

Annex B: Data collection- Household questionnaire

Guidance for monitoring safely managed on-site sanitation (SMOSS)

WHO and UNICEF, 2025

Background

These annexes accompany the Guidance for Monitoring SMOSS to provide additional details on indicators, core and expanded questions and tools for designing monitoring systems to collect data for SDG 6.2.1. These annexes have been developed as part of the Monitoring SMOSS pilot project and are informed by the pilots conducted in ten countries as part of this project as well as other global examples of monitoring of safely managed sanitation services. The annexes are split into the following documents and are available with the main guidance at <https://washdata.org/monitoring/sanitation/safely-managed-on-site-sanitation>

- A. Global indicators for monitoring SMOSS
- B. Data collection – Household questionnaire
- C. Data collection – household sanitation inspections
- D. Data collection - Service authority and service provider surveys
- E. Analysis to inform national estimates for SDG 6.2.1

Annex B - Household questionnaire core and expanded questions

This Annex focuses on household questionnaires and includes core questions aligned with global indicators to include in household surveys, as well as possible expanded questions for national and local planning. It provides guidance to avoid ambiguous question wording and sampling strategies to help ensure representative and reliable data. These questions can be integrated into national survey programs, and have already been integrated into UNICEF's MICS surveys, enabling countries to track safely managed sanitation while adapting to their own contexts.

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|-----|---|-------|
| B.1 | Core questions - household questionnaire | p B-2 |
| B.2 | Example expanded questions – household questionnaire | p B-4 |
| B.3 | Examples of ambiguous wording in household questionnaires | p B-6 |
| B.4 | Sampling for household questionnaires | p B-7 |



Photo: UNICEF Bangladesh 2021

B. Data collection - Household questionnaire

Household questionnaires are commonly used to assess sanitation and rely on the respondent self-reporting their knowledge of sanitation facilities and practices. While there are almost endless questions that could be asked and responses to these, the following table presents the specific questions and response categories that will enable relevant and accurate data to inform national estimates for SDG 6.2.1. Annex 1 on Indicators details how these questions and their responses to are used to calculate the global indicators. The response categories include the most common categories that are relevant to the question. However, in some contexts, additions or modifications may be required to suit the local conditions. Any additions or modifications should clearly align with the current global definition and categories and if modified it will require updating the calculations suggested Annexes A and E to suit. If core questions are being modified, it would be useful to review the common misinterpretations of indicators and ambiguous questions which are shared below in section B.3.

In addition to the global indicators, there may be additional local indicators that are important for national targets or local planning. Additional or **expanded questions** may be needed to inform these local indicators, such as capture additional service criteria, intra-household variability, or related health and environmental risks. An example of possible expanded questions countries may wish to assess to inform local indicators are shared in Table B 2. These are a compilation of expanded questions used in the Phase 1 SMOSS pilots to provide an example; they are not a comprehensive list of all possible expanded questions.

B.1 Core questions - household questionnaire

Table B 1. Core questions for the household questionnaire

ID	Core question	Responses ¹	Indicator	Logic
S01a	What kind of toilet facility do members of your household usually use? (Note: If 'flush' or 'pour flush', probe: Where does it flush to? If not possible to determine, ask permission to observe the facility.)	11. Flush to piped sewer system 12. Flush to septic tank 13. Flush to pit latrine 14. Flush to open drain (15. Flush to covered drain) 18. Flush to don't know where 21. Ventilated improved pit latrine (with slab) 22. Single pit latrine with slab 23. Twin pit latrine with slab 24. Pit latrine without slab /Open slab 31. Composting toilet (32. Container based sanitation) 41. Bucket 51. Hanging toilet/hanging latrine 95. No facility/bush/field 96. Other (specify)	S1, S2, S3, S6, S6, S7	S01(95) > end
S02	Do you share this facility with others who are not members of your household? (Asked to all households with sanitation – improved and unimproved) ²	1. Yes 2. No	S14	S01(11,14,15, 18,41,51)>End S01(12,13) >S03a S01(24,32) >S04

¹ Optional response categories in green when appropriate for national context.

² Note: Safely managed services require households have improved sanitation facilities that are not shared with other households. The core questions collect information on from all households using improved sanitation facilities, including shared. Use of shared facilities are then excluded in the analysis (see Decision Tree, Annex A, Section 3).

ID	Core question	Responses ¹	Indicator	Logic
S03a	Does your septic tank or pit latrine have an outlet pipe for liquid effluent? <i>(For flush tanks and pits only: S01a =12,13)</i>	1. Yes 2. No (includes those infiltrating underground from the base or sides of the tank or pit) 8. Don't know	S8 (Use IH2 if available)	S03a (2,8) > S04
S03b	If it has an outlet pipe for liquid effluent (yes to S03a), where does this pipe discharge?	1. To a leach field, soak pit 2. Sewer/closed drain to a wastewater treatment plant (WWTP) 3. Sewer/closed drain to a waterbody (not connected to WWTP) 4. Sewer/closed drain to don't know where 5. To an open drain 6. To a waterbody/surface 8. Other 9. Don't know	S8 (Use IH2 if available)	
S04	In the last year, have excreta from your sanitation facility been released to the surface and surroundings due to any of the following events? <i>(The following questions relate to all on-site systems, S01a=12,13,21,22,23,24,31,32)</i>		S8	
S04a	Overflow of excreta to the surface and surroundings	1. Yes 2. No 8. Don't know		
S04b	Flooding resulting in release of excreta to surface and surroundings	1. Yes 2. No 8. Don't know		
S04c	Containment collapse resulting in release of excreta to the surface and surroundings	1. Yes 2. No 8. Don't know		
S04d	Other events resulting in release of excreta to the surface and surroundings	1. Yes 2. No 8. Don't know		
S05	Has the pit/tank ever been emptied? <i>(Asked to S01a= 12,13,21,22,23,24,31,32)</i>	1. Yes, emptied 2. No, never emptied 3. No, not emptied but covered and left undisturbed when full 4. No, not emptied, abandoned uncovered 8. Don't know	S9, S10	S05=2,3,4,8 > end
S06a	The last time it was emptied, who emptied the pit/tank? <i>[Note it may be useful to remind the household that the responses are confidential/anonymous and for the purpose of improving services, all responses are acceptable]</i>	11. Public/municipality/government 12. Private company/NGO 13. Informal emptier (e.g., unlicensed) 21. Self emptied 22. Neighbour, family member, friend 96. Other (specify) 98. Don't know	Used for analysis only (e.g. S12)	
S07a	The last time it was emptied, where were the contents emptied to?	1. Removed off-site (to treatment / unknown) 2. Removed to a waterbody, open ground, field or elsewhere 3. Buried in a covered pit at or near household (in-situ)	S11, S12	

ID	Core question	Responses ¹	Indicator	Logic
		4. Buried in a covered pit/trench elsewhere (off site) 5. Buried in an uncovered pit 6. Other (<i>specify</i>) 8. Don't know		

B.2 Example expanded questions – household questionnaire

Brief intro to expanded questions.

The questions were drawn from the following questionnaires. These sources can be referenced to find the response categories which are not included below.

- JMP: UNICEF and WHO (2018) Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. Available at <https://washdata.org/report/jmp-2018-core-questions-household-surveys>
- MICS: UNICEF (2022) Multiple Indicator Cluster Surveys (MICS) Household Questionnaire MICS6. Available at <https://mics.unicef.org/tools#survey-design>
- SFD: SFD PI (2017). SFD Manual Volume 1 and 2, version 2. SFD Promotion Initiative. Available at: <https://sfd.susana.org/knowledge/the-sfd-manual>
- Phase 1 pilot countries' household questionnaires: Bangladesh (BGD), Ecuador (ECU), Indonesia (IDN), Kenya (KEN), Serbia (SRB), Zambia (ZMB). The Bangladesh and Serbia final reports are available online which include their household questionnaires, other reports will be uploaded when finalised. See <https://washdata.org/reports>

Table B 2. Example expanded questions for household questionnaires

Item	Expanded question text	Expanded question response options	Logic ³
S01c	Where is the toilet facility located? <i>[Prompt: this refers to the toilet and not the pit/tank]</i>	1. In own dwelling 2. In own yard / plot 3. Elsewhere	1,2 >S01d 3 > S02
S01d	Is it possible to view the pit latrine or tank to observe and help answer the next questions?	1. Yes, pit or tank can be observed 2. No, system is buried/covered observation not possible 3. No, cannot view for other reasons	> S02
S02b	Do you share this facility only with members of other households that you know, or is the facility open to the use of the general public?	1. Shared with known households (not public) 2. Shared with general public	1 > S02c 2 > S02d
S02c	How many households in total use this toilet facility, including your own household?	___ Number (if less than 10) 10. If ten or more households 98. If don't know	S02d
S02d	Is everyone in the household able to access and use the toilet at all times of the day and night?	1. Yes everyone at all times 2. No, not everyone and/or not at all times 8. Don't know	1>S02e Else>S02g

³ Note if an optional question is not included, following the skip logic proposed from the optional question.

Item	Expanded question text	Expanded question response options	Logic ³
S02e	What was the (main) reason that the household members were unable to use the toilet at all times of the day or night?	1. Limited mobility prevents members from using the toilet 2. Distance/barriers prevent members from reaching the toilet 3. Toilet is not always available to all household members 4. Toilet is not always safe for all household members to use 6. Other (specify)	6>S02f Else>S02g
S02f	If other reason, please specify		>S02g
S02g	Does the design of your toilet prevent other people seeing and hearing what you are doing when you use it?	1. Yes 2. Somewhat 3. No	>S02h
S02h	Do you or other household members face any risks when using the toilet?	1. No risks faced 2. Yes, risks to health 3. Yes, risk of safety 4. Yes both health and safety 6. Yes other risks	>S02i
S02i	The last time children passed stools, what was done to dispose of the stools?	1. Child used toilet/latrine 2. Put/rinsed into toilet or latrine 3. Put/rinsed into drain or ditch 4. Thrown into garbage (solid waste) 5. Buried 6. Left in the open 7. Used as manure 96. Other 98. Don't know 99. Not applicable/No children in household	>S02j
S02j	How do you dispose of household water used for cooking, laundry and bathing?	1. Sink/drain connected to sewer 2. Sink/drain connected to septic tank 3. Sink/drain connected to pit (same as toilet) 4. Sink/drain connected to separate soak pit 5. Sink/drain connected to closer drain 6. Sink/drain connected to open drain or open ground 7. Disposed directly to open ground or water body 8. N/A (cooking, laundry and bathing is done away from the household) 96. Other (specify) 98. Don't know	96>S02k Else>S03
S02k	If disposal of household water is other, please specify		
S03d	(For pit latrines only S01a=21, 22,23,31) Does the slab completely cover the pit without any holes/gaps?	1. Fully covered except for excreta hole (i.e. concrete slab) 2. Partially covered, some gaps (i.e. wood with spaces, not fully sealed) 3. Not well covered, many cracks/gaps (i.e. damaged or sparsely covered) 6. Other	> S03e
S03e	(For pit latrines only S01a=21, 22,23,31) Is the slab washable around the drop hole? [Prompt: Is it made of a material that can be easily cleaned]	1. Cleanable 2. Partially washable 3. Not washable	> S04

Item	Expanded question text	Expanded question response options	Logic ³
S04f	Can outside water seep into the pit or tank, or can internal fluids leak out? [Observe if possible]	1. Yes 2. No 8. Don't know	>S04g
S04g	How many years ago was your pit latrine/septic tank built?	1. Less than 1 year ago 2. 1-2 years ago 3. 3-5 years ago 4. 5-10 years ago 5. >10 years ago 8. Don't know	>S05a
S05b	If emptied, (S05a=1), how many years ago was your sanitation facility last emptied?	1. Less than 1 year ago 2. 1-2 years ago 3. 3-5 years ago 4. 5-10 years ago 5. >10 years ago 8. Don't know	>S06a
S06c	What method was used to empty the pit/tank?	1. Manual emptying (i.e. bucket, shovel) 2. Emptied using a manual pump 3. Emptied using a mechanical pump/vacuum truck 3. Emptied both manually and using a pump 6. Other 8. Don't know	>S06d
S06d	Did someone enter inside the tank/pit during emptying?	1. Yes 2. No 8. Don't know	>S07a
S07c	How was the sludge transported?	1. Manual cart with drums/ containers 2. Open body vehicle with drums/containers 3. Motorized tanker truck 6. Other 8. Don't know	
S07d	Does the household use any of the faecal contents from the containment?	1. Yes 2. No 8. Don't know	

B.3 Examples of ambiguous wording in household questionnaires

Sanitation terminology can be interpreted differently across contexts, therefore survey questions and response options must be worded carefully to ensure the intended meaning is clear and to minimise ambiguity. This is particularly important during translation, as common local terminology may not exist for certain technical features (e.g. faecal sludge, effluent, emptying). In some settings, local interpretations may differ from global definitions, for example “septic tank” may be used to describe a

range of pit types. The examples below illustrate how subtle wording differences in questionnaires can lead to confusion and affect whether a facility is correctly classified. To reduce ambiguity, technical terms should be translated with care, drawing on the knowledge of in-country stakeholders about typical translations or interpretations of sanitation terminology. Piloting is essential to confirm that both enumerators and respondents understand the questions and response options as intended. Additional prompts, such as visuals or more detailed explanations, may also be needed to be support understanding.

- a. **Drain vs sewer** - The words for sewer and drain are occasionally used interchangeably. For monitoring sanitation, a sewer is intended to be connected to wastewater treatment system, typically via a buried pipe or a covered and lined culvert. Whereas a drain is a pipe or channel, that may be open or closed, is typically intended to convey rainwater not wastewater, and typically discharges water to the environment.
- b. **Effluent discharge vs emptying sludge**: Some surveys have combined the concepts of effluent outlet pipe from on-site containments and emptying containments into one question, possibly due to the challenge of translating desludging or discharge or misunderstanding of the different waste streams. As shown in Figure B1, effluent is the liquid (flush water, cleaning water, excreta, greywater if added) that discharges from the containment through an effluent pipe, leaks from walls or base, or overflows to the surface. Whereas emptying relates to the intentional removal of the settled faecal sludge from the containment using pumped or manual removal equipment. While emptying can also remove the liquid contents, it is an infrequent and more intentional process than the semi-continuous effluent discharge through the outlet pipe. Examples of ambiguous questions and responses around faecal sludge and effluent management included:
 - “Where/how is faecal effluent drained from septic tank/pit latrine?” with response options including “emptying by service provider” and “discharge by pipe to drain”. This mixes the concepts of desludging and effluent discharge. This question could be improved by not including ‘emptying by service provider’ as a response option.
 - “Where does waste from septic tank or pit end up?” with response categories that don’t make clear whether the question refers to periodic emptying of faecal sludge or semi-continuous discharge of effluent.
- c. **Hypothetical emptying questions**: Various surveys did not specifically ask whether pits and septic tanks had ever been emptied and instead asked hypothetical questions about what the respondent would do or questions about filling, which cannot adequately inform the global indicator “Has the pit ever been emptied?”. For example, some unspecific or hypothetical questions on emptying include:
 - When the pit/septic tank last required emptying, what did you do?
 - How do you process the sludge when the tank is full?
 - How many times has your pit/septic tank filled up?
 - When the pit/septic tank becomes full, what do you plan to do?
- d. **Combined questions**: Some questions ask two indicators in one question which although not necessarily incorrect, may add complication for the enumerator as well as analysis. Where possible each question should just answer one indicator. For example, this is a two-part question: “The last time it was emptied, where were the contents emptied to? Was it removed by a service provider?”. These should generally be broken up into two separate questions.

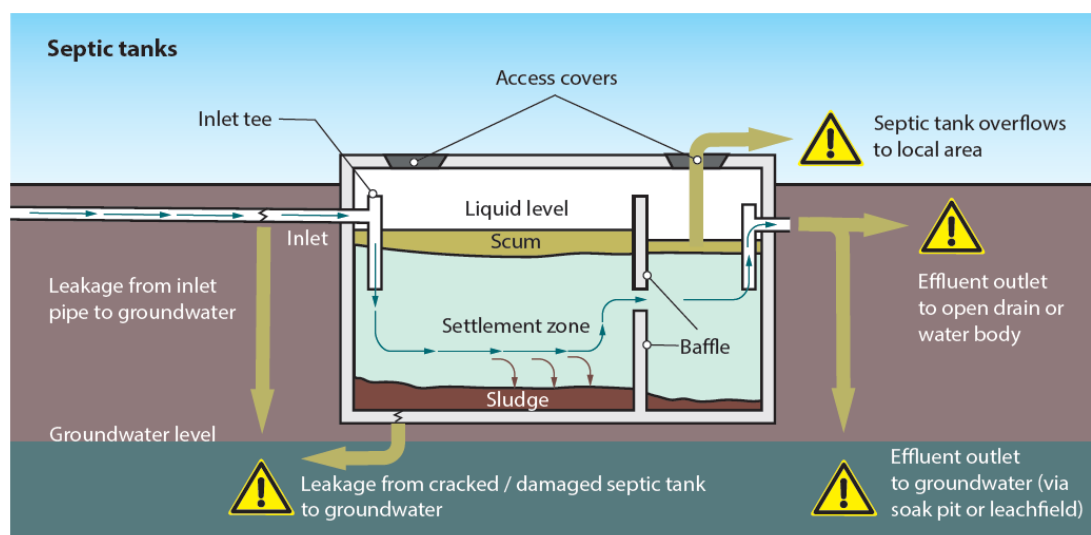


Figure B1. Diagram of a septic tank and potential issues with containment. Source: WHO, “Guidelines on sanitation and health,” World Health Organization, Geneva, 2018.

B.4 Sampling for household questionnaires

The sampling for household questionnaires depends on the approach taken and intended scope. For questions integrated into existing national surveys, the sampling will be as per the national survey. These often follow an approach similar to those outlined by the DHS and MICS international household survey programs sampling guides, referenced below.

For a dedicated household survey, the sampling may depend on the intended scale of survey and budget. Some phase 1 pilot countries conducted nationally representative surveys that could inform national estimates (e.g. Bangladesh, Serbia and Zambia), while others conducted targeted surveys to test methods in greater detail and include priority demographical contexts (e.g. Kenya). These were typically a smaller sample size than the national multi-topic surveys and ranged from 1500-23,000 respondents. Details of the sampling from Phase 1 pilots are found in the country reports, available at:

<https://washdata.org/monitoring/sanitation/safely-managed-on-site-sanitation>

Other guidance for sampling from national survey programs includes:

- USAID 2020 DHS Survey Design: Sample Size (English)
 - o Web page: <https://dhsprogram.com/publications/publication-dhsm16-dhs-questionnaires-and-manuals.cfm>
 - o PDF : <https://dhsprogram.com/pubs/pdf/DHSM16/DHSM16.pdf>
- UNICEF MICS 3 Designing and selecting the sample
 - o Web page: <https://mics.unicef.org/tools>
 - o PDF: <https://mics.unicef.org/files?job=W1siZiZlsljwMTUvMDQvMDIvMDgvdMDAvMTkvODEwL01jQ1MzX0NoYXB0ZXJfNF9fX0Rlc2lnbmZ19hbmRfU2VsZW50aW5nX3RoZV9TYW1wbGVfMDYwMjE5LnBkZiJdXQ&sha=3d97a05358bb0e37>