide safe care.[ii] SPAs form part of the Demographic and Health Survey programme funded by USAID and implemented by MEASURE, and focus on service delivery in health care facilities, particularly, "availability, readiness, quality of care and patient satisfaction."[iii] SDIs are a World Bank Africa-wide initiative aiming to build a better picture of service delivery in health facilities and schools. Implementation is coordinated by the World Bank, African Economic Research Consortium, and the African Development Bank. The SDI WASH indicators are broadly consistent with SARA, though go into less detail regarding WASH service delivery and more detail regarding the financing of services.[iv]

3.3 Ethical considerations

We strictly followed all necessary ethical procedures, including submission of the study protocol and related tools to the National Ethics Committee for Health Research in Cambodia for review. The committee approved the protocol on 02 January 2015 (reference number: 001 NECHR). Prior to each interview, verbal consent was obtained from the interviewee, based on an informed consent form attached to each questionnaire as an introductory section.

4. Findings

4.1 National policies and planning on WASH in health care facilities

There is no single policy document that comprehensively describes national policies and planning, including standards and coverage targets, on WASH in health care facilities in Cambodia. Surprisingly, the Health Strategic Plan 2008-2015[17] – currently the main health sector policy document – does not include any policy statement or strategy to specifically improve WASH in health care facilities, or to address related issues. However, our review discovered a number of national policy documents that stipulate one or more WASH-related elements, including standards and indicators, as reflected in the WHO's 11 guidelines on Essential Environmental Standards in Health Care. Some of these documents address general water and sanitation issues, such as quality of water and sanitation outside the health sector or in the community, whereas others focus on WASH services and practices within the health sector, in particular in health care facilities. See Table 2: List of policy documents on WASH in health care facilities in Cambodia and their relation to WASH. We further reviewed these documents as follows.

4.1.1 MPA and CPA guidelines

The guidelines on a Minimum Package of Activities for Health Centre Development (MPA guidelines) 2008-2015,[18] and the current guidelines on a Complementary Package of Activities for Referral Hospital Development (CPA guidelines)[19] are the two national policy documents that partly and broadly stipulate national policies and standards on physical infrastructure and WASH-related packages of activities in health centres and referral hospitals in Cambodia.

Chapter 1.11 of the MPA guidelines (page 70-82) broadly describes the basic standards, policies and procedures, principles and important measures for hygiene, waste management and water supply at health centres. The guidelines refer to the development of a system for infection prevention and control at health centres as standard, and include waste management procedures and measures for universal precautions and hygiene. Chapter 6 of the guidelines (page 106) vaguely states about physical infrastructure for health centres, but are not specific to WASH in such settings. The guidelines refer to the building brief for health centres[20] for the detail on physical infrastructure policies and standards for health centres.

Chapter 5 of the CPA guidelines (page 84-90) describes the standard physical infrastructure and related facilities, as well as guided procedures necessary for ensuring hygiene and infection prevention and control at referral hospitals. Unlike the MPA guidelines, this chapter of the CPA guidelines does stipulate standards on water supply facilities, and the quality and quantity of water required for a referral hospital, as reflected in the WHO's standard guideline 1. It also lays out procedures for wastewater disposal (WHO's guideline 5), and requirement of an incinerator and placenta pit for medical waste management (WHO's guideline 6). Furthermore, the guidelines also state about standards on sanitation facilities and toilets (e.g. the need to have three types of toilets for women, men and people with disabilities), as reflected in the WHO's guideline 4). The CPA guidelines refer to the Infection Prevention and Control Guidelines for Health Care Facilities[21] and the National Guideline on Health Care Waste Management[22] for more detail on hygiene and infection control, and waste management respectively.

Table 2: List of policy documents on WASH in health care facilities in Cambodia and their relation to WASH

No	Name of the policy document, publication year	WASH-related content of the document	As reflected in the WHO's 11 guidelines (Box 4)
1	Guidelines on Minimum Package of Activities for Health Centre Development, 2007 (Khmer version)	Broad standards, policies and procedures, principles and important measures for hygiene, waste management and water supply, and physical infrastructure at health centres.	Not specific to any of the guidelines.
2	Guidelines on Complementary Package of Activities for Referral Hospital Development, 2014 (Khmer version)	Standard physical infrastructure, guided procedures for hygiene and infection prevention and control, standards on water supply facilities, the quality and quantity of water, wastewater disposal, incinerator and placenta pit for medical waste management, and standards on sanitation facilities and toilets required for referral hospitals.	Guidelines 4, 5, 6: excreta, wastewater and medical waste disposal.
3	Infection Prevention and Control Guidelines for Health Care Facilities, 2010	Comprehensive technical specifications and guidance on standard measures and practices for infection control in health care facilities.	Guidelines 4, 5, 6: excreta, wastewater and medical waste disposal. Guideline 11: information and hygiene promotion.
4	National Guideline on Health Care Waste Management, 2012	Technical specifications and guidance on health care waste management.	Guideline 6: health care waste disposal.
5	Building Brief for Health Centre Minimum Package of Activities, 2007	Standards for design and construction of health centres with WASH-related facilities.	Guideline 9: building design, construction and management.
6	Building Brief for Referral Hospitals, Complementary Package of Activities, 2003	Standards for design and construction of referral hospitals with WASH-related facilities.	Guideline 9: building design, construction and management.
7	Drinking Water Quality Standards, 2004	Standards for drinking water quality.	Guideline 1: water quality.

4.1.2 Infection prevention and control guidelines for health care facilities

This is a unique and perhaps the most comprehensive policy document on infection control measures and practices in health care facilities in Cambodia[21], and are related to many of the WHO's standards, including guidelines 4, 5, 6 on excreta, wastewater and medical waste disposal respectively, and guideline 11 on information and hygiene promotion. The infection control measures and practices include standard precautions (such as handwashing, use of personal protective equipment, appropriate handling of patient care equipment, environmental cleaning, prevention of needle-stick/sharp injuries, and management of health care waste), and transmission-based additional precautions (such as contact precautions, droplet precautions, airborne precautions and risk assessment). The guidelines also include infection control precautions for selected situations (such as antibiotic resistance), and in selected areas (such as laboratory, pharmacy, operating theatre, emergency room and intensive care unit).

Although the content of this policy document is good, and particularly relevant to policies and standards on WASH in health care facilities, according to key informants the introduction of the guidelines was not accompanied by any measure to monitor how and to what extent they are applied in health care facilities (such as an indicator framework), or measures to evaluate the impact of the guidelines (such as baseline, mid-term and impact evaluation). This somehow undermines the importance of this document for WASH in health care facilities.

4.1.3 Regulations and national guideline on health care waste management

As part of the efforts to improve health care waste management in Cambodia, the Ministry of Health formulated regulations in July 2008. In order to support the effective implementation of the regulations, a national guideline on health care waste management was developed in 2012, to provide technical specifications and guidance for specific components of health care waste management to all relevant actors.[22] While this document may be related to guideline 6 of the WHO standards, it does not, however, provide any specific standards for policy consideration.

4.1.4 Building brief for health centres and referral hospitals

In addition to the broad policies and standards on physical infrastructure for health centres described in the MPA Guidelines 2008-2015, the building brief for health centre minimum package of activities developed in 2007[20] provides for a standard health centre design in Cambodia – a third and latest version of health centre design with two floors (Figure 1). The design also includes requirements and standards for water supply facilities (with expected capacity to supply water or water quantity), toilets (three: one for women, one for men on the 1st floor and one for people with disabilities on the ground floor), handwash basins or sinks (two in two of the six rooms in the first floor building, usually used for delivery room and dressing room) as well as waste management facilities, including a relatively low capacity incinerator in the discreet periphery of the health centre compound with easy access (the high capacity incinerator is placed at the provincial level). It is particularly related to the WHO's standard guideline 9.

While this building brief indicates that in non-flood prone areas, two additional rooms should be made available on the ground floor for delivery and post-delivery services, it is noted that this does not happen in practice. As a consequence, two of the six rooms on the first floor with handwash basins are usually used for delivery and post-delivery (or sometimes dressing/minor surgery) services. Paediatric and adult consultations usually take place in one or two separate rooms at the front of the building with no handwash basin. Similar to the MPA Guidelines, this health centre brief does not mention about a need for a placenta pit at health centre (it is to note that the CPA Guidelines stipulate the requirement for a placenta pit at referral hospitals).

Figure 1: Picture of a health centre of the current design in Cambodia

Unlike the building brief for health centres, the building brief for referral hospitals' complementary package of activities,[23] developed in 2003, is relatively outdated. However, according to key informants, it remains a reference policy document for hospital design so far. Similar to the health centre building brief, this hospital building brief also provides standard referral hospital design in Cambodia, comprising all design specifications for water supply, waste disposal and wastewater treatment, and sanitation facilities. It is also particularly related to the WHO's standard guideline 9.

4.1.5 Drinking water quality standards

Cambodia has established a comprehensive policy on national water supply and sanitation, covering both urban and rural water supplies. Based on this policy, and to ensure access to safe drinking water for all people, drinking water quality standards for Cambodia[24] have been developed by an inter-ministerial process initiated by the former Ministry of Industry, Mines and Energy and concerned ministries, with support from the WHO. The standards were based on the latest WHO drinking water quality guidelines (2003) and those of other countries, with particular adaptation to water quality problems in Cambodia. The drinking water standards are a key tool for monitoring water supply throughout the country, produced by the sectors concerned (e.g. water treatment plant, water supply systems, etc.) to respond to human health demands. The relevant government regulatory agencies have to make sure that all drinking waters delivered to the population will comply with these standards. However, there is no data about how these standards have been applied and monitored. While these standards are expected to be updated and amended, our analysis did not find any evidence of this.

4.2 Monitoring and evaluation mechanisms, tools and data on WASH in health care facilities

4.2.1 Framework for health sector monitoring and evaluation and HMIS

The framework for monitoring and evaluation of health sector performance, as indicated in the current Health Strategic Plan 2008-2015,[17] sets out 95 core indicators and related targets, including eight indicators on overall development, 20 indicators on health outcomes, and the remaining 67 indicators on access to and utilisation, coverage, and to a larger extent, quality of health services. None of these indicators are specific to WASH or WASH in health care facilities. According to key informants this list of core indicators is being revised, with a few new indicators added to the list to be included in the new Health Sector Strategic Plan for 2016-2020 (known as HSP3). It is unlikely that this extended list of health sector indicators will include any WASH-specific indicators unless a strong advocacy and effort to do so is made on time.

As part of the health sector monitoring and evaluation framework, a web-based Health Management Information System (HMIS) has been developed and implemented nationwide. A specific homepage, http://www.hiscambodia.org/public/homepage_en.php, has been created for this system. However, access to this homepage requires a user name and password. Monthly data on health care service use is collected by individual health care facilities (all public and some private ones) in the country, using a specific data collection form known as HC1 for health centres and HO2 for hospitals. This data is then collated at the district level in a specific software package on a monthly basis and sent to the provincial health office, which in turn forwards them to the central Ministry of Health. This HMIS system is functioning relatively well and the quality of the collected data is acceptable.[25] Data is analysed by different levels of the health system to compute necessary indicators useful for their respective operational plans. Unfortunately, as with the situation found in many other countries, no specific data on WASH is collected through this national HMIS system.

4.2.2 Health facility assessments, tools and data

A number of health facility assessments have been carried out in Cambodia since 2000. But only from the recent ones could we collect sufficient data and information for analysis. Table 3 summarises the analysed health facility assessments, tools and data in Cambodia, and their WASH-related characteristics and findings. Some of them were carried with a specific objective to assess the WASH situation, whereas others were conducted for other purposes but included some WASH-related issues. We further describe these assessments in more detail as follows.

Table 3: Summary of health facility assessments, tools and data in Cambodia, their WASH-related characteristics and findings

No	Name of the health facility assessment	Time of the study	Implementing agency	Coverage/Scope of the assessment
1	HSSP2 HC Assessments on WASH Infrastructure	2011-2013	Health facilities & RDC/ CARTIS	Self-assessment by 1,019 HCs and external assessment of 565 HCs
2	HSSP2 Assessment of 30 RHs for Health Infrastructure Facilities Improvement	2013	RDC/CARTIS	30 RHs selected based on HSSP2 CEmONC improvement plan
3	Quality of Care Assessment Level 1	2008-2012	Health facilities and external assessors, led by MOH Hospital Services Department	Over 80% of HCs and almost all RHs
4	Quality of Care Assessment Level 2	2013-present	External assessors, led by MOH Hospital Services Department and URC	564 HCs and 41 RHs in 8 provinces were already assessed, and additional 538 HCs and 53 RHs in other 15 provinces are being assessed
5	Emergency Obstetric and Newborn Care Assessment 1	2009	National Institute of Public Health, led by National Maternal and Child HC	230 HCs, 73 RHs, 4 national hospitals and 40 private health facilities
6	Emergency Obstetric and Newborn Care Assessment 2	2014	MBS research team, led by National Maternal and Child Health Centre	180 health facilities to be upgraded to EmONC facilities (44 CEmONC and 136 BEmONC)
7	HC WASH Assessment in Kampong Speu	2010	RWC	21 HCs in Kampong Speu
8	Health Impact Evaluation Health 2008	2008	Multiple national partners and Health Impact Evaluation Consortium	447 health facilities in seven selected ODs
9	Pilot healthcare facility WASH assessment	2015	WaterAid in partnership with RWC and WHO	12 health facilities in Kampong Speu and Prey Veng

Table 3b: Summary of WASH related findings identified in each health facility assessment		
No	**WASH related data captured by the assessment**	**WASH related findings by the assessment**
1	Availability, type and condition of HC WASH infrastructure and facilities: water supply facilities, broad water quality, sanitation and hygiene facilities.	Of the 1,019 assessed HCs, the self-assessment allowed selecting 565 HCs for external assessment which further selected only 280 HCs for infrastructure and WASH facilities improvement. The findings shows that of the total assessed HCs: 16% had no or a damaged water supply facility; 15% relied solely on collected rainwater; 47% had at least one working hand dug and/or drilled well, with or without other type of water source; and only 20% had piped water supply. Only 52% had at least a functioning toilet for staff and 39% had at least a functioning toilet for patients; 39% had at least a working sink; 16% had no or a damaged electricity supply system and 11% relied on battery only; 28% had functioning solar panel with/without other type of electricity supply; another 8% had a working generator with/ without battery; and only 38% had access to urban electricity supply.
2	Availability and condition of general RH infrastructure and facilities, including related WASH facilities.	The assessment allowed selecting 15 of the 30 assessed RHs for renovation and construction. These 15 RHs were in urgent needs for a particular infrastructure renovation and construction, mainly maternity unit and operation theatre. There was no comprehensive report and data on WASH specific findings. However, available data suggest that there was no major problem on water supply, electricity, sanitation and waste management facilities in these RHs.
3	Availability and condition of WASH infrastructure and facilities with some evidence of WASH practices in HCs and RHs: water supplies, waste management, sanitation facilities and cleanliness in general and key departments/ rooms.	No data or report on the results of the assessments.
4	Standard precautions and hygiene practices at in key departments/rooms of HCs and RHs: waste disposal, hand hygiene (washing and using personal protective equipment) and cleanliness of the rooms and patient care equipment.	Preliminary data show that the average score for WASH related component (standard precautions and hygiene) was below the average, although it was not among the worst.
5	Water supply infrastructure and facilities, and with a focus on delivery-related departments (including operation theatre for C-section)/rooms: There is also a broad question on sanitation (functioning toilets).	All assessed hospitals and 98.3% of the assessed HCs had access to clean water. For 57% of the hospitals and 59% of the HCs, the main source of water was either a well or bore hole. However, on room-by-room basis, the supply of water is variable. In EmONC facilities, water was available to 77% of operating theatre, 84% in post natal room and 100% in delivery room. These figures are lower for facilities to be upgraded.

Table 3b: Summary of WASH related findings identified in each health facility assessment		
6	Water supply infrastructure and facilities, and with a focus on delivery-related departments (including operation theatre for C-section)/rooms: There is also a broad question on sanitation (functioning toilets)	The second assessment is being conducted and the results were not available yet
7	WASH infrastructure and facilities, capturing availability, condition and functionality	Most of the 21 assessed HCs owned WASH infrastructures (tube well, galvanized tank or cement ring tank to collect rainwater, latrine or incinerator). However, the rainwater collected with such infrastructures did not meet the HC demand, and some WASH assets were placed in old condition, not function properly, with low capacity of rain water storage. While six HCs could connect with pipe water system, they still searched for using insecure water sources and appreciated the use of rainwater. Sanitation improvement was considered by the HCs as lower priority than water supply. Based on the findings, a proposal for WASH infrastructure renovation and construction was made.
8	Access to water (availability of running water source within 500 meters)	Of the total of 447 assessed, only 67% of all the assessed (non-pharmacies) health facilities had improved running water source within 500 meters. Such access is much poorer for rural HCs.
9	Comprehensive overview of WASH in HCFs addressing most of the WHO's 11 Guidelines (except water quality and hygiene behavioural practice), including not only physical availability, but also functionality and accessibility of WASH facilities	The results show that access to water and sanitation was high. In almost all facilities there was access to both an improved water supply and sanitation facility. All assessed health facilities had access to a squat flush toilet and all had a secondary source of water available. But the availability of drinking water was less frequent; only two of the facilities surveyed provided some form of drinking water for their clients. Sanitation facilities at RHs were more accessible than at HCs. The only toilet facilities seen to be designed with disabled access in mind were at two RHs. Functionality of the toilets was measured through the availability of water for the flush, with all RHs and 75% of HCs having functional, improved sanitation with a safe method of excreta disposal.

HSSP2 Health centre assessments on WASH infrastructure

One of the large-scale and WASH-specific health facility assessment is the Health Centre Assessment on WASH Infrastructure, conducted as part of the second Health Sector Support Programme (HSSP2) investments for the improvement, replacement and extension of the health service delivery network. The main aim of the assessment was to collect data on the availability and condition of health centre infrastructure and related facilities for electricity supply and WASH, based on which the eligibility and need for equipment supply, renovation and construction (supported by the HSSP2 programme) was defined.

The assessment started in 2011 with a self-assessment. Through local health authorities (provincial health departments and district health offices), all the health centres in Cambodia, except those in Phnom Penh and some others with reliable external support, were asked to complete a relatively simple checklist (see the checklist in Annex 4). Such checklists included questions on the availability of water supply facilities (hand

dug well, drilled well, rainwater tank, piped water supply system, motor pump and other), water quality (whether with the presence of arsenic, lime and/or iron), electricity supply (generator, battery, solar panel and urban electricity supply), sanitation and hygiene facilities (toilet for staff and patients, hand-wash basin, incinerator, dump pit, medical disposal point), as well as basic information on population covered, health centre staff, key services (outpatient, deliveries) and additional buildings for post-delivery.

As a result, completed checklists from 1,019 different health centres were sent to HSSP2, and related data entered into an excel spreadsheet (an SPSS dataset re-formatted and cleaned by the consultant is available on request). Based on the collected data and broadly defined eligibility criteria (Box 5), 565 health centres were considered eligible for WASH renovation and construction by the HSSP2 programme.

According to key informants, the need for renovation and construction of the 565 selected health centres was too big for the HSSP2 programme budget to cover. Moreover, data from many centres collected through self-assessment in 2011 was outdated, and there was a lack of sufficient details on renovation and construction design (which happened only in 2013). Therefore, it was decided to have a more in-depth assessment among the 565 eligible health centres, with site visits conducted (in early 2013) by trained people from Resources Development Consultants (a consulting firm) and its local partner, using a structured questionnaire with additional consideration on the quality (whether the available facility/infrastructure is functioning or damaged) and other necessary details. The second round of assessment narrowed the field to 280 health centres, based not only on their need for WASH renovation and construction, but also on their remoteness and feasibility of the work. It was estimated that

Box 5: Eligibility criteria for WASH renovation and construction

Water supply. Eligible for construction are health centres where an urban water supply does not exist. In this case, water sources from wells, rain collection systems and motorised well pumps are the only way of supplying water. For health centres where wells (hand dug or drilled) cannot yield the water, a ferro-cement water tank and elevated stainless steel water tank will be constructed. For those where wells can produce the water year round, only a stainless steel water tank (5,000 litres) may be built. Excluded from WASH are health centres currently under construction (12) or to be constructed by HSSP2 (102 health centres and six health posts), health centres located in Phnom Penh, and those with motor pumps (if well water can be produced year round, motor pumps are best left to health centres to install using their own resources).

Drainage facilities may be constructed (septic tank or soak way systems) for health centres where urban drainage systems do not exist.

Sanitation facilities to be considered include those needing a needle disposal point, incinerator and dump site.

Electricity supply installations are considered for health centres where urban electricity supplies do not exist (a source of electricity from generators, solar panels or batteries can be an alternative). For vaccine refrigerators, a gas supply is currently used (not applicable). A health centre should be equipped with a solar panel system for lighting, and spotlights for delivery (MPA Guidelines). Excluded from WASH are health centres where urban electricity does exist, and those currently under construction or to be constructed by HSSP2.

costs for electricity supply and WASH construction and renovation of the 280 health centres could be covered by the available programme budget of approximately two million USD.

In order to understand the situation of electricity supply and WASH infrastructure of the assessed health centres, the consultant analysed the available datasets provided by the HSSP2 programme. The results from the analysis are summarised in Table 4.

For water supply, of the 1,019 assessed health centres, 167 (16%) had no or a damaged water supply facility, while 153 (15%) others relied solely on collected rainwater. Only 208 health centres (20%) had a piped water supply and 485 (47%) had at least one working hand dug and/or drilled well, with or without another type of water source. For sanitation and hygiene, 529 (52%) had at least a functioning toilet for staff and only 401 (39%) had

Table 4: Summary of electricity and WASH supply infrastructure in health centres in 2011

	Number of health centres	% of 1,019 assessed health centres
Water supply		
No or damaged water supply system	167	16.4
Collected rainwater (rainwater tank) only	153	15.0
Working hand dug well with/without rainwater tank	104	10.2
Working drilled well with/without rainwater tank and/or hand dug well	381	37.4
Piped water with/without other water supply facilities	208	20.4
Sanitation and hygiene		
At least one functioning toilet for staff	529	51.9
At least one functioning toilet for patients	401	39.4
At least one working sink	397	39.0
At least one functioning incinerator	547	53.7
Electricity supply		
No or damaged electricity supply system	158	15.5
Battery only	108	10.6
Generator with/without battery	82	8.0
Solar panel with/without battery and/or generator	288	28.3
Urban electricity supply with/without other electricity supply facilities	383	37.6

at least a functioning toilet for patients. A similar proportion of centres reported to have at least a working sink. In terms of electricity supply, 16% had no or a damaged electricity supply system, and 11% relied on battery only. An urban electricity supply and functioning solar panel with/without another type of electricity supply was available respectively in 38% and 28% of the assessed health centres. Another 8% had a working generator with/without a battery as a source of electricity supply.

According to key informants, the checklist is useful for the assessment of electricity supply and WASH infrastructure at health centre level. Since it has been adopted and used by the HSSP2 programme, it is considered as one of the national tools. However, such a checklist appears oversimplified and does not allow for collecting sufficient data on health centre WASH infrastructure for renovation and construction design. This checklist covers only a small part of WASH infrastructure and services in health care facilities, if compared with the WaterAid assessment tool in Annex 3. For further use, questions on the quality, type and size of the assessed WASH infrastructure/facilities should be added to the checklist.

HSSP2 assessment of 30 referral hospitals for health infrastructure facility improvement

Another WASH-related health facility assessment is the assessment of 30 referral hospitals for health infrastructure facility improvement conducted in 2013 by Resources Development Consultants and their partner CARTIS, also as part of the HSSP2 programme. The 30 hospitals were pre-selected by the Ministry of Health on the basis of the HSSP2 improvement plan for comprehensive emergency obstetric and newborn care. The main aim of the assessment was to collect data on the status of hospital services and infrastructure condition (facilities and buildings) through site visits, with direct observation and consultation with hospital authorities. The assessment focused on the design, design view and detailed engineering and supervision of the following facilities: operating theatre/surgical ward, blood depot, maternity ward, sterilisation unit, emergency ward, inter-building circulation and connection infrastructure, and drainage and sewage system. The CPA guidelines, which rank referral hospitals and outline a package of services they provide, were used as a basis for the assessment.

According to the guidelines, referral hospitals are classified into three categories based on the number of staff and physicians, number of beds, medicines and medical equipment, and clinical activities. These are:

- Complementary Package of Activity level 1 (CPA-1) – a hospital that has no large surgery, i.e. without general anaesthesia, but at a minimum has an obstetric service.
- Complementary Package of Activity level 2 (CPA-2) – has more activities than the first category, but less than the third, namely it has emergency care services and large surgery, i.e. with general anaesthesia.

Complementary Package of Activity level 3 (CPA-3) – has most activities, namely it has large surgery, with general anaesthesia, and further activities in the form of specialised services indicated in the table below, with capacity to serve a greater number of patients and activities than the second category. See Table 5: Summary of referral hospital clinical services by CPA level. See also Table 6: List of the 30 referral hospitals with description of the proposed infrastructure.

The assessment allowed selecting 15 priority hospitals for reconstruction and improvements, taking into account the following steps and factors:

- Information was obtained from the respective hospital directors, relevant hospital authorities, survey/assessment report data and visual observations during field visits.
- The last two years' delivery activity information was obtained from data published in the Health Management Information System and National Health Strategic reports, plus present/future demands.
- Special attention given to the status of presently available facilities in the maternity unit, surgical ward, emergency unit and blood department, related overall services, condition of facility and quality.

- Status of existing infrastructure, such as water supply, electricity, sanitation facilities, accessibility of hospital and related concerns.
- The condition of the existing building structure.
- Availability of land for a new building or extension of the building.
- Other requirements for renovation of the building if necessary.

The assessment allowed selecting 15 of the 30 assessed hospitals for renovation. These 15 were in urgent need of infrastructure renovations and construction, mainly maternity units and operating theatres. There was no comprehensive report and data on WASH-specific findings. However, available data suggests that there were no major problems around water supply, electricity, sanitation or waste management facilities in these hospitals. For more information, see Table 7.

Table 5: Summary of referral hospital clinical services by CPA level

Clinical services	CPA1	CPA2	CPA3
Emergency care	x	x	x
General medicine for adults	x	x	x
Surgery		x	x
Gynaeco-obstetrics	x	x	x
Pediatrics	x	x	x
Tuberculosis	x	x	x
Referral consultation and Kinetic therapy	x	x	x
Operation theatre and ICU		x	x
Oral and Dentist	x	x	x
Infectious diseases: TB, HIV/AIDS, Malaria	x	x	x
Medical audit death	x	x	x
Specialised services			x
Clinical support services			
Laboratory	x	x	x
Blood bank			x
Blood depot		x	
Pharmacy	x	x	x
Imagery	x	x	x

Table 6: List of the 30 referral hospitals with description of the proposed infrastructure				
No	**Province**	**Operational District**	**Name of facilities upgraded to complementary EmONC and basic EmONC**	**Description of the proposed infrastructure**
1	Banteay Meanchey	Thmar Puok	Thmar Puok RH (CPA1)	Surgery ward
2		Preah Net Preah	Preah Net Preah RH (CPA1)	Gynaecology
3	Battambang	Battambang	BTB Prov. Hospital (CPA3)	NCU room
4		Sampov Loun	Sampov Loun RH (CPA2)	Surgery ward
5	Kg Cham	Srey Santhor	Srey Santhor RH (CPA2)	Maternity
6	Kampong Chhnanng	Boribo	Boribo RH (CPA1)	Obstetric and emergency ward
7		Kg. Tralach	Kg. Tralach RH (CPA1)	Maternity ward
8	Kampong Speu	Kg. Speu	Prov. Hospital (CPA3)	Maternity ward renovation
9		Kong Pisey	Kong Pisey RH (CPA1)	Delivery/maternity ward
10		Ou Dong	Ou Dong RH (CPA1)	Maternity ward renovation
11	Kg. Thom	Stong	Stong RH (CPA2)	Maternity ward renovation
12	Kampot	Kg. Trach	Kg. Trach RH (CPA2)	Maternity room renovation
13		Kampot	Kampot RH (CPA3)	Maternity building
14		Chhuk	Chhouk RH (CPA2)	Maternity room renovation
15	Kandal	Muk Kampoul	Rokar Kong RH (CPA1)	Obstetric/medicine ward
16		Kean Svay	Kean Svay (CPA1)	Obstetric ward
17		S' Ang	S' Ang RH (CPA1)	Not given
18		LveaEm	Lvea Em RH (CPA1)	Not given
19	Kratie	Kratie	Kratie RH (CPA3)	Maternity ward
20	Oddar Meanchey	Samrong	Anlong Veng RH (CPA1)	Maternity ward building
21	Prey Veng	Peareang	Peareang RH (CPA2)	Maternity ward renovation
22		Mesang	Mesang RH (CPA1)	Maternity ward renovation
23		Peareang	Prek Changkran RH (CPA1)	Maternity ward renovation
24		Kamchay Mear	Kamchay Mear RH (CPA1)	Not given
25	Pailin	Pailin	Prov. Hospital (CPA3)	Maternity ward renovation

Table 6: List of the 30 referral hospitals with description of the proposed infrastructure				
26	Pursat	Sampov Meas	Phnom Kravanh RH (CPA1)	Maternity ward
27		Bakan	Bakan RH (CPA1)	Maternity ward
28	Ratanak Kiri	Ratanak Kiri	Prov. Hospital (CPA3)	Operating theatre for C-section
29	Svay Rieng	Chi Phu	Chi Phou RH (CPA1)	Surgical ward
30	Takeo	Prey Kabbas	Prey Kabbas RH (CPA1)	Maternity

Table 7: Priority list of 15 referral hospitals selected for renovation and construction					
No	**Province**	**Operational District**	**Name of facilities upgraded to CEmONC and BEmONC**	**CPA**	**Description of Infrastructure**
1	Oddar Meanchey	Samrong	Anlong Veng RH	1	New maternity
2	Battambang	Sampov Loun	Sampov Loun RH	2	Renovation and new operating theatre
3		Battambang	BTB Prov. Hospital	3	Renovation/NICU room/ post delivery
4	Pursat	Sampov Meas	Phnom Kravanh RH	1	New maternity
5		Bakan	Bakan RH	1	New maternity
6	Kampong Chhnanng	Kg. Tralach	Kg. Tralach RH	1	Renovation/new maternity
7	Kampong Speu	Kong Pisey	Kong Pisey RH	1	New maternity
8		Kg. Trach	Kg. Trach RH	2	New maternity
9	Kampot	Chhouk	Chhouk RH	2	New maternity
10	Kg Cham	Srey Santhor	Srey Santhor RH	2	New maternity
11	Kampong Thom	Stong	Stong RH	2	New maternity
12	Prey Veng	Peareang	Peareang RH	2	New maternity
13			Prek Changkran RH	1	New maternity
14	Kratie	Kratie	Kratie RH	3	New maternity
15	Ratanak Kiri	Ratanak Kiri	Prov. Hospital	3	New operating theatre

An assessment report that includes individual assessment reports for all 30 hospitals is available in hard copy.[26]

Quality of care assessments – level 1 and level 2

Since 2008, the Ministry of Health's Hospital Services Department (with support from development partners) has conducted quality of care assessments at public health centres and referral hospitals throughout the country, as part of overall efforts to improve quality of care and a first step toward a standardised quality accreditation of public and private health facilities. The assessments have two levels – level 1 and level 2.

Level 1 assessments are aimed at assessing basic performance (focusing on the structural aspects of care, e.g. human resources, equipment, infrastructure, etc.) of public health centres and referral hospitals. More specifically, the assessment helps health facilities identify problems that require improvement and define their level of performance in order to make decisions on starting health financing schemes (such as health equity funds and community-based health insurance) and/or decisions on the schemes' payment to the facilities. The level 1 quality of care assessments were guided by two separate sets of tools or toolkits – a health centre assessment toolkit and a referral hospital assessment toolkit – developed by the Ministry of Health's Quality Assurance Office of the Hospital Services Department in collaboration with the USAID funded Health Systems Strengthening in Cambodia project implemented by University Research Co. and other health partners.

The health centre assessment toolkit[27] provides instructions on the assessment process and content, including assessment tools (a checklist or questionnaire). In terms of process, there is a preparation and self-assessment stage, and a formal assessment by an external team of assessors. Prior to assessments, an orientation on the tools is provided to key staff of the provincial health department and the operational district, as well as health centre chiefs. Following this orientation, health centres should conduct a self-assessment with coaching from the operational district. Based on the results, a quality improvement plan for each health centre should be developed and implemented. A formal assessment by external assessors is done as soon as the health centres feel ready to do so. The different results between the two assessments can then be compared. The assessment is expected to be conducted annually, based on the review of documents, direct observations and interviews of key informants including health staff, community representatives and patients. In terms of content, the tools comprise 16 assessment sections, which include a section reviewing 23 core indicators from the previous year, key health centre departments or areas of care (antenatal care, delivery, postnatal care, family planning, immunisation, outpatient consultation and minor surgery, outpatient consultation prescribing habits, tuberculosis, voluntary counselling and testing, pharmacy, inpatient department), health centre and community referral systems, health centre management and community interviews. Each of these 16 sections has a varying number of sub-sections on administration, infrastructure, finance, health information system, staff and department issues, equipment/supplies, documentation, patient verification and hygiene. Every sub-section has a number of performance assessment questions/ criteria – each with a maximum score and an actual score received, and the level of performance in percentages. See Table 8: Summary of the level 1 quality of care assessment tool for HCs with maximum score by section and sub-section. It is reported that health centres can be assessed for one or more of the 16 sections separately.

Of the 16 assessment sections, 12 include a sub-section assessment related to WASH – health centre management and 11 key departments or areas of care (antenatal care, delivery, postnatal care, family planning, immunisation, outpatient consultation and minor surgery, outpatient consultation prescribing habits, tuberculosis, voluntary counselling and testing, pharmacy, inpatient department). The health centre management section has four sub-sections – administration, infrastructure and logistics, finance, and health information system – with a maximum total score of 290. The sub-section of infrastructure and logistics has six (of the total nine) questions related to WASH. See Table 9: WASH-related content of the management section for level 1 health centre quality of care assessment. Each of

the 11 sections on key health centre departments or areas of care has a sub-section on general hygiene. While the questions and related maximum score for this sub-section on general hygiene are slightly different among the 11 sections on key departments or areas of care, they share a common focus on waste management (availability and use of waste bins), general cleanliness, water supply and handwashing facilities (soap/alcohol). See an example in Table 10: WASH-related content of the delivery section for level 1 health centre quality of care assessment. Compared with the reference tool of WaterAid in Annex 3, this assessment tool appears to be more comprehensive than the HSSP2 health centre assessment checklist, with a number of overlapping questions. However, they are not entirely comparable, as they were developed for different purposes.

The hospital assessment toolkit[28] provides instructions on the hospital assessment process and content, including assessment tools (a checklist or questionnaire). In terms of process, it is similar to that of the health centre assessment. This assessment was also based on review of hospital documents, direct observations and interviews of key informants including health staff, community representatives and patients. In terms of content, the tools comprise 14 assessment sections, which include a section on hospital management, 10 key hospital departments or units of care (paediatric, obstetric, medical, surgical, tuberculosis, operating room and sterilisation, outpatient, laboratory, pharmacy, radiology), referral systems, staff interviews, and review of 22 hospital core indicators from the previous year. Similar to the health centre assessment tool, each of these 14 sections has a varying number of sub-sections on administration, infrastructure, finance, health information system, organisation and staff, equipment/supplies, quality of documentation and procedures, patient verification and hygiene. Every sub-section has a number of performance assessment questions/ criteria – each with a maximum score and an actual score received, and the level of performance in percentages. See Table 11: Summary of level 1 quality of care assessment tool for referral hospitals.

Of the 14 assessment sections, 11 sections include questions related to WASH. Like the health care tool, the hospital management section includes a sub-section on infrastructure and logistics which has eight (of the total 15) questions related to WASH. See Table 12: WASH-related content of the management section for level 1 referral hospital quality of care assessment. Seven of the 10 sections on key hospital departments have a sub-section on general hygiene, while three others only have a few questions related to hygiene. See an example in Table 13: WASH-related content of the obstetric ward section for level 1 referral hospital quality of care assessment.

Table 8: Summary of the level 1 quality of care assessment tool for HCs with maximum score by section and sub-section

	Indi.	ANC	Del	PNC	BS	EPI	OPD1	OPD2	TB	VCCT	Phar	IPD	HC Ref	Com Ref	Mtg	Com Int	TOT
Administration															110		110
Infrastructure															70		70
Finance															60		60
HIS	50														50		100
Staff & depart. issues		25	25	25	25	25	25		25	25	25	25					250
Equipment/supplies		24	67	0	20	48	44		30	40	143	20					436
Documentation		67	111	55	50	30	43		150	60	55	121					742
Patient verification												115					115
Hygiene		25	30	25	25	25	35		25	45	15	25					275
Others								170					125	35		25	355
Total1	50	141	233	105	120	128	147	170	230	170	238	306	125	35	290	25	2513
Total2	50	141	233	105	120	128	147	170	230	170	238	306	160	35	290	25	2548
	Indi.	Safe motherhood				EPI	OPD/Min surgery		TB	VCCT	Phar	IPD	Ref system		Mtg	Com Int	TOT
% of Total1	2%	24%				5%	13%		9%	7%	9%	12%	6%		12%	1%	100%
Total max. score																	
Total score received																	
%																	

Notes: Indi = indicators; ANC = antenatal care; Del = delivery; PNC = postnatal care; BS = birth spacing; EPI = immunization; OPD1 = outpatient consultation/minor surgery; OPD2 = OPD prescribing habits; TB = tuberculosis; VCCT = voluntary couselling and testing; Phar = pharmacy; IPD = inptient; HC Ref = health centre referral; Com Ref = community referral; Mtg = management; Com Int = community interviews; TOT = total; Total1 = Total for health centre with no ambulance; Total2 = total for health centre with an ambulance; max. maximum

Table 9: WASH-related content of the management section for level 1 health centre quality of care assessment

No	INFRASTRUCTURE AND LOGISTICS Question	Verified by	Max. score	Scoring	Total score		Comments
1	–	–	–	–	–	–	–
2	–	–	–	–	–	–	–
3	Check the incinerator and surrounding area. Is the incinerator full? Is the rubbish old or recent looking? Are there piles of rubbish or burnt piles close to incinerator or around the grounds of the HC? Does the incinerator look used? Is there ash in the bottom of the incinerator? Are there needles or syringes seen in incinerator or in surrounds?	Observe	10	• Incinerator looks to be used regularly (no piles of rubbish around incinerator or throughout the HC grounds) or there is regular waste collection services • Partially full bins (rubbish looks recent not old) or bins empty. Incinerator looks as though it is used sometimes but not regularly with piles of rubbish close to the incinerator but not throughout the HC grounds • Incinerator not used often (may be full of old rubbish or empty) or piles of rubbish throughout the HC grounds or no incinerator, no waste regular collection services or needles/syringes seen around or in incinerator	10 2 0		
4	Observe the cleanliness and general appearance of HC grounds (i.e. outside the HC building but within the grounds). Take note of bins, whether there are piles of rubbish around, grass is cut, garden (trees/flowers) well kept. Verify with question 3 above i.e. if didn't score full marks for incinerator then can't get full points for this questions	Observe	10	• No piles of rubbish seen around the HC, bins have lids and no bins are full or over flowing, grass well kept, flowers and trees well kept, no needles/syringes seen around the HC, no cows/pigs in HC compound • Evidence of piles of rubbish having been burnt throughout the HC, grass partly cut, garden partly kept, lack of bins • Piles of rubbish lying around or animals going through rubbish (chickens, dogs, pigs etc) or cows/pigs in HC compound or piles of rubbish not burnt or bins with no lids or bins full or no bins or grass not cut or garden unkempt	10 2 0		
5	Check that a toilet is available for patients – it is not locked, is working properly, has a door that can be closed and water is available (a tap is in place, working and can fill up the tank or there is a near full tank/container of water). Check for scoop also. The toilet must be properly cleaned.	Observe	10	• Toilet unlocked, working order, closable door, water available (greater than half), scoop and soap available • Toilet unlocked but water tank not more than half full • Toilet locked or no water or no scoop or no soap or no toilet present or toilet dirty	10 2 0		

6	Water supply is available for HC. The HC should have piped water or other reliable water supply which never runs out. If there is only a small tank which only fills during the wet season then the HC should have a backup supply e.g. well with the capacity to pump up to this tank if necessary. If unable to use then they should have water containers next to all sinks so that they can be filled with water from the well. There should always be water available for staff to wash hands, wash instruments, etc. Verify this with questions from the following sections: (if one service does not have water or a backup score zero) • ANC, Del., BS, EPI, TB - section 4, Q3 • PNC - section 3, Q3 • OPD - section 4, Q4 • VCCT - section 4, Q3 and Q6 • IPD - section 5, Q3	Check other sections of the tool, observe in rooms – ANC, delivery, PNC, EPI, BS, OPD, TB, IPD	10	• Water is piped and other reliable source in all areas or unreliable piped or other water supply with reliable backup routinely exists at all areas • Water is unreliable and no backup exists or water is unreliable and storage is not routine or sufficient or at least one area has no water	10 0		
7	-	-	-	-	-	-	-
8	Is there a placenta pit in the HC? If there is no placenta pit, is there any company to take the placenta away for proper management?	Observe or ask	10	• There is a placenta pit (not full) or service to take placenta away for proper management • There is no placenta pit (or there is but full) and no other service available	10 0		
9	Was there evidence when walking around the grounds and departments/rooms that there is a significant infection control problem e.g. sharps containers found in HC grounds (waiting to be burnt perhaps), ampoules, needles and IV lines on the ground or in rubbish bins rather than sharps containers?	Observe	- 20	• Yes – take OFF 20 points from the total • No –no need to take OFF 20 points			
	TOTAL SCORE FOR THE SECTION		**70**	**Don't forget to deduct 20 points if there are needles and syringes seen around the HC**			

Table 10: WASH-related content of the delivery section for level 1 health centre quality of care assessment							
No	**GENERAL HYGIENE Question**	**Verified by**	**Max. score**	**Scoring**	**Total score**		**Comments**
If the ANC and delivery room are the same, skip this sub-section							
1	Are there 4 rubbish bins for contaminated items in the delivery room? The delivery room should have: a bin for general waste, a bin for contaminated waste e.g. cotton or dressing materials dirty of blood..., a bin for organic waste e.g. placenta and a safe box for needles, other sharp waste. Are the bins full or any evidence that they are regularly emptied and cleaned (contaminated waste bin should be emptied or cleaned every day)?	Observe the delivery room	10	• There are 4 rubbish bins for respective wastes (not full) which have been regularly emptied or properly cleaned. • There are 4 types of bins for respective wastes (not full), but they have not been regularly emptied or properly cleaned. • The 4 types of bins for respective wastes are not available or are full or contaminated and/or sharp wastes are put into the general waste bin.	10 5 0		
2	Is there evidence that the floor is regularly swept and well mopped in the delivery room? Consider if you or your family would be happy to give birth there	Observe the delivery room	5	• Looks very clean and well mopped, with clean wall and ceiling. • Clean wall and ceiling; floor is swept but not mopped or mopped poorly • Not clean at all	5 2 0		
3	Is there a tap in the delivery room for staff to wash hands after consulting patients/ delivering babies (the tap must be working)? If not, is there a backup container of water (with water available), scoop and a sink? This question is to be cross checked with Management section 2, question 6. If no water available, score zero on next question.	Observe the delivery room	5	• Tap and sink in working order or sink and back up water container (>half full) with water/scoop available. • No sink but has a bucket with water and scoop, and another container to catch used water. • There is tap but no water or backup supply or water container < half full of water or sink not hooked up to drain or blocked or no scoop or no water/tap available in the delivery room at all.	5 1 0		
4	Is there soap available for staff to use when washing hands? If no water (question 3 above), score zero.	Observe	5	• There is soap for staff handwashing. • No soap available at the sink in this room or no water available.	5 0		
5	Is there alcohol 60-80% for staff hand cleaning?	Observe	5	• There is recommended alcohol for staff to use. • No alcohol available in the room.	5 0		
	TOTAL SCORE FOR THE SUB-SECTION		**30**				

Table 11: Summary of level 1 quality of care assessment tool for referral hospitals														
	MGT	**PED**	**OBS**	**MED**	**SUR**	**TB**	**OR**	**OPD**	**LAB**	**PHA**	**RAD**	**REF**	**STA INT**	**TOTAL**
Administration														
Committees														
Infrastructure														
Finance														
Health information system														
Organisation and staff														
Equipment and supplies														
Quality of documentation and procedures														
Patient verification														
General hygiene														
Total possible	520	791	1,102	677	712	502	212	316	194	117	90	150	N/A	5,385
Total scored														
Percentage														

Notes: MTG = management; PED = paediatric; OBS = obstetric; MED = medicine; SUR = surgery; TB = tuberculosis; OR = operating room; OPD = outpatient; LAB = laboratory; PHA = pharmacy; RAD = radiology; STA INT = staff interview.

The highlighted cells are not applicable for scoring

Table 12: WASH-related content of the management section for level 1 referral hospital quality of care assessment

No	INFRASTRUCTURE AND LOGISTICS Question	Verified by	Max. score	Scoring	Total score		Comments
1	Check the incinerator(s) (for general waste) and surrounding area. Is the incinerator full? Is the rubbish old or recent looking? Are there piles of rubbish or burnt piles close to incinerator? Does it look used? There may be incinerators for each ward therefore you need to look at all of them and note how many are functional and how many are not. Please note the no. of incinerators checked	Observe or ask	10	• Incinerator looks to be us ed regularly (no piles of rubbish around incinerator or throughout the hospital, part full (rubbish looks recent not old) or empty • Incinerator looks as though it is used sometimes but not regularly with piles of rubbish close to the incinerator but not throughout the hospital • Incinerator not used often (may be full of old rubbish or empty) or piles of rubbish throughout the hospital or near incinerator	10 2 0		
2	Is there a placenta pit in the hospital? If there is no placenta pit, is there any company to take the placenta away for proper management?	Observe or ask	10	• There is a placenta pit (not full) or service to take placenta away for proper management • There is no placenta pit (or there is but full) and no other service available	10 0		
3	Check the incinerator that is used for burning needles and syringes? The hospital has no incinerator, but there is means to bring them to be burned in appropriate places	Observe or ask	10	• Incinerator looks to be used regularly, part full (rubbish looks recent not old) or empty, no needles or syringes around the incinerator that have been dumped or brought to be burned in other appropriate places • Incinerator looks as though it is used sometimes, not regularly • Incinerator not used often (may be full of old rubbish or empty) or needles and syringes seen around the hospital ground or full sharps containers kept in a public place	10 1 0		
4	Cleanliness of hospital grounds. Take note of bins as you walk around and whether there are piles of rubbish around	Observe	10	• No piles of rubbish seen around the hospital, bins have lids and none full or over flowing • Evidence of piles of rubbish having been burnt throughout the hospital • Piles of rubbish and animals going through rubbish (chickens, dogs, pigs etc.) or piles not burnt, bins with no lids or bins full	10 2 0		
5	–	–	–	–			

6	–	–	–	–			
7	Water supply for hospital (Need to ask where source is from and be astute during ward visits to check whether water storage is readily available if piped water stops). Need to verify the answer to this question with Q3, section 5 in Paediatric, Obstetric, Medical, Surgical and OPD assessments and Q4, section 5 in TB ward and Q4, section 4 in Operation Room	Observe	10	• Water is piped and reliable but back up water exists (storage containers at sinks/roof tanks which are full; labour room and operating room have large back up storage) or water is piped but unreliable, reliable back up routinely exists • Water supply is reliable but no backup system • Water supply is unreliable and no backup system or water is unreliable and storage is not routine or sufficient			
8	Water supply for patients and relatives (Verify with Administration and patient interviews) Need to verify the answer to this question with Q7, section 4 in Paediatric and TB assessment, Q6, section 4 in Obstetric assessment, and Q8, section 4 in Medical and Surgical assessments	Observe and patient interview	10	• Reliable water supply for patients and relatives to bathe, wash clothes etc. (piped or well or water containers or dam) • Water available but not 24 hours per day (some containers not filled routinely) • Some toilets/bathrooms locked or water not available at all or all containers completely empty		–	–
9	–	–	–	–			
10	–	–	–	–			
11	Laundry (visit and check)	Observe	10	• Laundry and washing machine available and used regularly for washing surgical/obstetric linen, area clean, soap powder available, contaminated and clean linen separated • Laundry available but not used frequently • No laundry or not used or not clean; contaminated and clean linen not separated **OR** • No laundry but washing done by hand in area free from the general public, cleaners protected from contaminated linen (wear gloves), clean and dirty linen separated, soap powder available • Washing of linen in public area (well or toilets) or cleaners not protected			

Table 12: WASH-related content of the management section for level 1 referral hospital quality of care assessment							
12	–	–	–	–			
13	–	–	–	–			
14	–	–	–	–			
15	Was there evidence when walking around the grounds and wards that there is a significant infection control problem e.g. sharps containers found in public place (waiting to be burnt perhaps), needles and IV lines on the ground or in rubbish bins rather than sharps containers?	Observe	-20	• Yes – take OFF 20 points from the total			
	TOTAL SCORE FOR THE SECTION		**140**	**Don't forget to deduct 20 points if the answer YES to the last question**			

Table 13: WASH-related content of the obstetric ward section for level 1 referral hospital quality of care assessment							
No	**GENERAL HYGIENE Question**	**Verified by**	**Max. score**	**Scoring**	**Total score**		**Comments**
1	Are there rubbish bins in the ward, labour room and in nurse's station? If so, is there evidence that they are emptied regularly?	Observe	5	• Rubbish bins in nurse's station, on ward, in labour room and not over flowing/cleared regularly • Not enough rubbish bins • No rubbish bins or doesn't look to be emptied regularly	5 1 0		
2	Is there evidence that the floor is regularly swept and mopped in patient ward? (currently clean, not much dirt/papers on the floor)	Observe	5	• Looks very clean and well mopped, cleaning materials may be seen • Swept but not mopped or mopped poorly • Not clean at all	5 2 0		
3	Is there any backup storage for staff to wash hands i.e. a large container filled with water in case piped water fails? (Check with Management Section 3, Q6)	Observe	5	• Back up storage near sink where staff wash hands/bathroom where staff wash hands • Back up storage container but no water in it • No back up storage	5 1 0		
4	Is there soap available for staff to use when washing hands? If no water (question 3 above), score zero.	Observe	5	• Not locked • Locked or not working/not able to be used	5 0		
5	Is there alcohol 60-80% for staff hand cleaning?	Observe	5	• Very clean, water and scoop of sufficient size available • Partly cleaned, water available, scoop available • Not cleaned at all OR Water not available OR no scoop or locked	5 1 0		
TOTAL SCORE FOR THIS SUB-SECTION			**30**				

Under the leadership of the Ministry of Health's Quality Assurance Office, the Hospital Services Department, and in collaboration with the USAID funded Health Systems Strengthening in Cambodia project implemented by University Research Co. and other health partners, a level 1 quality of care assessment was carried out at least once in almost all hospitals (except Svay Rieng provincial hospital and national hospitals) and over 80% of health centres between 2008 and 2012. It is reported that results from the assessments (in percentages, with 100% for maximum performance) were made available to the assessed health facilities and other related health authorities (provincial health department and operational district) for information and actions to address any problems identified. In addition, results were also used as a minimum standard (65%) prior to the initiation of health equity funds or other health financing schemes, and sometimes as performance criteria for the scheme payments to contracted health facilities. Unfortunately, there is no data or report on the results of the assessments for further analysis.

The level 1 quality of care assessment tools were then updated to become level 2 quality of care assessment tools, which focus on the fundamentals of clinical care, in accordance with current clinical standards. A toolkit has been developed and made available by the Ministry of Health and its partners, mainly University Research Co.[29] The toolkit is composed of 31 separate modules (or assessment forms) for assessment of health centres and hospitals. The assessment methods are document review, direct observation and clinical vignettes. Of the 31 modules, 12 use direct observation, in general comprising five sections: routine clinical procedures (history taking, vital signs and physical exam), feedback/counselling, behaviour of staff toward the patient, standard precautions and hygiene, and documentation. Each section has a number of assessment criteria and a likert scale for performance rating from 1 (poorest) to 5 (excellent). Only the standard precautions and hygiene section is related to WASH. See Table 14: Example of WASH-related section of quality of care assessment tool level 2, module observation of delivery for more information. Other modules of document review and clinical vignettes do not address WASH-related issues.

So far, level 2 assessments were conducted by University Research Co. in 605 health facilities, including 537 health centres, 27 former district hospitals, and 41 referral hospitals in eight provinces (nine if including Tbong Khmom, which recently split from Kampong Cham). Collected data is being analysed. Only preliminary results from 17,868 direct observations have been made available. Figure 2 shows the mean score from direct observations of outpatient department adults by component of care. In general, the mean score is relatively low, ranging between 1 (poorest) and 3 (medium). Although low, the performance score for the WASH-related component (standard precautions and hygiene) is not among the worst.

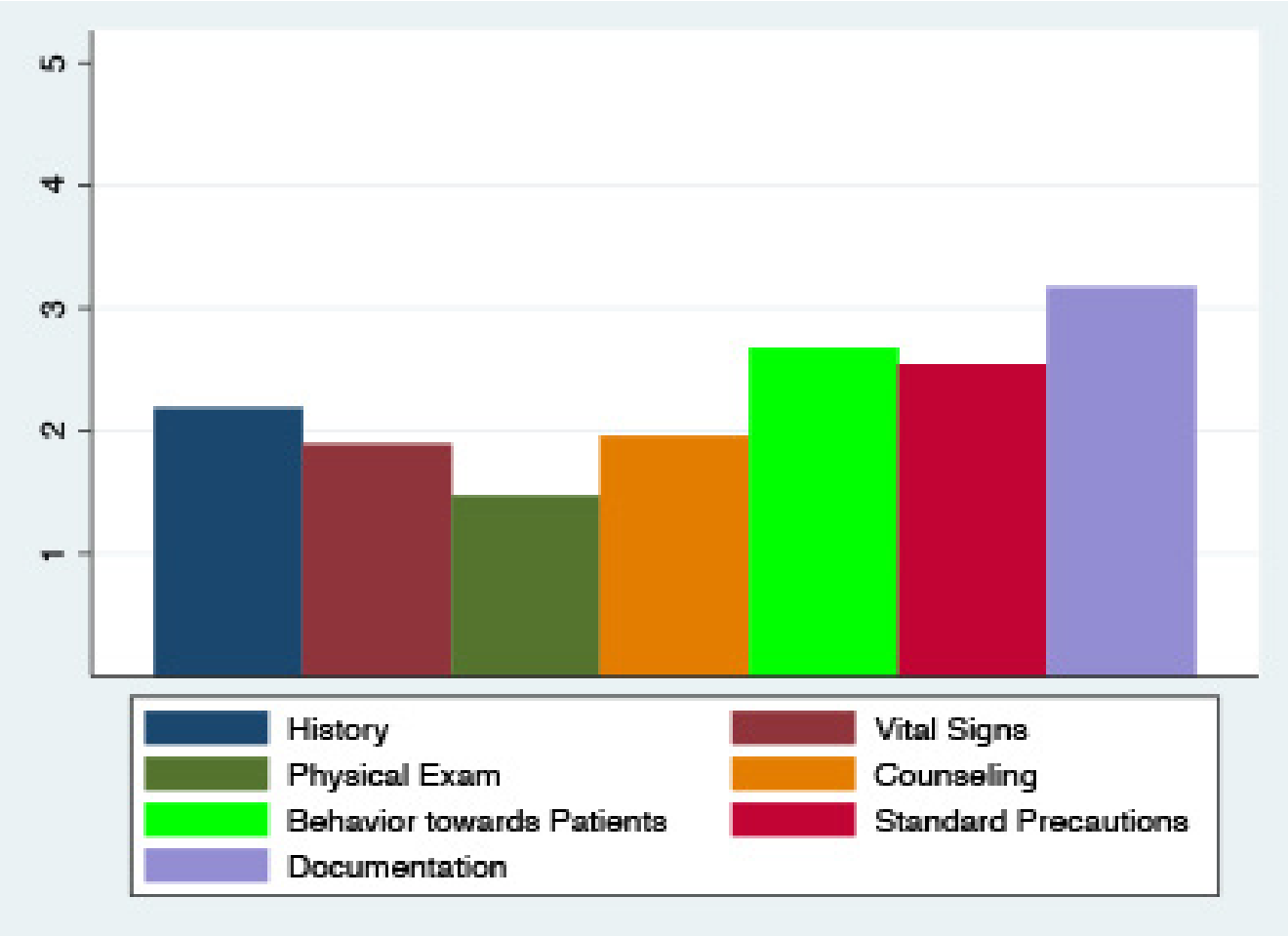
The Ministry of Health, under the HSSP2 programme, is expanding this level 2 assessment to 591 other health facilities in 2015, including 538 health centres and 53 referral hospitals in the remaining 15 provinces and Phnom Penh. Over 150 assessors from different provinces have been trained, and data collection started in May 2015. A working group composed of members of various Ministry of Health institutions, including the Department of Planning and Health Information, Hospital Services Department and National Institute of Public Health, has been created to provide technical assistance to the assessment team and to supervise their work. The National Institute of Public Health is responsible for data entry and analysis. According to the plan, results are expected to be available by the end of 2015.

Based on experiences so far, a number of limitations have been found with the current level 2 quality of care assessment tools. According to key informants, level 2 tools will be revised next year. These revised tools may include some relevant sections or sub-sections of the level 1 tools, which are currently on hold. This provides an opportunity for adding more relevant WASH-related sections.

Table 14: Example of WASH-related section of quality of care assessment tool level 2, module observation of delivery	
Did you observe staff follow standard precautions during this consultation?	
Hand hygiene	
☐ Hands are cleaned properly before touching the patient, e.g. using soap and water, alcohol, or sanitiser.	
PPE - Personal protective equipment was used as needed	
☐ Sterile gloves	☐ Boots
☐ Goggles	☐ Mask
☐ Plastic apron	☐ Cap
Patient care equipment	
☐ Equipment (e.g. stethoscope, BP cuff) used for clinical procedures on the patient look like they are clean (e.g. no dried, caked, crusted dirt)	
Waste management	
☐ Regular waste is disposed of in green general waste bins (not dropped on the floor)	☐ Pathological waste (including placenta) are disposed in yellow bin with red logo, marked "PATHOLOGICAL"
☐ Infectious waste kept in yellow bin with black logo, marked "INFECTIOUS"	☐ Sharps are disposed of in sharps containers
Cleanliness	
☐ Is the consultation area tidy, e.g. organised, not cluttered with broken equipment or old materials and posters?	☐ Are the surfaces, walls and ceiling in the consultation area clean, e.g. wiped down recently?
☐ Is the floor in the consultation area clean, e.g. swept and mopped recently?	

Rate the standard precautions and hygiene:
☐ 1 Poorest ☐ 2 Poor ☐ 3 Medium ☐ 4 Good ☐ 5 Excellent

Figure 2: Mean of score from direct observations of outpatient department adults by component of care



Emergency obstetric and newborn care assessments

In order to accelerate the progress of MGD5, the Ministry of Health adopted a fast track initiative road map for reducing maternal and newborn mortality 2010-2015, in which emergency obstetric and newborn care (EmONC) is one of the four core components. So far there are two rounds of EmONC assessments. Cambodia's first EmONC assessment was conducted by the National Institute of Public Health in 2009 to understand the situation and identify gaps and challenges. A report on the findings was made available.[30]

According to this report (as well as key informants), the main objectives were to determine the availability, functioning and use of EmONC services based on core signal functions of either comprehensive EmONC or basic EmONC to be used as a baseline, and identify barriers to the availability, functioning and use of these services. The assessment was conducted in 347 selected health facilities, including four national hospitals, 73 referral hospitals, 230 health centres and 40 private health facilities. The assessment tools include nine sections (or modules) of which two are related to WASH: one section on facility infrastructure and another on equipment, supplies and essential drugs. Questions on the water supply situation are included in the facility infrastructure (Table 15: Example of WASH (water)-related questions in EmONC assessment tools). Two other broad questions on whether the facility has 'running water' or a 'functioning toilet', without specifying location

and characteristics or standards, are placed in the section on equipment, supplies and essential drugs.

The WASH-related results show that all assessed hospitals and 98.3% of assessed health centres had access to clean water. For 57% of hospitals and 59% of health centres, the main source of water was either a well or bore hole. However, on a room-by-room basis, the supply of water is variable. In EmONC facilities, water was available to 77% of operating theatres, 84% in postnatal rooms and 100% in delivery rooms. These figures are lower for facilities to be upgraded.

Based on the EmONC improvement plan 2010-2015, a total of 180 health facilities are to be gradually upgraded to be EmONC facilities (44 Comprehensive EmONC and 136 Basic EmONC). In late 2014, the National Maternal and Child Health Centre, with technical and financial support from the UN Population Fund (UNFPA), commissioned a review of this improvement plan, with an EmONC assessment of the 180 health facilities conducted by the Mao Bunsoth research team. This second assessment used more or less the same tools as the first, but with a different order of the sections (modules) and some questions updated. The second assessment is being conducted, and the results are expected to be available soon. For further information and data from the two EmONC assessments, please contact National Maternal and Child Health Centre and/or UNFPA.

Table 15: Example of WASH (water)-related questions in EmONC assessment tools

15	Does this facility have water for all functions such as infection prevention, patient and staff use, etc.?	Yes 1 No 0			If "No," skip to Item 19
16	What is the primary source of water? (*circle one*)	Piped water public system 1 Piped water private system 1 Well/bore hole 3 Rainwater 4 River/stream...etc 5 Other (*specify*) 6			
17	Is the water system currently functioning in the: (*read each item*) a. Operating theatre? b. Delivery room? c. Postnatal room?	Yes 1 1 1	No 0 0 0	Room not available 9 9 9	
18	In the last month, how many days were you without water? (*write number; if without water sporadically, but not for days at a time, use 88*)	|_____| _____| days			

Health centre WASH assessment in Kampong Speu

RainWater Cambodia, with financial support from Lien Aid, conducted a water, sanitation and hygiene needs assessment in 21 health centres across Kampong Speu province between November 2009 and January 2010. The aim was to understand current WASH conditions and practices, in order to propose appropriate technical options for improvement. The process of the study was divided into three phases: a preparation phase, a survey and report writing.

Data was collected by RainWater Cambodia staff with participation from provincial health department and operational district staff, using a semi-structured questionnaire (see Annex 5) for in-depth interviews with health centre representatives, as well as photo capture and observation of the WASH infrastructure, coupled with other secondary data sources.

Results showed that most health centres owned WASH infrastructure such as tube wells, galvanised or cement ring tanks to collect rainwater, latrines or incinerators. However, the rainwater collected with such infrastructures did not meet demand, and some WASH assets were old and did not function properly, with a low capacity for rainwater storage. While six of the 21 health centres did connect to a piped water system, they still also collected rainwater. Sanitation improvement was considered a lower priority than water supply. Based on the findings, a proposal for WASH infrastructure renovation and construction was made. For more information about the assessment, please refer to the assessment report.[31]

Cambodia health impact evaluation 2008

The 2008 Cambodian health impact evaluation was carried out by multiple national partners, including the National Center for HIV/AIDS, Dermatology and STDs, the National TB Programme, the National Malaria Center and the Psychosocial Organization, with technical support from members of the Health Impact Evaluation Consortium, namely Macro International and WHO. As part of the evaluation a district comprehensive assessment, which includes a health facility assessment, was carried out in seven (out of a total of 76) operational districts purposely selected from seven different provinces in Cambodia in 2008.

Data was collected by means of face-to-face interviews via a standardised paper questionnaire (which is not available). As a result, a total of 447 health facilities (including hospitals, health centres, private clinics and health posts, pharmacies and drug stores) were visited in the seven selected operational districts, 437 having completed interviews. Health facilities were assessed in terms of their basic elements of infrastructure. Basic elements of infrastructure include having an uninterrupted power supply (via a grid, functional generator with fuel, battery), improved running water source within 500 metres, communication capacity, emergency transport, and overnight beds for 24-hour observation.

The result showed that only 67% of all the assessed (non-pharmacy) health facilities had an improved running water source within 500 metres. Such access is much poorer for rural health centres and health posts. See Table 16: Coverage of basic infrastructure by type of facilities among non-pharmacy facilities.

Table 16: Coverage of basic infrastructure by type of facilities among non-pharmacy facilities						
Type of facility	**Power**	**Water**	**Commnication**	**Emergency transport**	**Overnight observation beds**	**Facilities (non-pharmacy)**
Hospital 3rd level	1.00	1.00	1.00	1.00	1.00	2
Referral hospital 2nd level	1.00	1.00	1.00	1.00	1.00	5
Hospital 1st level	1.00	1.00	1.00	1.00	1.00	1
Urban health centre	1.00	1.00	1.00	0.00	0.60	5
Rural health centre	0.49	0.51	1.00	0.02	0.46	92
Clinic	0.98	0.85	0.99	0.11	0.68	84
Health post	0.00	0.44	1.00	0.06	0.24	18
All facilities	0.68	0.67	1.00	0.09	0.55	207

Pilot healthcare facility WASH assessment

WaterAid, in partnership with RainWater Cambodia and WHO, developed a comprehensive assessment tool for WASH in health care facilities (see the tool in Annex 3), and piloted it in 12 selected facilities in Kampong Speu and Prey Veng in late 2014. The objectives of the pilot were to analyse the tool's ability to capture the information required to form a comprehensive overview of WASH in a health care facility, and to provide recommendations for further research and use of the tool to influence decision-makers in both the WASH and health sectors, in order to prioritise access to WASH in health care facilities. This assessment was able to present data on a range of important indicators in terms of access to safe WASH in health care facilities, with a focus on maternity wards and delivery units, to highlight gaps in some aspects of the tool design, and provide a base for revisions and recommendations for further investigation.

The results show that access to water and sanitation was high. In almost all facilities there was access to both an improved water supply and sanitation facility. All health care facilities surveyed had access to a squat flush toilet, and all had a secondary source of water available. But the availability of drinking water was less frequent. Clients and staff were more likely to purchase their own bottled water and bring it to the health care facility. Only two of the facilities surveyed provided some form of drinking water for their clients. Sanitation facilities at referral hospitals were more accessible than at health centres. The only toilet facilities seen to be designed with disabled access in mind were at two referral hospitals. Functionality of the toilets was measured through the availability of water for the flush, with all referral hospitals and 75% of health centres having functional, improved sanitation with a safe method of excreta disposal. Menstrual hygiene management was non-existent at all facilities. The majority of waste was burned in a brick incinerator onsite, and sharps waste was most likely to be placed in a designated cardboard box that was removed offsite.

Overall, sufficient data was gathered from both health centres and referral hospitals to allow the description of access to different aspects of WASH in health care facilities. It allows capturing not only of data on physical availability, but also data on functionality and accessibility of WASH facilities. The time that the tool took to administer was between 45 minutes and one hour, and respondents were generally receptive to the format of the survey. However, the pilot identified a number of limitations of the tool as follows.

The primary limitation was that there was no behavioural assessment of staff hygiene practices, as the tool has been designed as a checklist and the question around hygiene knowledge among staff was too vague to be an accurate assessment. Similarly, there were no key informant interviews with staff or patients, and the data obtained was purely that observed by the data collector at the time of visit. This limits the understanding of practices in the healthcare facility around hand and environmental hygiene, birth practices, and both the staff and patients' perception of access to WASH in this setting. Further specific limitations include:

- **Water quality:** no water quality testing was conducted. There was one question on whether the facility treated water for drinking, but nothing specific asked on filtration systems. Assessing the quality of drinking water for medical uses and cleaning of medical equipment may be important to understand the transmission of infection in the delivery setting. The addition of microbial swabbing of maternity wards and delivery units may be considered a valuable addition to this assessment.
- **Wastewater disposal:** this tool did not assess whether wastewater was disposed of rapidly and safely, only that there was a system in place.
- **Healthcare waste disposal:** waste disposal practices and the disposal chain were not investigated. While the majority of facilities had sharps boxes that were stated to be collected, this tool has no way of capturing if this happens.
- **Excreta disposal:** while there were many questions aiming to capture the accessibility of toilet facilities, some of these definitions were confusing to the data collection team at the time of the survey. Usage of sanitation facilities was also not assessed by this tool.
- **Operation and maintenance:** perhaps the largest gap in this tool is the capture of data on operation and maintenance of WASH infrastructure, i.e. water supply system or sanitation and drainage facilities. Respondents seemed to be confused by the way these questions were structured and as a result, the findings are inconclusive. This tool was unable to conclude reasons for non-functional systems, or who may responsible for maintenance of WASH infrastructure.

Recommendations were also made:

- Revisions to the assessment tool and a larger pilot must be conducted to ensure that this healthcare facility assessment is a rigorous investigative tool.
- Implementation of this tool in a wider setting will contribute to the evidence base for access to WASH in healthcare facilities, which is lacking both regionally and globally, and is a barrier to driving policy change and addressing the issue of WASH in healthcare facilities.
- The addition of a complementary qualitative component of this assessment may lead to an increased understanding of hygiene behaviours, particularly around the time of delivery.
- Key indicators could be drawn from this assessment tool and inserted into existing national monitoring mechanisms such as the Ministry of Health's Health Management Information System, to enable ongoing monitoring of the availability of WASH elements in healthcare facilities.
- Further assessments could include a traffic light system, or risk assessment, similar to the WHO's water safety plan, but specific to healthcare facilities.

4.3 Key actors involved in or working on WASH in health care facilities, and their related role and responsibilities

A number of government ministries (sectors) are involved in, or working on, WASH in Cambodia. These include (but are not limited to) the Ministry of Rural Development, the Ministry of Industry and Handicrafts, the Ministry of Education, and the Ministry of Health. The latter is specifically involved in/working on WASH in health care facilities. In addition to the Ministry of Health and its related departments, there are other non-governmental key actors involved in or working on WASH in health care facilities, including NGOs, bilateral agencies and donors. Table 17: List of institutions/organisations involved in or working on WASH in health care facilities in Cambodia and their related roles and responsibilities.

Within the central level Ministry of Health, there are two departments that are closely involved in and have dominant roles in policy development, implementation and monitoring, and evaluation of WASH in health care facilities within the sector. These are the Hospital Services Department and the Department of Planning and Health Information. In principle, the Hospital Services Department is the central point of reference for national policies and standards related to WASH in health care facilities in Cambodia. In practice so far, this is not the case. However, the Department has taken the lead in a number of WASH-related activities, including the development of MPA and CPA guidelines, infection prevention and control guidelines for health care facilities, national guidelines on health care waste management, participation in development of tools for Quality of Care Assessments level 1 and 2, and coordination of the field work.

The Department of Planning and Health Information is leading the development, monitoring and evaluation of health sector policies and planning, as well as the progress of health sector development as a whole. The key health sector policies and plans related to WASH in health care facilities developed under the Department's leadership include health sector strategic plans (HSP) 1, 2 and 3 (HSP3 is being finalised), and health coverage plans. In terms of health sector monitoring and evaluation, the Department is coordinating the Joint Annual Performance Reviews of health sector performance, and the managing and hosting the Ministry of Health's Health Management Information System (HMIS). Although there is no WASH data or indicator included in the current HMIS, this can be corrected, and HMIS could be a potential system for routine WASH in health care facility monitoring in the future. Last but not least, the Department of Planning and Health Information's director is the chairman of many technical working groups, some of which are related to WASH in health care facilities, namely the working group for Quality of Care Assessment level 2. He also is a coordinator of the HSSP2 programme.

Other Ministry of Health departments are also involved in WASH, but less specific to WASH in health care facilities, such as the Preventive Medicine Department and the Non-Communicable Disease Department. The former is involved in mainly health-related environment and climate change, water safety (arsenic) and participation in design of tools for HSSP2.

Please refer to Box 3 for the description of WaterAid and its key partners such as RainWater Cambodia and WHO, and their work on WASH in health care facilities.

Table 17: List of institutions/organisations involved in or working on WASH in health care facilities in Cambodia and their related roles and responsibilities

Key actors	Involvement in/work on WASH in health care facilities	Potential role and responsibilities	Leaders and their contact details
HSD	• Leading the development of MPA and CPA Guidelines, Infection Prevention and Control Guidelines for HCFs, National Guideline on Health Care Waste Management • Participating in development of tools and coordinating Quality of Care Assessments Level 1 and 2	Policy development, policy implementation and monitoring/ evaluation	Dr Sok Srun, Department Director 012 912 122 soksrun@online.com.kh or soksrun@camnet.com.kh
DPHI	• Leading the development of Health Sector Strategic Plans and Health Coverage Plans • Managing and hosting HMIS • Leading the Quality of Care Assessment 2	Policy development, policy implementation, planning and monitoring/ evaluation	Dr Lo Veasnakiry, Department Director 012 810 505 veasnakiry@gmail.com
HSSP2	• Funding and supervising the HC assessments on WASH infrastructure and the assessment of 30 RHs for health infrastructure facilities improvement • Supporting the development of building briefs for HCs and RHs • Funding the Quality of Care Assessments Level 1 and 2	Funding, technical assistance and policy advice	HE Prof Eng Huot, MOH Secretary of State and HSSP2 Programme Director Dr Lo Veasnakiry, Programme Coordinator Dr Khuon Vibol, Senior Planning Officer 012 931 881 vibol.hssp@online.com.kh
NMCHC	• Supervising EmONC Assessments	Policy development, policy implementation and monitoring/ evaluation	Dr Tung Rathavy, Director of NMCHC 012 222 773 rathavy.tung@gmail.com or rathavy@online.com.kh
NIPH	• Technical support for the implementation of Quality of Care Assessment level 2 • Conducting EmONC Assessment 1 in 2009 • Conducting WASH related research, e.g. this analysis and a cluster randomized controlled trial on Newborn Infection Control and Care Initiative for Health Facilities to Accelerate Reduction of Newborn Mortality (NICCI)	Technical support and research	Dr Chhea Chhorvann, NIPH Director 012 503 844 cchhorvann@niph.org.kh

Table 17: List of institutions/organisations involved in or working on WASH in health care facilities in Cambodia and their related roles and responsibilities			
WaterAid	• Working with local partners to improve access to WASH • Development and testing of comprehensive tool for assessment of WASH in HCFs • Supporting and funding studies and research, including this analysis, to gather evidence to inform policy and action	Policy advocacy, project implementation, technical support, innovations, research and funding	James Wicken, Director of WaterAid Cambodia James.Wicken@wateraid.org.au
URC	• Supporting the development of tools and implementation of Quality of Care Assessments Level 1 and 2 • Supporting the development and implementation of HMIS • Developing health facility training curriculum and tools for hand-washing	Policy advocacy, technical support and funding	Katherine Krasovec, Chief of Party, USAID Quality Health Services Project 012 328 509 kkrasovec@URC-CHS.COM Tapley Jordanwood, Chief of Party, USAID Social Health Protection Project 089 965 738 tjordanwood@URC-CHS.COM
RWC	• Implementing community and health facility-based WASH projects • Conducting WASH assessment in HCFs	Project implementation and research	Keo Vicheka Programme Coordinator 012 53 17 14 Keo_vicheka@yahoo.com
RACHA	• Implementing community and HC-based WASH projects, mainly on water supply and food safety	Project implementation and research	Dr Chan Theary, Executive Director of RACHA 012 333 383 ctheary@racha.org.kh
RHAC	• Implementing community and HC-based WASH projects • Conducting WASH related research, e.g. studies on Environmental Factors and WASH Practices in the Perinatal and Period in Cambodia and a cluster randomized controlled trial on NICCI	Project implementation and research	Dr Var Chivorn, Executive Director of RHAC 017 608 888 chivorn@rhac.org.kh
MInt	• Implementing community and health facility-based WASH projects in Siem Reap	Policy advocacy and project implementation	1. Mr Richard Hocking, Malteser International, based in Siem Reap: 063 967 089 or 089 478 636
WHO	• Developing WASH related standards • Supporting the development of WASH related policy and tools • Supporting WASH assessments in HCFs and project implementation	Standard and policy advocacy, technical support, research and funding	Phan Sophary NCD and Environmental Unit 012 257 968 phans@wpro.who.int
UNFPA	• Supporting and funding EmONC Assessments	Policy advocacy, technical support, research and funding	Dr Sok Sokun Reproductive Health Specialist 012 992 847 sok@unfpa.org

5. Discussion and conclusions

5.1 Limitations

As indicated in the method section, this analysis was conducted in early 2015 based on data collected through a desk review of existing national and international policy documents, reports and tools on WASH in health care facilities, and key informant interviews.

Many WASH-related policy documents and tools had also been developed long before the study was conducted, and many assessments related to WASH in health care facilities had been conducted several years before the time of the study. Because of this long recall period and the fragmented nature of the assessments, as well as time constraints, we might have missed some of these assessments. For those we could identify and include in this study, we could not obtain full data, and information and data on the findings from the old assessments could be outdated. Moreover, we failed to interview some potential key informants who have left, and some newly arrived key informants could not tell us the full story of the assessments and provide us with related tools and data.

Nevertheless, with support from WaterAid, we could collect a reasonable number of policy documents, health care facility assessment reports, tools and data for review and analysis. The analysis resulted in a number of key findings. A careful discussion and interpretation of these key findings could allow us to make some conclusions and considerations for national policies and actions.

5.2 Key findings and considerations for national policies and actions

Access to safe and quality WASH services is fundamental to infection prevention and control in health care facilities, and therefore to good health outcomes. Adequate WASH in health care facilities is fundamental for achieving universal health coverage. There is increasing attention from governments, donors and the international public health community to improving WASH in health care facilities. However, available evidence shows that WASH services in many facilities in low- and middle-income countries are poor or absent, compromising the ability to provide safe care and presenting serious health risks to patients and health care providers. Moreover, specific WASH-related policies, standards and monitoring and evaluation systems are lacking.[6]

Our analysis shows that Cambodia shares the situation of WASH in health care facilities in many low- and middle-income countries. There is no single policy document that comprehensively describes national policies and planning, including standards and coverage targets, on WASH in health care facilities. The HSP2 – currently the main health policy document – does not include any policy statement or strategy to specifically improve WASH in health care facilities, or address related issues. Nevertheless, our review discovered a number of national policy documents that stipulate one or more of the WASH-related elements in health care facilities, including standards and indicators, as reflected in the WHO's 11 guidelines on Essential Environmental Standards in Health Care.[15]

The findings also show that there is no reliable national monitoring and evaluation mechanism for WASH in health care facilities in Cambodia. Of the 95 core indicators and related targets laid out in the current HSP2 as part of the framework for monitoring and evaluation of health sector performance, none is specific to WASH or WASH in health care facilities. The list of these core indicators is being revised for the new HSP3, but probably will not include any WASH-specific indicators unless a strong advocacy and effort to do so is made on time. Moreover, as with the situation found in many other countries, a reasonably well functioning web-based national HMIS system that collects monthly health services data by individual facilities in Cambodia does not capture any specific data on WASH in health care facilities.

In the absence of a reliable WASH monitoring and evaluation mechanism, we found a number of health facility assessments, with some related tools and data, which have been carried out occasionally and separately in Cambodia since 2008. They vary in terms of their scope (number of facilities covered), specificity to WASH and capacity in capturing WASH-specific data in health care facilities. Among these assessments, the HSSP2 health centre assessment

on WASH infrastructure is the largest, collecting data on the availability and status of infrastructure and related facilities for electricity supply and WASH in almost all health centres in Cambodia. Quality of Care Assessments level 1 and 2 are also nationwide, which collect data on not only availability and condition of WASH infrastructure and facilities, but also some WASH practices in both health centres and referral hospitals. The most specific to WASH, with highest capacity to capture data on WASH in health care facilities, may be the assessment and related tool from WaterAid, as it has been designed specifically for that purpose. It incorporates questions from different reliable references, and has been successfully tested. However, it also has some limitations, including the lack of questions on water quality and WASH behavioural practices. While the assessment results are different, the available data and results from the large-scale assessments suggest that the situation WASH in health care facilities in Cambodia remains poor, as compared to current WHO standards, and requires further improvement.

We identified a number of key actors involved in or working on WASH in health care facilities, including the Ministry of Health and its related departments, some non-governmental organisations, bilateral agencies and donors. Within the central level Ministry of Health, there are two departments closely involved in and with a dominant role in policy development, implementation and monitoring and evaluation of WASH in health care facilities within the sector, namely the Hospital Services Department and the Department of Planning and Health Information. However, there is no clear WASH-specific leadership or effective coordination mechanism.

Despite some limitations in methods, this study provides useful insights about the situation of WASH in health care facilities in Cambodia in terms of policies and planning, including standards and coverage targets, monitoring and evaluation mechanisms, data and tools. The findings suggest that the situation of WASH in health care facilities requires further improvement to ensure safety and quality of care, especially care for mothers and newborn babies during and immediately after birth, a necessary step to achieving universal health coverage. In order to do so, the above shortcomings on policy and planning, monitoring and evaluation, and leadership and coordination among key actors need to be effectively addressed. We would like to provide some considerations for future national policies and actions as follows:

- Identify a focal point within the Ministry of Health for WASH, in particular WASH in health care facilities. Considering the current leading role of the Hospital Services Department in several WASH-related policies and actions, this person could be a leader of the Hospital Services Department.
- A sub-technical working group on WASH in health care facilities should be created as soon as possible, preferably within the Ministry of Health and led by the Ministry focal point, with members from other relevant departments and possibly other sectors, such as the Ministries of Education, Youth and Sports, Rural Development, etc., as well as health partners such as WHO and WaterAid.
- Cambodia is developing a new Health Strategic Plan 2016-2020 (HSP3). Considering the importance of WASH for universal health coverage and post-2015 Sustainable Development Goals, efforts to improve WASH and WASH in health care facilities should be integrated in this HSP3. Without particular advocacy, this is unlikely to happen. Therefore, the first priority of the working group is to consider developing some WASH-specific strategies, sets of indicators, targets and interventions to be incorporated into the new HSP 2016-2020, based on the WASH-specific indicator framework proposed for the post-2015 SDGs, and available data on WASH in health care facilities in Cambodia.
- Through the working group and under the guidance of the HSP3, gradually develop national policies, plans and a monitoring and evaluation framework, including standard indicators and tools for routine data collection and periodic assessments for WASH in health care facilities. More specifically, some available WASH-related policies and guidelines, as identified in this study, should be updated and the assessment of the impact of such policies and guidelines should be carried out. Fragmented assessments, if to be continued, should be better

coordinated and integrated, using standardised processes and tools as much as possible.

- As part of the developed WASH-related monitoring and evaluation framework, and in line with the WASH-specific indicator framework proposed in the HSP3, a national baseline data on WASH in health care facilities should be collected, using the national standard tools.

Annexes

Annex 1: Guiding questions for key informant interviews

Introduction and consent

Hello! I am from NIPH. Thank you very much for allowing us to meet you today.

We are conducting a study to assess whether and to what extent the existing health facility assessments and datasets capture information on water, sanitation and hygiene services and practices in health facilities and make recommendations on how future assessments, or discrete pieces of research, can capture this information to inform policy decision and action to make these environments safer for mothers and young children in Cambodia. In addition to review of existing documents and datasets, we need to conduct interviews of key stakeholders to get their views on this.

You are a key person in health facility assessments as well as water, sanitation and hygiene in Cambodia. Therefore, we would like to ask you some questions on this area of interest. The interview may take about 30 minutes of your time. Please feel free to refuse to answer any question if you do not want to do so. Your answers will be crucial for our study, and we ensure that they will be professionally used for the report confidentially and anonymously.

Do you have any question for us? If no, may I start the questions now?

Guiding questions

1. Do you know about/are you aware of any frameworks or tools that have been used to assess health facilities in Cambodia? Do you have them? If yes, could you share them with us?
2. Are you aware of/have you participated in any health facility assessments? If yes, tell us more about the process and results of the assessments and whether or to what extent such assessments capture information on water, sanitation and hygiene services and practices in health facilities? Could you share the assessment tools, datasets and/or report with us?
3. Do you have any specific recommendations to improve your indicated facility assessment framework and tools to better collect information on water, sanitation and hygiene in health facilities?
4. Do you have any general recommendations to improve health facility assessment process, frameworks and tools to better collect information on water, sanitation and hygiene in health facilities?
5. Do you know any other key persons in health facility assessments as well as water, sanitation and hygiene in Cambodia whom I can invite for interview?
6. Do you know which institution/department is responsible for various components of WASH service provision and practice in health centres? These include, for example:
   a. installation of hardware for water supply, sanitation, waste management,
   b. operations and maintenance of these facilities,
   c. training of staff on hygiene practices.

Annex 2: List of key informants

No	Name	Position	Institution	Contact details
1	Lo Veasna Kiry	Director and HSSP2 Programme Coordinator	Planning and Health Information Department, Ministry of Health	012 810 505 veasnakiry@gmail.com
2	Sok Srun	Director	Hospital Services Department, Ministry of Health	012 912 122 soksrun@online.com.kh or soksrun@camnet.com.kh
3	Sok Po	Deputy Director	Hospital Services Department, Ministry of Health	012 985 126 po_sok@yahoo.com
4	Kol Hero	Deputy Director	Preventive Medicine Department, Ministry of Health	017 999 586 herokol@yahoo.com
5	Khuon Vibol	Senior Planning Officer	HSSP2, Ministry of Health	012 931 881 vibol.hssp@online.com.kh
6	Sao Phalla		HSSP2, Ministry of Health	012 967 659 Hic.hssp@online.com.kh
7	Phan Sophary		WHO	012 257 968 phans@wpro.who.int
8	Akila Senevirathne	Consultant	Resources Development Consultant	017 274 300 akila.seneviratne@yahoo.com
9	Sok Sokun	RH Specialist	UNFPA	012 992 847 sok@unfpa.org
10	Kov Phyrum	Cambodia Country Coordinator	Water & Sanitation Programme SEARO, World Bank	016 940 852 pkov@worldbank.org
11	Keo Vicheka	Programme Coordinator	RainWater Cambodia	012 531 714 Keo_vicheka@yahoo.com
12	Katherine Krasovec	Chief of Party	USAID Quality Health Services, University Research Co.	012 328 509 kkrasovec@URC-CHS.COM

Annex 3: WaterAid's Safer Health Facilities assessment tool

Facility identification		
001	Facility number	
002	Facility name	
004	Province	
005	District	
006	Type of facility	Referral hospital 1 Health centre 2 Other (specify) 96
007	Urban/Rural	Urban 1 Rural 2
008	Outpatient only	Yes 1 No 2
009	Is this facility open 24 hours?	Yes 1 No 2

Interviewer visits	
Date	
Interviewer name	
Results	
Time started	
Time completed	
Length of interview	

Result codes (last visit):
1 = Facility completed
2 = Facility respondents not available
3 = Postponed
4 = Facility refused
5 = Partially completed
6 = Other (specilfy)

Module 1: Respondent interview

SECTION 2: STAFFING		
COULD YOU PLEASE TELL ME ABOUT THE NUMBER OF STAFF THAT WORK IN THIS FACILITY? CAN YOU TELL ME HOW MANY STAFF WITH THE FOLLOWING QUALIFICATIONS ARE CURRENTLY ASSIGNED TO, EMPLOYED BY OR SECONDED TO THIS FACILITY. PLEASE COUNT EACH STAFF MEMBER ONE TIME ONLY ON THE BASIS OF THEIR HIGHEST TECHNICAL OR PROFESSIONAL QUALIFICATION		
	QUALIFICATION	**NUMBER**
	General (non-specialist) medical doctors	
	Specialist medical doctors	
	Paramedical professionals e.g. medical assistant	
	Nursing professionals	
	Primary nurses	
	Secondary nurses	
	Midwifery professionals	
	Primary midwives	
	Secondary midwives	
	Support staff e.g. orderly, cleaner	

SECTION 3: INPATIENT AND OBSERVATION BEDS		
	Excluding any delivery beds, how many beds **IN TOTAL** does this facility have?	
	How many beds in this facility are dedicated **MATERNITY** beds? This **does not** include delivery beds.	

SECTION 4: OBSTETRIC AND NEWBORN SERVICES		
	Does this facility offer delivery services (including normal delivery, basic emergency obstetric care, and/or comprehensive emergency obstertic care) and/or newborn care services?	YES .....1 NO 2
	Does this facility offer caesarean sections?	YES .....1 NO 2
	Please tell me how many of the following obstetric services have been performed so far, this year?	
	Normal vaginal delivery	**Q1: Q2: Q3: Q4: Total:**
	Assisted vaginal delivery	**Q1: Q2: Q3: Q4: Total:**
	Caesarean section	**Q1: Q2: Q3: Q4: Total:**

SECTION 5: POWER SUPPLY			
	Does your facility have electricity from any source? Including for stand-alone devices such as cold storage?	YES .....1 NO 2	Skip
	What is the facility's main source of electricity?	National or community grid .....1 Generator (fuel or battery) .....2 Solar .....3 OTHER_____ 96	
	Other than the main source, does the facility have a secondary or backup source of electricity? **If YES**: what is the secondary source of electricity?	No secondary source .....88 National or community grid .....1 Generator (fuel or battery) .....2 Solar .....3 OTHER_____ 96	
	Is the electricity source used for all electrical needs of the facility?	YES .....1 NO 2	Skip
	If not, please list the specific uses of electricity in this facility		
	During the past 7 days, was electricity available at all times from the main or backup source when the facility was open for services?	Always available, no interruptions .....1 Often available, interruptions <2hours per day .....2 Sometimes available, frequent or prolonged interruptions of >2 hours per day 3	

SECTION 6: WATER AVAILABILITY			
	What is the most commonly used source of water for the facility at this time?	Piped into facility .....1 Piped into facility grounds .....2 Borehole with hand pump .....3 Borehole with mechanised pump .....4 Dug well with hand pump .....5 Dug well with mechanised pump .....6 Surface water .....7 Rainwater Harvesting .....8 Delivered 9	
	Does this facility have a secondary source of water?	YES .....1 NO 2	Skip
	What is the secondary source of water for this facility?	Piped into facility .....1 Piped into facility grounds .....2 Borehole with hand pump .....3 Borehole with mechanised pump .....4 Dug well with hand pump .....5 Dug well with mechanised pump .....6 Surface water .....7 Rainwater Harvesting .....8 Delivered 9	
	Does the **main** source of water provide enough water for **all the needs** of facility when it's fully functional?	Yes, enough water all year .....1 Sometimes, only seasonally .....2 No, never enough water .....3 Don't know 99	
	What is the most commonly used source of water in the **DRY** season?	Piped into facility .....1 Piped into facility grounds .....2 Borehole with hand pump .....3 Borehole with mechanised pump .....4 Dug well with hand pump .....5 Dug well with mechanised pump .....6 Surface water .....7 Rainwater Harvesting .....8 Delivered 9	
	What is the most commonly used source of water in the **RAINY/WET** season?	Piped into facility .....1 Piped into facility grounds .....2 Borehole with hand pump .....3 Borehole with mechanised pump .....4 Dug well with hand pump .....5 Dug well with mechanised pump .....6 Surface water .....7 Rainwater Harvesting .....8 Delivered 9	
	What is the **total number** of water points at this facility?		

	Does this facility use its water sources for any of the following? Select all that apply.	Drinking .....1 Handwashing .....2 Anal cleansing after defecation .....3 Toilet flush or pour flush .....4 Cleaning .....5 Bathing .....6 During delivery 7	
	During the past 2 months, has the water supply been interrupted in any way?	YES .....1 NO 2	
	How often is the **main water source** to this facility functional? i.e. when is water available and flowing from its source?	All day, every day .....1 Every day, but not for all 24 hours .....2 Occasionally no water available .....3 Not available for extended periods/seasonal 4	
	Is the main water source functioning now?	YES .....1 NO .....2 Partially, working but not as designed 3	Skip
	How long has this water source been non-functional, or partially functional?	Less than one day .....1 Less than a week .....2 Less than one month .....3 More than one month 4	
	In total, are these water sources adequate for all the needs of the facility?	YES .....1 NO .....2 Don't know 99	
	Are these water sources used for drinking water at all?	YES .....1 NO .....2 Don't know 99	Skip
	If not, what is the source of drinking water for staff?	Bottled water delivered to the facility .....1 Staff bring their own bottled water .....2 Don't know 99	
	Is any source of drinking water provided for clients?	YES .....1 NO .....2 Don't know 99	
	If the drinking water comes from the main facility water source, is the drinking water treated in any way?	YES .....1 NO .....2 Don't know 99	skip Skip
	If yes, please specify:		
	If the drinking water comes from the main facility water source **and is not treated**, why not?	Water source is considered safe .....1 Facility doesn't have filters or purification materials .....2 None of the staff know how to purify water .....3 No time to treat water .....4 OTHER_____ 96	
	What is the **total volume** of water storage at this facility? **Sum the volume of each of the storage containers.**		
	Are the storage containers fully functional? i.e. free from leaks and their taps are working	YES .....1 NO .....2 Don't know 99	
	When was **the last time** the storage containers were cleaned?		

SECTION 7: SANITATION FACILITIES			
	Is there a toilet facility that's available for general client and staff use?	YES .....1 NO 2	Skip
	If yes, what type is it?	Sit-down toilet .....1 Squat flush toilet .....2 Ventilated, improved pit latrine .....3 No facilities .....4 OTHER_____ 96	
	Are there toilet facilities available specifically for staff or clients with a disability?	YES .....1 NO 2	Skip
	If yes, how many?		
	Are there separate toilet facilities for men and women?	YES .....1 NO 2	
	Does the facility have an on-site sanitation system, such as a septic tank or pit, to collect solid human waste?	YES .....1 NO 2	Skip
	Has there been an occasion as yet where the septic tank/pit has been full?	YES .....1 NO .....2 Don't know 99	Skip Skip
	What did you do the last time it filled up?	Built a new pit .....1 Removed manually .....2 Called a waste company for removal .....3 Don't know 99	
	Does the facility have a drainage system for managing waste water? (i.e. water from sinks)	YES .....1 NO 2	Skip
	Is it functional today?	YES .....1 NO .....2 Don't know 99	

SECTION 8: WASTE DISPOSAL AND MANAGEMENT			
	How does this facility **finally** dispose of **sharps waste**?	**Incinerator** Industrial incinerator .....1 Drum/brick incinerator .....2 **Open burning** Flat ground - no protection .....3 Pit or protected ground .....4 **Dump without burning** Flat ground - no protection .....5 Covered pit .....6 Open pit .....7 Concrete/enclosed pit .....8 **Remove offsite** Stored in covered container .....9 Stored in other protected environment .....10 Stored unprotected .....11 **Other** .....96 **Never has sharps waste** 88	

	How does this facility **finally** dispose of **infectious medical waste**? E.g. bandages	**Incinerator** Industrial incinerator .....1 Drum/brick incinerator .....2 **Open burning** Flat ground - no protection .....3 Pit or protected ground .....4 **Dump without burning** Flat ground - no protection .....5 Covered pit .....6 Open pit .....7 Concrete/enclosed pit .....8 **Remove offsite** Stored in covered container .....9 Stored in other protected environment .....10 Stored unprotected .....11 **Other** .....96 **Never has medical waste** 88	
	How does this facility **finally** dispose of **non-infectious general waste**? E.g. plastics	**Incinerator** Industrial incinerator .....1 Drum/brick incinerator .....2 **Open burning** Flat ground - no protection .....3 Pit or protected ground .....4 **Dump without burning** Flat ground - no protection .....5 Covered pit .....6 Open pit .....7 Concrete/enclosed pit .....8 **Remove offsite** Stored in covered container .....9 Stored in other protected environment .....10 Stored unprotected .....11 **Other** .....96 **Never has general waste** 88	
	How does this facility **finally** dispose of **placenta?**	**Incinerator** Industrial incinerator .....1 Drum/brick incinerator .....2 **Open burning** Flat ground - no protection .....3 Pit or protected ground .....4 **Dump without burning** Flat ground - no protection .....5 Covered pit .....6 Open pit .....7 Concrete/enclosed pit .....8 **Remove offsite** Stored in covered container .....9 Stored in other protected environment .....10 Stored unprotected .....11 **Mother takes home** .....12 **Other** .....96 **Never has placenta waste** 88	
	If there is an incinerator, is it functional today?	YES .....1 NO .....2 Don't know 99	

	If there is an incinerator, where is it located?	Directly connected to the facility .....1 Near to the facility .....2 Directly connected to the toilet block .....3 Other_____ 96	
	How often is solid waste disposed of? i.e. burned or collected	At least once a day .....1 At least once a week .....2 Less frequently than once a week .....3 Don't know 99	

SECTION 9: MAINTENANCE			
	If a part of the **sanitation** system breaks, who is responsible for fixing it?	The facility .....1 PHD .....2 OD .....3 PDRD .....4 Other_____ .....96 Don't know 99	
	If a part of the **water** system breaks, who is responsible for fixing it?	The facility .....1 PHD .....2 OD .....3 PDRD .....4 Other_____ .....96 Don't know 99	
	Within the facility, who is responsible for cleaning the toilets?	Facility staff .....1 Clients .....2 Cleaner .....3 No one .....4 Other_____ 96	

SECTION 10: HYGIENE KNOWLEDGE AND PRACTICE			
	What type of appliances does this facility use to sterilise medical equipment? **Select all that apply**	Electric autoclave .....1 Non-electric autoclave .....2 Electric dry heat sterlisier .....3 Eelectric boiler or steamer .....4 Other_____ 96	
	Does this facility have guidelines for infection control?	YES .....1 NO .....2 Don't know 99	
	Does this facility offer any training in safe hygiene practices?	YES .....1 NO .....2 Don't know 99	 Skip Skip
	If not, are the staff offered any other training opportunities, such as at the OD, PDRD or from an NGO?	YES .....1 NO .....2 Don't know 99	 Skip Skip
	If yes, please specify:		
	Who is responsible for supplying the facility with soap for handwashing?	The facility .....1 PHD .....2 OD .....3 PDRD .....4 Other_____ .....96 Don't know 99	

Thank you for your time and your answers. We would now like to move to the second part of this visit, where we conduct a walkthrough.

Module 2: Toilet and handwashing checklist

In this module we will be walking through the health facility and observing both the toilet and handwashing facilities available for staff and clients. Visit each individual toilet and complete the checklist below. A TOILET BLOCK is defined as any building or structure that houses at least one individual toilet facility. If there is more than one toilet block in the health facility, use the supplementary pages provided.

TOILET BLOCK #1			
	How many individual toilets are there in this block?		
	If the toilet facilities are external to the health facility, what is the approximate distance?		
	Is the path to the toilet facilities wide enough for a disabled or heavily pregnant user? (90cm at least)	YES .....1 NO 2	
	Is the path clear of obstacles, firm and non-slippery?	YES .....1 NO 2	
	Could a visually impaired person follow the path?	YES .....1 NO 2	
	If there are steps to the facility, are these a manageable height?	YES .....1 NO 2	
	If there are steps, is there a ramp for a wheelchair?	YES .....1 NO 2	
	If there are steps, is there a handrail for support?	YES .....1 NO 2	
	Are the entrances to the toilet facilities wide enough for a wheelchair user to enter? (at least 100cm wide)?	YES .....1 NO 2	
	Is the toilet facility interior large enough to allow for a wheelchair/crutch user, heavily pregnant women, or a	YES .....1 NO 2	
	Is there a rail for support in the toilet facility?	YES .....1 NO 2	
	Are there separate toilet facilities for men and women?	YES .....1 NO 2	
	Are the toilet facilities for women able to be locked from the inside?	YES .....1 NO 2	
	Do the toilet facilities contain cleansing materials? i.e. water or toilet tissue	YES .....1 NO 2	
	Does the toilet facility have a receptacle for disposal of menstrual hygiene products?	YES .....1 NO 2	
	Is there a sower facility available for **staff?**	YES .....1 NO 2	
	Is there a sower facility available for **clients?**	YES .....1 NO 2	

Walk through the facility and count each individual handwashing facility

	How many individual handwashing facilities are there in total?		
	At the time of visit, was water available at all handwashing facilities?	YES, IN ALL .....1 YES, IN >50% .....2 YES BUT ≤50% .....3 NO WATER AVAILABLE 4	
	At the time of visit, was soap or disinfectant material available at all handwashing facilities?	YES, IN ALL .....1 YES, IN >50% .....2 YES BUT ≤50% .....3 NO SOAP AVAILABLE 4	
	Are all the handwashing facilities accessible by clients or staff with disabilities? This means that the basins are low enough for someone in a wheelchair to access; the taps can be easily operated by someone with a physical disability of their	YES, IN ALL .....1 YES, IN >50% .....2 YES BUT <50% .....3 NO 4	

Thank you for your time and your answers. We would now like to move to the third part of this visit, where we conduct a walkthrough.

Module 3: Ward walkthrough checklist

In this module we will be walking through the maternity ward and delivery unit and completing the checklist below.

PHOTO CHECKLIST

Before concluding this assessment, make sure that you have taken at least one clear, in focus, photo of the following:

MODULE 1: RESPONDENT INTERVIEW

- ☐ Notice board that tracks number of births, cases of diseases etc.
- ☐ All water points
- ☐ Water storage containers
- ☐ Any drinking water containers supplied for staff and/or clients
- ☐ Any filtration devices
- ☐ Sewerage containers
- ☐ Waste disposal containers and/or incinerators

MODULE 2:TOILETS AND HANDWASHING

- ☐ All individual toilets - interior and exterior
- ☐ All toilet "blocks"
- ☐ Path or stairs leading to the toilet block
- ☐ Any handrails or ramps used in toilet or toilet block
- ☐ Handwashing facilities available in or attached to the toilet blocks
- ☐ Any soap or disinfectant material available at handwashing facilities

MODULE 3: MATERNTY WARD AND DELIVERY UNIT

- ☐ Maternity ward layout - *make sure that there are no clients or staff in this shot, unless informed consent is sought for each individual*
- ☐ Delivery unit layout - *make sure that there are no clients or staff in this shot unless informed consent is sought for each individual*
- ☐ Any hand hygiene posters
- ☐ Handwashing facilities, including taps
- ☐ Any soap or disinfectant material available at handwashing facilities
- ☐ Delivery bed
- ☐ Waste disposal containers/bins
- ☐ Sterilising and decontamination equipment
- ☐ Cord cutting and clamping equipment

Annex 4: Checklist for health centre WASH infrastructure assessment (HSSP2)

ឈ្មោះមណ្ឌលសុខភាព (HC Name)	តើមានប្រើប្រាស់នៅមន្ទីរពេទ្យនេះ ដែរឬទេ Does this facility exist?			តើកន្លែងនេះដំណើរការបានល្អដែរឬទេ Is this facility functioning?		
ស្រុក/ក្រុង (OD)..... ខេត្ត (Province)	មាន (Yes)	បើមាន ចំនួនប៉ុន្មាន? (How many?	គ្មាន No	ដំណើរការ Yes	មានចំនួនប៉ុន្មាន? ចំណុះ - អត្រាអប្បបរមា? (How many? Or what is the capacity?)	គ្មាន (No)
ប្រភពផ្គត់ផ្គង់ទឹក (Water Supply)	ដូច √	សូមដាក់ចំនួន	ដែល X	ដូច √	សូមដាក់ចំនួន	ដែល X
អណ្តូងជីកដៃ (Hand dug well)						
អណ្តូងខួងស្រាប់ដែលប្រើប្រាស់ (Drilled wells)						
អាងស្តុកទឹកភ្លៀង (Rainwater tank)						
ប្រព័ន្ធបណ្តាញទឹកស្តុង (Piped water supply system)						
ម៉ូទ័របូមទឹកស្តុង (Motor pump)						
ផ្សេង ១- បញ្ជាក់ បើមាន (Other -specify)						
ប្រភពផ្គត់ផ្គង់ភ្លើង-អគ្គីសនី (Electricity supply)						
ម៉ាស៊ីនភ្លើង (Generator)						
អាគុយ (Battery)						
ជ្រើសរើសប្រភេទអាទិត្យ (Solar panel)						
បណ្តាញភ្លើងក្រុង (Urban electricity supply)						
ការសំអាតបរិស្ថាន-អនាម័យ (Sanitation and Hygiene)						
បន្ទប់អនាម័យ និងបន្ទប់ទឹកបុគ្គលិក (Sanitation facilities and toilet for staff)						
បន្ទប់អនាម័យ និងបន្ទប់ទឹកអ្នកជំងឺ (Sanitation facilities and toilet for patients)						
អាងលាងដៃ និងទឹកប្រើប្រាស់ ប្រើប្រាស់សំរាប់អាង (Wash basin and pipe water)						
ឡដុតសំរាម (Incinerator)						
រណ្តៅសំរាម (Dump pit)						
រណ្តៅសំណល់ប៉ះពាល់វេជ្ជសាស្ត្រ (Medical disposal point)						
ផ្សេង ១- បញ្ជាក់ បើមាន (Other -specify)						

ពត៌មានបន្ថែម _ បរិមាណ និង គុណភាពទឹក (Additional information (quantity and quality):

- ប្រជាជនគ្របដណ្តប់ (Population Coverage): .....; **ចំនួនឃុំ** (#of Communes): .....; **ចំនួនភូមិ** (# of Villages): .....
- តើមានបុគ្គលិកមណ្ឌលប៉ុន្មាននាក់? (How many HC staff? .....នាក់
- តើមានស្ត្រីឆ្លងទន្លេប៉ុន្មាននាក់ជាមធ្យមក្នុង ១ ខែ (How many deliveries per month)? .....នាក់
- តើមានជំងឺពិគ្រោះក្រៅប៉ុន្មានលើកក្នុង ១ ខែ ? (How many outpatients per month?) .....នាក់
- មានករណីបញ្ជូនក្នុង១ខែ? (Referral patients per month?) ..... នាក់
- តើមានអាគារបន្ថែមសំរាប់ ក្រោយសំរាល? (Any additional building for post-delivery?) .....
- គុណភាពទឹកដែលផ្គត់ផ្គង់សព្វថ្ងៃ (Quality of existing water supply): .....ជាតិដែក-កំបោរ-អារសេនិក
- កម្លាំងភ្លើងដែលផ្គត់ផ្គង់សព្វថ្ងៃ (Capacity of existing electricity supply): .....KVA-

មតិ និង សំណូមពរផ្សេង ។ (Comment and Recommendation):

.....

.....

.....

.....

រៀបចំដោយ (Prepared by): **តួនាទី** (Position) **ធ្វើនៅ** (Done in) **ថ្ងៃ** (Date)

ឈ្មោះ(Name)..... **ប្រធានមណ្ឌលសុខភាព** (Chief of health centre) ..../...../.....

បានឃើញ និង ឯកភាពដោយស្រុកប្រតិបត្តិ (Noted and approved by OD Chief) **តួនាទី** (Position) **ថ្ងៃ** (Date)

ឈ្មោះ(Name) ..../...../.....

Annex 5: Health centre WASH assessment questionnaire (RWC)

កំរងសំនួរ	កំណត់សំគាល់
អង្គការទឹកភ្លៀងកម្ពុជា: ការសិក្សាលើកម្មវិធីទឹកស្អាតទាំង ១១មណ្ឌលសុខភាពនៅខេត្ត កំពង់ ស្ពឺ	១. មណ្ឌលសុខភាព:..... ២. ភូមិ:..... ៣. ឃុំ:..... ៤. ស្រុក:..... ៥. ថ្ងៃទី:.....ខែ.....ឆ្នាំ..... ៦. ម៉ោង:ចាប់ផ្តើម:.....បញ្ចប់..... ៧. អ្នកសំភាសន៍:.....
ផែនទីភូមិសាស្ត្រ: X.....Y..... #Point:	.....

ពត៌មានអ្នកដែលត្រូវសំភាសន៍

ឈ្មោះអ្នកត្រូវសំភាសន៍:				
ភេទ:				
អាយុ:				
ឆ្នាំដែលធ្វើការនៅទីនេះ				

I. ពត៌មានទាក់ទងនឹងអ្នកជំងឺ

១	តើអ្នកដែលមកពិគ្រោះ និងព្យាបាលជំងឺក្នុងមណ្ឌលសុខភាពរបស់អ្នក,បើគិតជាប្រចាំខែមានចំនួនប៉ុន្មាន? (អត្រាខ្ពស់បំផុត)	១ អ្នកព្យាបាល..... ២ អ្នកពិគ្រោះ	
២	តើជំងឺអ្វីខ្លះដែលពួកគាត់តែងតែមកពិគ្រោះ និងព្យាបាលជំងឺក្នុងមណ្ឌលសុខភាពរបស់អ្នក? (ប្រភេទជំងឺដែលកើតមកពីការខ្វះអនាម័យ)	១:..... ២:..... ៣:.....	
៣	តើភាគច្រើនជំងឺទាំងនេះ កើតឡើងចំពោះកុមារ មនុស្សពេញវ័យ ឬមនុស្សចាស់? (ចំលើយអាចលើសពីមួយ)	កុមារ	១
		មនុស្សពេញវ័យ	២
		មនុស្សចាស់	៣
៤	តើអ្នកគិតថាតួលេខអ្នកជំងឺដែលមកសម្រាកព្យាបាល និងពិគ្រោះជំងឺក្នុងមណ្ឌលរបស់អ្នក, ក្នុងឆ្នាំ២០១៤ មានការកើនឡើង ឬក៏ថយចុះបើប្រៀបធៀបក្នុងឆ្នាំ ២០១១?	ព្យាបាល	អ្នកពិគ្រោះ
		១. កើនឡើង	១. កើនឡើង
		២. ថយចុះ	២. ថយចុះ
៥	តើប៉ុន្មានភាគរយដែលអ្នកគិតថា វាកើនឡើង/ថយចុះ រវាងឆ្នាំនោះ?	១ អ្នកព្យាបាល.....% ២ អ្នកពិគ្រោះ .....%.	
៦	មេតុអ្វីបានជាអ្នកគិតថាវាមានការកើនឡើង/ការថយចុះ?	....	
៧	តើក្នុងមណ្ឌលរបស់អ្នកមានអ្នកជំងឺដែលមកព្យាបាល និងពិគ្រោះលើជំងឺរាគ ដែរឬទេ?	១. មាន ២. មិនមាន	
៨	តើក្នុងមណ្ឌលរបស់អ្នកមានអ្នកជំងឺដែលមកព្យាបាល និងពិគ្រោះលើជំងឺគ្រុនពោះវៀនដែរឬទេ?	១. មាន ២. មិនមាន	
៩	តើមានចំនួនប៉ុន្មានភាគរយនៃអ្នកមកពិគ្រោះ និងព្យាបាលអំពីជំងឺរាគ និងគ្រុនពោះវៀន?		

ប្រភេទជម្ងឺ	%អ្នកព្យាបាល	%អ្នកពិគ្រោះ
ជម្ងឺរាគ	.....%	.....%
ជម្ងឺគ្រុនពោះវៀន	.....%	.....%

II. ហេដ្ឋារចនាសម្ព័ន្ធទឹក និងអនាម័យ

ល.រ	ប្រភេទនៃសំណាង់ទឹក	១.មាន ២.មិនមាន	ចំនួនប៉ុន្មាន?	ចំនួនមិនដំណើរការ	ធ្លាំមិនដំណើរការ	ស្ថានភាព		មូលហេតុអ្វីមិនដំណើរការ
						១. ស្អាត	២. មិនស្អាត	
១	អាងត្រងទឹកភ្លៀង							
២	បង្គន់ចាក់ទឹក							
៣	កន្លែងលាងដៃ							
៤	អាងអ៊ុំណាក							
៥	ធុងសំរាមតូច							
៦	ធុងសំរាមធំ							
៧	ធុងចំរុះ							

១.ការអនុវត្តន៍ និងការប្រើប្រាស់

១០	តើប្រភពទឹកដែលប្រើប្រាស់នៅតាមមណ្ឌលសុខភាព ត្រូវបានយកមកពីណា?							
រដូវវស្សា(ចម្លើយលើសពីមួយ)				**រដូវប្រាំង(ចម្លើយលើសពីមួយ)**			
អាងត្រងទឹកភ្លៀង	១	ទន្លេ/បឹង/ស្រះ	៥	អាងត្រងទឹកភ្លៀង	១	ទន្លេ/បឹង/ស្រះ	៥
អណ្តូងលូ	២	ប្រព័ន្ធទុយោចែកចាយទឹក	៦	អណ្តូងលូ	២	ប្រព័ន្ធទុយោចែកចាយទឹក	៦
អណ្តូងស្មប់	៣	ទឹកភ្លៀង	៧	អណ្តូងស្មប់	៣	ទឹកភ្លៀង	៧
អេះឬឡានលក់ទឹក	៤	ផ្សេងៗ.....	៨៨	អេះឬឡានលក់ទឹក	៤	ផ្សេងៗ.....	៨៨
១១	នៅក្នុងមណ្ឌលសុខភាព តើប្រភពទឹកមួយណាដែលប្រើប្រាស់ឡើងទាត់ជាងគេ?			....			

១២	ប្រភពទឹកនៅក្នុងមណ្ឌលសុខភាព តើត្រូវបានប្រើប្រាស់ទៅលើផ្នែកអ្វីខ្លះ? **(ចំលើយលើសពីមួយ)**	សំរាប់ផឹក	១
		សំរាប់លាងដៃ	២
		សំអាតបង្គន់	៣
		សំអាតបង្គន់	៤
		សំរាលកូន	៥
		ផ្សេងៗ.....	៩៩
១៣	ជាមធ្យម តើទឹកប៉ុន្មានលីត្រដែលមណ្ឌលសុខភាពប្រើប្រាស់អស់ ក្នុងមួយថ្ងៃៗ?	រដូវវស្សា .....លីត្រ/ថ្ងៃ	១
		រដូវប្រាំង .....លីត្រ/ថ្ងៃ	២
១៤	តើប្រភពទឹកមួយណាដែលមណ្ឌលសុខភាព ប្រើច្រើនជាងគេសំរាប់បរិភោគ?	រដូវវស្សា	១
		រដូវប្រាំង	២
១៥	តើអ្នកគិតថា ប្រភពទឹកដែលប្រើសំរាប់បរិភោគមានសុវត្ថិភាពដែរឬទេ?	មានសុវត្ថិភាព	១
		មិនសុវត្ថិភាពទេ	២
		អត់ដឹង	៩៩
		ផ្សេងៗ:.....	៩៩
១៦	តើសព្វថ្ងៃនេះ មណ្ឌលសុខភាពរបស់អ្នក បានទិញទឹកសម្រាប់ប្រើប្រាស់ដែរឬទេ?	១. ទិញ ២. មិនបានទិញ**(រំលងទៅសំនួរទី២១)**	
១៧	បើបានទិញ, តើទឹកនោះ អ្នកប្រើប្រាស់វាលើអ្វីខ្លះ?	រដូវវស្សា	
		រដូវប្រាំង	
១៨	តើទឹកប៉ុន្មានលីត្រដែលអ្នកបានទិញក្នុងមួយខែៗ	១. រដូវវស្សា ..... លីត្រ/ខែ ២. រដូវប្រាំង ..... លីត្រ/ខែ	
១៩	តើមណ្ឌលសុខភាពត្រូវចំណាយលុយប៉ុន្មានក្នុងមួយម៉ែត្រគីប?	.....រៀល/ម៉ែត្រគូប	
២០	តើក្នុងមួយខែៗអ្នកត្រូវចំណាយលើការទិញទឹកចំនួនប៉ុន្មាន?	១. រដូវវស្សា ..... រៀល/ខែ ២. រដូវប្រាំង ..... រៀល/ខែ	
២១	តើអ្នកមានដឹងទេថា ប្រភពទឹកដែលអ្នកយកមកប្រើប្រាស់រាល់ថ្ងៃមានសុវត្ថិភាពដែរឬទេ?	មានសុវត្ថិភាព	១
		មានខ្លះ អត់ខ្លះ	២
		មិនមាន	៩៩
		ផ្សេងៗ.....	៩៩

២២	តើប្រភពទឹកដែលអ្នកប្រើប្រាស់រាល់ថ្ងៃគ្រប់គ្រាន់ហើយឬនៅ?	១. គ្រប់គ្រាន់ ២. មិនគ្រប់គ្រាន់	
២៣	តើអ្នកធ្លាប់ធ្វើតេស្ត ប្រភពទឹកដែលអ្នកប្រើប្រាស់ដែរឬទេ?	១. ធ្លាប់ ២. មិនធ្លាប់**(រំលងទៅសំនួរ២៦)**	
២៤	តើអ្នកធ្វើតេស្តចុងក្រោយបង្អស់នៅពេលណា?	.....	
២៥	តើលទ្ធផលនៃការធ្វើតេស្តនោះយ៉ាងដូចម្តេច?	.....	
២៦	តើមណ្ឌលសុខភាពធ្វើដូចម្តេចទើបទទួលបានទឹកស្អាតសំរាប់ផឹក?	ជាទឹក	១
		ចំរោះទឹក	២
		ផ្សេងៗ.....	៨៨
២៧	តើមណ្ឌលសុខភាពធ្វើការទុកជាក់ទឹកយ៉ាងដូចម្តេច ដើម្បីឲ្យមានស្តង់ដ្ឋិភាព?	.....	

២.គោលការណ៍របស់មណ្ឌលសុខភាពលើកម្មវិធីទឹកស្អាតនិងអនាម័យ

២៨	បច្ចុប្បន្ននេះ តើអ្នកស្ម័គ្រចិត្តតាមភូមិដែលបង្កើតក្នុងឆ្នាំ២០១១ដំណើរការដែរឬទេ?	១. ដំណើរការ(**រំលងទៅសំនួរទី៣០**) ២. មិនដំណើរការ
២៩	បើមិនដំណើរការ, ហេតុអ្វីបានមិនដំណើរការ?	.....
៣០	តើអ្នកស្ម័គ្រចិត្តតាមភូមិមានសកម្មភាពអ្វីខ្លះ ដើម្បីឲ្យមានភាពប្រសើរឡើងក្នុងការអភិវឌ្ឍន៏អនាម័យទឹកស្អាតតាមមណ្ឌលសុខភាពរបស់អ្នក?	....
៣១	តើគណៈកម្មាការទឹកស្អាត និងអនាម័យដែលបានបង្កើតក្នុងឆ្នាំ២០១១ កំពុងដំណើរការដែរឬទេ?	១. ដំណើរការ(**រំលងទៅសំនួរទី៣៣**) ២. មិនដំណើរការ
៣២	បើមិនដំណើរការ, ហេតុអ្វីបានមិនដំណើរការ?	.....
៣៣	តើគណៈកម្មាការនោះមានសកម្មភាពអ្វីខ្លះក្នុងការធ្វើអោយប្រសើរឡើងផ្នែកទឹក និងអនាម័យក្នុងមណ្ឌលរបស់អ្នក?	....
៣៤	តើមណ្ឌលសុខភាពរបស់អ្នកបានណែនាំអ្នកជំងឺដែលមកព្យាបាល និងពិគ្រោះជំងឺពីវិធីសាស្ត្រក្នុងការទុកដាក់ទឹកដើម្បីទទួលបានទឹកស្អាតសំរាប់បរិភោគដែរឬទេ?	១. មាន ២. មិនមាន
៣៥	បើមាន, តើមណ្ឌលសុខភាពអប់រំពួកគាត់ដូចម្តេចខ្លះ?	....

ការអង្កេត/មតិយោបល់របស់អ្នកសំភាសន៍

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បញ្ចប់ការសំភាសន៍

អរគុណចំពោះការចំណាយពេលដ៏មានតម្លៃក្នុងការសំភាសន៍

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i Infections contracted in health care facility settings that were not present at the time of admission

ii For more information on SARA and related tools: http://www.who.int/healthinfo/systems/sara_introduction/en/

iii SPA tools can be downloaded through: http://dhsprogram.com/What-We-Do/Survey-Types/SPA.cfm

iv SDIs can be found here: http://www.sdindicators.org/

v According to the toolkit, a minimum score of 65% is needed prior to start a health equity fund and/or other health financing scheme, with expected improvement to 75% and 85% for the second and third year respectively.