CORE QUESTIONS ON DRINKING-WATER AND SANITATION FOR HOUSEHOLD SURVEYS

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PREFACE

The WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) prepared this document *Core questions on drinking-water and sanitation for household surveys* for use in comprehensive surveys that include questions on drinking-water and sanitation. If national and subnational household surveys use the questions and response categories in this guide, this will help to improve survey comparability over time and harmonize them with international monitoring programmes, including the JMP.

The harmonized questions in this guide are derived from an in-depth study of several international survey instruments. The questions were developed by the JMP in collaboration with experts from three international survey programmes – the Demographic and Health Survey (DHS), the Multiple Indicator Cluster Survey (MICS) and the World Health Survey (WHS) – as well with selected members of the JMP Technical Advisory Group (TAG). The DHS, MICS and WHS have adopted these harmonized questions to solve the comparability problems that previously existed across the different surveys.

This guide:

- Explains why it is important to adopt a harmonized set of drinking-water and sanitation questions in household surveys.
- Introduces a set of harmonized survey questions related to drinking-water and sanitation issues.
- Explains how household survey data are used to estimate access to drinking-water and sanitation.
- Discusses the classification of drinking-water and sanitation technologies as "improved" or "unimproved," and provides definitions for such technologies.
- Presents tools and information for monitoring the use of improved drinking-water and sanitation facilities.

A companion document to this set of core questions has been prepared by Rod Shaw of the Water, Engineering and Development Centre (WEDC), Loughborough University, UK. Entitled "Drinking-Water and Sanitation: A compendium of illustrations for household surveys," this document is available on the JMP web site (www.wssinfo.org).

1. WHY USE HARMONIZED QUESTIONS IN HOUSEHOLD SURVEYS?

Surveys are routinely used to assess household use of improved drinking-water and sanitation, and to assess hygiene-related practices in countries across the globe. Examples include the Demographic and Health Survey (DHS), supported by the United States Agency for International Development (USAID); the UNICEF-supported Multiple Indicator Cluster Survey (MICS); the WHO World Health Survey (WHS); the Reproductive Health Survey; the Living Standards Measurement Study (LSMS); the Core Welfare Indicator Questionnaires (CWIQ); and national censuses.

Accurate information about drinking-water, sanitation and hygiene related issues is invaluable to national leaders, decision-makers and stakeholders when making policy decisions. Sound, evidence-based information can be used in a variety of ways, including:

- to assess progress towards national and international goals and targets;
- to promote increased investments in the sector;
- to focus attention on needy areas and efficiently allot resources.

To ensure that the national, regional and global estimates are of the best quality possible, the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) uses different household surveys to estimate drinking-water and sanitation coverage. However, one problem with using data from a variety of sources is that the different survey results often cannot be compared, as different surveys may use different questions and response categories. As a result, it has been difficult to establish accurate trends over time within countries, and to compare data from different countries. Solving comparability problems is therefore crucial for estimating coverage accurately, and this prompted the JMP to formulate the set of harmonized survey questions and response categories presented in this guide.

This set of questions and response categories is intended for use in household surveys and national censuses; they have already been incorporated into several international survey programmes including DHS, MICS and WHS. It is envisioned that, with the expanded use of these harmonized questions, the pool of reliable data will increase, leading to higher quality estimates at country, regional and global levels.

Box 1: The JMP and global estimates

The JMP serves as the official mechanism of the United Nations for monitoring access to drinking-water and sanitation, and for reporting globally on the status of drinking-water and sanitation coverage. The coverage estimates are used to measure progress towards MDG Target 7c, «To halve, by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation.»

2. THE CORE SET OF QUESTIONS ON DRINKING-WATER AND SANITATION FOR HOUSEHOLD SURVEYS

The harmonized survey questions in this guide assess the type of drinking-water source and sanitation facility that household members use. The questions also assess hygiene practices with respect to the disposal of children's faeces. The questions are not exhaustive, but serve as a core set to include in comprehensive household surveys. There are a number of detailed survey instruments for assessing household sources of drinking-water, sanitation facilities, and hygiene behaviours, including the Environmental Health Project/USAID *Guidelines for assessing hygiene improvement*, the World Bank LSMS, and the London School of Hygiene and Tropical Medicine *WSH indicators for VISION 21*. The harmonized survey questions in this guide will serve as a core set of drinking-water and sanitation questions for comprehensive surveys that include concerns beyond water and sanitation. These and other useful survey tools are listed in section *7. Tools and resources*.

In this section, the harmonized questions are presented in three parts: questions related to drinking-water, to sanitation, and a question on the disposal of children's faeces. The harmonized questions for drinking-water provide information about the type of water source used, the time required to collect the water, and the household member responsible for fetching the water. There is also a question about the treatment of household drinking-water. The sanitation-related questions focus on access to sanitation facilities, and include questions about the type of sanitation facility used by the household and whether the facility is shared with others. The harmonized question on children's faeces aims at understanding household practices for disposing of them.

2.1 Survey questions about drinking-water

Question 1 aims to determine the household's main source of drinking-water, which serves as a proxy indicator for whether a household's drinking-water is safe. The assumption is that certain types of drinking-water sources are likely to deliver drinking-water of adequate quality for their basic health needs. This approximation is used because it would be too costly and time consuming to assess drinking-water quality through national household surveys (see section *6. Analysis of survey data* for drinking-water sources that are considered likely to provide safe water).

Question 1A is designed for households that use bottled water as their main source of drinking-water. In such cases, additional information must be obtained about the water source for other domestic purposes, such as cooking and hand-washing. Bottled water is considered an improved source of drinking-water only when the household uses an improved water source for their other domestic uses.

The harmonized question set includes a question to determine if the round-trip water hauling time between the household and the water source takes more than 30 minutes.

Several other factors, in addition to the quantity of water available and the time and distance to the source, affect the quality of the access that a household has to drinking-water. Such factors include the quality of the water delivered, the continuity of the drinking-water service, the seasonal availability of water, and the affordability of the services. The time needed

to haul water (Question 2) and who within the household collects the water (Question 3) can be relatively easily assessed by national household surveys. This is not the case for continuity, reliability, seasonality and affordability of water supplies, since the assessments require too many questions, and these factors are best assessed by surveys dealing exclusively with drinking-water, sanitation and hygiene issues.

Household water treatment (Questions 4 and 5) can significantly impact the quality of water at the point of use. Appropriate household treatment involves any method proven to be effective in removing or killing pathogens, such as boiling the water, adding bleach or chlorine to the water, using a water-filtering device, solar disinfection of the water and settling methods. Some of these treatments are used individually, but some are combined to ensure that the pathogens are effectively inactivated.

2.2 Survey questions about sanitation

Facilities that are not shared between households and that hygienically separate human excreta from human contact are considered to be adequate.[1] Certain technologies are more likely than others to meet these adequacy standards. Technologies meeting the above requirements are called "improved" and those that do not are "unimproved". (See section *6. Analysis of survey data* for details of sanitation facilities that are considered likely to provide adequate sanitation).

Improved sanitation facilities include a flush/pour-flush toilet or latrine that flushes to a sewer, septic tank or pit. A ventilated improved pit (VIP) latrine, pit latrines with the pit well covered by a slab, or composting toilets are also considered improved. Open pits or latrines without a proper slab to cover the pit are considered to be unimproved. Hanging latrines, which deposit untreated excreta directly into bodies of water or in the open, are also unimproved as there is a high risk that individuals could come into direct contact with human excreta.

Questions 6 and 7 determine whether a sanitation facility is shared with other households, and if so with how many (Question 8). If a facility is shared and poorly maintained, this can undercut the hygienic quality of the facility and discourage people from using it. Such facilities pose health hazards by exposing people directly to human excreta, but in densely populated urban areas, shared or public facilities are often the only sanitation alternative.

2.3 Survey question about safe disposal of children's faeces

Question 9 deals with the disposal of children's faeces because this is a critical aspect of sanitary behaviour. Compared to the faeces of an adult, children's faeces are more likely to be a source of contamination for the household environment.[2] Many cultures, however, do not regard the faeces of small children as dangerous and do not dispose of them in a safe manner. The preferred disposal method, which should ensure that the household environment is not contaminated, is putting or rinsing stools into a sanitation facility.

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1 WHO/UNICEF JMP. *Report of the first meeting of the Technical Advisory Group*. Geneva, 23-25 April 2002.

2 Kleinau E, Pyle D, Nichols L, Rosensweig F, Cogswell L, Tomasek A. *Strategic report 8: Guidelines for assessing hygiene improvement*. Arlington, VA, Environmental Health Project II (USAID), 2004.

QUESTION 1: Main drinking-water source

The purpose of this question is to determine the main source of drinking-water for members of the household (i.e. the water source that supplies most of the household drinking-water needs). The type of water source or technology specified by the household is used as an indicator for whether the drinking-water is of suitable quality.

The water sources likely to be of suitable quality, or "improved", are: a piped water supply into the dwelling; piped water to a yard/plot; a public tap/standpipe; a tube well/borehole; a protected dug well; a protected spring; and rainwater. Water sources that are "unimproved" are: an unprotected dug well; an unprotected spring; a cart with a small tank/drum; a water tanker-truck; and surface water.

Q1. What is the main source of drinking-water for members of your household?	
Piped water into dwelling	>>Q4
Piped water to yard/plot	>>Q4
Public tap/standpipe	>>Q2
Tubewell/borehole	>>Q2
Protected dug well	>>Q2
Unprotected dug well	>>Q2
Protected spring	>>Q2
Unprotected spring	>>Q2
Rainwater collection	>>Q2
Bottled water	>>Q1A
Cart with small tank/drum	>>Q2
Tanker-truck	>>Q2
Surface water (river, dam, lake, pond, stream, canal, irrigation channels)	>>Q2
Other (specify)	>>Q2

Indicator
Use of improved drinking-water sources.

Numerator
Number of household members using improved sources of drinking-water.

Denominator
Total number of household members in households surveyed.

DEFINITIONS

"Improved" sources of drinking-water

- **Piped water into dwelling**, also called a household connection, is defined as a water service pipe connected with in-house plumbing to one or more taps (e.g. in the kitchen and bathroom).
- **Piped water to yard/plot**, also called a yard connection, is defined as a piped water connection to a tap placed in the yard or plot outside the house.
- **Public tap or standpipe** is a public water point from which people can collect water. A standpipe is also known as a public fountain or public tap. Public standpipes can have one or more taps and are typically made of brickwork, masonry or concrete.
- **Tubewell or borehole** is a deep hole that has been driven, bored or drilled, with the purpose of reaching groundwater supplies. Boreholes/tubewells are constructed with casing, or pipes, which prevent the small diameter hole from caving in and protects the water source from infiltration by run-off water. Water is delivered from a tubewell or borehole through a pump, which may be powered by human, animal, wind, electric, diesel or solar means. Boreholes/tubewells are usually protected by a platform around the well, which leads spilled water away from the borehole and prevents infiltration of run-off water at the well head.
- **Protected dug well** is a dug well that is protected from runoff water by a well lining

or casing that is raised above ground level and a platform that diverts spilled water away from the well. A protected dug well is also covered, so that bird droppings and animals cannot fall into the well.

- **Protected spring**. The spring is typically protected from runoff, bird droppings and animals by a "spring box", which is constructed of brick, masonry, or concrete and is built around the spring so that water flows directly out of the box into a pipe or cistern, without being exposed to outside pollution.
- **Bottled water** is considered an improved source of drinking-water only when there is a secondary source of improved water for other uses such as personal hygiene and cooking. Production of bottled water should be overseen by a competent national surveillance body.
- **Rainwater** refers to rain that is collected or harvested from surfaces (by roof or ground catchment) and stored in a container, tank or cistern until used.

"Unimproved" sources of drinking-water

- **Unprotected spring**. This is a spring that is subject to runoff, bird droppings, or the entry of animals. Unprotected springs typically do not have a "spring box".
- **Unprotected dug well**. This is a dug well for which one of the following conditions is true: 1) the well is not protected from runoff water; or 2) the well is not protected from bird droppings and animals. If at least one of these conditions is true, the well is unprotected.
- **Cart with small tank/drum**. This refers to water sold by a provider who transports water into a community. The types of transportation used include donkey carts, motorized vehicles and other means.
- **Tanker-truck**. The water is trucked into a community and sold from the water truck.
- **Surface water** is water located above ground and includes rivers, dams, lakes, ponds, streams, canals, and irrigation channels.

QUESTION 1A: Bottled water prompt

This question is asked only of those whose response to Question 1 was "bottled water". It is designed to determine the main water source used by the household for purposes such as cooking and personal hygiene. Hand washing and cooking are a proxy for all other water uses. If bottled water users use alternate water sources (improved or unimproved), it is important to identify the main secondary source, to be able to properly classify the household as having access to an improved or unimproved water source.

Q1A. What is the main source of water used by your household for other purposes, such as cooking and hand washing?	
Piped water into dwelling	>>Q4
Piped water to yard/plot	>>Q4
Public tap/standpipe	
Tubewell/borehole	
Protected dug well	
Unprotected dug well	
Protected spring	
Unprotected spring	
Rainwater collection	
Cart with small tank/drum	
Tanker-truck	
Surface water (river, dam, lake, pond, stream, canal, irrigation channels)	
Other (specify)	

DEFINITIONS

See Question 1 for definitions.

QUESTION 2: Time to collect water

The purpose of this question is to assess whether the main drinking-water source is sufficiently close or accessible to the household to ensure that there is an adequate daily volume of water for basic household purposes.

The question asks for the total number of minutes it takes to get from the dwelling to the water collection point, queue for water, and return to the dwelling. Time spent socializing (outside of queuing) should not be included in the total number of minutes.

Q2. How long does it take to go there, get water, and come back?	
No. of minutes	>>Q3
Water on premises	>>Q4
DK	>>Q3

Note that the question refers only to a single water-hauling trip and does not consider multiple trips in a single day.

DEFINITIONS

- **No. of minutes** refers to the amount of time needed to get to the water source, obtain water, and return to the household. Socializing time should not be included in the minute value given, unless it is done while queuing for water. The minute value is the time for one round trip, not the total time spent per day hauling water.
- **Water on premises** refers to a water source that is located in the household (house, apartment building), or in the yard/plot.
- **DK** means "don't know".

QUESTION 3: Individual(s) collecting water

The purpose of this question is to know who usually goes to the source to fetch water for the household. This information gives a sense of whether there are gender and generational disparities with respect to water-hauling responsibilities.

Q3. Who usually goes to this source to fetch the water for your household? *Probe:* Is this person under age 15 years? What sex? Circle the code that best describes this person.	
Adult woman	>>Q4
Adult man	>>Q4
Female child (under 15 years)	>>Q4
Male child (under 15 years)	>>Q4
DK	>>Q4

QUESTIONS 4 AND 5: Water treatment

The purpose of the following two questions is to know whether the household drinking-water is treated within the household and, if so, what type of treatment is used. The questions are intended to gather information on water treatment practices at the household level, which provides an indication of the quality of the drinking-water used in the household.

Check more than one response if several methods are used together (e.g. filtering and adding chlorine).

Indicator
Use of an adequate water treatment method.

Numerator
Number of household members who treat their water using an adequate water treatment method.

Denominator
Total number of household members surveyed.

DEFINITIONS

"Adequate" water treatment methods
An adequate water treatment method disinfects water, killing harmful pathogens.

- **Boil** refers to bringing the water to a rolling boil.

Q4. Do you treat your water in any way to make it safer to drink?	
Yes	>>Q5
No	>>Q6
DK	>>Q6

Q5. What do you usually do to the water to make it safer to drink? *Anything else?* *Record all items mentioned*	
Boil	>>Q6
Add bleach/chlorine	>>Q6
Strain it through a cloth	>>Q6
Use a water filter (ceramic, sand, composite, etc.)	>>Q6
Solar disinfection	>>Q6
Let it stand and settle	>>Q6
Other (specify)	>>Q6
DK	>>Q6

- **Add bleach/chlorine** refers to the use of chlorine compounds to treat drinking-water. The most common chlorine compounds include sodium hypochlorite, calcium hypochlorite and bleaching powder (chloride of lime, a mixture of calcium hydroxide, calcium chloride and calcium hypochlorite).
- **Use a water filter (ceramic, sand, composite)** refers to filtering the water through media to remove particles and most microbes from the water. The media used in filtering systems can be ceramic (including clays, diatomaceous earth, glass and other fine particles), sand, or composite (a combination of materials).
- **Solar disinfection** consists of exposing water in clear bottles or containers to sunlight for a minimum of six hours, typically on the roof of a house.

"Inadequate" water treatment methods

These methods are not sufficient to disinfect water, but can remove dirt or other particles from the water. They could be used in combination with any of the above adequate treatment methods, but exclusive use of inadequate methods will not make water safe to drink.

- **Strain it through a cloth** refers to pouring water through a cloth which filters particulates from the water.
- **Let it stand and settle** refers to holding or storing water undisturbed and without mixing long enough for larger particles to settle out. The settled water is carefully removed by decanting, or any other gentle method that does not disturb the sedimented particles.

QUESTION 6: Sanitation facility

The purpose of this question is to determine the type of sanitation facility used by adults in the household, which provides an indication of whether the household uses adequate sanitation. The question specifically asks about actual use of a facility, rather than asks if a household has or owns a toilet facility. This should avoid counting facilities not in use or dysfunctional.

A sanitation facility is considered adequate if it hygienically separates human excreta from human contact. The types of technology that are likely to meet this criterion are: flush to piped sewer system; flush to septic tank; flush/pour flush to pit; composting toilet; VIP latrine; pit latrine with a slab.

Types of sanitation facilities that are not likely to meet the criterion are: flush/pour flush elsewhere; pit latrine without a slab/open pit; bucket; and a hanging toilet.

See the definition of "No facilities/bush/field" for various answers to this response category.

The response category "Other" is for recording answers that do not match any other response category. If "latrine", "pit latrine", or "traditional latrine" is given as a response, *probe for whether the latrine meets the definition of a VIP, a pit latrine with slab, a pit latrine without slab, or an open pit.*

Indicator
Use of improved sanitation facility.

Numerator
Number of household members using improved sanitation facilities.

Denominator
Total number of household members in households surveyed.

Q6. What kind of toilet facility do members of your household usually use? *If "flush" or "pour flush" probe:* Where does it flush to?	
Flush/pour flush to:	>>Q7
piped sewer system	>>Q7
septic tank	>>Q7
pit latrine	>>Q7
elsewhere	>>Q7
unknown place/not sure/DK where	>>Q7
Ventilated improved pit latrine (VIP)	>>Q7
Pit latrine with slab	>>Q7
Pit latrine without slab/open pit	>>Q7
Composting toilet	>>Q7
Bucket	>>Q7
Hanging toilet/hanging latrine	>>Q7
No facilities or bush or field	>>Q9
Other (specify)	>>Q7

DEFINITIONS

"Improved" sanitation facilities

- A **flush** toilet uses a cistern or holding tank for flushing water, and a water seal (which is a U-shaped pipe below the seat or squatting pan) that prevents the passage of flies and odours. A pour flush toilet uses a water seal, but unlike a flush toilet, a pour flush toilet uses water poured by hand for flushing (no cistern is used).
- A **piped sewer system** is a system of sewer pipes, also called sewerage, that is designed to collect human excreta (faeces and urine) and wastewater and remove them from the household environment. Sewerage systems consist of facilities for collection, pumping, treating and disposing of human excreta and wastewater.
- A **septic tank** is an excreta collection device consisting of a water-tight settling tank,

which is normally located underground, away from the house or toilet. The treated effluent of a septic tank usually seeps into the ground through a leaching pit. It can also be discharged into a sewerage system.

- A flush/pour flush to **pit latrine** refers to a system that flushes excreta to a hole in the ground or leaching pit (protected, covered).
- A **ventilated improved pit latrine (VIP)** is a dry pit latrine ventilated by a pipe that extends above the latrine roof. The open end of the vent pipe is covered with gauze mesh or fly-proof netting and the inside of the superstructure is kept dark.
- A **pit latrine with slab** is a dry pit latrine that uses a hole in the ground to collect the excreta and a squatting slab or platform that is firmly supported on all sides, easy to clean and raised above the surrounding ground level to prevent surface water from entering the pit. The platform has a squatting hole, or is fitted with a seat.
- A **composting toilet** is a dry toilet into which carbon-rich material (vegetable wastes, straw, grass, sawdust, ash) are added to the excreta and special conditions maintained to produce inoffensive compost. A composting latrine may or may not have a urine separation device.
- **Special case**. A response of "flush/pour flush to unknown place/not sure/DK where" is taken to indicate that the household sanitation facility is improved, as respondents might not know if their toilet is connected to a sewer or septic tank.

"Unimproved" sanitation facilities

- A flush/pour flush to **elsewhere** refers to excreta being deposited in or nearby the household environment (not into a pit, septic tank, or sewer). Excreta may be flushed to the street, yard/plot, open sewer, a ditch, a drainage way or other location.
- A **pit latrine without slab** uses a hole in the ground for excreta collection and does not have a squatting slab, platform or seat. An open pit is a rudimentary hole in the ground where excreta is collected.
- **Bucket** refers to the use of a bucket or other container for the retention of faeces (and sometimes urine and anal cleaning material), which are periodically removed for treatment, disposal, or use as fertilizer.
- A **hanging toilet or hanging latrine** is a toilet built over the sea, a river, or other body of water, into which excreta drops directly.
- **No facilities or bush or field** includes defecation in the bush or field or ditch; excreta deposited on the ground and covered with a layer of earth (cat method); excreta wrapped and thrown into garbage; and defecation into surface water (drainage channel, beach, river, stream or sea).

QUESTIONS 7 AND 8: Shared sanitation facility

The purpose of these questions is to know whether the household shares its sanitation facility with other households. The shared status of a sanitation facility is important because shared facilities can be less hygienic than facilities used by a single household. Unhygienic conditions (faeces on the floor, seat or wall, and flies) may discourage use of the facility.

Effect on the indicator of question 6

People using an improved sanitation facility that is shared should be discounted from the numerator in question 6.

Q7. Do you share this facility with other households?	
Yes	>>Q8
No	>>Q9
Q8. How many households use this toilet facility?	
How many other households share this toilet?	>>Q9
Can any member of the public use this toilet?	>>Q9
DK	>>Q9

DEFINITIONS

A shared sanitation facility is a facility used by a restricted number of households.

In urban areas and apartment buildings, in particular, several families often share a facility. Research is required to determine if shared facilities should be considered generally as unimproved, or if there is a reasonable cut-off point within which sharing can be seen as hygienically acceptable.

5. SURVEY QUESTION ABOUT THE SAFE DISPOSAL OF CHILDREN'S FAECES

QUESTION 9: Disposal of children's faeces

The purpose of this question is to determine how the faeces of all children under three years of age in the household were disposed of when they most recently passed stool. The safe disposal of children's faeces is of particular importance because children's faeces are the most likely cause of faecal contamination to the immediate household environment.

The preferred disposal method, which is likely to ensure protection of the household environment from faecal contamination, is putting or rinsing stools into a sanitation facility.

Q9. The last time [name of youngest child] passed stools, what was done to dispose of the stools?
Child used toilet/latrine
Put/rinsed into toilet or latrine
Put/rinsed into drain or ditch
Thrown into garbage
Buried
Left in the open
Other (specify)
DK

Indicator
Sanitary disposal of children's faeces.

Numerator
Number of children under the age of 3 years whose (last) stools were disposed of safely.

Denominator
Total number of children under the age of 3 years surveyed

Sanitary disposal of children's faeces

- Child used toilet/latrine
- Put/rinsed faeces into the toilet or latrine
- Buried the faeces

Unsanitary disposal of children's faeces

- Put/rinsed faeces into drain or ditch
- Faeces thrown into the garbage
- Faeces left or buried in the open
- DK

6. ANALYSIS OF SURVEY DATA

The classification of "improved" and "unimproved" facilities adopted by the JMP is listed in Table 1 and covers the response categories of the household survey questions presented in this guide.

Table 1
Classification of improved and unimproved drinking-water and sanitation facilities

	Improved	Unimproved
Drinking-water	Piped water into dwelling, plot or yard Public tap/standpipe Tubewell/borehole Protected dug well Protected spring Rainwater collection	Unprotected dug well Unprotected spring Cart with small tank/drum Bottled water[a] Tanker-truck Surface water (river, dam, lake, pond, stream, canal, irrigation channels)
Sanitation[b]	Flush/pour flush to: - piped sewer system - septic tank - pit latrine - unknown place/not known where VIP latrine Pit latrine with slab Composting toilet	Flush/pour flush to: - elsewhere Pit latrine without slab/open pit Bucket Hanging toilet/hanging latrine No facilities or bush or field

[a] Bottled water is considered improved only when the household uses water from an improved source for cooking and personal hygiene.

[b] Shared or public facilities are not counted as improved.

Tables 2 and 3 show how to calculate household coverage from the survey questions and response categories in this guide.

Table 2

Use of improved drinking-water sources

Percentage of the population using improved drinking-water sources, country, year, urban, rural

	Main source of drinking-water[a]																				
	Improved sources									Unimproved sources											
	Piped into dwelling	Piped into yard/ plot	Public tap/ stand-pipe	Tube-well/ bore-hole	Pro-tected well	Pro-tected spring	Rain-water	Bottled water[b]	**Percent-age using improved sources of drinking-water**	Unpro-tected well	Unpro-tected spring	Sur-face water	Tanker truck	Cart with tank/ drum	Bottled water[c]	Other	**Total percentage using unim-proved water sources**	Total	**Total number of people using improved sources of drinking-water**	**Total number of household members**
Urban																		100.0		
Rural																		100.0		
Totals																		100.0		

= household connections

= improved sources

Sum of and = total improved sources

[a] Based on responses to questions 1 and 1A.

[b] Proportion of people using bottled water as the main source of drinking-water who also use another improved source for other purposes, such as cooking and hand washing.

[c] Proportion of people using bottled water as the main source of drinking-water, but with a unimproved source for other purposes, such as cooking and hand washing.

Table 2A

Use of improved drinking-water sources by those responding "bottled water" as the main source of drinking-water in Question 1

	QUESTION 1A: Secondary source of water when main source of drinking-water is "bottled water"																	
		Improved sources								Unimproved sources								
	Percentage of population answering "bottled water" to Question 1	Piped into dwelling	Piped into yard/plot	Public tap/standpipe	Tubewell/borehole	Protected well	Protected spring	Rainwater	**Total improved**	Unprotected spring	Surface water	Tanker truck	Unprotected well	Unprotected spring	Surface water	Tanker truck	Cart with tank/drum	Other	**Total unimproved**
Urban																			
Rural																			
Totals																			

Table 3

Use of improved sanitation facilities

Percentage of the population using sanitary means of excreta disposal, country, year, urban, rural

	Type of toilet facility used by household																									
	Improved sanitation facility														Unimproved sanitation facility											
	Flush/pour flush to:																									
	Piped sewer system		Septic tank		Pit latrine		Ventilated improved pit latrine		Pit latrine with slab		Compos-ting toilet		Total improved		Flush/ pour flush to some-where else		Pit latrine without slab/ open pit		Bucket		Hanging toilet/ hanging latrine		Other	None	Total unim-proved	Total	Total number of people using improved sanitation facilities[b]	Total number of household members
	ns[a]	s	ns	s	ns	s	ns	s	ns	s	ns	s	ns	s	ns	s	ns	s	ns	s	ns	s						
Urban																									100.0			
Rural																									100.0			
Totals																									100.0			

= toilets flushing to piped sewer systems (not shared)

= access to improved sanitation (not shared)

= sum of and = total improved sanitation

[a] Abbreviations: ns = not shared; s = shared.

[b] This indicator is based on responses to Questions 6 and 7.

Table 4

Presentation of drinking-water data in final report

SURVEY NAME	YEAR		
Water	**Urban**	**Rural**	**Total**
Piped water into dwelling			
Piped water to yard/plot	see footnote [a]		
Public tap/standpipe			
Tubewell/Borehole			
Protected dug well			
Protected spring			
Rainwater			
Unprotected dug well			
Unprotected spring			
Cart with small tank/drum			
Tanker truck provided			
Surface water (river, dam, lake, pond, stream, canal, irrigation channels)			
Other (specify)			
Totals	**100**	**100**	**100**
% use of improved drinking-water source			
% house connections			
% using bottled water as main drinking-water source			
% bottled water users with improved drinking-water source			

[a] Example of calculation: = (Piped into dwelling from Q1) + (Piped into dwelling from Q1A * Percentage of population answering “bottled water” to Q1 / 100).

Table 5

Presentation of sanitation data in final report

SURVEY NAME	YEAR		
Sanitation	**Urban**	**Rural**	**Total**
Flush/pour flush to piped sewer system	see footnote [a]		
Flush/pour flush to piped sewer system (shared)			
Flush/pour flush to septic tank			
Flush/pour flush to septic tank (shared)			
Flush/pour flush to pit			
Flush/pour flush to pit (shared)			
Flush/pour flush to unknown place/ not sure/DK where			
Flush/pour flush to unknown place/ not sure/DK where (shared)			
VIP latrine			
VIP latrine (shared)			
Pit latrine with slab			
Pit latrine with slab (shared)			
Composting toilet			
Composting toilet (shared)			
Flush/pour flush to elsewhere			
Pit latrine without slab/open pit			
Bucket			
Hanging toilet/hanging latrine			
No facilities or bush or field			
Other (specify)			
Totals	**100**		**100**
% use of improved sanitation facilities			
% use of sewerage connections			

[a] Example of calculation: = (Flush/pour flush to piped sewer system from Q6) * (Ratio of private flush/pour flush to piped sewer system from Q6 and Q7).

7. TOOLS AND RESOURCES

The household survey questions in this guide are a limited selection of core questions for a basic assessment of a household's source of drinking-water and use of sanitation facility. Using the core questions in comprehensive surveys will improve the comparability of surveys from different countries, and over time. The DHS, MICS and WHS have already adopted the set of core questions. Information on these and other survey resources is given below.

For example, the DHS are nationally-representative household surveys with large sample sizes, which provide data on and analysis of the population, health, and nutrition of women and children in developing countries. In addition to providing demographic and health data, DHS aims to increase local capacity in research design and implementation, sampling, data processing, analysis, and dissemination. Additional information about DHS surveys can be found on Measure DHS+ web site, http://www.measuredhs.com.

The MICS were developed by UNICEF as a means for countries to fill data gaps in monitoring progress towards the World Summit for Children goals. The surveys furnish data that allow the status of women and children to be assessed, and monitor progress towards the internationally agreed development goals. The MICS also help to improve data and monitoring systems within countries by strengthening the technical expertise associated with the design and implementation of household surveys and their data analysis. For information on using this survey tool and for survey results, see the UNICEF web site for monitoring the situation of children and women, http://www.childinfo.org.

WHO introduced the WHS in 2002, with the objective of providing a low-cost tool that would give valid, reliable and comparable information on outcomes, functions, and inputs to health-care systems. An additional objective is to build the evidence base necessary to monitor goals and adjust policies, strategies and programmes. More information about the WHS is available at http://www.who.int/healthinfo/survey/en.

The World Bank's LSMS household surveys are used to measure and understand poverty in developing countries. This survey tool provides governments and economic analysts with accurate, current, and relevant data, which helps them to make evidence-based economic and policy decisions. Additional information on the LSMS survey can be found at the World Bank LSMS web site at http://www.worldbank.org/lsms.

The *Guidelines for assessing hygiene improvement*[3] by the Environmental Health Project, presents a model questionnaire for measuring hygiene improvement at the household and community levels. The intent of the guidelines is to assist project designers and managers in the planning, implementation, monitoring and evaluation of hygiene improvement projects and programmes.

The survey tool, *WSH Indicators for Vision 21*, was developed by the London School of Hygiene and Tropical Medicine specifically to assess drinking-water, sanitation and hygiene in households and schools. This instrument includes a household questionnaire and a school question, and includes in-depth questions on appropriate hygiene practices, school hygiene and sanitation, use of/access to improved sanitation, and use of/access to improved water sources.

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[3] Kleinau E, Pyle D, Nichols L, Rosensweig F, Cogswell L, Tomasek A (2004). *Strategic Report 8: Guidelines for assessing hygiene improvement.* Arlington, VA, Environmental Health Project II (USAID).

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9. CONTACT INFORMATION

The overall aim of the JMP is to report on the status of the drinking-water and sanitation sector, as well as support countries in their monitoring efforts, to enable better planning and management.

The harmonized questions presented in this guide are available for downloading from the JMP website at: http://www.wssinfo.org.

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