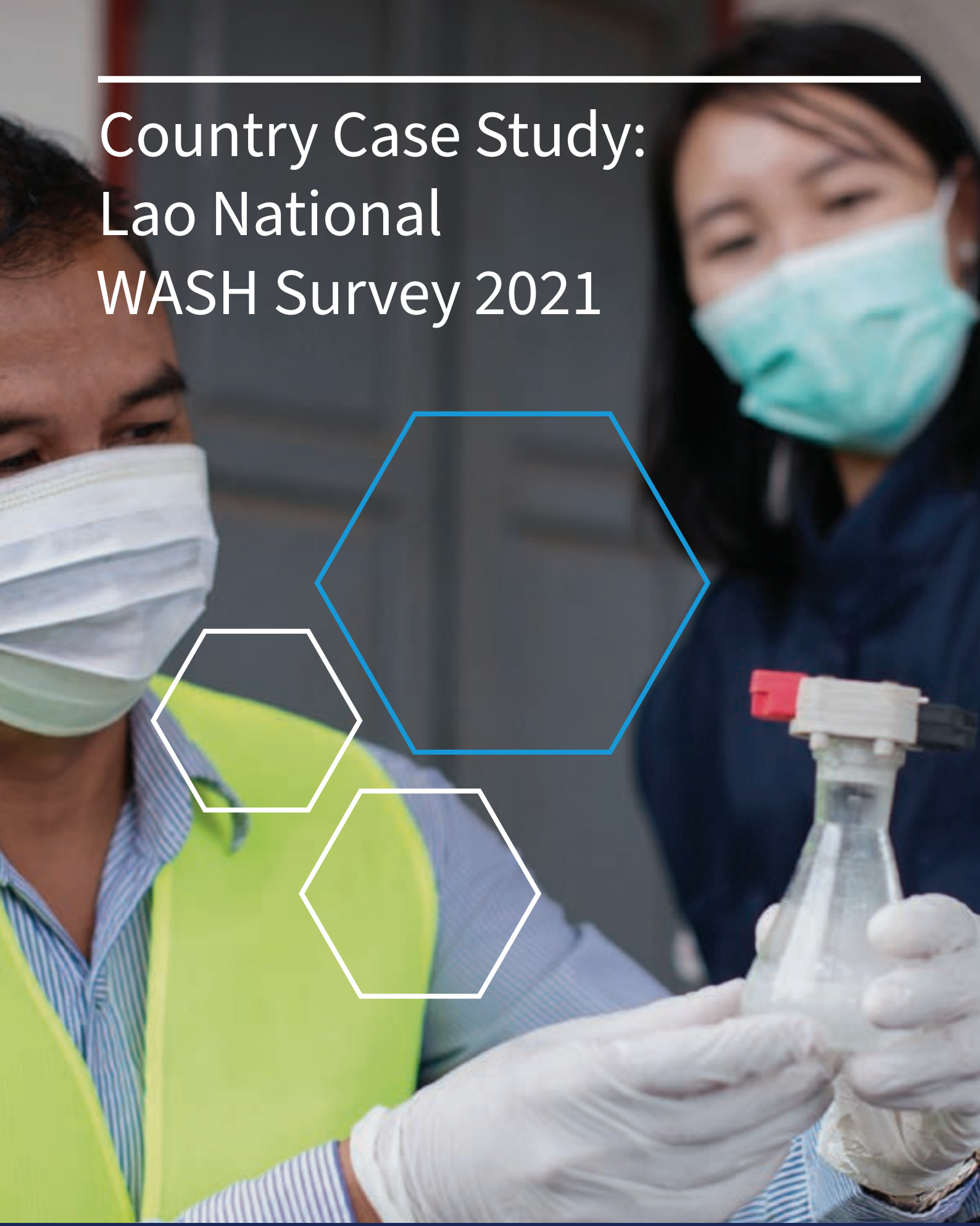
Country Case Study: Lao National WASH Survey 2021



World Health Organization
Lao PDR

Country Case Study:
Lao National WASH Survey 2021

Country Case Study: Lao National WASH Survey 2021

ISBN 978 92 9062 025 9

Suggested citation. Country Case Study: Lao National WASH Survey 2021. Manila. World Health Organization Regional Office for the Western Pacific. 2023. Licence: CC BY-NC-SA 3.0 IGO..

Cataloguing-in-Publication (CIP) data. 1. Health Facilities. 2. Hygiene. 3. Medical Waste Disposal. 4. Sanitation. 5. Water. I. World Health Organization. Regional Office for the Western Pacific (NLM Classification: WA 675).

Sales, rights and licensing. To purchase WHO publications, see http://apps.who.int/bookorders. To submit requests for commercial use and queries on rights and licensing, see http://www.who.int/about/licensing.

For WHO Western Pacific Regional Publications, request for permission to reproduce should be addressed to Publications Office, World Health Organization, Regional Office for the Western Pacific, P.O. Box 2932, 1000, Manila, Philippines, Fax. No. (632) 8521-1036, email: wpropuballstaff@who.int.

Photo credits:
© WHO/Pongpat Sensouphone, cover, p. 12; © WHO/Enric Catala, pp. v, xiii, 1, 2, 11, 19, 21, 31, 33, 40, 51; © WHO/Yoshi Shimizu, pp. 7, 15, 16, 43; © The Laotian Times, p. 9; and © WHO/Ms Viphada Sounvoravong, pp. 29, 44, 45, 46.

Contents


Gynecology Room

Foreword from the Minister of Health

Universal access to basic, essential and functional water, sanitation and hygiene (WASH) and medical waste management services is a precondition to delivering quality health care and achieving the goal of the Lao People's Democratic Republic of universal health coverage (UHC) by 2025. To achieve this, the Lao Ministry of Health (MOH) has prioritized the development of relevant policies and strategies, basic health facility environmental standards, and health-care waste management regulations and adopted tools to implement these standards and regulations in health-care facilities (HCFs).

The *National Rural Water Supply, Sanitation and Hygiene Strategy 2018–2030*, a WASH policy for rural areas, was developed in the Lao People's Democratic Republic in 2016 with the primary objective of achieving universal access to safe, reliable and affordable WASH services for all. This Strategy, together with the National Action Plan, aims to reduce open defecation to zero, to provide basic and safely managed water supply and sanitation for households and institutions (including schools, health facilities and markets), and to promote hygiene overall. There is ongoing progress in achieving the Sustainable Development Goal (SDG) targets for basic water and sanitation. However, this progress could be impacted by climate change and its effects on the sustainable provision of water and sanitation services. The Lao People's Democratic Republic is situated in a geographical region that is highly vulnerable to global climate change. Climate change is expected to cause an increase in mean annual rainfall during the wet season, with an associated increase in flood risk. More than 50% of the population live in flood-plain areas, which are particularly susceptible to floods and other extreme weather events.

In response to these challenges, the MOH developed a *Strategy on Climate Change and Health Adaptation* in 2018. A priority area of the strategy is to build climate-resilient WASH and HCFs in flood-prone areas. Following adaptation of the World Health Organization Water and Sanitation for Health Facility Improvement Tool (WASH FIT) to the local context, the tool was piloted in 2019 at district hospitals in three provinces heavily affected by climate change. The MOH has since expanded the implementation of WASH FIT to six provinces, combining it with a comprehensive package of interventions, the Safe Clean Green and Climate Resilient Healthcare Facilities Initiative, in July 2020. The MOH has long-term strategic plans to continue to expand this initiative that started from southern provinces and districts prone to floods and storms, and scale up to implementation in northern provinces challenged by flash floods, landslides in the wet season and water shortages in the dry season. This move is aligned with the *9th Health Sector Development Plan 2021–2025*, the main objective of which is to ensure that the Safe Clean Green and Climate Resilient Healthcare Facilities Initiative contributes to achieving the development goals of the *9th National Socio-Economic Development Plan*, UHC by 2025 and SDGs by 2030.

This baseline study is critically important in better understanding and improving the current level of access to WASH services in the country and will help in addressing climate and environmental challenges, ensuring high-quality care for the people of the Lao People's Democratic Republic. I would like to sincerely thank all contributors for the invaluable support provided to this report and the clear, strategic actions and monitoring framework developed as a result.

Dr Bounfeng Phoummalaysith
Minister of Health
Lao People's Democratic Republic

Foreword from the WHO Representative

Health-care facilities (HCFs) are environments with a potentially high prevalence of infectious disease agents. Patients, staff and carers, as well as patient relatives and visitors, face unacceptable risks of infection in HCFs if these settings are unhygienic. The delivery of effective, quality and safe health-care services depends on various key requirements, including safe and sufficient drinking water, basic sanitation, adequate management of health-care waste, appropriate awareness and practice of hygiene and environmental cleaning, and adequate ventilation and access to electricity. However, these requirements are too often not available in health-care settings, particularly in primary care.

Achieving sustainable water, sanitation and hygiene (WASH) and health-care waste services in HCFs requires health sector leadership. The World Health Organization (WHO) is uniquely positioned to catalyse and support action on WASH and health-care waste in HCFs through strong cross-sectoral relationships, particularly within relevant health areas such as maternal, newborn and child health; infection prevention and control; antimicrobial resistance; and quality universal health coverage. WHO further works with partners on climate change, energy and injection safety to advance global and national progress in health-care waste management.

The National WASH Survey 2021 represents an important step in WHO's collaboration with the Government and health sector in the Lao People's Democratic Republic to improve WASH services in HCFs. WHO was responsible for the survey design, training and funding support for data collectors, data entry and analysis, and report development. The preliminary results were presented by WHO staff to the Ministry of Health (MOH), provincial health department staff and hospital managers. WHO staff then developed a monitoring framework which was presented to the MOH and relevant partners. Based on their feedback, a monitoring plan and requirements for basic-level WASH services were finalized.

This country case study report illustrates the current state of WASH services in HCFs in the Lao People's Democratic Republic and future directions and will serve as an official reference to define the national road map for WASH in HCFs in the country.

Dr Ying-Ru Jacqueline LO
WHO Representative to the Lao People's Democratic Republic

Acknowledgements

This report is the result of a collaboration between several contributors, reviewers and editors. The development of the report was led by the World Health Organization (WHO), in collaboration with the Ministry of Health (MOH) of the Lao People's Democratic Republic. Fieldwork and data collection were financially supported by the Government of Japan via the universal health coverage (UHC) 2030 partnership. Methodology development, stakeholder consultations, report writing, design and publication were financially supported by the Green Climate Fund and Global Environmental Facility.

This report was written by Professor Hyun Kim (University of Minnesota, United States of America), Ms Erin C. Kawazu (Institute for Global Environmental Strategies, Japan), Dr Oyuntogos Lkhasuren (WHO Lao country office), Mr Dilipkumar Hensman (WHO Lao country office), Ms Gina Lamprell (WHO Lao country office consultant) and Dr Ying-Ru Lo (WHO Representative to the Lao People's Democratic Republic). Statistical analysis and central and subnational hospital profiles were developed by Mr Carl Massonneau (WHO Lao country office consultant) with coordination and technical guidance support from Dr Lkhasuren and Mr Hensman. Data collection and verification was undertaken by field data collectors under the guidance of Dr Phonepaseuth Ounaphom (Director General, Department of Hygiene and Health Promotion, MOH), Dr Khounkham Miboun (Director, National Centre for Environmental Health and Water Supply, MOH) and Ms Souvanaly Thammavoung (WHO Lao country office). Overall supervision and managerial leadership support was given by Dr Lo.

Dr Ounaphom, Dr Panom Phongmany (former Deputy Director of the Department of Hygiene and Health Promotion, MOH), Dr Lkhasuren, Mr Hensman and Ms Thammavong designed methodology and survey forms and developed monitoring and evaluation frameworks. Three WHO Lao country office consultants, Mr Noupheuak Virabouth, Mr Younjoon Park and Ms Viphada Sounvoravong, entered data collection forms into the KoBoCollect survey platform and led the data collection team's activities. Ms Arabella Hayter (WHO headquarters consultant) reviewed and provided invaluable feedback on the manuscript.

The authors wish to thank the following individuals who collected data and conducted field surveys:

Ms Alounphone Meuanthep, Dr Vilaivone Mangkhaseum and Mr Sadavouth Manivong (Department of Hygiene and Health Promotion, MOH); Ms Sengphet Thammavong, Ms Chanthachone Soumphonphakdy, Mr Phousavanh Sisavath, Mr Chantha Vongthavady, Mr Phonpaseuth Douangdisavath, Ms Khamphian Phommachak, Mr Phonphisak Khamchamphone, Ms Dalavone Xaiyasak, Mr Khampahao Sengchanh, Mr Sonxay Inthanom, Ms Phonthip Bouathong, Mr Chansanith Luangvanna, Ms Nivan Vongsipasom, Mr Phisoutsak Keochanpheng, Mr Sengphet Keomany, Mr Phisoutsak Keochanpheng, Mr Phouvang Siriphanthong and Mr Sengphet Keomany (National Centre for Environmental Health and Water Supply, MOH); Mr Laoly Faydangxiachong, Mr Cha Moua, Mr Sayasin Khongsavath, Mr Kaithong Vongchantha, Ms Sitthiphone Vannivongkham,

Ms Ouy Phomkhanxay, Mr Hoy Bounthian, Mr Laolee Faydangxiachong and Mr Cha Moua (Plan International in the Lao People's Democratic Republic); Mr Thavone Luanglath and Mr Vilaysak Luangaphay (SWSSH Project, Department of Water Supply, Ministry of Public Works and Transport); Mr Khammeuan Singkhoun (Savannakhet Provincial Health Department); Ms Vatsana Vandidonsavanh (Songkhon District Health Office, Savannakhet province); Mr Hatsapha Soulivong (Atsaphone District Health Office, Savannakhet province); Ms Malaysy Xaiyachak, Mr Nivone Khounphakdy and Ms Chanthachone Thepvongsa (Champasak Provincial Health Department); Mr Nivone Khounphakdy and Ms Malaysy Xaiyachak (Khong District Health Office, Champasak province); Mr Khamsone Ngoychonmy (Ta-Oy District Health Office, Salavan province); Mr Chanthavy Silavanny (Kaxa Health Centre, Salavan province); Mr Nouthong Keolangsy, Mr Chiang Yapalonghang and Dr Bounthanom Naklila (Sekong Provincial Health Department); Mr Sida Phavan (Attapu Provincial Health Department); and Mr Souksa-nguan Kommadam (Phouvong District Health Office, Attapu province).

Abbreviations

DHIS2	District Health Information System 2
DHO	district health office
HCF	health-care facility
H-NAP	Health National Adaptation Plan
JMP	Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
MOH	Ministry of Health
NSEDP	National Socio-Economic Development Plan
PHO	provincial health office
SDG	Sustainable Development Goal
UHC	universal health coverage
UN	United Nations
UNICEF	United Nations Children's Fund
WASH	water, sanitation and hygiene
WASH FIT	Water and Sanitation for Health Facility Improvement Tool
WHO	World Health Organization

Executive summary

This report describes the Lao National WASH Survey 2021 and its results. The purpose of the report and the survey itself is to examine water, sanitation and hygiene (WASH) and waste management services, as well as climate resilience, in health-care facilities (HCFs) in the Lao People's Democratic Republic.

The report provides:

- evidence on WASH service levels and climate change impacts and preparedness in HCFs at national and province levels;
- evidence-based suggestions for actions to strengthen and improve WASH services and climate resiliency in HCFs; and
- a monitoring framework providing a consistent approach to capturing data and a baseline for monitoring progress on WASH services and climate resilience until 2025, and beyond to 2030.

The National WASH Survey 2021 was administered in almost all (1225 of 1237) HCFs in the country from September 2020 to August 2021. The survey results reveal that while most facilities (70%) have basic[1] water services, there are significant gaps in the delivery of services relevant to sanitation, hygiene and health-care waste, especially in health centres. Only 16% and 19% of HCFs have basic hygiene and waste management services, respectively, with the greatest gaps found in health centres. Of concern is the fact that only 2% of all HCFs, regardless of size, have basic sanitation services. Province-level analyses reveal that, apart from sanitation services, service delivery is geographically skewed, with some provinces especially underserved.

The survey also reveals that very few HCFs are climate resilient, despite the fact that a large majority of facilities have reportedly been impacted by extreme weather events in the last 20 years. Over half of HCFs that experienced extreme weather events attributable to climate change have been severely damaged in the last two decades, yet only 1% of HCFs have any measures in place to reduce their vulnerability to extreme weather events.

Based on the results of the survey, this report presents a monitoring framework and national- and HCF-level measures that can be taken to further enhance WASH services and climate resilience in the country, and ultimately strengthen the performance of its health system. National measures include:

- Develop a national policy and strategic action plan for the provision of basic WASH and health-care waste management services in all HCFs.
- Target underserved HCFs identified by the National WASH Survey as priority for national and subnational planning.

[1] Basic service levels are defined by the Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) (https://apps.who.int/iris/handle/10665/275783). The complete definitions are provided in the present report. *Water:* Water is available from an improved source (e.g. household connections, public standpipes) located on premises. *Hygiene:* Functional (i.e. with water and soap and/or alcohol-based hand rub) hand hygiene facilities at both points of care and toilets. *Sanitation:* Improved sanitation facilities (e.g. flush/pour flush to piped sewer system) that are usable with at least one toilet for staff, one sex-separated toilet and one toilet accessible for people with limited mobility. *Waste:* Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.

- Establish a routine monitoring system and regularly review and share progress in improving WASH services.
- Conduct regular climate awareness campaigns and support climate adaptation measures.

This report will serve as an official reference to define the national road map for WASH in HCFs in the Lao People's Democratic Republic, and as an advocacy tool to be used within the Government and for development partners to mobilize resources for improving WASH services.

Chapter 1. Introduction

Water, sanitation and hygiene (WASH) and waste management services in health-care facilities (HCFs) are a prerequisite for quality medical care and the prevention of avoidable infections and deaths *(1)*. WASH is necessary for virtually all aspects of the health-care service chain, including safe water for drinking, patient care and personal hygiene; ensuring a clean environment and clean rooms for childbearing, surgeries and other procedures; safe and accessible toilets; providing effective handwashing facilities for before and after procedures and examinations to prevent infections; and safe and sustainable waste management.

The importance of WASH services in HCFs was further highlighted at the onset of the COVID-19 pandemic in 2020. Without basic WASH, preventive measures such as handwashing are a challenge, making it easier for infections to spread rapidly through HCFs *(2)*.

Meanwhile, there is widespread recognition of the impacts that climate change-attributable events may have on WASH services in health-care settings. These impacts are already being felt and represent a significant threat to providing safe and quality care *(1)*.

Various global commitments have mobilized countries to take serious action on WASH services in HCFs. These include the Sustainable Development Goals (SDGs), in particular, SDG 6 to *ensure availability and sustainable management of water and sanitation for all (3)*; the United Nations (UN) Secretary-General's global call to action in 2018 at the launch of the International Decade for Action 2018–2028, urging countries to commit to improving WASH in HCFs *(4)*; and World Health Assembly resolution 72.7 to which Member States committed in 2019 *(5)*. The resolution emphasized the need for national

assessments, situation analyses and road maps, and the implementation of targets and standards to monitor development.

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) contains a set of harmonized indicators for monitoring WASH in HCFs to track global progress and contribute to national and global monitoring *(1,6–8)*. To assist countries in SDG monitoring and facilitate standardized monitoring of services, the JMP devised the *Core questions and indicators for monitoring WASH in health care facilities in the Sustainable Development Goals (8)*. These core questions and indicators are based on a multi-level service ladder defining *basic*, *limited* and *no* services (Table 1).

TABLE 1. JMP service ladder defining WASH service levels

WATER	**Basic service**	Water is available from an improved source[a] located on premises.
	Limited service	Improved water source within 500 metres of the HCF, but not all requirements for basic services met.
	No service	No water source or water is taken from unprotected dug wells, springs or surface water sources, or improved source that is more than 500 metres from the HCF.
SANITATION	**Basic service**	Improved sanitation facilities[b] that are usable with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility.
	Limited service	At least one improved sanitation facility but not all requirements for basic service met.
	No service	No or unimproved facilities, including pit latrines without a slab or platform, hanging latrines and bucket latrines.
HYGIENE	**Basic service**	Functional hand hygiene facilities at both points of care and toilets; facilities are considered functional when there is water and soap and/or alcohol-based hand rub available at points of care and within 5 metres of toilets.
	Limited service	Functional hand hygiene facilities at either points of care or toilets, but not both.
	No service	No functional hand hygiene facilities available at either points of care or toilets.
WASTE MANAGEMENT	**Basic service**	Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.
	Limited service	Limited separation and/or treatment and disposal of sharps and infectious waste, so that not all requirements for basic service are met.
	No service	No separate bins for sharps or infectious waste, so that sharps and/or infectious waste are not safely treated/disposed of.

[a] Improved water sources include household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection that provides drinking water within 30 minutes.

[b] Improved sanitation facilities are those designed to hygienically separate excreta from human contact and include flush/pour flush to piped sewer system, septic tanks or pit latrines, ventilated improved pit latrines, composting toilets or pit latrines with slabs.

Source: WHO/UNICEF JMP *(8)*.

Global targets have been set based on these definitions, including basic WASH services in at least 80% of HCFs by 2025 and universal access to basic WASH services by 2030.

WHO/UNICEF's 2020 *Global progress report on WASH in health care facilities: fundamentals first* assessed country progress based on an eight-step framework for implementing and monitoring WASH services improvements (Fig. 1) *(1)*.

FIG. 1. Framework for national and local action and accountability: eight steps to improve WASH in HCFs

Source: Reproduced from WHO/UNICEF *(1)*.

Through the lens of the framework, the global report highlighted that major gaps persist for WASH services in HCFs, with only half of the HCFs in least-developed countries having access to basic water services, and even fewer having basic sanitation and health-care waste management services *(1)*. However, some progress regarding WASH services in HCFs has been made. For example, some success in expanding monitoring data, previously identified as a major challenge, was reported *(1)*.

The global report found that, in the Lao People's Democratic Republic, solid progress has been made in implementing many of the eight steps of the framework to improve WASH in HCFs, namely: coordinating nationally and setting road maps; setting national standards for WASH in HCFs and health-care waste management; and improving infrastructure *(1)*. However, it was further noted that the country has yet to fully implement the first step of the framework, to conduct situation analyses and baseline assessments or data collection *(1)*.

The Lao National WASH Survey 2021 described in this report helps to fill this evidence gap with a twofold objective:

- Gain a better understanding of WASH services and climate change preparedness in HCFs, and develop a baseline for monitoring.
- Using the baseline results, build a monitoring framework with targets for national and SDG monitoring.

This report first introduces the Lao country context and the policies and actions implemented by the country to improve WASH services and address climate change (Chapter 2). The report then introduces the Lao National WASH Survey 2021 and results, which give a comprehensive description of WASH and health-care waste services and climate resilience in HCFs at the national and provincial level (Chapters 3–6). Finally, based on the results of the survey and review of national WASH-related policies and actions, a monitoring framework is introduced and evidence-based measures to strengthen and improve WASH services are suggested (Chapter 7).

The first survey of its kind in the Lao People's Democratic Republic, the National WASH Survey 2021 provides invaluable information on the current state of WASH services and climate resiliency in HCFs in the country, and a monitoring framework that will allow for a consistent approach to capturing data and a baseline to define the national road map and monitor progress on WASH and climate resiliency in HCFs. This survey report will serve as an advocacy tool to be used within the Government and for development partners to mobilize resources for improving WASH in HCFs.

Chapter 2. WASH and climate change in the national context

The Lao People's Democratic Republic has taken its global commitments to improve WASH and waste management services and climate resilience in health-care settings seriously, and has prioritized relevant policies and actions to reflect this. Most recently, the country's COVID-19 and climate change response has included the adoption and rapid implementation of tools and initiatives to safeguard WASH services in HCFs.

2.1 Introduction to the Lao People's Democratic Republic

The Lao People's Democratic Republic is a landlocked country in South-East Asia, bordering Myanmar, Cambodia, China, Thailand and Viet Nam. It is divided into 18 provinces, including Vientiane Capital (Fig. 2).

FIG. 2. The 18 provinces of the Lao People's Democratic Republic including Vientiane Capital (blue)

The country's geography is dominated by forests, which cover over 70% of its land mass (as of 2020) *(9)*, and of the 7.28 million people who live in the Lao People's Democratic Republic, 36.3% live in urban areas (as of 2020) *(10–12)*.

2.1.1 COVID-19

The impacts of COVID-19 in the Lao People's Democratic Republic have been significant. From 3 January 2020 to 24 March 2022, the country reported roughly 159 000 cases and 652 deaths attributed to COVID-19 *(13).* WASH and waste management services are essential to the prevention and control of disease outbreaks, and the COVID-19 pandemic has highlighted the need for rapid improvements in access to basic WASH services in HCFs. In particular, as in most countries, the Government and development partners faced challenges in managing waste generated during the handling and treatment of COVID-19 patients and suspected cases *(14).*

2.1.2 Climate change

The Lao People's Democratic Republic is situated in a region highly vulnerable to climate change. Climate change is expected to cause greater flood risk due to an increase in mean annual rainfall during the wet season. This is especially alarming as over half of the population live in flood-plain areas, which are particularly susceptible to floods and other extreme weather events *(15).*

As one example of the devastating effects of climate change already impacting HCFs, the country experienced the worst flood in a decade in July 2018, due to heavy rainfall that caused a large dam to collapse in the southern province of Attapu *(1)*. One assessment quantified the impact of this disaster at over US$ 370 million and noted that five HCFs in the area were either completely damaged or forced to be relocated due to severe flooding *(1)*.

2.1.3 WASH services

As of 2020, in the general population, 85% of people have access to at least a basic water supply. This was reported by 78.5% of people living in rural areas and almost all (97%) of people living in urban areas *(16).* For access to at least basic sanitation, the disparity between rural and urban communities is larger, with 69.1% of rural dwellers and 97% of urban dwellers having access (the national average is 79.5%) *(16)*. While a little over half of the general

population is estimated to have access to a facility with soap and water for hygiene (55.6%), this differs considerably depending on the type of community (at 45.6% and 73.3% for rural and urban, respectively) *(16)*.

With regard to WASH services in HCFs, data prior to the undertaking of the National WASH Survey 2021 were limited. The Service Availability and Readiness Assessment survey conducted by the Ministry of Health (MOH) in 2014 with support from WHO and the World Bank collected data from 80 health centres and 40 district hospitals in the country *(17)*. It found that 25% of health centres and 50% of district hospitals did not have access to an improved water supply, and 25% of health centres and 45% of district hospitals lacked improved sanitation facilities. About 80% of district hospitals did not have disposable (or auto-disable) syringes and only 18% reported having an appropriate system for storing sharps waste. Over 60% of district hospitals did not have latex gloves on-site and over 40% did not have soap and water or alcohol-based hand rubs. Over 60% of health centres did not have the means to properly store infectious waste, and over 30% did not dispose of infectious waste in a safe manner *(17).*

These historical data suggest that HCFs have less access to basic water and sanitation services compared to the national average, further highlighting the need to better understand the state of WASH services in the health-care context and consider how to improve these services for the benefit of patients, health practitioners and communities at large.

2.2 National WASH- and climate change–related policies and actions

The provision of improved WASH services for HCFs is an important component of the Government's strategic directions for the health sector, a fundamental building block when it comes to improving quality and safety of care, and key to achieving universal health coverage (UHC) goals by 2025. The country's ambitious target for WASH services in HCFs, according to the *National Plan of Action 2018–2030*, is to reach basic services in 85% of HCFs by 2025. To reach this target, it has prioritized the development of WASH-related policies, strategies, standards and regulations, and tools for implementation.

Since the start of the *2030 Agenda on Sustainable Development*, the Lao People's Democratic Republic has been among the first to localize the SDGs, with roughly 60% of the indicators of its *8th National Socio-Economic Development Plan* (NSEDP) reflecting the SDGs *(18).* The 8th NSEDP's indicators for Green Growth include those relevant to water and sanitation, especially in the context of urban water and sanitation. The 9th NSEDP sets a target of safe water utilization rate to reach 95% and household-level toilet utilization rate to reach 85% by 2025. It also aims to implement more inclusive and better-quality health-care services with a primary focus on hygiene, disease prevention and health promotion.

The Lao People's Democratic Republic has a number of institutional frameworks in place to manage WASH-related resources and is updating these regularly. For example, the Water and Water Resources Law (2017), Health Care Waste Management Regulation (2017), Basic Environmental Health Standards in HCFs (2018), and Law on Disaster Management (2019). The MOH plans to revise the *Health Care Waste Management Regulation and Basic*

Environmental Health Standards in HCFs with support from WHO.

The *National Rural Water Supply, Sanitation and Hygiene Strategy 2018–2030*, a WASH policy for rural areas, was developed in 2016 with the main objective of achieving universal access to safe, reliable and affordable WASH services for all. Together with the *National Plan of Action 2018–2030*, its aim is to eliminate open defecation, provide basic and safely managed water supply and sanitation for households and institutions (including schools, health facilities, markets, etc.), and promote hygiene overall.

The Scaling-Up Water Supply, Sanitation and Hygiene Project led by the World Bank was initiated in 2019. The country intends to continue expanding the initiative, specifically focusing on meeting targets to increase access to improved water and sanitation services among rural communities and among girls and women *(19).*

To address the climate crisis, the Government committed to unconditionally reducing 60% of greenhouse gas emissions, including within the health sector, as stated in its updated and enhanced 2020 Nationally Determined Contribution, submitted in 2021 *(19).* Greenhouse gas emissions in 2020 were estimated at 53 000 ktCO2e, a 34% reduction since 2000 *(19).* In 2022, the MOH made the ambitious commitment to build a climate-resilient and low-carbon sustainable health system as part of the 26th UN Climate Change Conference of the Parties Health Programme. Fifty-nine countries have now made commitments, presenting a huge opportunity to make progress on addressing the challenges that climate change poses for health, especially amongst vulnerable populations *(20).*

While making progress on mitigation measures, the Government has also taken steps to make the country more resilient to the impacts of climate change, especially in vulnerable sectors such as public health, agriculture, forestry and land use,

water resources, transport and energy *(19).* For public health, the country developed its *Strategy on Climate Change and Health Adaptation 2018–2025* and Action Plan 2018–2020, defining the strategic direction for building a climate-resilient health system. A priority area of the strategy is to build climate-resilient WASH services and HCFs in flood-prone areas *(19).*

To support the implementation of WASH standards and regulations, and address climate impacts on WASH services, the WHO Water and Sanitation for Health Facility Improvement Tool (WASH FIT) was adopted in 2017. Over 40 countries, including the Lao People's Democratic Republic, have used WASH FIT to assess and improve the state of WASH in HCFs *(1,21)*. The tool, developed by WHO and UNICEF, covers WASH and waste management, environmental cleaning, and some aspects of energy, building and facility management *(21)*.

The country adopted the use of WASH FIT to support the implementation of national WASH standards and regulations at the HCF level. The tool was adapted to the local context, with two versions developed: one for use in central, provincial and district hospitals; and another for use in primary care centres *(1)*. WASH FIT was first piloted at Champhone district hospital in Savannakhet province, which was well received by hospital management. Notable improvements followed, such as improved access to clean water, sanitation, and medical waste management, which enhanced overall cleanliness *(1)*.

Given that WASH FIT is a risk-based tool, it has proven useful in evaluating ways to increase climate resilience in HCFs. In 2019, the WASH FIT tool was adopted in three flood- and drought-prone provinces to ensure that HCFs are resilient to the impacts on infrastructure that may be brought about by extreme weather events *(22)*. Improvements included, for example, installing raised water tanks in water-scarce areas.

In July 2020, the MOH's Safe Clean Green and Climate Resilient Healthcare Facilities Initiative was initiated to expand the implementation of WASH FIT and national WASH standards in response to COVID-19 and climate change, and for continuous improvement of safe and quality care. The initiative focuses on four interventions (tools, technologies, supplies and equipment), based on which HCFs assess, improve and monitor WASH services, with support from the district health office *(1)*. COVID-19-dedicated hospitals and hospitals most affected by climate change were selected by the MOH's Department of Hygiene and Health Promotion to join the initiative. A total of 62 hospitals have joined since July 2020. The MOH has long-term strategic plans to continue to expand this initiative.

As part of the initiative, health-care waste management regulations were developed requiring all central, provincial and district hospitals to use on-site non-combustion technology. More than 100 HCFs shifted to non-combustion technology between 2020 and 2022, including 100% of central and provincial hospitals and 50% of all district hospitals.

Most recently, the *Health National Adaptation Plan* (H-NAP) was developed in collaboration with the MOH's Department of Hygiene and Health Promotion, the Ministry of Natural Resources and Environment, and key stakeholders, with technical support from WHO. H-NAP aims to provide strategic guidance to the health sector for establishing a climate-resilient health system and ensuring that the health sector works with multisectoral stakeholders and development partners toward this goal. Implementation began in 2022.

The Lao National WASH Survey 2021 described in the following chapters provides an important evidence base and baseline estimates to support ongoing efforts to better guide WASH- and climate-related policies. This is critical for the improvement of WASH services in HCFs in the country.

Chapter 3. Building the evidence base: the Lao National WASH Survey 2021

In 2021, a national survey of WASH and waste management services and climate resilience in HCFs in the Lao People's Democratic Republic was conducted. This survey aimed to establish the baseline situation, gaps and future needs regarding basic access to WASH and waste management services and climate change impacts and preparedness in HCFs in the country.

3.1 Survey design

The National WASH Survey 2021 was developed by the MOH and WHO technical staff in consultation with a multi-stakeholder group, including national health policy-makers, HCF managers, and national and subnational specialists on WASH, health information and data monitoring.

WASH-related indicators and questions were adapted from the JMP's core questions and indicators for SDG monitoring of WASH services *(8)*[1] and tailored to the country context, with some additional questions added for national monitoring. The JMP indicators and questions are based on a multi-level service ladder defining *basic*, *limited* and *no* services (see Table 1 in Chapter 1). The core WASH indicators defined by the JMP and used in this survey reflect *basic* service.

For national monitoring of the impacts of and preparedness for climate change in HCFs, a core indicator and associated questions were adapted from the WHO Western Pacific Regional Office *Safe Hospitals in Emergencies and Disasters* report, which provides a list of indicators to consider when assessing the vulnerabilities of hospitals and health facilities *(23).*

The National WASH Survey 2021 core indicators, and a summary of the related questions, are given in Table 2 below. The survey form with all questions is available in Annex 1.

[1] WHO/UNICEF provide an indicator for environmental cleaning that was not included in the survey. As part of the response to the COVID-19 pandemic, WASH specialists and technical units in the Lao People's Democratic Republic are prioritizing cleaning and disinfection in HCFs. Environmental cleaning has therefore been addressed as part of infection prevention and control strategies and guidelines rather than WASH standards and action plans in the country.

TABLE 2. National WASH Survey 2021 core indicators and summarized questions

Water	**Indicator: Proportion of HCFs where the main source of water is an improved source,[a] located on premises, from which water is available.** Questions related to water addressed the main water source; its proximity to the HCF; availability of the water source; cleanliness of the water; the main reason water is not available (where relevant); and water shortage.
Sanitation	**Indicator: Proportion of HCFs with improved[b] and usable sanitation facilities, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for users with limited mobility.** Questions related to sanitation addressed the type, usability and number of toilets; accessibility of toilets (for those with disabilities); whether the toilets were separated by sex; safe disposal of excreta; and waste water treatment.
Hygiene	**Indicator: Proportion of HCFs with functional hand hygiene facilities available at one or more points of care and within 5 metres of toilets.** Questions related to hygiene addressed the availability of soap and handwashing facilities and proximity to points of care.
Waste management	**Indicator: Proportion of HCFs with waste correctly segregated in the consultation area and infectious and sharps waste safely treated/disposed of.** Questions related to health-care waste addressed separation of types of waste in appropriate bins; treatment and disposal of sharps waste; treatment and disposal of infectious disease; whether or not the health-care waste management system was damaged or destroyed by floods recently; the availability and functionality of the waste-water treatment facility; and types of waste treatment technologies used by the HCF.
Climate change	**Indicator: Proportion of HCFs with measures to reduce vulnerability to extreme weather events[c] and strategies to deal with long-lasting electricity and water supply (pump) disruptions.** Questions related to climate change addressed the impacts of extreme weather events[c] in the last 20 years, and whether the structural and non-structural elements[d] of the HCF were damaged by the last extreme weather event; and disaster preparedness, including whether there is a strategy for dealing with disruptions in utility services during extreme weather events, physical accessibility to the HCF during disasters, the extent to which the HCF is able to treat and care for patients associated with extreme weather, and training on climate-related health outcomes for health professionals.

[a] Improved water sources include household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection that provides drinking water within 30 minutes.
[b] Improved sanitation facilities are those designed to hygienically separate excreta from human contact and include flush/pour flush to piped sewer system, septic tanks or pit latrines, ventilated improved pit latrines, composting toilets or pit latrines with slabs.
[c] Extreme weather, as defined by the survey, included events such as extreme heat, floods, droughts, wildfires and storm surges.
[d] Structural elements of HCFs include windows, doors and roofs. Non-structural elements include computers, diagnostic equipment and testing reagents.

Source: WASH indicators are from WHO/UNICEF JMP *(8)* with some additional questions devised for the purpose of national monitoring. Climate change indicators and questions were devised for this survey for the purpose of national monitoring.

3.2 Data collection

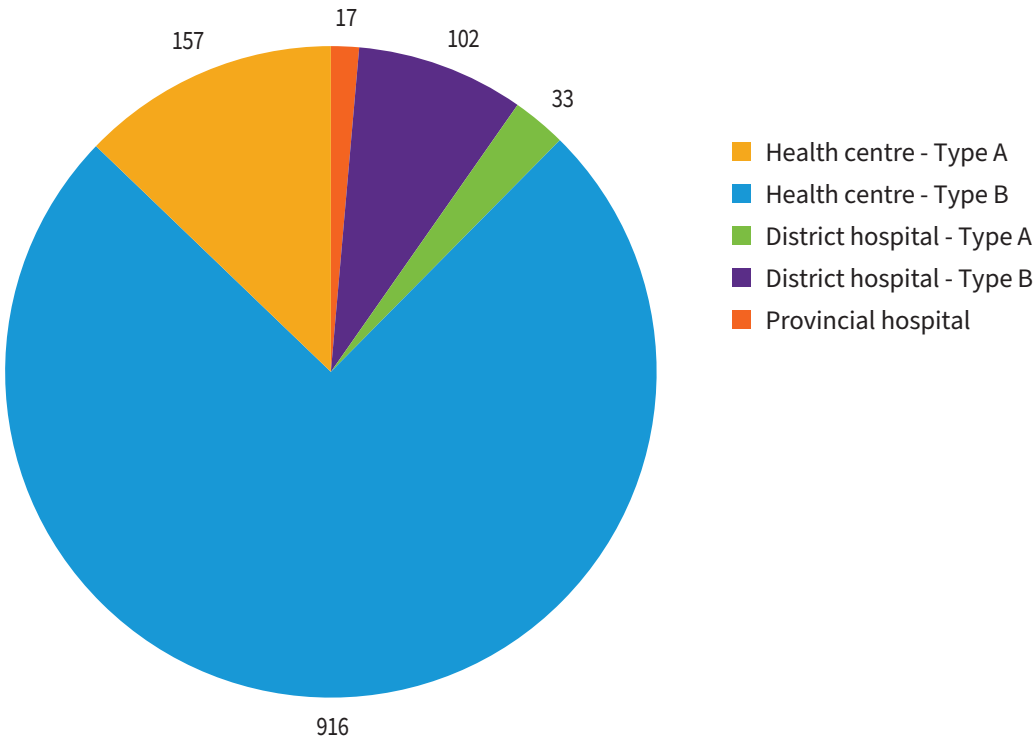
The forms for data collection were harmonized in July 2018, which allowed for pilot data collection to begin in 2020 using KoBoCollect (Humanitarian Response)[2] and tablets procured via WHO funds. Pilot data collection was conducted at one provincial and one district hospital by a WHO/MOH joint team in 2020. Based on this, the data collection form was revised by adding definitions and pictures of

[2] KoBoCollect (Humanitarian Response) is an open-source Android app for collecting and managing data in challenging environments.

various types of water and sanitation facilities to avoid bias in data collection.

All 1237 HCFs in the country were invited to participate. Almost all HCFs participated in the 2021 survey (1225 of 1237), including provincial and district hospitals and health centres (Fig. 3). Two health centres did not participate, and the remaining 10 HCFs were central hospitals that administered the survey (using the same protocol) in 2022 when pandemic caseloads reduced. The results of the central hospital survey have not been included in the main results and can instead be found in Annex 2.

FIG. 3. Types of HCFs surveyed



District hospital - Type A: performs caesarean sections; District hospital - Type B: does not perform caesarean sections; Health centre - Type A: with a population catchment of over 7500 people; Health centre - Type B: with a population catchment of under 7500 people.

Note: A total of 1225 HCFs were surveyed.

The data were collected from September 2020 to early August 2021. Data collection was overseen by the National Centre for Environmental Health and Water Supply (*Nam Saat*), the WHO environmental health team and the MOH's Department of Hygiene and Health Promotion. The survey was administered by 55 surveyors from the MOH and central institutions, WHO, subnational organizations including provincial health offices (PHOs) and district health offices (DHOs), and international and domestic nongovernmental organizations.

The survey team received training on the use of the data collection tool (KoBoCollect). All questions were either binary (yes/no) or multiple choice with an option to write a free response if "other(s)" was selected.

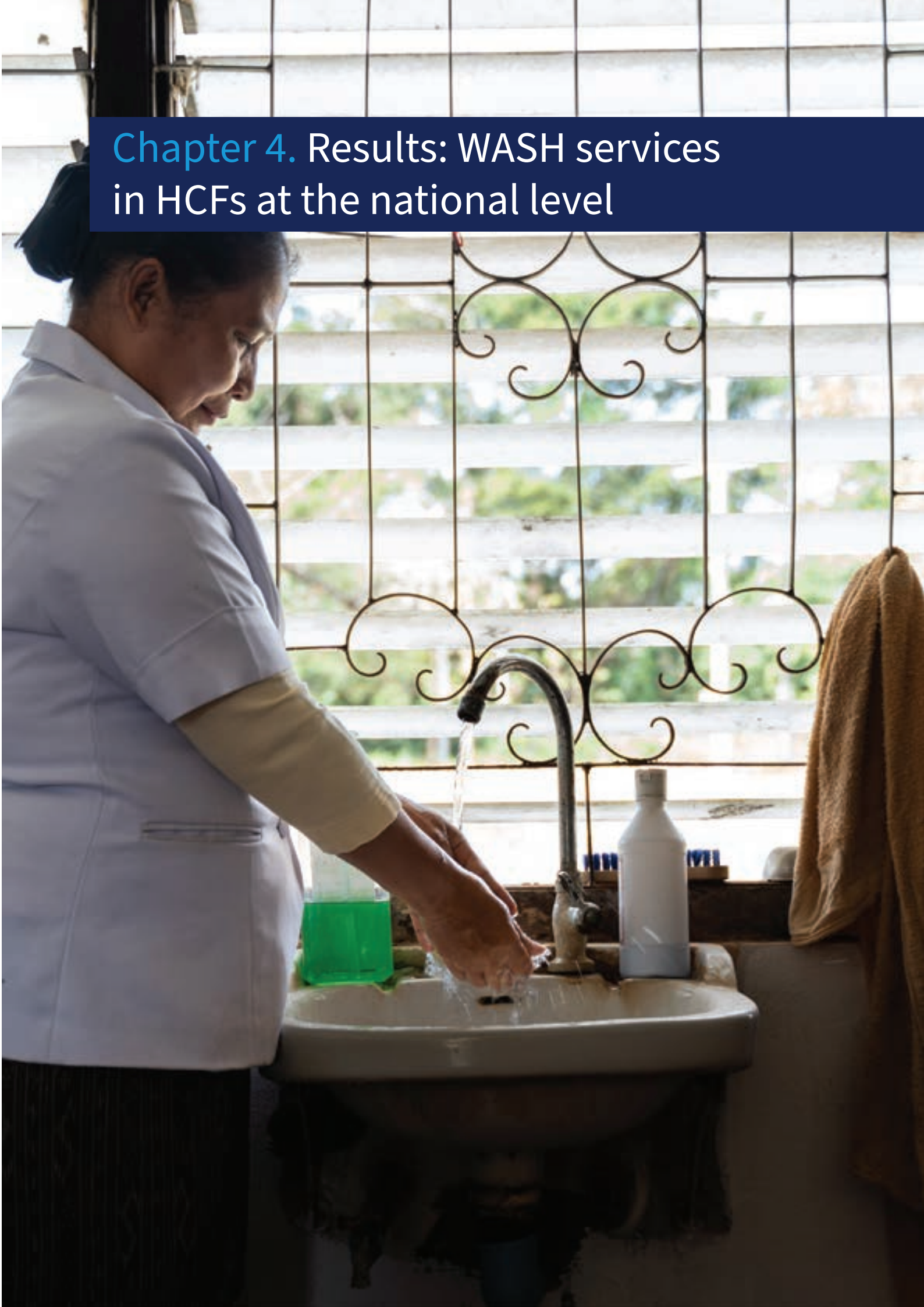
On-site, surveyors conducted interviews with technical and mid-level managers and collected other data through observations during walk-through inspections of the HCFs. During the walk-through inspection, surveyors also provided advice to HCF managers regarding how to improve WASH services.

The surveyors noted general information on the HCF (including geocodes, general location information such as province and district where the HCF is located, the name of the facility, phone numbers of the HCF and the name of the officer in charge) and information about themselves, including name and affiliation.

3.3 Analysis

Following data collection, the data were validated by WHO staff in consultation with surveyors using the KoBoCollect software. The data were then cleaned, with typographical and other errors corrected, before statistical analysis was undertaken. Descriptive statistics were generated for visualization and comparison. The data that appear in the figures in this country case study were drawn from the Lao National WASH Survey 2021.

Chapter 4. Results: WASH services in HCFs at the national level



The National WASH Survey 2021 reveals that, while most facilities have basic water services, there are alarming gaps in services relevant to sanitation, hygiene and health-care waste, especially at health centres.

4.1 Water

70% BASIC SERVICE **17%** LIMITED SERVICE **11%** NO SERVICE

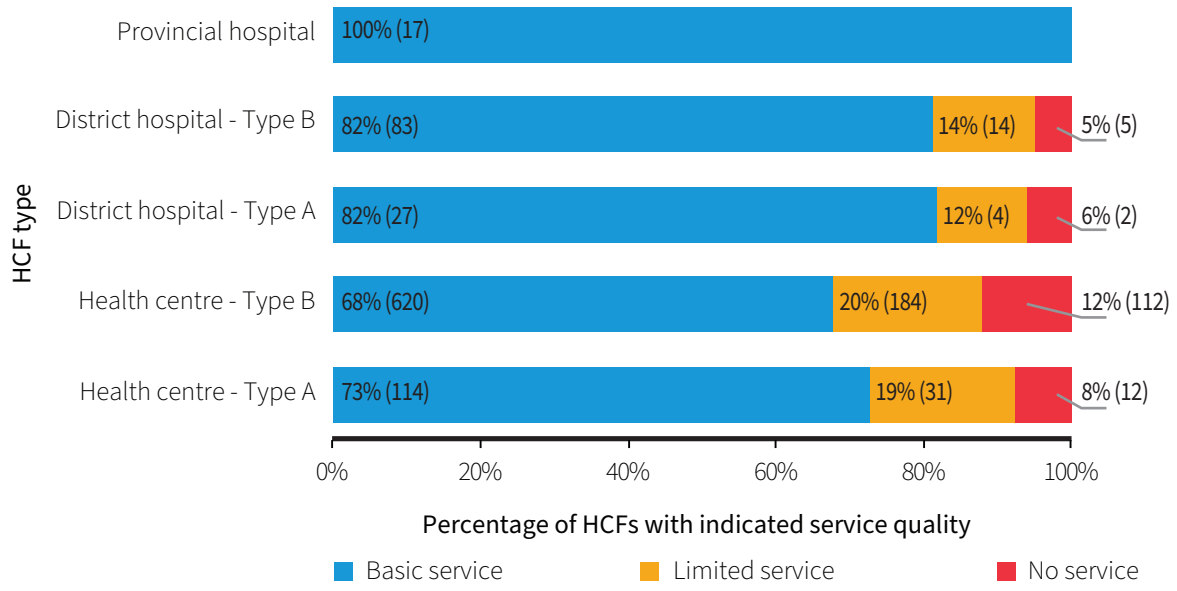
Most HCFs surveyed (70%) have access to basic water services from an improved source located on facility premises. A further 17% of HCFs have limited water services and 11% have no water services.

All provincial hospitals have access to basic water services, while some district hospitals and health centres have limited or no water services. Health centres, especially type B (those with a catchment area of fewer than 7500 people), were found to have the greatest gaps (Fig. 4).

While only a small minority of HCFs surveyed (2.8%) report having unimproved or no water source as a key limiting factor hindering access to water services, a more substantial number of HCFs (6.1%) report having an improved water source that does not have water available (Fig. 5).

Among HCFs that reported having experienced water shortage, the most common reason (cited by 87.9% of HCFs) was that catchment areas did not have sufficient water supply during the dry season (no spring-water available), followed by other reasons such as water shortage caused by infrastructural damage during extreme weather events and defective water pumps.

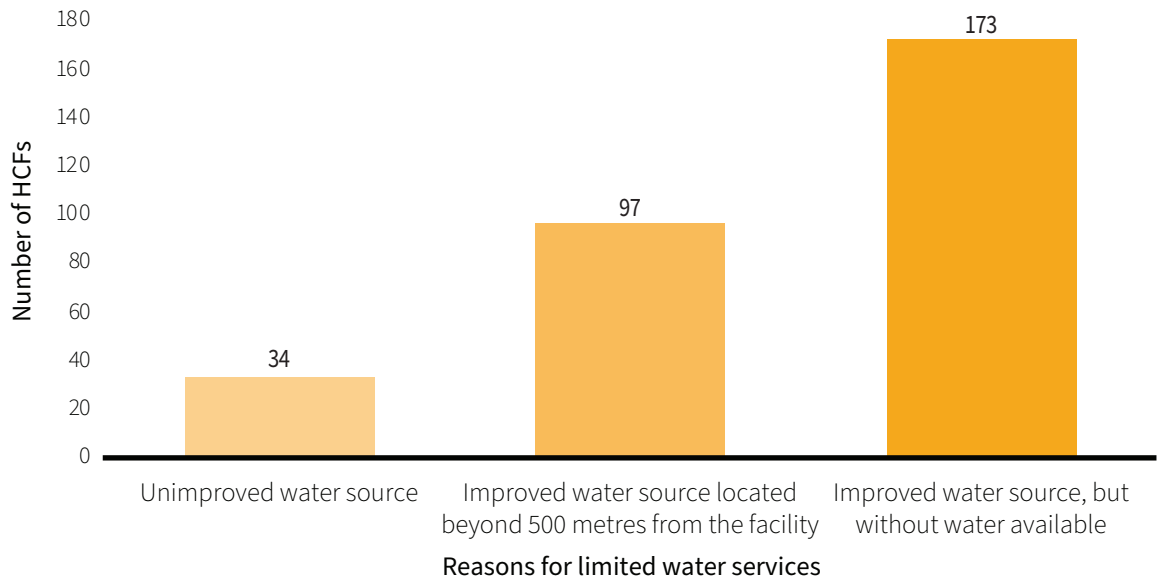
FIG. 4. Water service quality by HCF type



District hospital - Type A: performs caesarean sections; District hospital - Type B: does not perform caesarean sections; Health centre - Type A: with a population catchment of over 7500 people; Health centre - Type B: with a population catchment of under 7500 people.

Note: Numbers in parentheses denote the number of HCFs in each category.

FIG. 5. Key factors limiting water services in HCFs



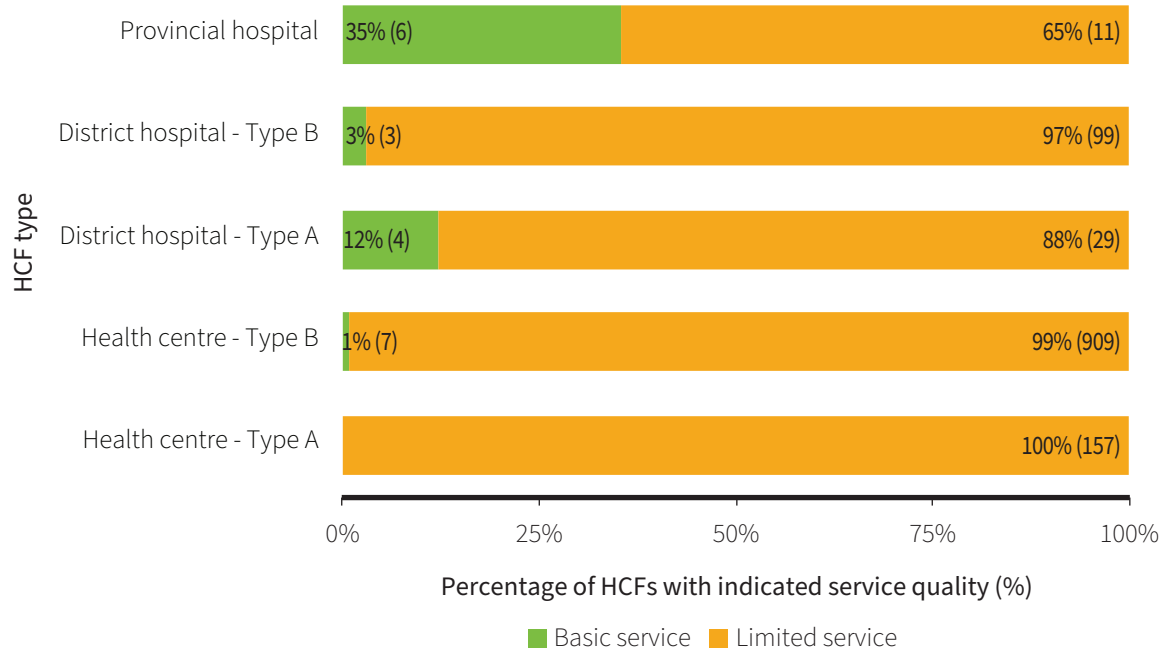
4.2 Sanitation

While all HCFs surveyed have some sanitation services on-site, just 2% of HCFs have basic sanitation services, while the remaining 98% of HCFs have limited services. Of those with limited services, alarmingly, in most cases, none of the three criteria for basic sanitation services (usable with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities and at least one toilet accessible for people with limited mobility) are met. However, there are some notable differences between HCF types (Fig. 6). About 40% of provincial hospitals and 20% of district hospitals have basic sanitation services. However, almost no health centres meet the criteria.

A large majority of HCFs surveyed experience multiple barriers to providing basic sanitation services (Fig. 7), including lack of toilets accessible to people with limited mobility, lack of sex-separated toilets and limited number of toilets (fewer than four).

As for waste-water management, 26% of HCFs have waste-water safely managed through the use of on-site treatment systems while 64% have a grey-water drainage system in place that diverts water away from the facility. The main barriers experienced by most HCFs surveyed are the lack of on-site treatment systems and lack of a mechanism to send waste water to a functioning sewer. Alarmingly, around 15% of HCFs report that excreta are not safely disposed of, either on-site or off-site (Fig. 8).

FIG. 6. Sanitation service quality by HCF type



District hospital - Type A: performs caesarean sections; District hospital - Type B: does not perform caesarean sections; Health centre - Type A: with a population catchment of over 7500 people; Health centre - Type B: with a population catchment of under 7500 people.

Note: Numbers in parentheses denote the number of HCFs in each category.

FIG. 7. Key factors limiting sanitation services in HCFs

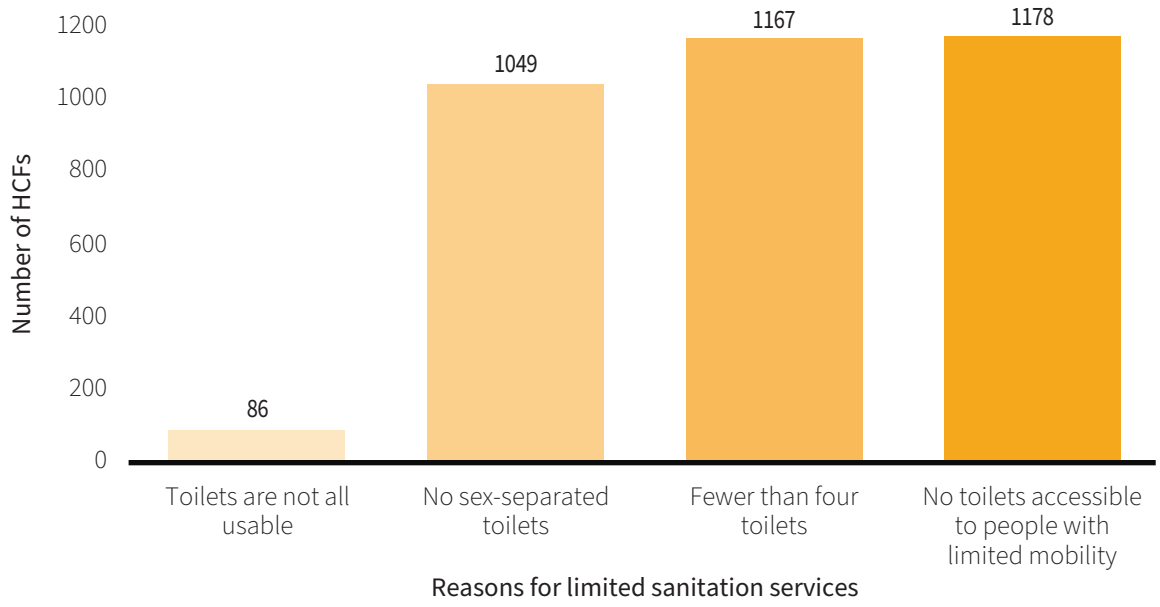
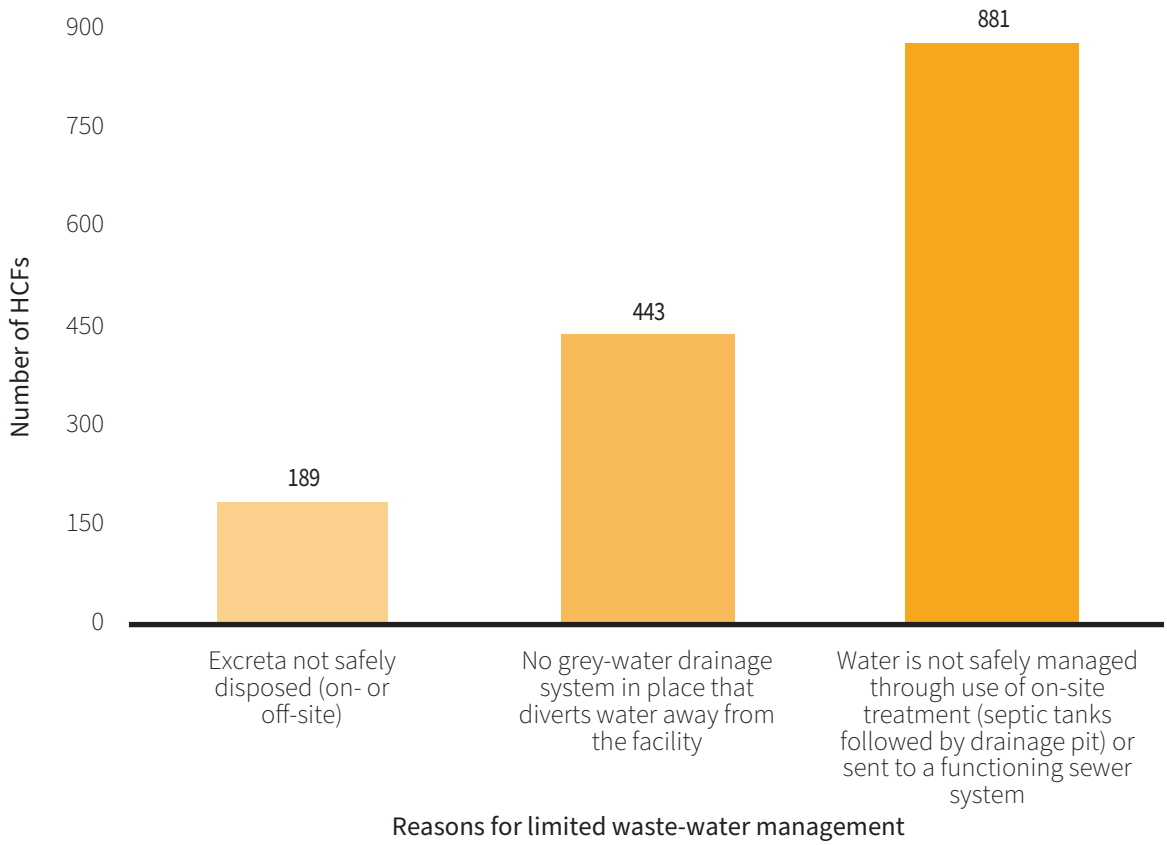


FIG. 8. Key factors limiting waste-water management services in HCFs



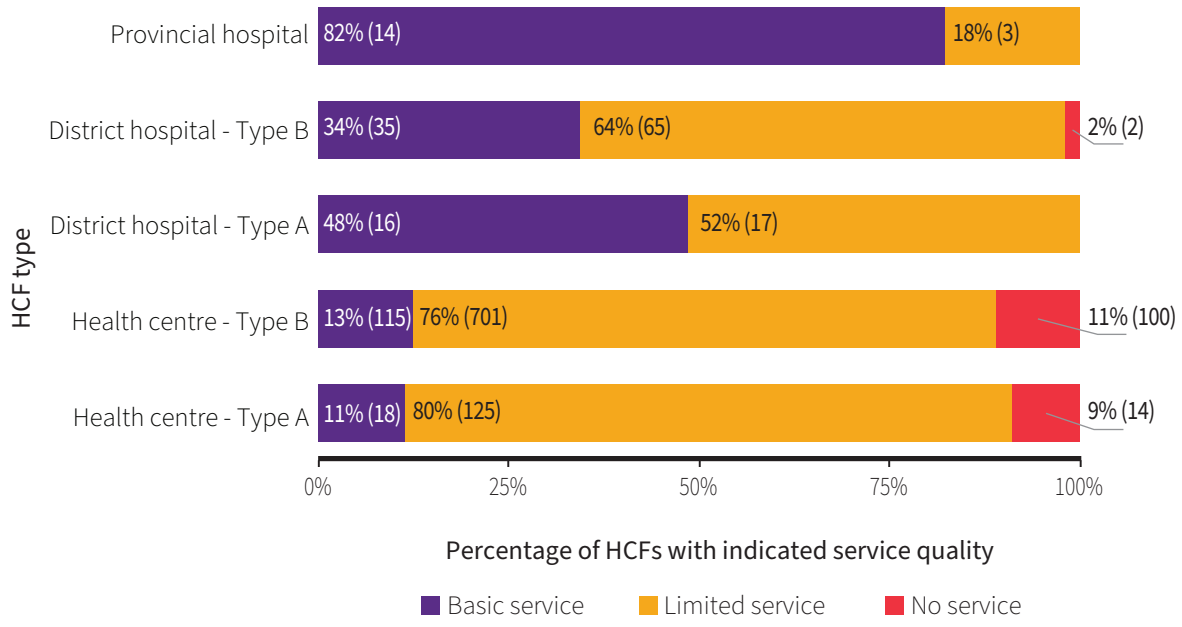
4.3 Hygiene

16% BASIC SERVICE **75% LIMITED SERVICE** **9% NO SERVICE**

Most HCFs (75%) have functional hand hygiene facilities at either points of care or within 5 metres of toilets. A smaller fraction of HCFs (16%) have hygiene services available at both points of care and near toilets, while the remaining HCFs (9%) have no functional hand hygiene facilities at either points of care or near toilets.

The trend is highly variable between HCF types (Fig. 9), where most provincial hospitals (approximately 80%) have functional hand hygiene facilities at both points of care and near toilets, compared to a little less than 50% of district hospitals and roughly 20% of health centres. The main barriers to hygiene service provision are the lack of soap and handwashing facilities available near toilets and the limited availability of soap and water (or alcohol gel) at points of care (Fig. 10).

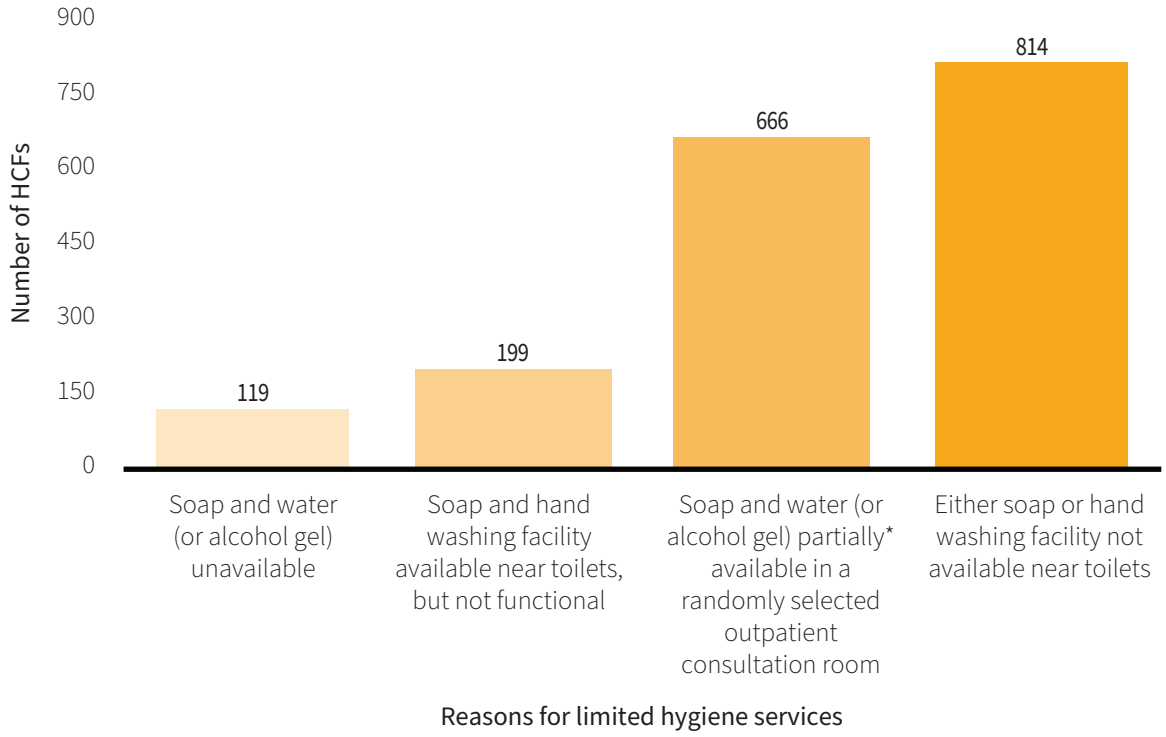
FIG. 9. Hygiene service quality by HCF type



District hospital - Type A: performs caesarean sections; District hospital - Type B: does not perform caesarean sections; Health centre - Type A: with a population catchment of over 7500 people; Health centre - Type B: with a population catchment of under 7500 people.

Note: Numbers in parentheses denote the number of HCFs in each category.

FIG. 10. Key factors limiting hygiene services in HCFs



*Partially is defined as either not functional or lacking materials.

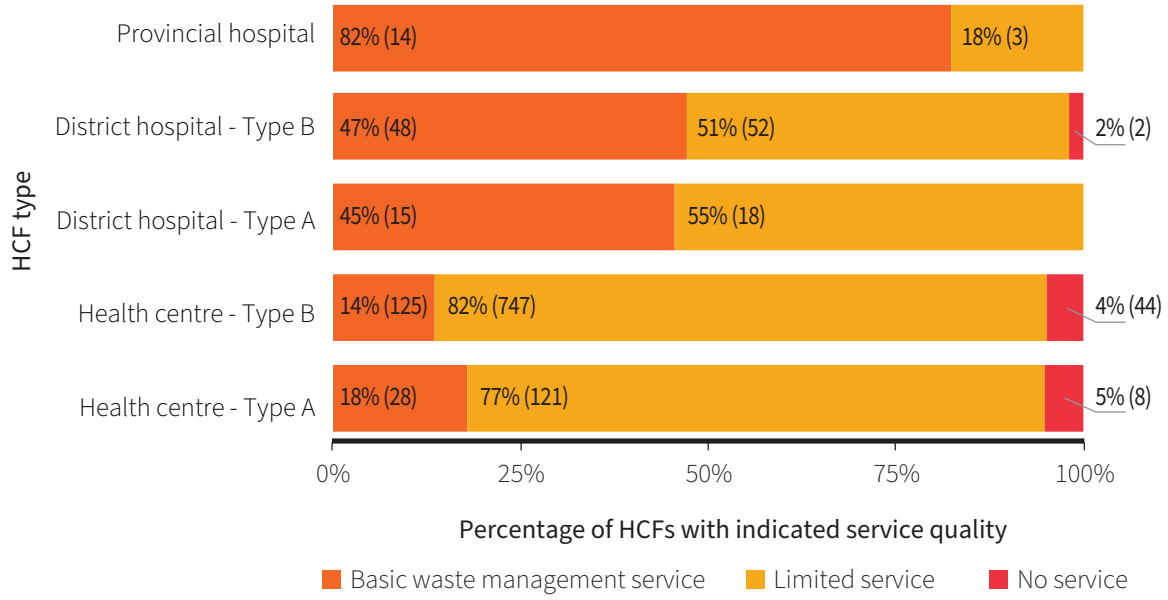
4.4 Health-care waste management

19% BASIC SERVICE **77%** LIMITED SERVICE **4%** NO SERVICE

A vast majority of HCFs surveyed have some kind of waste management service in place, but only 19% of facilities have basic waste management services, reporting safe segregation of waste into different bins and the treatment and disposal of sharps (for example, syringes) and infectious waste. A further 77% of HCFs have limited waste management services, while 4% of HCFs have no waste management services.

Almost all HCFs without waste management services are health centres. Health centres with basic waste management are a minority at 19%. Around 45% of district hospitals report having basic waste management services, while a majority – over 80% – of provincial hospitals have basic services (Fig. 11).

FIG. 11. Waste management service quality by HCF type



District hospital - Type A: performs caesarean sections; District hospital - Type B: does not perform caesarean sections; Health centre - Type A: with a population catchment of over 7500 people; Health centre - Type B: with a population catchment of under 7500 people.

Note: Numbers in parentheses denote the number of HCFs in each category.

Sharps waste is managed using a variety of methods (Fig. 12): open burning remains the most common method (54.9%), followed by storage and eventual transfer to the next referral hospital, while just 0.4% of HCFs use autoclaves. In some cases, waste is simply openly dumped (see Figs. 13 and 14).

FIG. 12. Methods of sharps waste management used in HCFs

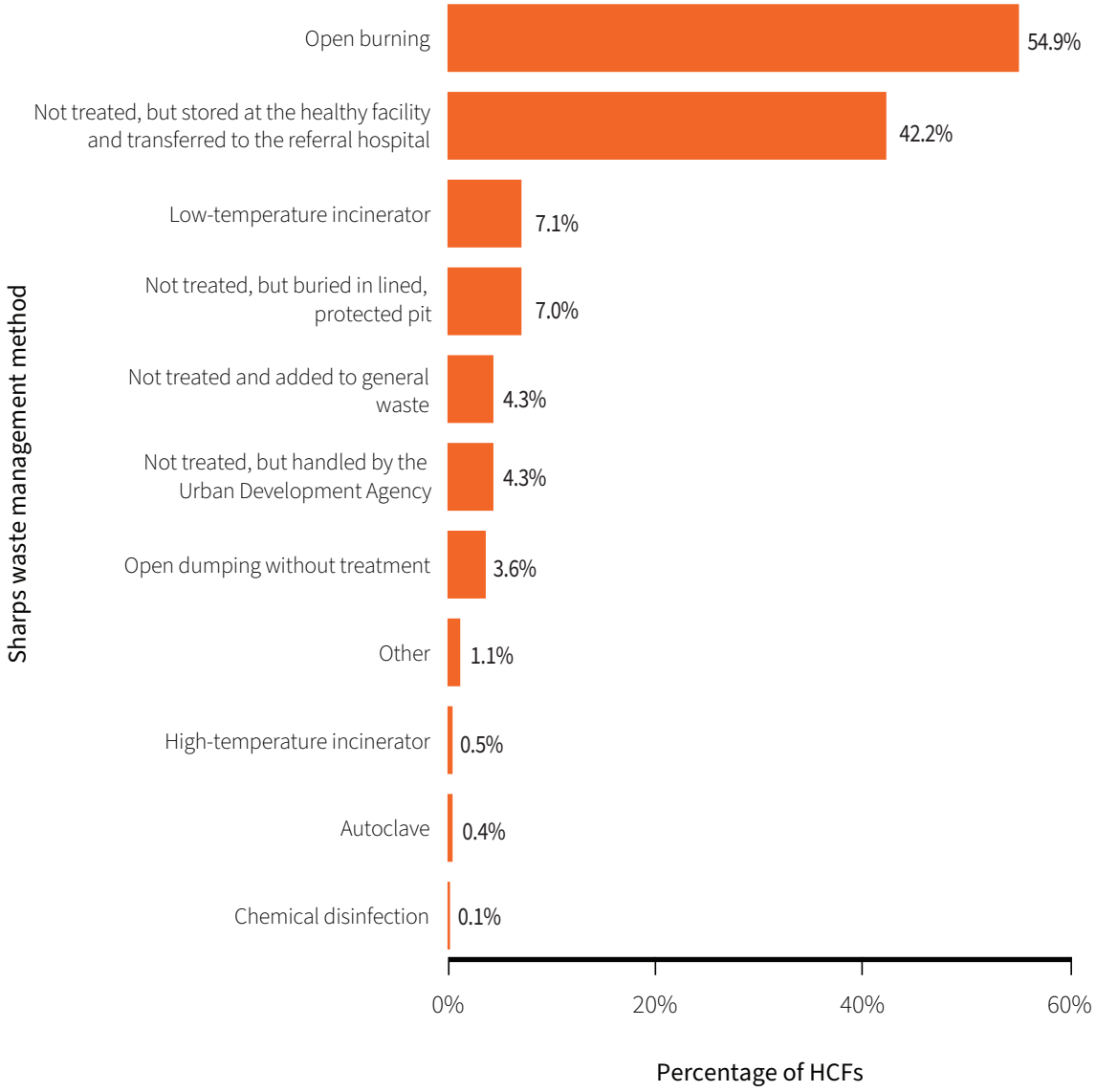
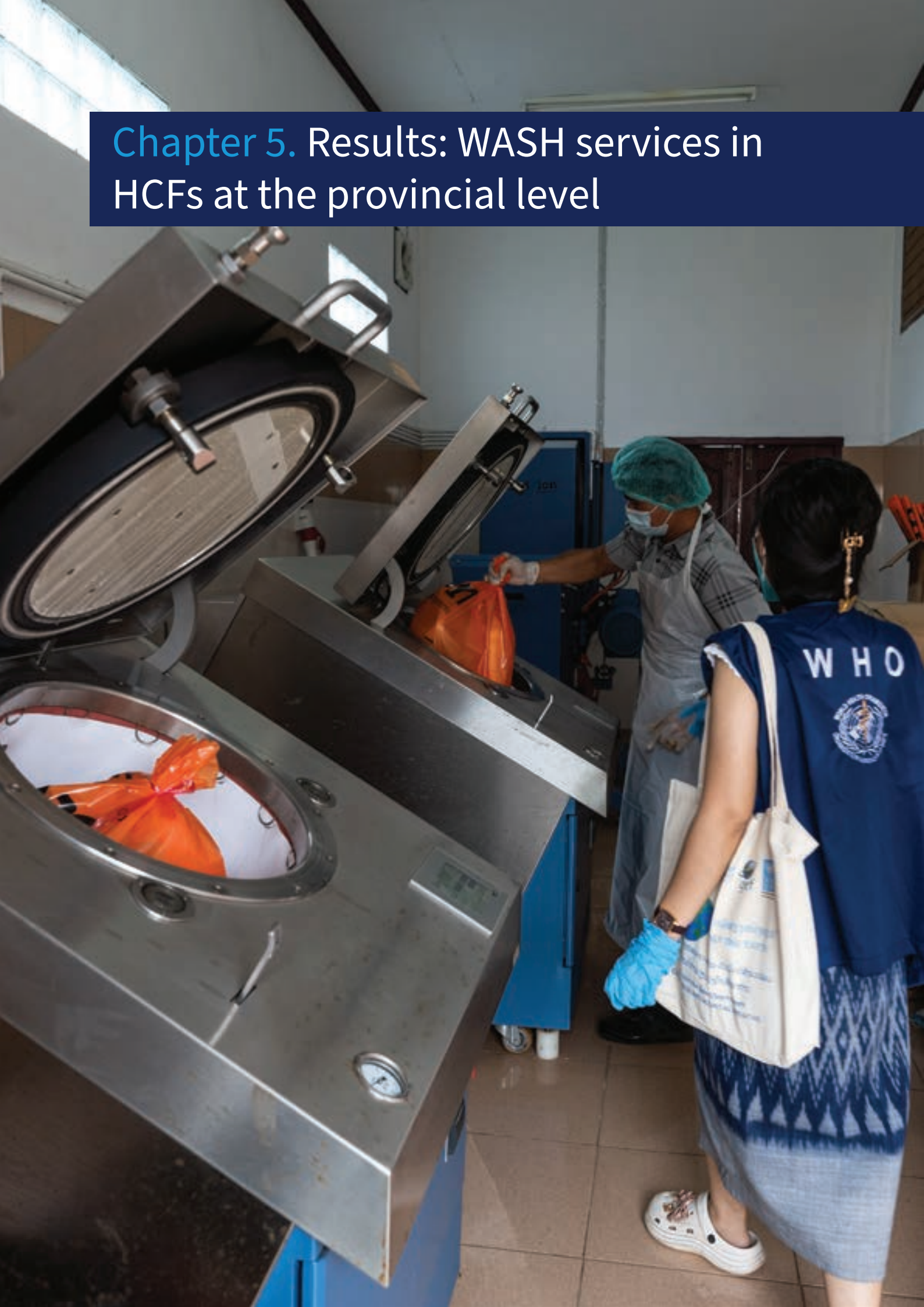


FIG.13. Waste pit at one of the health centres surveyed

FIG. 14. Waste storage area in an HCF

Chapter 5. Results: WASH services in HCFs at the provincial level



At the provincial level, there are some clear disparities in access to basic water services, as well as hygiene and waste management services, although the latter to a lesser extent. The quality of sanitation services, on the other hand, does not differ significantly by province, given that the vast majority of HCFs have limited services, as already illustrated (see section 4.2).

5.1 Water

Geographically, the north-eastern region of the country was more prone to experiencing issues with access to and shortages in water supply (Fig. 15). A much greater number of HCFs in the north-west and southern provinces reported having access to basic water services and reported no shortages. Savannakhet, Khammouan and Salavan are among the highest-performing provinces for access to basic water services, while Louangphabang, Houaphan, Xiangkhouang and Xaisomboun are among those that are relatively underserved (Fig. 16).

HCFs reporting water shortages are spread across the country, but are slightly more concentrated in the provinces of Louangphabang, Phongsali and Oudomxai (Fig. 17).

FIG. 15. Geographic differences in water service quality across the country

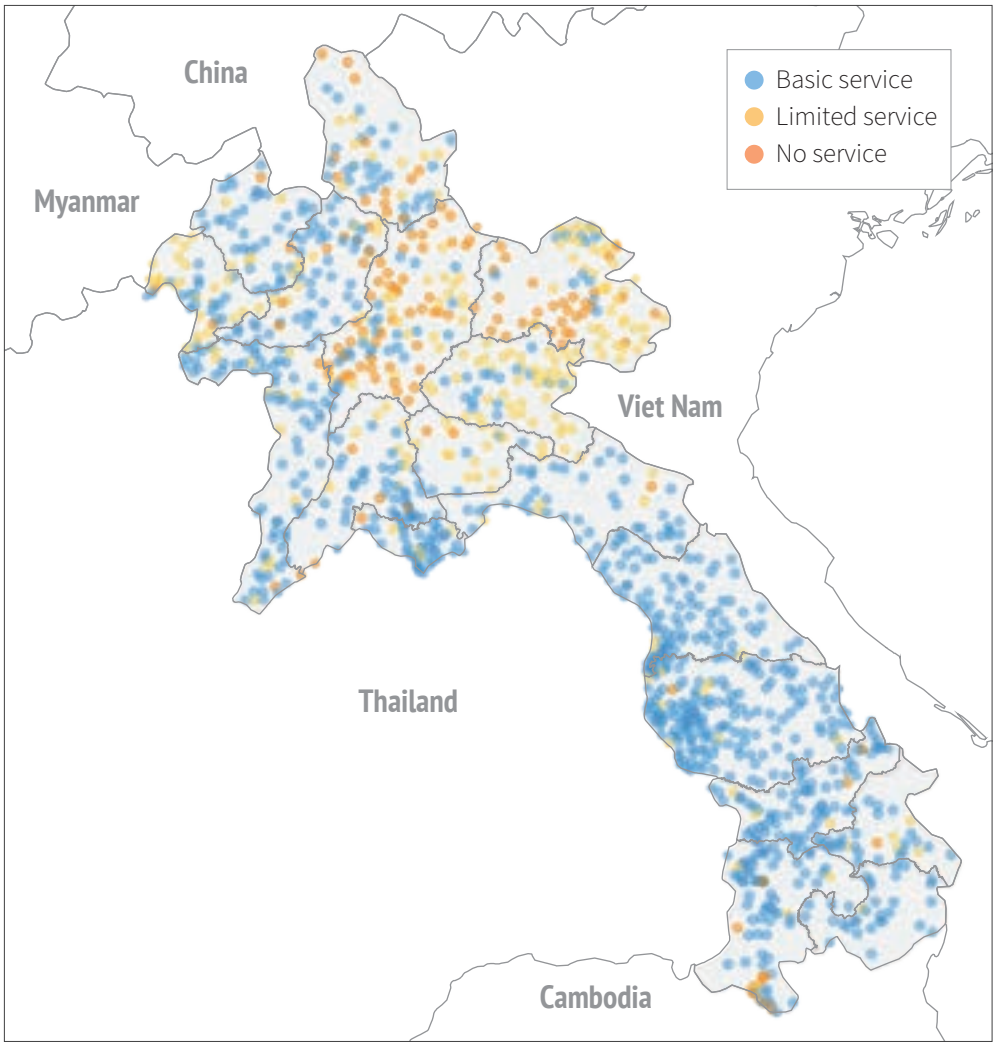
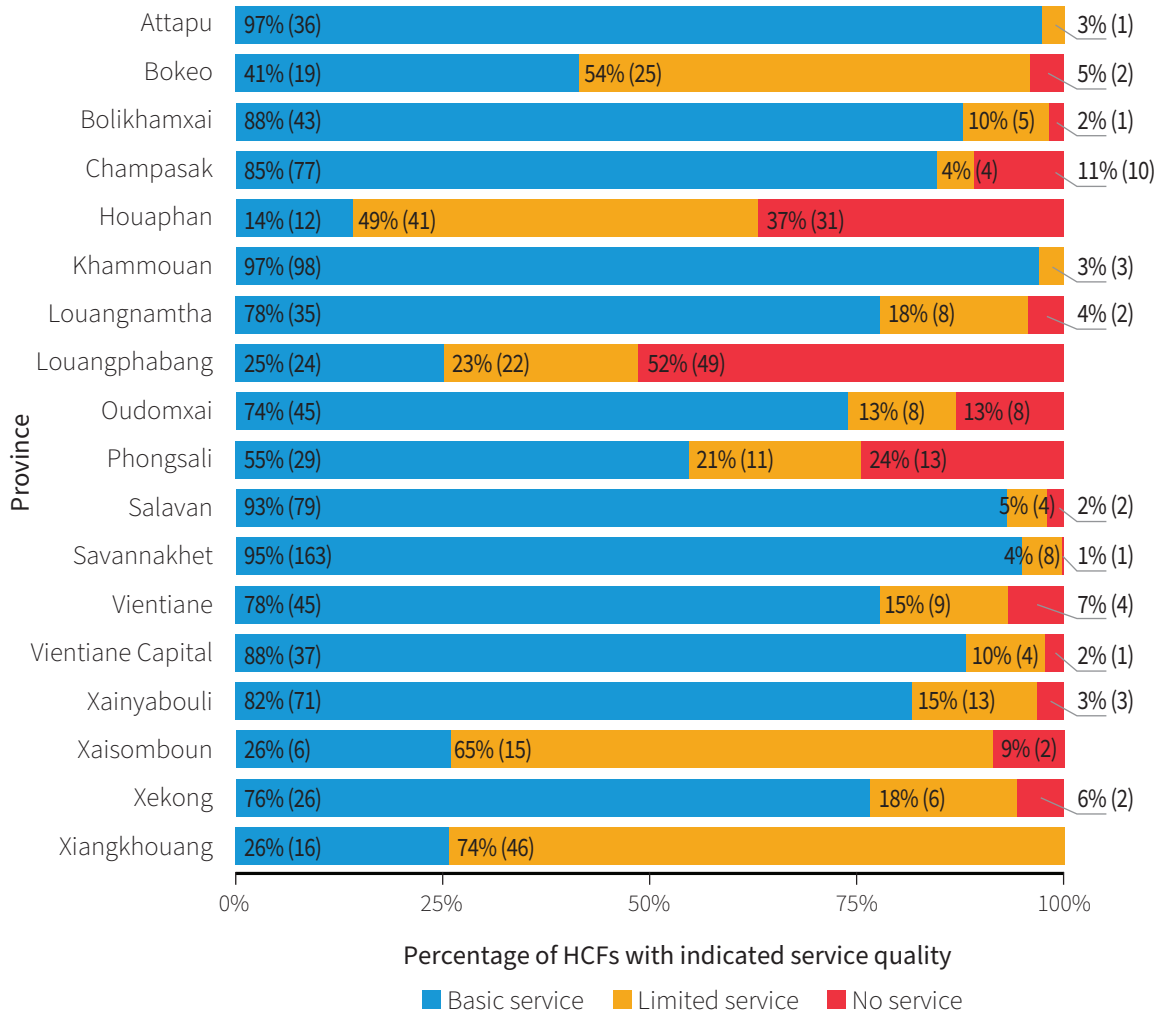
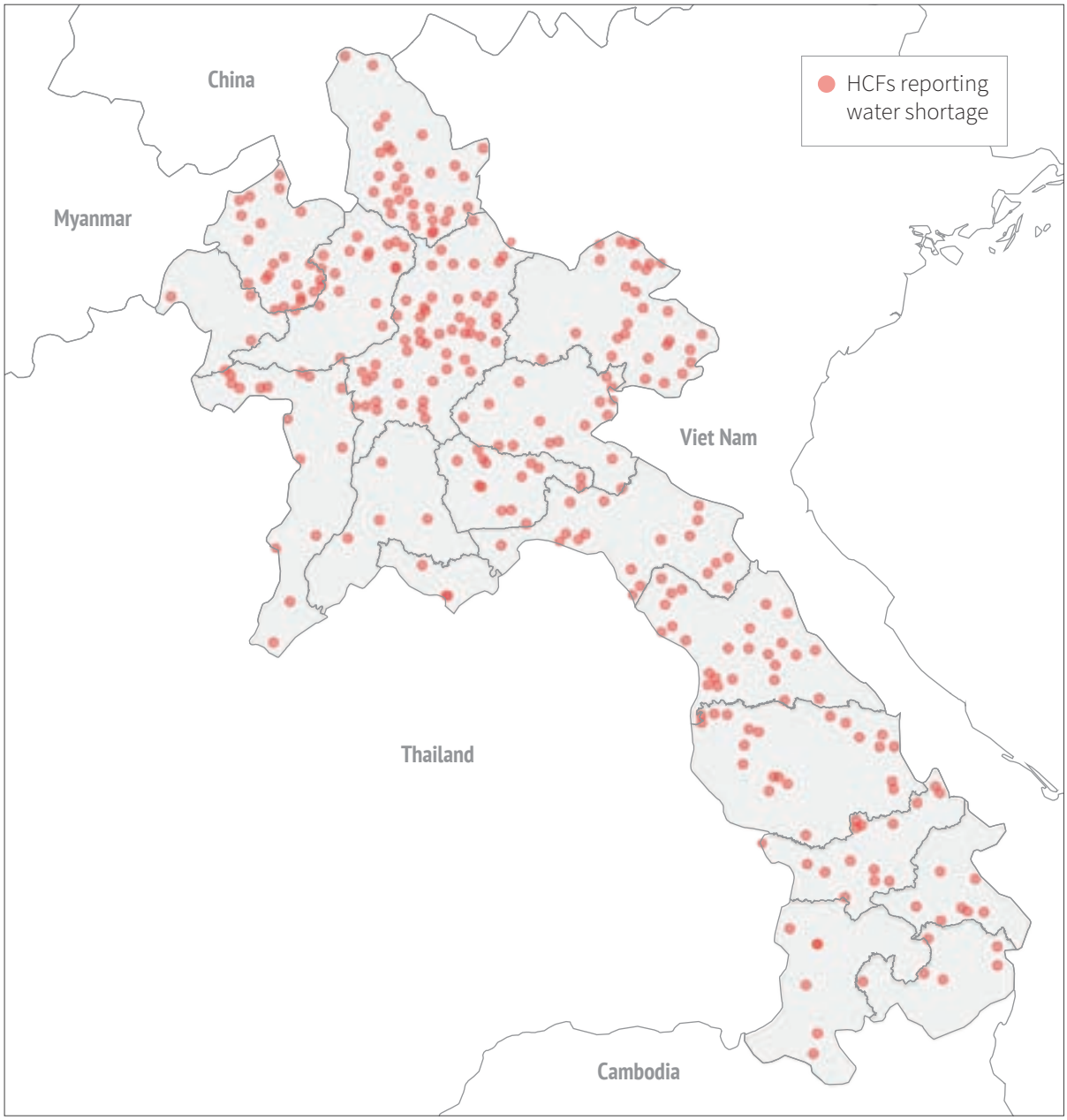


FIG. 16. Water service quality by province



Note: Numbers in parentheses denote the number of HCFs in each category.

FIG. 17. Facilities reporting water shortage



Note: A total of 322 HCFs reported water shortage.

5.2 Sanitation

Generally, sanitation services are limited regardless of province (Figs. 18 and 19). Meanwhile, HCFs in Louangnamtha, Xiangkhouang, Vientiane Capital and Vientiane report having treatment systems on the premises to safely dispose of and manage excreta (Fig. 20).

FIG. 18. Geographic differences in sanitation service quality across the country

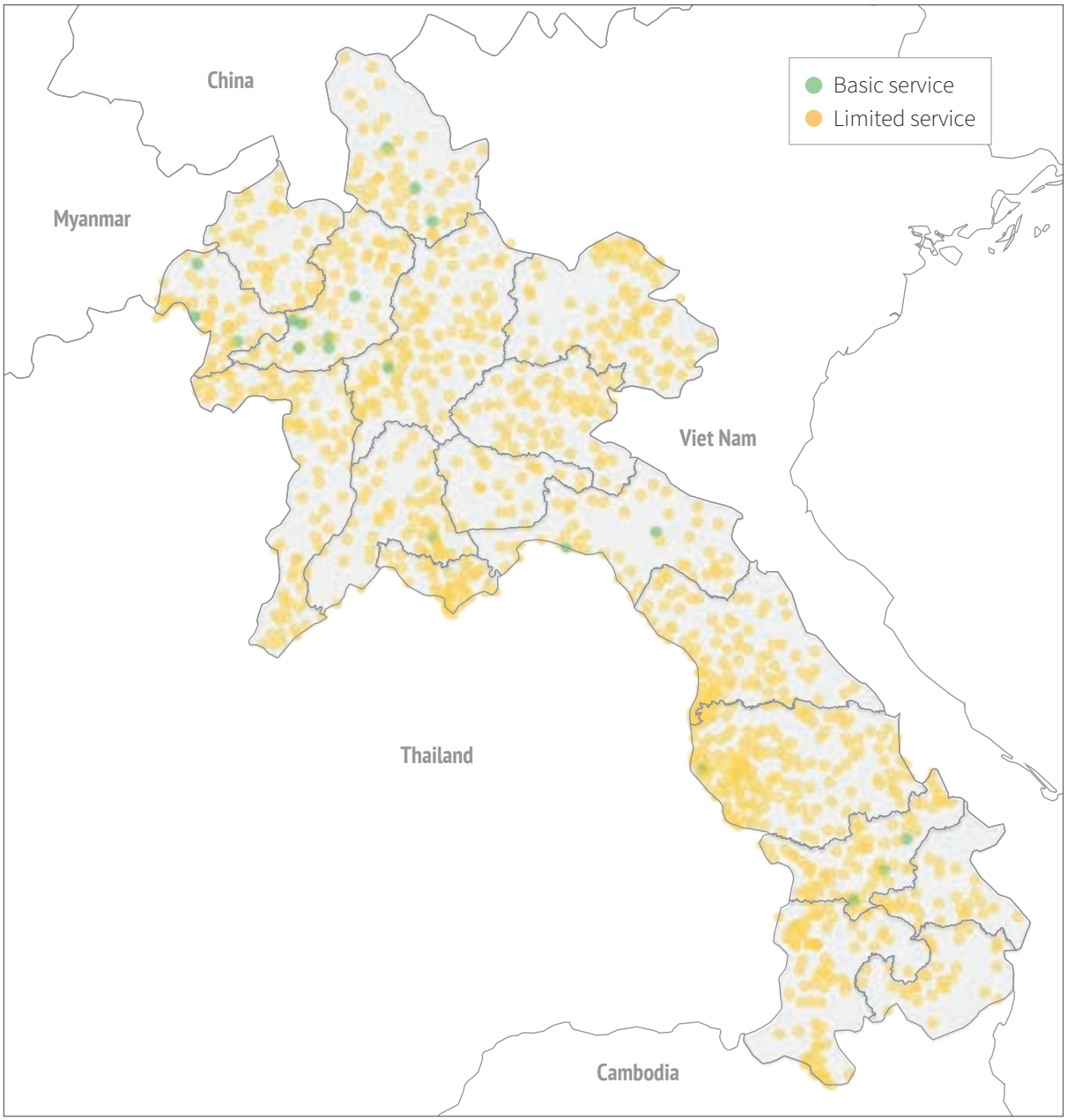
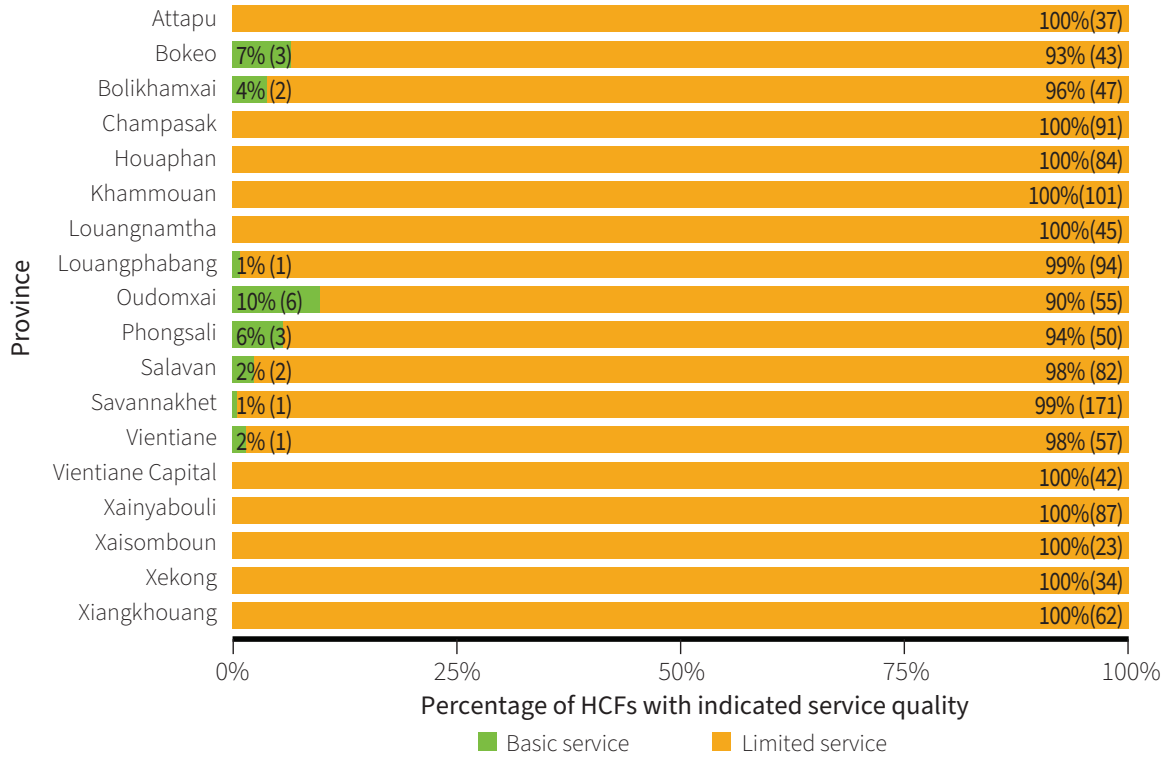
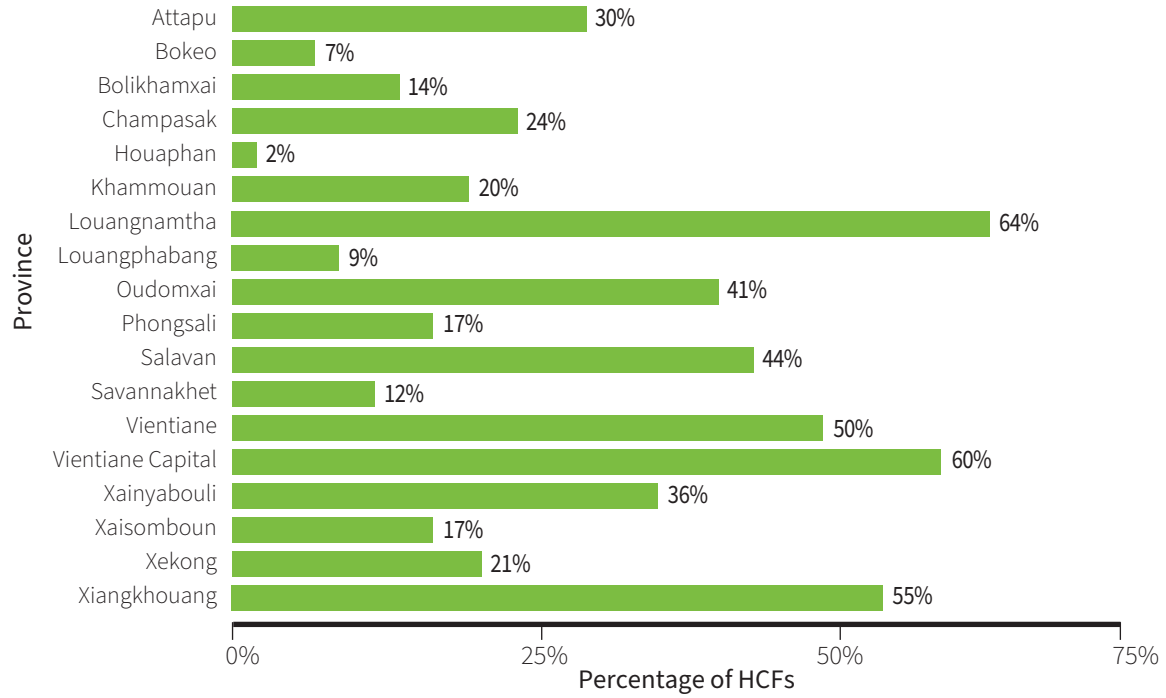


FIG. 19. Sanitation service quality by province



Note: Numbers in parentheses denote the number of HCFs in each category.

FIG. 20. Percentage of HCFs with safe disposal and management of excreta through on-site treatment systems, by province



5.3 Hygiene

HCFs reporting having basic hygiene services are more concentrated in the northern provinces of the country, with Houaphan making the most progress in terms of proportion of HCFs with basic services (Figs. 21 and 22).

Service gaps in HCFs vary across provinces (Fig. 23); for instance, a vast majority of HCFs in Bolikhamxai, Xekong, Khammouan and Savannakhet struggle with hygiene facilities not being available near toilets. On the other hand, a much greater proportion of HCFs in Louangnamtha and Houaphan report not having any hygiene facilities available at points of care.

FIG. 21. Geographic differences in hygiene service quality across the country

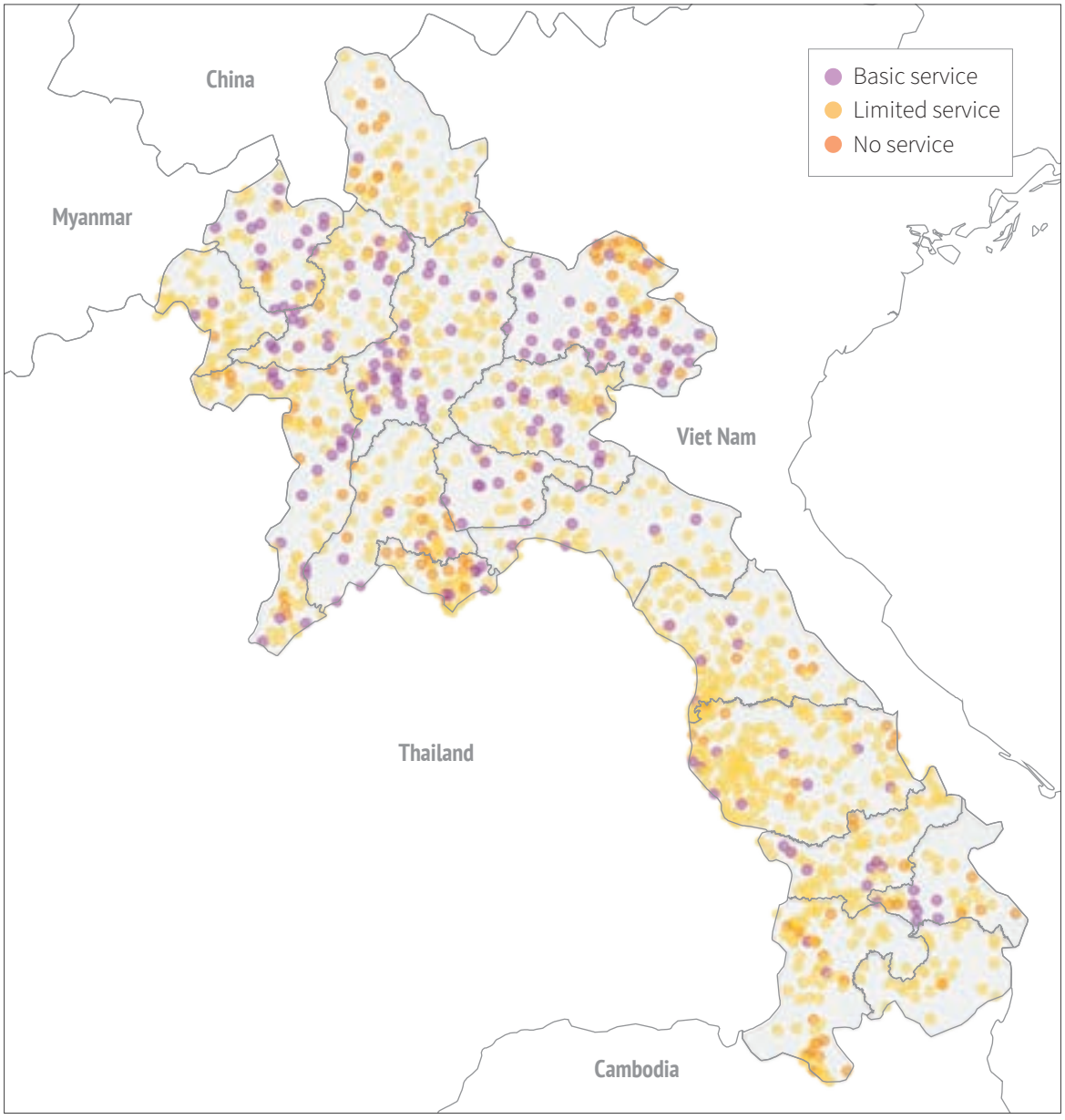
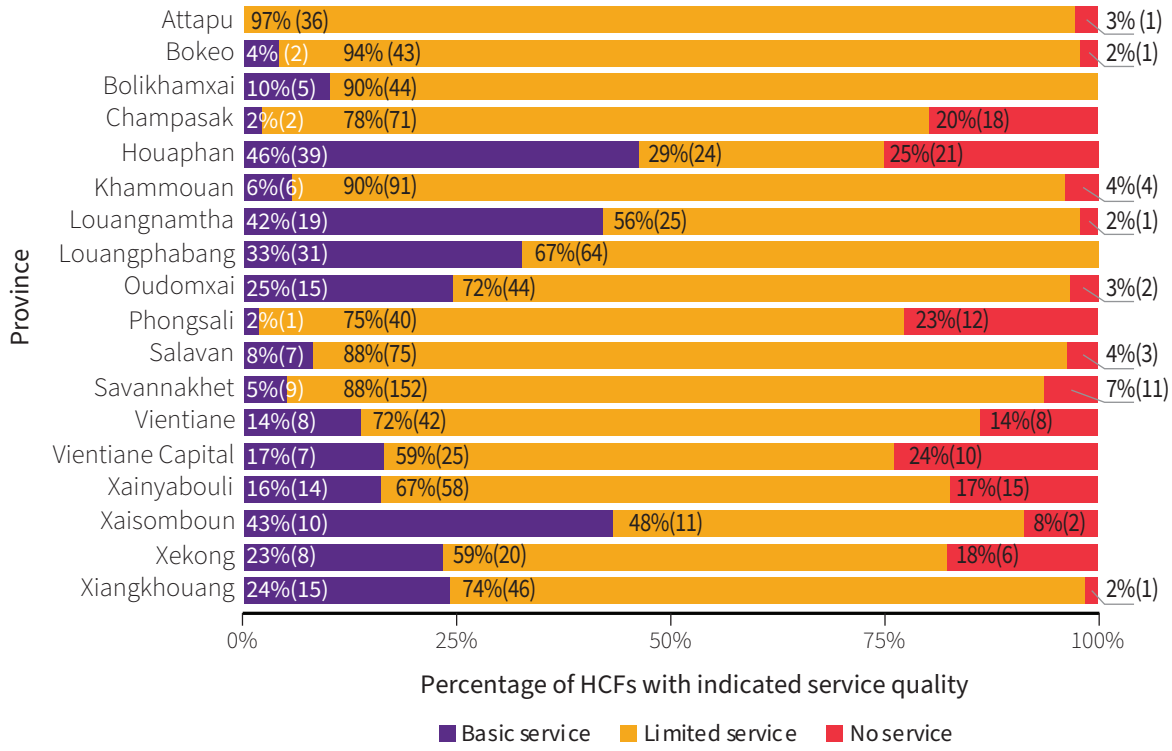
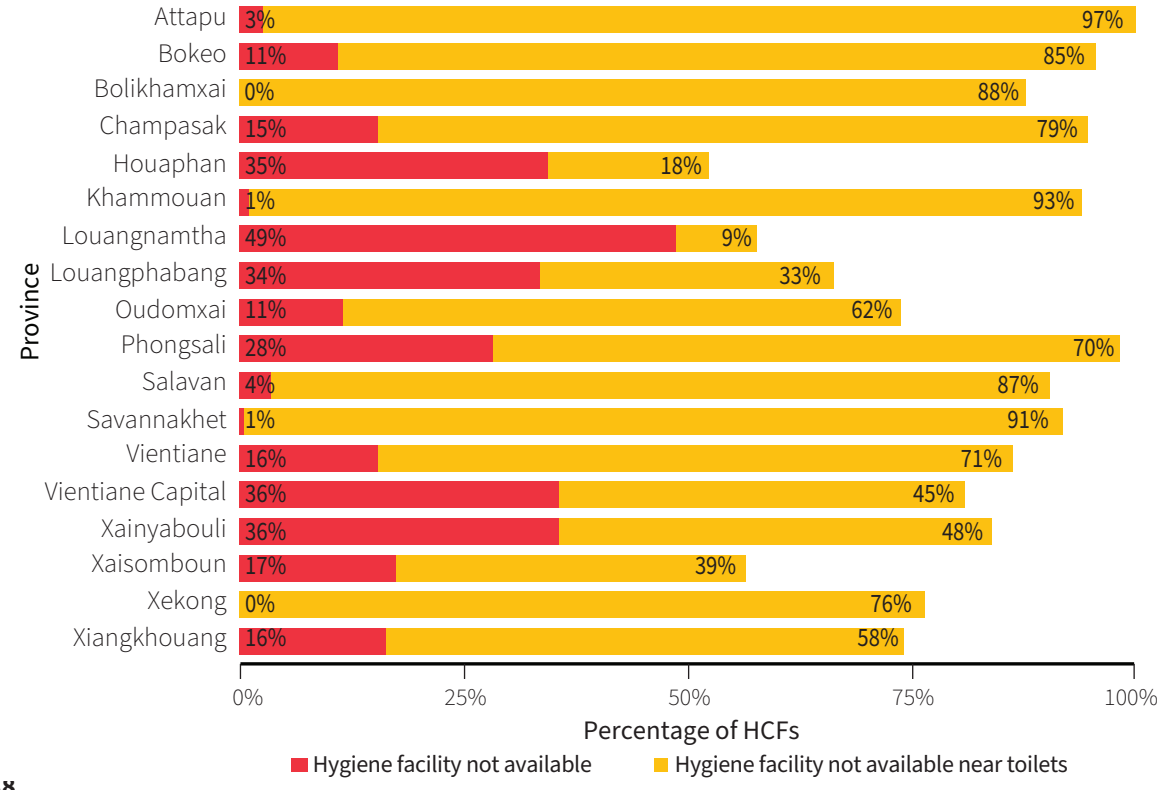


FIG. 22. Hygiene service quality by province



Note: Numbers in parentheses denote the number of HCFs in each category.

FIG. 23. Percentage of HCFs reporting issues with availability of hygiene services by province



5.4 Health-care waste

While a majority of HCFs in all provinces have at least limited waste management services in place, the percentage of HCFs that report having basic waste management is still low. Louangphabang, Xiangkhouang, Vientiane Capital and Xainyabouli have the greatest percentage of HCFs with basic waste management services in the country (Figs. 24 and 25). The northern and south-western provinces have a greater number of HCFs with basic waste management services compared to the provinces located in the middle of the country.

Open burning of waste is practised in virtually in all provinces; however, some provinces (especially those in the south and north-east) have higher numbers of HCFs reporting using open burning (Fig. 26). Fewer HCFs engage in open burning in Louangphabang and neighbouring provinces.

FIG. 24. Geographic differences in waste management service quality across the country

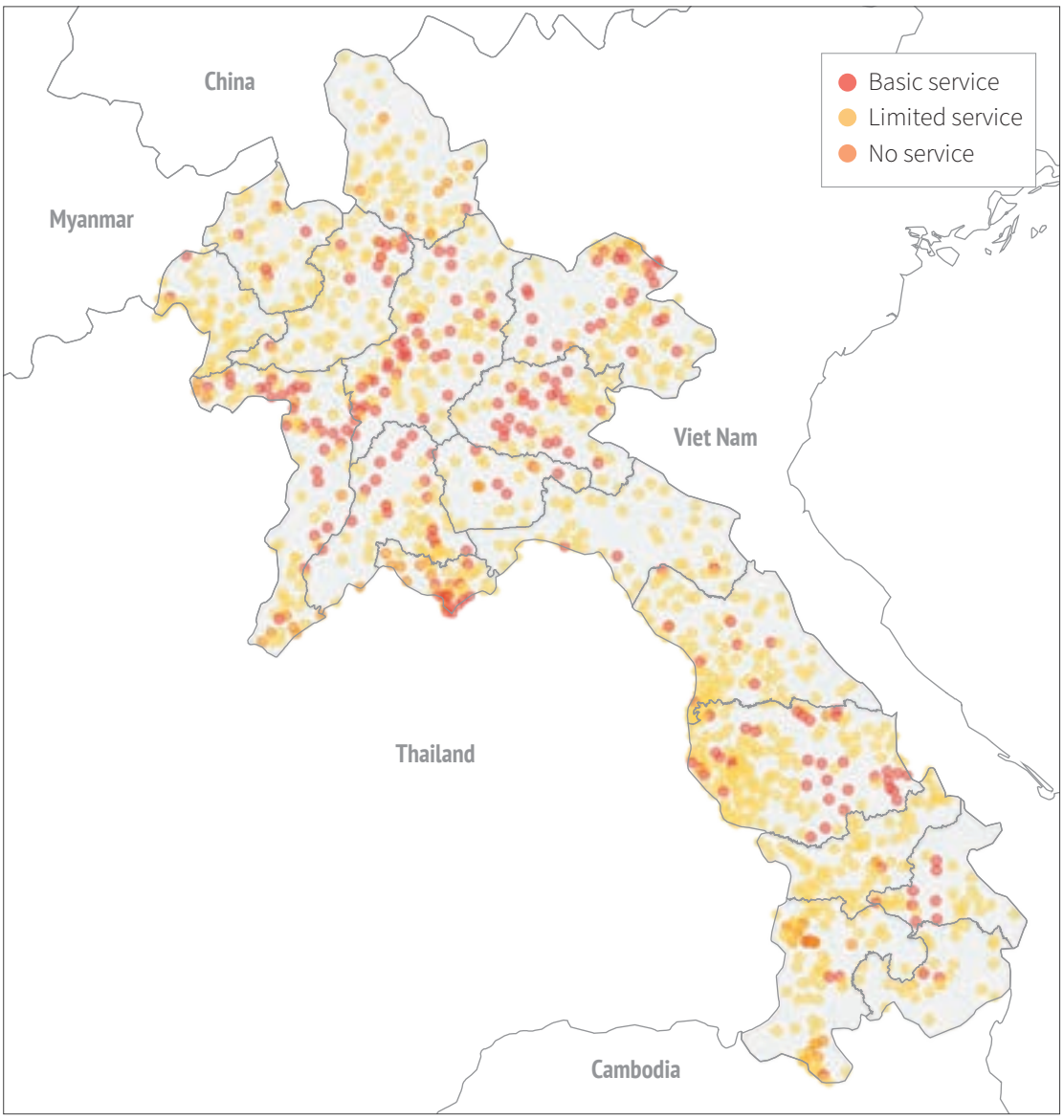
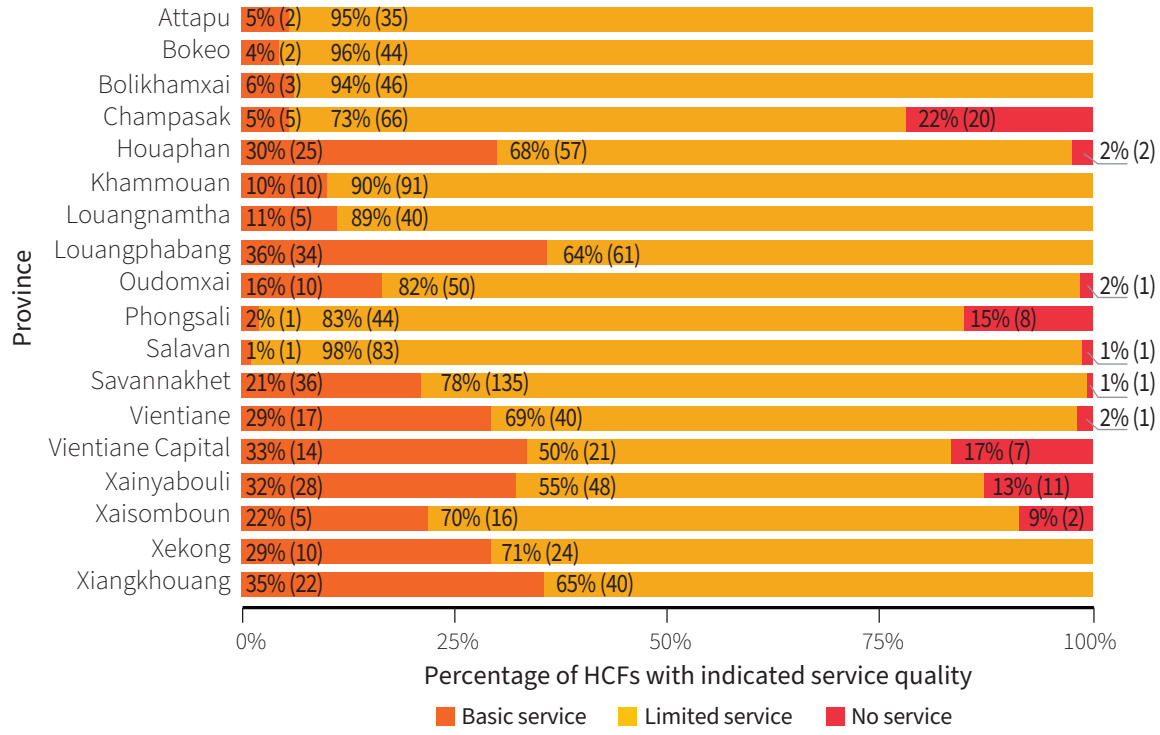
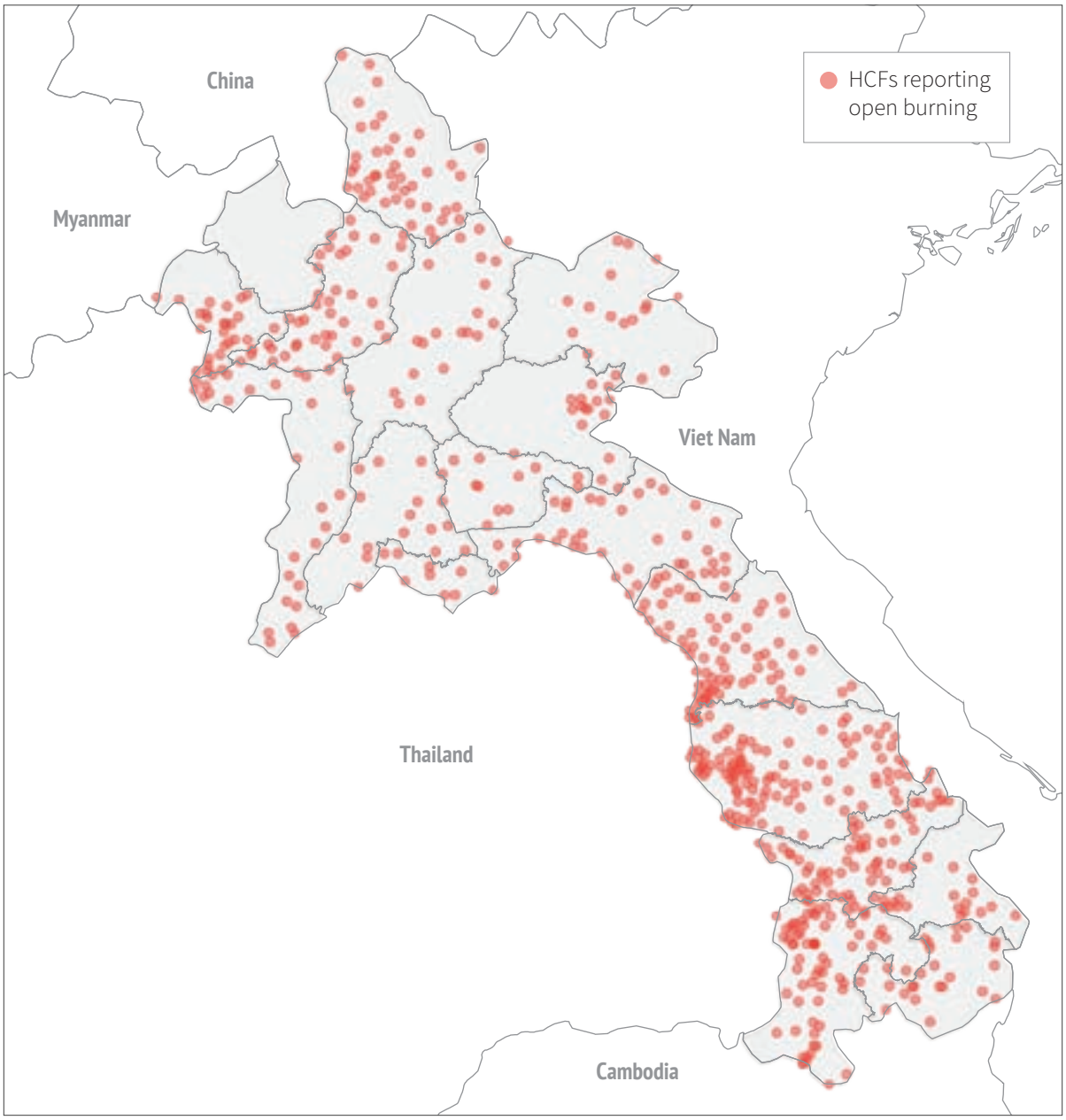


FIG. 25. Waste management service quality by province



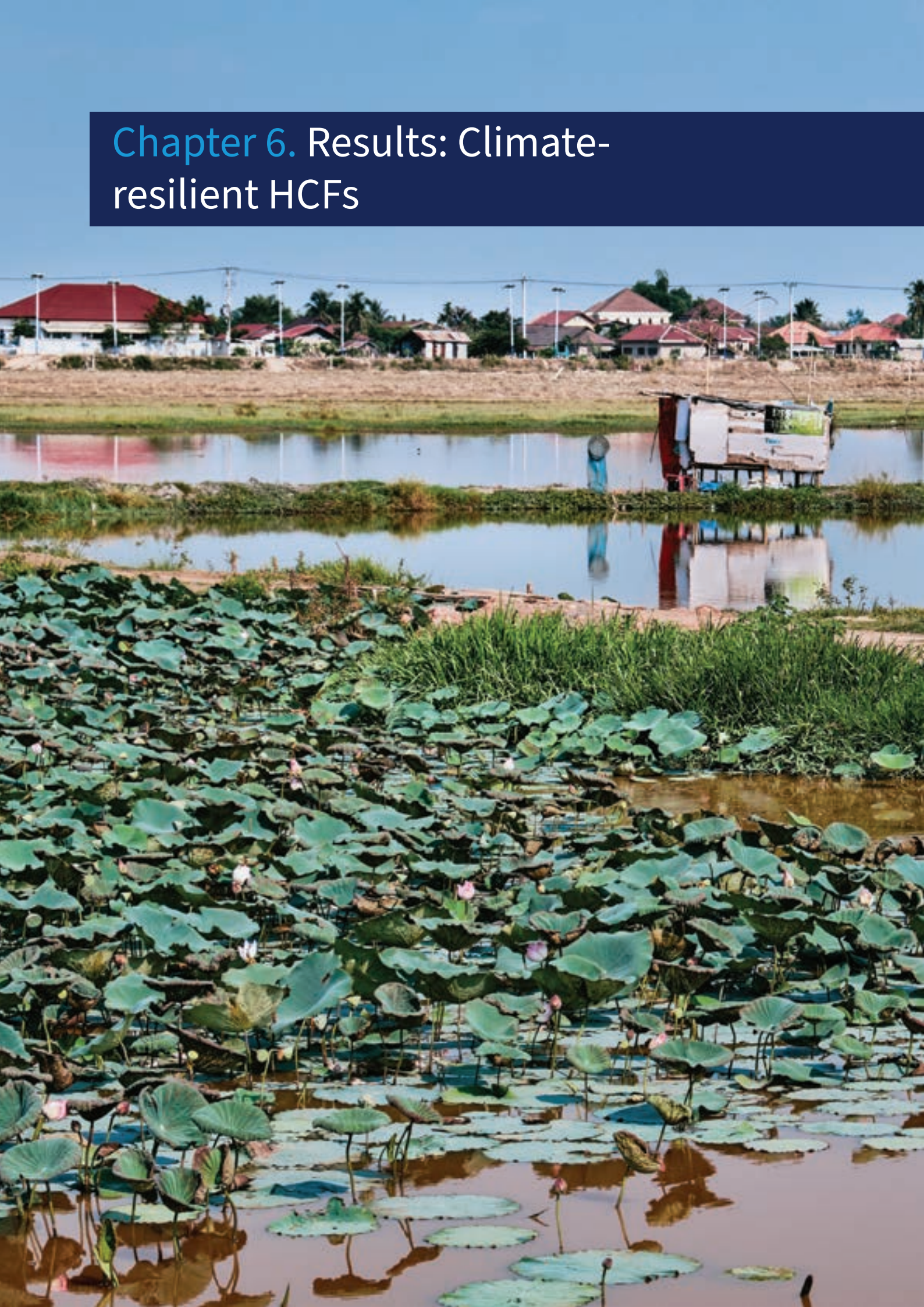
Note: Numbers in parentheses denote the number of HCFs in each category.

FIG. 26. HCFs reporting the use of open burning to manage sharps waste



Note: A total of 673 HCFs reported the use of open burning.

Chapter 6. Results: Climate-resilient HCFs



The National WASH Survey 2021 revealed that 11% of HCFs in the Lao People's Democratic Republic were affected by extreme weather events attributable to climate change in the last 20 years, yet only a minority of HCFs are prepared for the impacts of climate change.

6.1 Climate change impacts

Extreme weather events (such as extreme heat, floods, droughts, wildfires and storm surges) have destroyed roofing, energy infrastructure and walled structures of HCFs, substantially disrupting day-to-day operations and thus hindering the ability of HCFs to treat patients, including those who may have been affected by the event (Figs. 27–30). Of the 11% of HCFs affected by extreme weather events, a majority (56%) experienced severe damage, defined as damage to robust structural elements of the HCF (such as windows, doors and roofs).

These findings vary widely by HCF type (Fig. 31). Smaller HCFs (type B health centres, which serve fewer than 7500 people, and type B district hospitals, which do not perform caesarean sections) reported more damage to structural and non-structural elements of the HCF (such as computers, diagnostic equipment and testing reagents). In contrast, provincial hospitals reported hardly any damage to structural elements or impacts on non-structural elements, suggesting that they are less vulnerable to extreme weather.

Geographically, HCFs in the provinces of Xiangkhouang and Bokeo are especially vulnerable, followed by Vientiane Capital and Phongsali, as demonstrated by the many HCFs that have experienced damage to structural elements due to extreme weather in these provinces (Figs. 32 and 33). In some provinces (Attapu, Louangnamtha and Bolikhamxai, for instance), impacts on non-structural elements are far more prominent than those on structural elements.

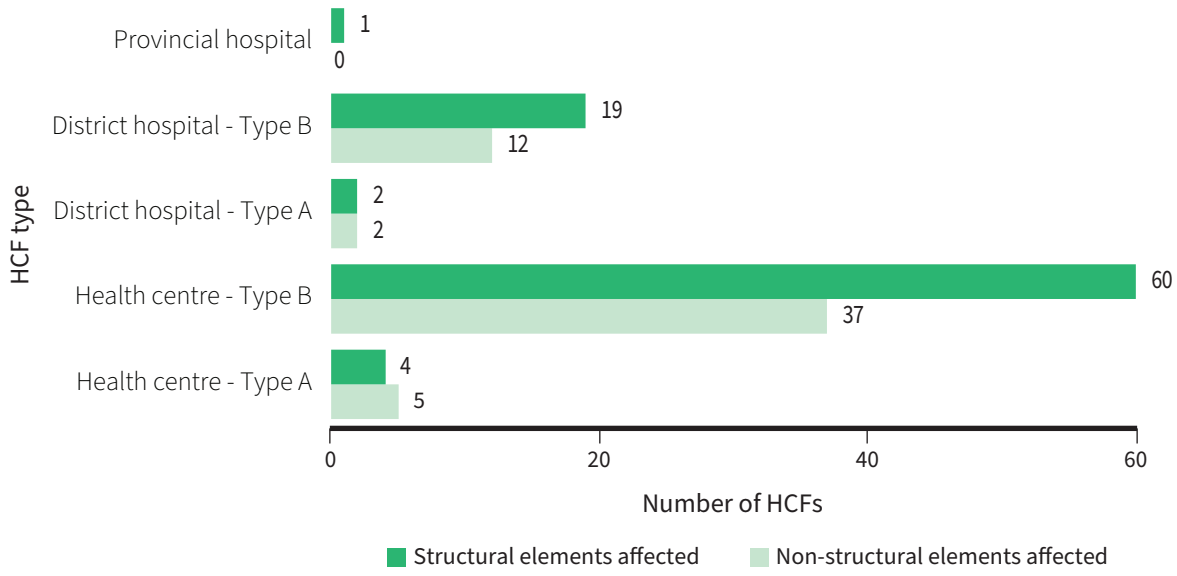
FIG. 27. Roofing destroyed by an extreme weather event

FIG. 28. Solar panels destroyed by an extreme weather event

FIG. 29. Destroyed wall due to an extreme weather event, bringing in soil and garbage from the outside

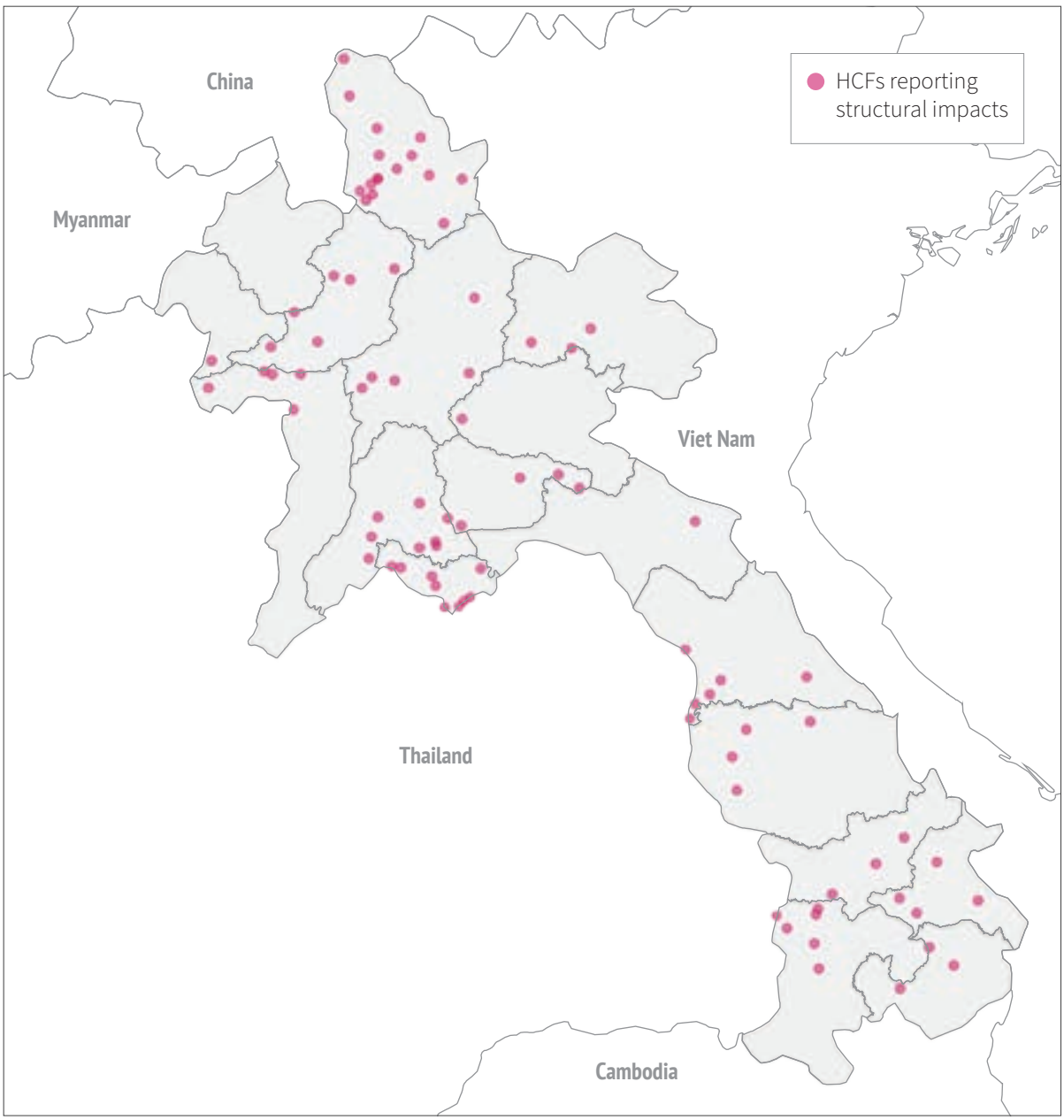
FIG. 30. Flooding due to an extreme weather event

FIG. 31. HCFs reporting structural and non-structural impacts due to extreme weather



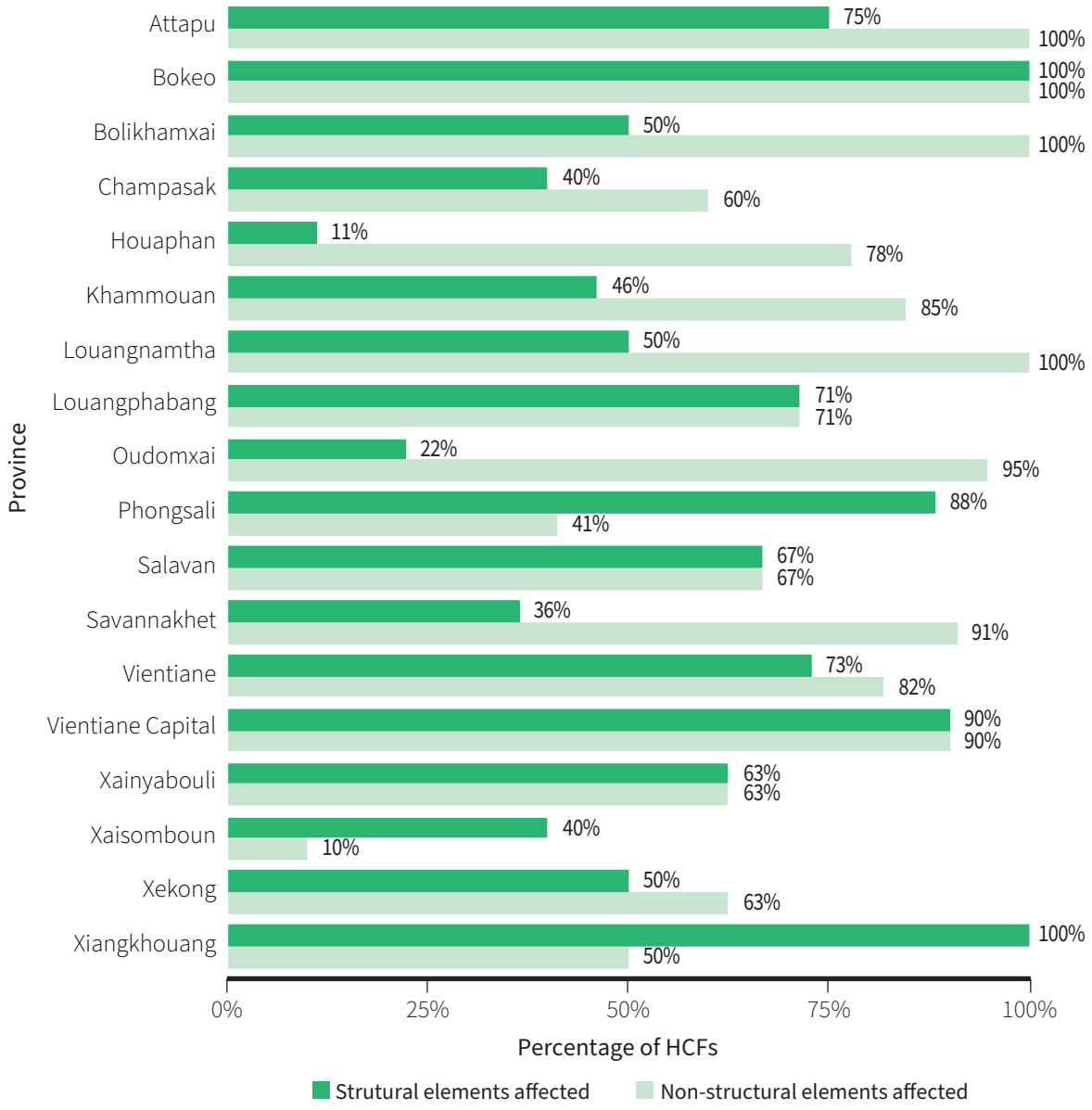
District hospital - Type A: performs caesarean sections; District hospital - Type B: does not perform caesarean sections; Health centre - Type A: with a population catchment of over 7500 people; Health centre - Type B: with a population catchment of under 7500 people.

FIG. 32. HCFs reporting impacts on structural elements due to the last extreme weather event



Note: A total of 87 HCFs reported structural damage.

FIG. 33. Percentage of HCFs reporting impacts of extreme weather on structural and non-structural elements by province

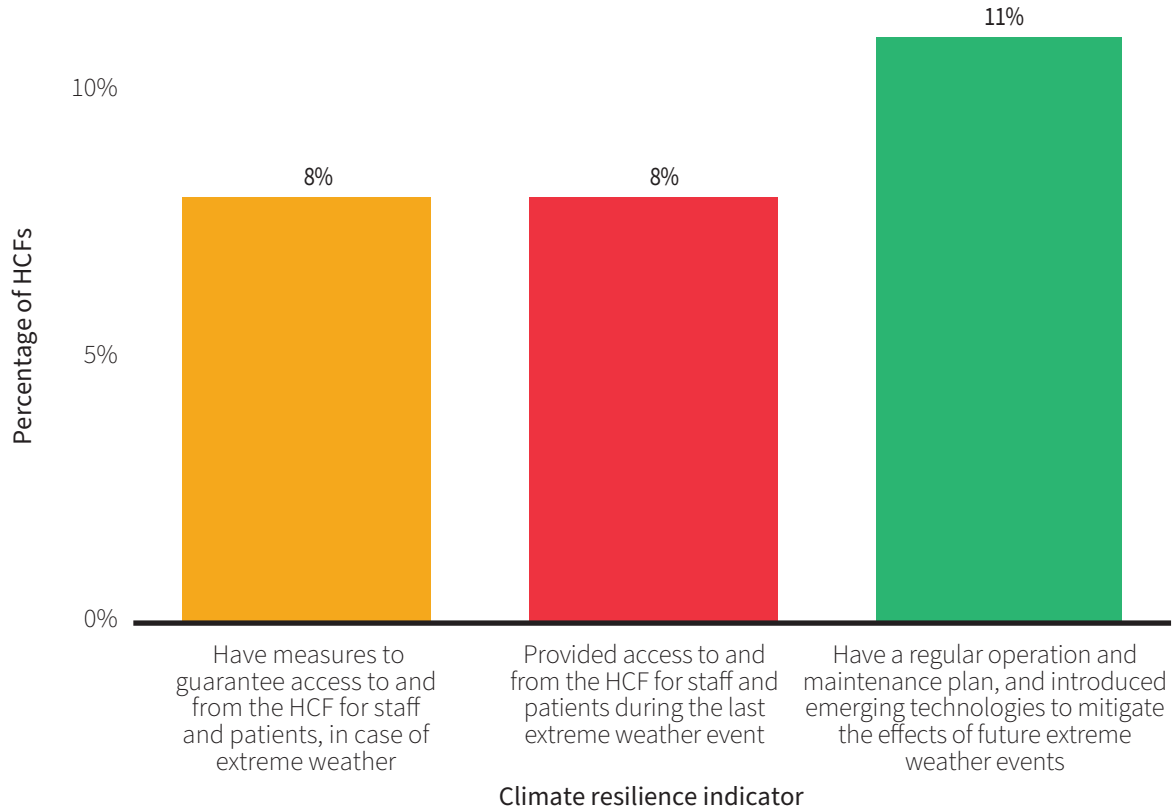


6.2 Climate change preparedness

Despite the impacts of extreme weather events already felt and the risk of future damage, only 1% of HCFs have any measures in place to reduce their vulnerability to extreme weather events, demonstrating a significant gap in capacity and needs with respect to climate resilience. Further, a vast majority of HCFs (95%) do not have any strategies in place to cope with protracted electricity and water supply disruptions due to extreme weather events. Measures have been placed in only 8% of HCFs to guarantee physical access to and from the facility even in situations of extreme weather. Only 11% have operation and maintenance plans and technological solutions in place to reduce the impacts of extreme weather (Fig. 34).

As for human resources, a minority of HCFs (25%) have the capacity to treat health conditions due to extreme weather events, such as floods and storms, and to care for patients during and after events. Further, only 3% of facilities have professionals trained in climate-related health outcomes and adaptation measures, and are able to respond to climate-related public health emergencies.

FIG. 34. Percentage of HCFs meeting key indicators for climate resilience



Chapter 7. Conclusion: monitoring framework and next steps

The Lao National WASH Survey 2021 identified that while progress is being made to improve WASH services, significant gaps remain, especially in health centres and smaller district hospitals. The survey results also demonstrated that HCFs in the country and the professionals who work in such facilities are highly vulnerable to the impacts of extreme weather events attributable to a changing climate.

The survey revealed that most HCFs (70%) have access to basic water services, but almost none (2%) have access to basic sanitation. Further, only a minority of HCFs have access to basic hygiene (19%) and waste management (16%) services. There are geographical disparities in WASH service quality; HCFs in some provinces, especially those in the north-east, are undeserved. While 11% of HCFs have already suffered the effects of extreme weather events, only 1% of all HCFs have operation and maintenance plans in the event of extreme weather, illustrating that most HCFs are not climate ready.

7.1 Monitoring framework

Following the survey, a monitoring framework was devised by the MOH's Department of Hygiene and Health Promotion and *Nam Saat* staff, with WHO support. For each indicator used in the survey, objectives and target figures until 2025 and 2030 were devised based on the baseline results, SDG targets, and national targets and standards. The targets for WASH services and climate resilience for 2025 and 2030 are summarized in Tables 3 and 4. The complete monitoring framework until 2025 is provided in Annex 3.

TABLE 3. Percentage of HCFs with basic WASH service, 2021 baseline and targets for 2025 and 2030

	2021 baseline	2025 target	2030 target
Water	70%	89%	90%
Sanitation	2%	66%	80%
Hygiene	16%	64%	80%
Waste	19%	100%	100%

TABLE 4. Percentage of climate-resilient HCFs, 2021 baseline and targets for 2025 and 2030

	2021 baseline	2025 target	2030 target
With staff trained	3%	99%	100%
With response plan	11%	95%	100%

The monitoring framework provides a consistent approach to capturing data and monitoring progress on WASH in HCFs. The framework is being used by the MOH, WHO and development partners to track and report on progress, and to identify target services, HCFs and HCF types where focused efforts are needed.

Data collection is undertaken annually through the District Health Information System 2 (DHIS2),

using a short-form survey. The short-form survey contains questions on some but not all of the key indicators included in the national survey (see Annex 1). A second National WASH Survey is planned for 2025 to review progress on all indicators.

7.2 Next steps

In light of existing WASH-related policies and actions in the Lao People's Democratic Republic, the challenges identified by the National WASH Survey 2021, and the objectives outlined in the monitoring framework, the following national- and HCF-level measures are critical to strengthen WASH services in HCFs.

National-level steps:

1. **Develop a national policy and strategic action plan** with a road map towards SDG targets for the provision of basic WASH and waste management services by 2025. The road maps should include budget details at the national level, operational costs for regular operation and maintenance at the HCF level, and clear roles and responsibilities for all stakeholders.
2. **Target underserved HCFs** to close the gaps in WASH service delivery. This survey identified priority HCFs for national and subnational planning:
    - Target water services in health centres, especially in the north-eastern part of the country. The survey demonstrated that health centres are especially underserved, with only 70% having access to basic water services.
    - Target basic sanitation services in all HCFs across the country, in particular, health centres and type B district hospitals, in which less than 3% have basic services (compared to 35% of provincial hospitals with basic services). Basic sanitation facilities for staff, patients and people with reduced mobility should be available and usable.
    - Target hygiene services in health centres, prioritizing those that do not have any hygiene services. Around 10% of small health centres and 10% of larger health centres (those that serve more than 7500 people) reported having no hygiene services. Another 80% of both small and large health centres reported having limited services.
    - Target waste management services in health centres and district hospitals in particularly underserved provinces. In some subnational jurisdictions, including Champasak, Xainyabouli, Phongsali, Attapu, Xaisomboun and Vientiane Capital, 10–20% of HCFs do not have any waste management services.
3. **Continue routine monitoring and regularly review and share progress on improving WASH services** to support upscaling activities. The national monitoring framework provides a consistent approach to capturing data and a baseline for monitoring progress on WASH in HCFs in the Lao People's Democratic Republic. Regular monitoring should be continued using the short-form survey integrated into the DHIS2. Reviewing and sharing experiences should be done on an annual basis under government leadership and coordination.

4. **Conduct regular climate awareness campaigns and support climate adaptation measures** for planned and existing HCFs, to increase the resilience of WASH and non-WASH infrastructure to climate change and extreme weather events.
    - Climate resilience should be considered from the planning and design stage of new HCFs. Local geography (for example, elevation and proximity to rivers) and climate (for example, rainfall) should be considered when deciding on the construction of the building and its WASH facilities.
    - The Safe Clean Green and Climate Resilient Healthcare Facilities Initiative should be supported and expanded to assist in increasing the resilience to climate change of health centres with a catchment area of fewer than 7500 people and type B district hospitals, as these HCF types reported more structural damage than other HCF types.

HCF-level steps:

1. **Water:** Measures may include adopting rainwater harvesting systems with filters, treating water from wells before use by boiling the collected water and using a filtration system; and reusing water and using low-flow taps for water conservation *(24,25)*.
2. **Sanitation:** Measures may include developing cleaning, operation and maintenance plans based on the minimum requirements for basic sanitation services, to be used in daily activities; and installing ramps and other accessibility features for toilets *(25,26)*.
3. **Hygiene:** Measures may include promoting WASH-related health behaviours through awareness, enabling such behaviours through monitoring, and replenishing supplies of soap and water (or disinfectants) *(1,25)*.
4. **Waste management:** Measures may include conducting regular training for staff, using three bins to separate sharps, infectious and general waste; and strengthening networks with neighbouring district or provincial hospitals with on-site management systems to collect and safely dispose of different types of waste *(27)*.
5. **Climate change:** Measures may include creating and/or updating contingency plans in the case of climate-related emergencies and training health workers on climate hazards and climate-sensitive diseases *(25,28)*.

References

1. WHO, UNICEF. Global progress report on water, sanitation and hygiene in health care facilities: fundamentals first. Geneva: World Health Organization; 2020 (https://www.who.int/publications/i/item/9789240017542, accessed 28 February 2022).
2. Hand hygiene for all initiative: improving access and behaviour in health care facilities. World Health Organization; 2020 (https://apps.who.int/iris/handle/10665/336023, accessed 30 March 2022).
3. Transforming our world: The 2030 Agenda for Sustainable Development. New York: United Nations; 2015.
4. Guterres A. Remarks at the launch of the International Decade for Action, Water for Sustainable Development, 2018–2028. March 2018, No. 1 Vol. LV 2018, The Quest for Water. In: UN Chronicle [website] (https://www.un.org/en/chronicle/article/remarks-launch-international-decade-action-water-sustainable-development-2018-2028, accessed 30 March 2022).
5. Resolution WHA72.7. Water, sanitation and hygiene in health care facilities. In: Seventy-second World Health Assembly, Geneva, 20–28 May 2019. Resolutions and decisions, annexes. Geneva: World Health Organization; 2019 (https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_R7-en.pdf, accessed 30 March 2022).
6. WASH in health care facilities: global baseline report 2019. Geneva: World Health Organization and the United Nations Children's Fund; 2019 (https://apps.who.int/iris/handle/10665/311620, accessed 30 March 2022).
7. WHO, UNICEF. Water, sanitation and hygiene in health care facilities: practical steps to achieve universal access to quality care. World Health Organization; 2019 (https://apps.who.int/iris/handle/10665/311618, accessed 30 March 2022).
8. WHO, UNICEF. Core questions and indicators for monitoring WASH in health care facilities in the Sustainable Development Goals. Geneva: World Health Organization; 2018 (https://apps.who.int/iris/handle/10665/275783, accessed 30 March 2022).
9. Forest area (% of land area) - Lao PDR. In: World Development Indicators [online database]. Washington (DC): World Bank; 2022 (https://data.worldbank.org/indicator/AG.LND.FRST.ZS?locations=LA&view=chart, accessed 19 March 2022).
10. Population, total - Lao PDR. In: World Development Indicators [online database]. Washington (DC): World Bank; 2022 (https://data.worldbank.org/indicator/SP.POP.TOTL?locations=LA, accessed 28 February 2022).
11. Urban population (% of total population) - Lao PDR. In: World Development Indicators [online database]. Washington (DC): World Bank; 2022 (https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=LA, accessed 28 February 2022).

12. Country profiles: Lao People's Democratic Republic. In: UNICEF Data [online database]. New York: UNICEF (https://data.unicef.org/country/lao/, accessed 28 February 2022).
13. Lao People's Democratic Republic. In: WHO Coronavirus (COVID-19) Dashboard [website]. Geneva: World Health Organization; 2022 (https://covid19.who.int/region/wpro/country/la, accessed 25 March 2022).
14. Global analysis of health care waste in the context of COVID-19: Status, impacts and recommendations. Geneva: World Health Organization; 2022 (https://apps.who.int/iris/handle/10665/351189, accessed 20 March 2023).
15. Climate risk country profile: Lao PDR. Washington (DC) and Manila: The World Bank Group and the Asian Development Bank; 2021 (https://www.adb.org/publications/climate-risk-country-profile-lao-pdr, accessed 25 March 2022).
16. Household. Estimates on water, sanitation, and hygiene in Lao People's Democratic Republic. In: WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene [online database] (https://washdata.org/data/downloads#LAO, accessed 25 March 2022).
17. Health care facilities. Estimates on water, sanitation, and hygiene in Lao People's Democratic Republic. In: WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene [online database] (https://washdata.org/data/downloads#LAO, accessed 25 March 2022).
18. Lao People's Democratic Republic voluntary national review on the implementation of the 2030 Agenda for Sustainable Development. Vientiane: Government of the Lao People's Democratic Republic; 2018 (https://laopdr.un.org/sites/default/files/2019-08/2018%20VNR_0.pdf, accessed 30 March 2022).
19. Lao People's Democratic Republic. Nationally Determined Contribution. Bonn: United Nations Framework Convention on Climate Change; 2021 (https://unfccc.int/sites/default/files/NDC/2022-06/NDC%202020%20of%20Lao%20PDR%20%28English%29%2C%2009%20April%202021%20%281%29.pdf, accessed 18 July 2023).
20. WHO Representative Office for Lao PDR. Lao People's Democratic Republic pledges to do more for COP 26 Health Programme Initiative. 6 October 2021. World Health Organization Regional Office for the Western Pacific (https://www.who.int/laos/news/detail/06-10-2021-lao-people-s-democratic-republic-pledges-to-do-more-for-cop-26-health-programme-initiative, accessed 16 March 2022).
21. WASH FIT portal. In: WASH in Health Care Facilities [website]. Geneva: World Health Organization (https://washinhcf.org/wash-fit/, accessed 16 March 2022).
22. WHO guidance for climate resilient and environmentally sustainable health care facilities. Geneva: World Health Organization; 2020 (https://www.who.int/publications/i/item/9789240012226, accessed 20 March 2022).
23. Safe hospitals in emergencies and disasters: structural, non-structural and functional indicators. Manila: WHO Regional Office for the Western Pacific; 2010 (https://apps.who.int/iris/handle/10665/207689, accessed 20 March 2023).
24. Brindha K, Pavelic P, Sotoukee T. Environmental assessment of water and soil quality in the Vientiane Plain, Lao PDR. Groundw Sustain Dev. 2019; 8:24–30. doi:10.1016/j.gsd.2018.08.005.

25. WHO, UNICEF. Water and sanitation for health facility improvement tool (WASH FIT): a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities, 2nd ed. Geneva: World Health Organization; 2022 (https://apps.who.int/iris/handle/10665/353411, accessed 30 March 2023).

26. Guidelines on sanitation and health. Geneva: World Health Organization; 2018 (https://apps.who.int/iris/handle/10665/274939, accessed 30 March 2023).

27. Safe management of wastes from health-care activities, 2nd ed. Geneva: World Health Organization; 2014 (https://www.who.int/publications/i/item/9789241548564, accessed 30 March 2023).

28. WHO guidance for climate resilient and environmentally sustainable health care facilities. Geneva: World Health Organization; 2020 (https://apps.who.int/iris/handle/10665/335909, accessed 30 March 2023).

Annexes

Annex 1. Survey questions

Two survey forms were devised by the MOH and WHO technical staff in consultation with national health policy-makers, HCF managers, and national and subnational specialists on water and sanitation, health information and data monitoring.

a. A long form survey was developed for use in the 2021 National WASH Survey to collect baseline data.

b. A short-form survey was devised for routine monitoring/annual update by HCF managers through the district health information software (DHIS2) and has already been integrated with the DHIS2 system for HCFs to update.

The surveys were adapted from the WHO/UNICEF JMP *Core questions and indicators for monitoring WASH in health care facilities in the Sustainable Development Goals*, with additional questions and indicators – including those relating to climate change – developed for the long-form survey. Both surveys are given below.

a. Long-form survey

Basic information

1. Date of Survey
2. Surveyor – Organization
    a. MOH/Central institutions
    b. Subnational (PHO/DHO) organizations
    c. WHO
    d. Development partner (non-WHO)
3. Surveyor – Full name
4. Facility (Province-District-HCF)/if not, please write
5. OIC* of HCF – Full name

* OIC: Officer in charge.

WATER

W1. Main water source *(select one or more)*:

- ☐ Piped/Nam Papa system
- ☐ Protected dug well/Borehole/Spring/ Gravity feed system
- ☐ Rainwater/Rainwater harvesting system
- ☐ Unprotected dug well/Borehole/Spring
- ☐ River/Lake/Canal
- ☐ Tanker truck
- ☐ No water sources

W2. Main water source is on premises or water source is less than 500m from the premise:

☐ Yes ☐ No

W3. Is water source less than 500m from the premise?

☐ Yes ☐ No

W4. Water from main source is currently available (24/7days):

☐ Yes ☐ No

W5. Is water (tap water sample) free from e-coli (0/100mL)?

☐ Yes ☐ No

W6. If piped (nampapa) water is used, does water have appropriate chlorine residual (0.1-0.5mg/L)?

☐ Yes ☐ No

W7. Is the water quality testing result available?

☐ Yes ☐ No

Additional questions for national monitoring

W8. Water supply for the HCF is affected by water shortage:

☐ Yes ☐ No

W9. If no water available, main reasons are:

- ☐ Water shortage in catchment areas during dry season (no spring water available)
- ☐ Water source and infrastructure damaged during flood and other weather events
- ☐ Water source does not have pump or pump is broken
- ☐ Water catchment was not properly designed and constructed (spring water is available, but designed to collect water from stream, not spring source)
- ☐ Others

W10. How many months (on average) that your HCF faces water shortage during dry season:

(Enter a number. e.g. 1 or 3)

SANITATION

S1. Type of toilets: *(select one that is the most common)*

- ☐ Flush/Pour-flush
- ☐ Dry toilet/Pit latrine with slab - covered
- ☐ Dry toilet/Pit latrine without slab - open
- ☐ Composting toilet
- ☐ None

S2. Are all toilets usable

☐ Yes ☐ No

S3. Are there at least 4 toilets?

☐ Yes ☐ No

S4. Are toilets clearly separated for men and women

☐ Yes ☐ No

S5. Are excreta safely disposed of in situ or transported and treated offsite?

☐ Yes ☐ No

S6. Is waste water safely managed through use of on-site treatment (septic tanks followed by drainage pit) or sent to a functioning sewer system?

☐ Yes ☐ No

S7. Grey-water drainage system in place that diverts water away from the facility?

☐ Yes ☐ No

Additional questions for national monitoring

S8. At least one toilet accessible to those with limited mobility/disabled person:

☐ Yes ☐ No

HYGIENE

H1. *Soap and water (or alcohol gel) currently available in a randomly selected outpatient consultation room:

☐ Yes

☐ Partially (not functional or lacking materials)

☐ No

H2. Soap and handwashing facility is currently available near toilets:

☐ Yes*

☐ Either no soap or functional handwashing facility

☐ No soap or handwashing facility is not functional

* Functional hand washing facility means running water is available, no clogging, tap is operational and sink area is accessible/ not blocked by something.

HEALTH-CARE WASTE MANAGEMENT

M1. Sharps, infectious and general waste are safely separated into three bins in a randomly selected consultation room:

☐ Yes

☐ Somewhat (bins are full or include other waste)

☐ No

M2. Treatment/disposal of sharps waste (select one or more):

☐ Autoclave

☐ High-temperature incinerator (2 chambers, 850-1000C)

☐ Brick incinerator/or any type of low temperature incinerator

☐ Open burning

☐ Open dumping without treatment

☐ Chemical disinfection (e.g. with hypochlorite)

☐ Not treated, but buried in lined, protected pit

☐ Not treated and added to general waste

☐ Not treated, but handled by the Urban Development Agency (UDA) that falls under city municipal/or designated company for final disposal

☐ Not treated, but stored at the HCF and transferred to next referral hospital (district or provincial hospital) for final disposal

☐ Other:_____*(specify)*

M3. Treatment/disposal of infectious waste (select one or more):

- ☐ Autoclave
- ☐ High-temperature incinerator (2 chambers, 850-1000C)
- ☐ Brick incinerator/or any type of low temperature incinerator
- ☐ Open burning
- ☐ Open dumping without treatment
- ☐ Chemical disinfection (e.g. with hypochlorite)
- ☐ Not treated, but buried in lined, protected pit
- ☐ Not treated and added to general waste
- ☐ Not treated, but handled by the Urban Development Agency (UDA) that falls under city municipal/or designated company for final disposal
- ☐ Not treated, but stored at the HCF and transferred to next referral hospital (district or provincial hospital) for final disposal
- ☐ Other:_____*(specify)*

Additional questions for national monitoring

M4. Have health-care waste management facilities (intermediate storage, sharp pit, treatment facility, etc.) been damaged or destroyed by flood in the last 5 years?

☐ Yes ☐ No

M5. Waste-water treatment facility is available:

☐ Yes ☐ No

M6. Waste-water treatment facility is functional:

☐ Yes ☐ No

M7. Type of waste treatment technology that is/are available at your HCF currently (select one or more):

- ☐ Activated sludge
- ☐ Wetland/Pond treatment
- ☐ Septic tank
- ☐ Closed waste-water pit with sand, gravel and wooden charcoal
- ☐ Open waste-water pit with sand, gravel and wooden charcoal
- ☐ None

CLIMATE CHANGE (questions for national monitoring)

CC1. Have extreme weather events occurred in your areas in the last 20 years such as heat, flood, drought, wildfire and storm surges?

☐ Yes ☐ No

CC2. Were the robust facility structural elements (window, doors, roofs) of your HCFs affected by the last extreme weather event?

☐ Yes ☐ No

CC3. If yes, was the rehabilitation of the health-care facility designed to be more resilient to extreme weather events (flood and storm, landslide)?

☐ Yes ☐ No

CC4. Were non-structural elements (computers, diagnostic equipment, testing reagents) of this health-care facility able to withstand the last extreme weather event

☐ Yes ☐ No

CC5. Does this health-care facility have measures to reduce vulnerability to such extreme weather events

☐ Yes ☐ No

CC6. Does the facility have strategies to deal with long-lasting electricity and water supply (pump) disruptions?

☐ Yes ☐ No

CC7. Has this health-care facility had regular operation and maintenance plans, and introduced emerging technologies to mitigate the effects of further extreme weather events?

☐ Yes ☐ No

CC8. Was there access provided to and from this health-care facility for staff and patients during the last extreme weather events/flood?

☐ Yes ☐ No

CC9. Are there measures to guarantee the access to and from this health-care facility for staff and patients, if new extreme weather event occurs?

☐ Yes ☐ No

CC10. Could this health-care facility treat illnesses and injuries related to extreme weather events such as flood and storm, and care for patients during and after disaster?

☐ Yes ☐ No

CC11. Have health professionals been trained on climate-related health outcomes, adaptation measures and being able to respond to climate-related public health emergencies?

☐ Yes ☐ No

b. Short form survey

1. Main water source *(select one)*:
   - ☐ Piped/Nam Papa system
   - ☐ Protected dug well/borehole/spring/ gravity feed system
   - ☐ Rainwater/rain water harvesting system
   - ☐ Unprotected dug well/borehole/spring
   - ☐ River/Lake/Canal
   - ☐ Tanker truck
   - ☐ No water source
2. Main water source is on premises:
   - ☐ Yes ☐ No
3. Water from main source is currently available:
   - ☐ Yes ☐ No
4. Type of toilets *(select one – most common):*
   - ☐ Flush/Pour-flush
   - ☐ Dry toilet/Pit latrine with slab/covered
   - ☐ Dry toilet/Pit latrine without slab/open
   - ☐ Composting toilet
   - ☐ None
5. Percentage of usable (accessible, functional, private) toilets in the health-care facility: __ xx%___ (please insert number of functional and non-functional toilets here for double check ----------xx/xx)
6. Toilets separated for men and women:
   - ☐ Yes ☐ No
7. Women's toilets have facilities to manage menstrual hygiene (covered bin, and/or water and soap):
   - ☐ Yes ☐ No
8. Toilets separated for staff and patients:
   - ☐ Yes ☐ No
9. At least one toilet accessible to those with limited mobility/disabled person:
   - ☐ Yes ☐ No

10. Soap and water (or alcohol gel) currently available in a randomly selected outpatient consultation room:
    - ☐ Yes
    - ☐ Partially (not functional or lacking materials)
    - ☐ No
11. Soap and handwashing facility is currently available near toilets:
    - ☐ Yes*
    - ☐ Either no soap or functional handwashing facility
    - ☐ No soap or handwashing facility is not functional
12. Sharps, infectious and general waste are safely separated into three bins in a randomly selected consultation room:
    - ☐ Yes
    - ☐ Somewhat (bins are full or include other waste)
    - ☐ No
13. Treatment/disposal of sharps waste:
    - ☐ Autoclave
    - ☐ High-temperature incinerator (2 chamber, 850-1000C)
    - ☐ Brick incinerator/any type of low temperature incinerator
    - ☐ Open burning
    - ☐ Open dumping without treatment
    - ☐ Chemical disinfection (e.g. with hypochlorite)
    - ☐ Not treated, but buried in lined, protected pit
    - ☐ Not treated and added to general waste
    - ☐ Not treated, but handled by the UDA/or designated company for final disposal
    - ☐ Not treated, but stored at the health-care facility and transferred to next referral hospital (district or provincial hospital) for final disposal
    - ☐ Other:_____*(specify)*
14. Treatment/disposal of infectious waste:
    - ☐ Autoclave
    - ☐ High-temperature incinerator (2 chamber, 850-1000C)
    - ☐ Brick incinerator/or any type of low temperature incinerator
    - ☐ Open burning
    - ☐ Open dumping without treatment
    - ☐ Chemical disinfection (e.g. with hypochlorite)
    - ☐ Not treated, but buried in lined, protected pit
    - ☐ Not treated and added to general waste
    - ☐ Not treated, but handled by the Urban Development Agency falls under city municipal/or designated company for final disposal
    - ☐ Not treated, but stored at the healthcare facility and transferred to next referral hospital (district or provincial hospital) for final disposal
    - ☐ Other:_____*(specify)*

* Functional handwashing facility means running water is available, no clogging, tap is operational and sink area is accessible/ not blocked by something.

Annex 2. WASH in central hospitals

WHO administered the National WASH Survey to 10 central hospitals[3] located in the capital city of Vientiane, in 2022.

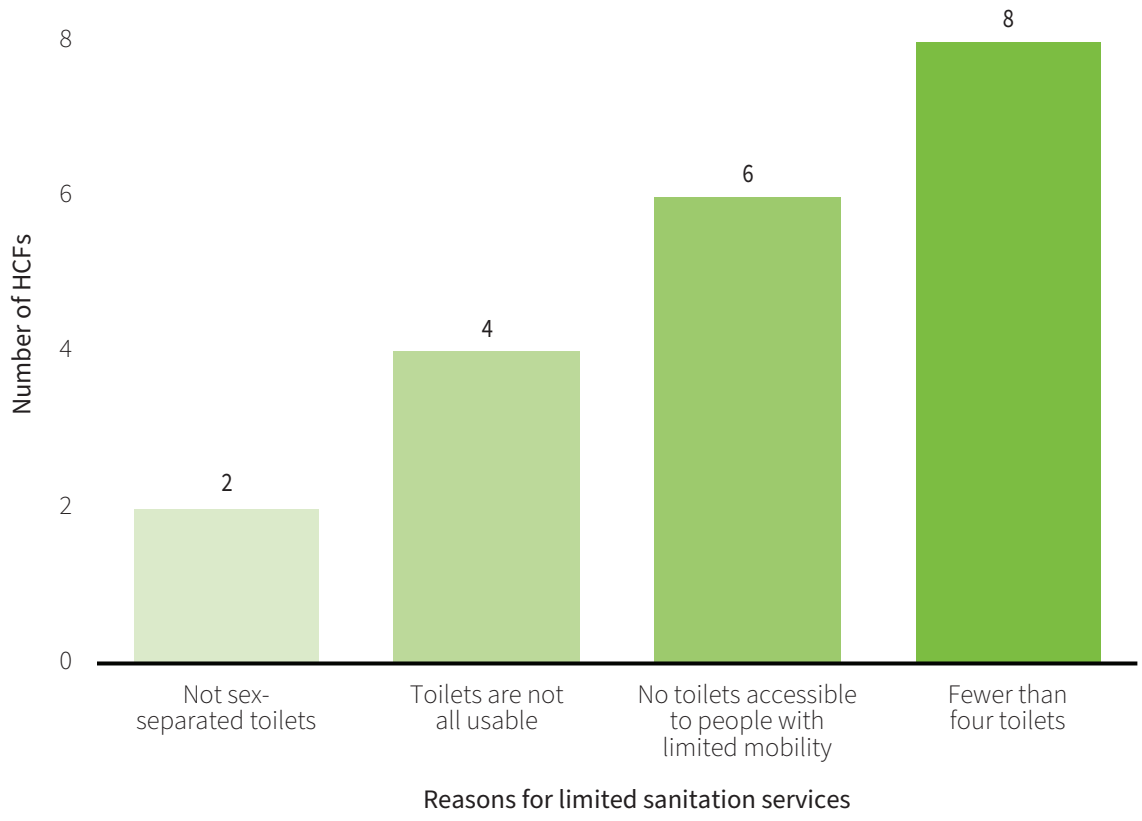
Water

All 10 central hospitals have basic water services, thereby faring better than the national average.

Sanitation

Although performing slightly better than national trends, central hospitals face major challenges in sanitation service delivery, with eight central hospitals reporting that they have limited sanitation services. All HCFs with limited sanitation services report that they have fewer than four toilets (Fig. A2.1). Other common barriers include lack of toilets accessible to people with limited mobility (six HCFs) and toilets being unusable (four HCFs).

FIG. A2.1. Key factors limiting sanitation services in central hospitals



[3] More precisely, WHO surveyed eight central hospitals, the central army hospital and the central police hospital in Vientiane Capital. For simplicity, in this profile, they will collectively be referred to as central hospitals.

As for waste-water management, all HCFs have grey-water drainage systems that divert water away; however, only six have waste water safely managed through on-site treatment or drainage to functioning sewer systems.

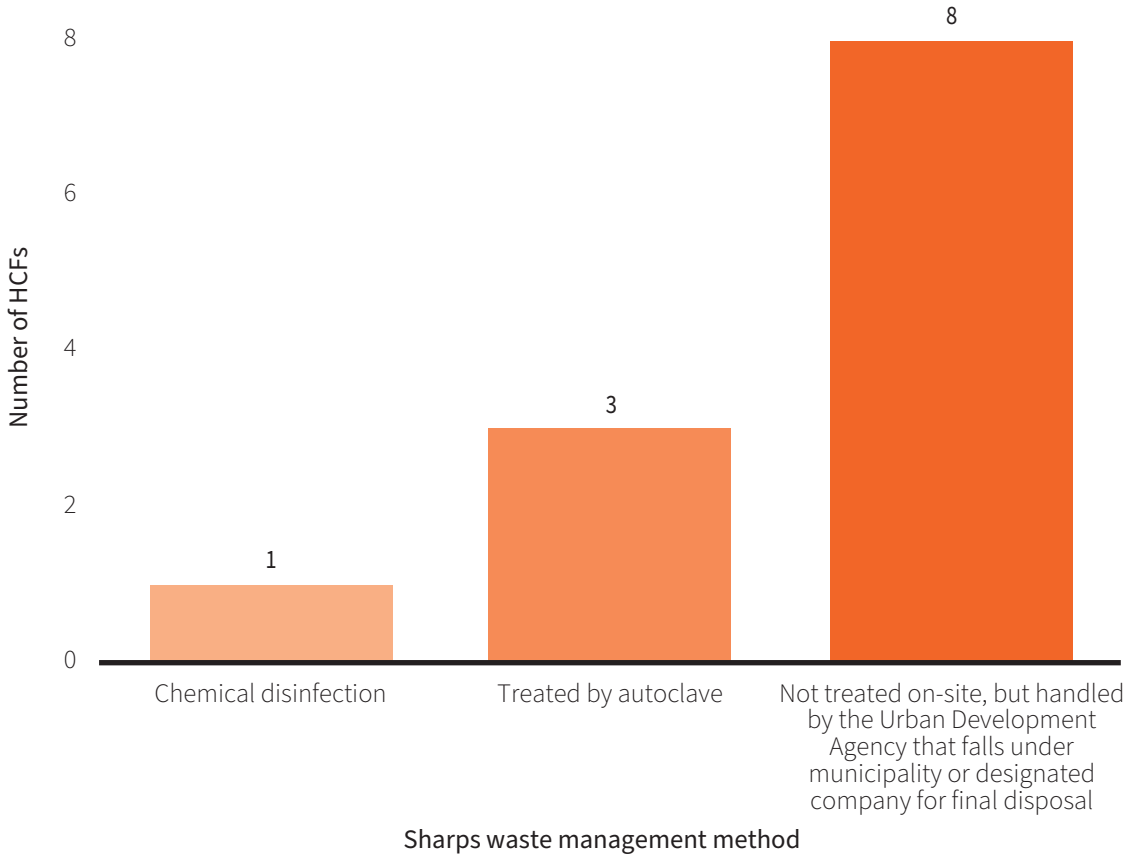
Hygiene

Most central hospitals (seven out of 10) have functional hand hygiene facilities. All three HCFs that have limited hand hygiene (hand hygiene is available at either points of care or toilets, but not both) experience challenges in the full availability of soap and water (or alcohol gel) in randomly selected outpatient consultation rooms during the field survey. A couple of HCFs also report not having either soap or handwashing facilities available near toilets.

Health-care waste

While most central hospitals (seven out of 10) have basic waste management services, there are two HCFs with limited services and one with no waste management system at all. The most common barrier (cited by two HCFs) to basic service is that the bins for sharps and infectious waste, while available, are either full or include other wastes. In terms of sharps waste management, the most common method is leaving the treatment up to the Urban Development Agency (Fig. A2.2). Other methods reported include autoclaving and chemically disinfecting sharps waste.

FIG. A2.2. Methods of sharps waste management in central hospitals



Climate change impacts

Central hospitals are, as a whole, more resilient to the impacts of climate change than other HCFs in the country. Only one central hospital reported having structural and/or non-structural elements damaged by extreme weather in the last 20 years. The majority of HCFs (nine out of 10) have strategies to deal with long-lasting electricity and water supply disruptions.

While all 10 HCFs treat illnesses and injuries related to extreme weather and care for patients during and after disasters, only one HCF reports having health professionals trained on climate-related health outcomes and able to respond to such emergencies.

Annex 3. Summary of national monitoring framework

After the survey was administered and results analysed, a monitoring framework was devised by the MOH's Department of Hygiene and Health Promotion and *Nam Saat* staff following a WHO-led workshop to discuss the baseline survey results and define targets.

First, workshop participants devised objectives linked to each survey indicator. The objectives were developed with consideration of:

- the baseline survey results;
- SDG targets for basic WASH services in at least 80% of HCFs by 2025 and basic services in all HCFs by 2030;
- MOH's Basic Environmental Health Standards in HCFs (2018); and
- MOH's Safe Clean Green and Climate Resilient Healthcare Facilities Initiative (2020) (for climate change only, which has no associated SDG target).

Workshop participants then devised projected figures for the numbers of HCFs to be improved each year until 2025 and 2030. The target years included in the framework were defined by workshop participants to be in line with the objectives. The projected figures were based on the baseline results, the objectives and the experience of the workshop participants.

The monitoring framework allows for a consistent approach to capturing data and a baseline to create the national road map. The framework is being used to monitor progress towards SDG and national targets.

The monitoring framework until 2025 is provided in Table A3.1 on the following pages.

TABLE A3.1. National monitoring framework for WASH and waste management services and climate resilience, until 2025

Indicator			Objective	
Proportion of HCFs with water available from an improved[a] water supply located on premises (basic water service)				
Water	Number and percentage of HCFs	without an improved water source	1. By the end of 2022, all hospitals have an improved water source (*nam papa*)	
		with water supply located beyond 500 metres from the facility	2. By 2025, all HC have a water supply located within 500 metres of the facility	
		with an improved water supply not located on the premises of the HCF	3. By 2025, all DH and PH have an improved water supply located on premises	
		with an improved water supply with water not available	4. By 2023, all HCFs have an improved water supply with water available	
Proportion of HCFs with improved[b] toilets which are usable, sex-separated, provide for menstrual hygiene management, separate for patients and staff, and are accessible for people with limited mobility (basic sanitation service)				
Sanitation	Number and percentage of HCFs	with improved toilets which are not usable	1. By 2023, improved toilets are usable in all HCFs	
		with improved toilets without toilets dedicated for staff	2.1 By 2025, DH, PH and CH have at least four types of toilets (one for staff, one for women with menstrual hygiene facilities available, one for men and one for people with limited mobility)	
		with improved toilets without sex-separated toilets		
		with improved toilets without facilities for menstrual hygiene management	2.2 By 2025, at least 50% of HC have at least two toilets (one equipped with menstrual hygiene facilities and with facilitated access to people with limited mobility and one dedicated to staff)	
		with improved toilets which are not accessible for people with limited mobility		
Proportion of HCFs with functional hand hygiene facilities at point of care with water and soap and/or alcohol hand rub available and handwashing facilities within 5 metres of the toilets with water and soap available (basic hygiene service)				
Hygiene	Number and percentage of HCFs	with functional hand hygiene facilities at point of care with water and soap and/or alcohol hand rub available	1. By 2025, all HCF have functional hygiene facilities at point of care with water and soap available	
		with functional handwashing facilities within 5 metres of toilets with water and soap available	2. By 2025, at least 50% of HC and 100% of DH, PH and CH have three sinks (one within 5 metres of toilets, one in the waiting area or in front/nearby front door, and one in the delivery room)	
Proportion of HCFs with waste correctly segregated in the consultation area and infectious and sharps waste safely treated/disposed (basic waste management service)				
Waste management	Number and percentage of HCFs	with waste not correctly segregated in the consultation area	1. By 2025, all HCF have three bins available (one general, one for infectious waste and one for sharps waste) for proper separation at point of care	
		with infectious waste not safely treated/ disposed of	2.1 By 2025, all CH, PH, and DH have infectious waste safely treated by autoclave or high temperature incinerator with two chambers (> 1200degrees) 2.2 By 2025, at least 60% of HC have infectious waste safely treated using at least sharp pit or burial pit or higher standards	
		with sharps waste not safely treated/ disposed of	3.1 By 2025, all CH, PH and DH have sharps waste safely treated by autoclave or high temperature incinerator (> 1200degrees) with two chambers 3.2 By 2025, all HC have sharps waste safely treated using sharp pit or burial pit or higher standards	
Proportion of HCFs with measures to reduce vulnerability to extreme weather events[c] and strategies to deal with long lasting electricity and water supply (pump) disruptions				
Climate change	Number and percentage of HCFs	without measures to reduce vulnerability to extreme weather events	1. By 2025, all HCFs have at least one staff trained in WASH FIT in all HCFs	
		without strategies to deal with long lasting electricity and water supply (pump) disruptions	2. By 2025, all HCFs have Introduced Safe Clean Green and Climate Resilient Healthcare Facilities Initiative guidelines	
Total number of HCFs				

NA: not applicable; CH: central hospital; DH: district hospital; HC: health centre; HCF: health care facility: PH: provincial hospital; WASH FIT: Water and Sanitation for Health Facility Improvement Tool.

[a] Improved water sources include household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection that provides drinking water within 30 minutes.

[b] Improved sanitation facilities are those designed to hygienically separate excreta from human contact and include: flush/pour flush to piped sewer system, septic tanks or pit latrines, ventilated improved pit latrines, composting toilets or pit latrines with slabs.

[c] Extreme weather, as defined by the survey, included events such as extreme heat, floods, droughts, wildfires, and storm surges. HCFs were considered to have experienced severe damage due to these events when there was damage to robust structural elements of the HCF which includes windows, doors, and roofs.

	2021 Baseline	2021 Baseline					2022						2023					2024					2025				
	Central hospital	PH (n)	DH (n)	HC (n)	Total (n)	Total	CH	PH (n)	DH (n)	HC (n)	Total (n)	Total	PH (n)	DH (n)	HC (n)	Total (n)	Total	PH (n)	DH (n)	HC (n)	Total (n)	Total	PH (n)	DH (n)	HC (n)	Total (n)	Total
	10	17	120	837	974	80%		17	116	859	992	81%	17	122	930	1069	87%	17	129	943	1088.5	89%	17	135	943	1095	89%
		0	2	32	34	3%	0	0	2	10	0	0%	0	0	12	0	0%	0	0	12	0	0%	0	0	0	0	0%
	0	0	19	266	285	23%	0	0	0	214	214	17%	0	0	143	143	12%	0	0	72	72	6%	0	0	0	0	0%
	0	0	7	130	137	11%	0	0	20	130	150	12%	0	13	130	143	12%	0	7	130	137	11%	0	0	130	130	11%
	0	0	14	193	207	17%	0	0	7	97	104	8%	0	0	0	0	0%	0	0	0	0	0%	0	0	0	0	0%
	0	11	7	7	25	2%		8	49	159	216	18%	10	78	311	399	33%	17	107	502	626	51%	17	135	654	806	66%
	0	1	14	71	86	7%	0	0	7	36	43	4%	0	0	0	0	0%	0	0	0	0	0%	0	0	0	0	0%
		8	115	1045	1168	95%	0	6	86	914	1006	82%	4	57	762	823	67%	2	28	571	601	49%	0	0	0	0	0%
	0	3	61	985	1049	86%	0	1	46	862	909	74%	0	31	718	749	61%	0	15	539	554	45%	0	0	415	415	34%
	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	11	61	985	1057	86%	3	9	46	862	919	75%	7	31	718	756	62%	5	15	539	559	46%	0	0	419	419	34%
		14	51	133	198	16%		15	77	258	349	28%	16	96	384	496.125	41%	16	116	511	642	52%	17	135	637	789	64%
	0	1	52	732	785	64%	0	0	39	641	680	55%	0	26	549	575	47%	0	13	458	471	38%	0	0	366	366	30%
	2	3	78	932	1013	83%	1	2	59	816	877	72%	1	39	689	729	60%	1	20	562	583	48%	0	0	436	436	36%
		14	63	153	230	19%		15	101	465	581	47%	16	113	668	796	65%	16	124	870	1010	82%	17	135	1073	1225	100%
	0	1	41	583	625	51%	0	0	31	437	468	38%	0	21	292	312	25%	0	10	146	156	13%	0	0	0	0	0%
	0	1	45	811	857	70%	0	2	34	608	644	53%	1	23	406	429	35%	1	11	203	215	18%	0	0	0	0	0%
	0	1	20	488	509	42%	0	1	15	366	382	31%	0	10	244	254	21%	0	5	122	127	10%	0	0	0	0	0%
	4	17	131	1060	1208	99%	4	13	98	795	910	74%	10	66	530	605	49%	7	33	265	305	25%	0	0	0	0	0%
	4	11	112	1038	1161	95%	3	8	79	773	863	70%	6	47	508	560	46%	3	14	243	260	21%	0	0	0	0	0%
	10	**17**	**135**	**1073**	**1225**			**17**	**135**	**1073**	**1225**		**17**	**135**	**1073**	**1225**		**17**	**135**	**1073**	**1225**		**17**	**135**	**1073**	**1225**	

World Health Organization Country Office
for the Lao People's Democratic Republic
125 Saphanthong Road, Unit 5, Ban
Saphanthongtai, Sisattanak District
Vientiane
Lao People's Democratic Republic
who.int/laos

WHO Western Pacific Region
PUBLICATION

ISBN-13 978 92 9062 025 9