Piped distribution – tapstand

A. GENERAL INFORMATION

A.1. Tapstand information

Tapstand location (e.g. village, town, community, parish, district, province, state)	
Additional location information State the reference system and units, if using coordinates (e.g. national grid reference coordinates, GPS coordinates)	
Name of entity responsible for the management of the tapstand (e.g. name of water utility, private operator, community group)	
Tap material Tick (✓) the appropriate box(es) and provide further information where applicable	❑ Brass ❑ Stainless steel ❑ Other. Describe:

Circle the options below				If **Yes**, describe (e.g. what happens, how often, for how long)
Is the tapstand affected by flooding?	Unsure	No	Yes	
Is the tapstand affected by drought?	Unsure	No	Yes	

A.2. Tapstand functionality

Circle **Yes** or **No** to indicate if water is currently available from the tapstand. If **No**, describe why (e.g. broken tap, water supply outage) and then go to Section B. In Section C, record the corrective actions needed for the tapstand to provide water (if known), and record the details of any alternative water source(s) currently being used.

Is water currently available from the tapstand?		If **No**, describe why (then go to Section B)
Yes	No	

A.3. Weather conditions during the 48 hours before inspection

Circle the temperature and precipitation options below to indicate the main conditions during the 48 hours before the inspection. More than one option may be circled if conditions changed during this time. Record additional information in Section C if needed.

Temperature	<0 °C	0–15 °C	16–30 °C	>30 °C
Precipitation	Snow	Heavy rain	Rain	Dry

A.4. Water quality sample information

Record details of any water quality samples taken during the inspection. Include information for any parameters tested. Add **NA** if information is not applicable. Record additional information in Section C if needed.

Sample taken? Circle **No** or **Yes**		**Sampling location**	**Sample identification code**	**Other information**
No (go to A.5)	Yes			

Parameter tested	*E. coli*[a]		***or*** Thermotolerant (faecal) coliforms[a]		Additional parameter		Additional parameter		Additional parameter	
Results and units	Results	Units	Results	Units	Results	Units	Results	Units	Results	Units

A.5. Water treatment

Tick (✓) the appropriate box(es) and provide additional information as needed.

Location	Is the water treated?			If **Yes,** describe (e.g. type of treatment, chlorine dose, frequency of dosing, if known)[b]
Before the tapstand (e.g. at a water treatment plant)	❑ Unsure	❑ No	❑ Yes	
At the tapstand	❑ Unsure	❑ No	❑ Yes	
Downstream of the tapstand (e.g. household water treatment)	❑ Unsure	❑ No	❑ Yes	

[a] The presence of *E. coli* (or thermotolerant [faecal] coliforms) suggests recent faecal contamination. If detected, further action is needed, such as increased disinfection upstream of the tapstand (e.g. at a water treatment plant, storage tank), additional sampling and investigation of potential sources of contamination, and/or household water treatment advisories (e.g. boil water notice). *Note* – thermotolerant (faecal) coliforms are distinct from "total coliforms", where total coliforms do not necessarily indicate recent faecal contamination.

[b] Where chlorine is applied, the free chlorine residual concentration in the drinking-water should be tested and the result recorded in Section A.4. Where possible, turbidity and pH should also be measured. For guidance on adequate chlorine disinfection, see the *Management advice sheet.*

General notes

- This form is intended for use on a single public tapstand (also known as a stand post). Where there are multiple tapstands to be inspected, additional forms will be needed. Tapstands may be inspected on a rotational basis where there are too many to cover during each inspection.
- This form can be adapted for private taps as required (e.g. yard tap or household tap within the boundary of a user's premises).
- Where the water from the tapstand comes from a piped distribution network or storage tank, and where users collect and store water in the home, carry out an inspection using the corresponding sanitary inspection package.

B. SANITARY INSPECTION

IMPORTANT: Read the following notes before completing the sanitary inspection

1. Tick (✓) the appropriate box for each question. For guidance, refer to the numbered risk factors in Figure 1; the numbers in the figure are linked to the questions. Record any additional risk factors present in Section C. Refer also to the *Technical fact sheet* for information on the individual components of the tapstand. *Note* – the questions in this section are example risk factors only, which can be used as a starting point for adapting the form to the local context.
2. Tick the **NA** (not applicable) box if the question ***does not apply*** to the tapstand being inspected.
3. Tick the **No** box if the question does apply to the tapstand being inspected, but the risk factor ***is not present***.
4. Tick the **Yes** box if the risk factor ***is present***. For important situations that require attention, record the corrective actions to be taken in the last column. These notes can be used to develop a detailed improvement plan, documenting what will be done, who will do it, by when it will be done and what resources are required. For guidance, refer to the *Management advice sheet*. Where possible, address the most serious risk factors first, considering low-cost or no-cost improvements that can be made immediately.
5. If a question cannot be answered because access to a component is not possible, tick the **Yes** box. Record these issues in Section C for further investigation.

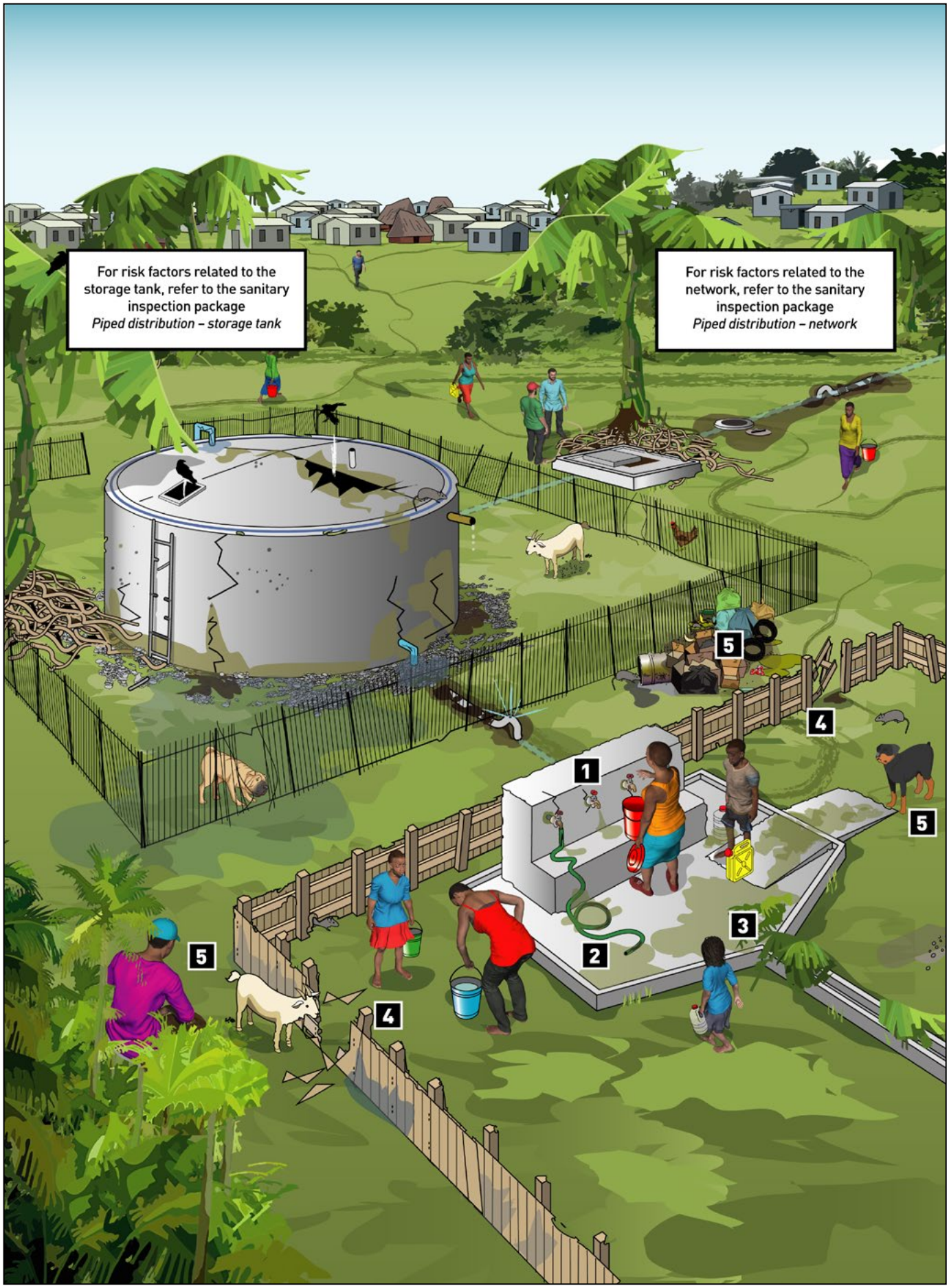

Figure 1. Typical risk factors associated with a drinking-water tapstand

Sanitary inspection questions		NA	No	Yes	If Yes, what corrective action is needed?
1	**Is the tap dirty or in poor condition?** Contaminants could enter the water if the tap is dirty. This could also happen if the tap is damaged (e.g. broken, severely corroded) or leaking. A leaking tap could result in stagnant water contaminating the area, and water loss.	❑	❑	❑	
2	**If there is a tap attachment, is it dirty?** Contaminants could enter the water if there is a dirty tap attachment (e.g. a hose). This could also happen if the tap attachment is stored in a way that it may become dirty when it is not in use (e.g. stored on the ground in a wet area).	❑	❑	❑	
3	**Is drainage inadequate, which could allow water to accumulate in the tapstand area?** Stagnant water could contaminate the collection area if there is no drainage system in place. This could also happen if the drainage system is damaged or blocked (e.g. from leaves, sediment). This is especially likely after rain. *Note* – the presence of pooled water may indicate poor drainage.	❑	❑	❑	
4	**Is the fence or barrier around the tapstand missing or inadequate?** Animals or unauthorized people could contaminate or damage the tapstand area if the fence or barrier around the tapstand is missing. This could also happen if the fence or barrier is broken or poorly built (e.g. has large gaps), or the entry point (e.g. gate) does not close securely.	❑	❑	❑	
5	**Can sources of pollution be seen in the tapstand area (e.g. open defecation, animals, rubbish, commercial activity, open drains)?** The presence of animals or faeces on the ground close to the water collection area poses a serious risk to the safety of the drinking-water. Contaminants from other waste (e.g. household, agricultural, industrial) could also be washed into the area during rain and contaminate the water during collection.	❑	❑	❑	
6	**Is the tapstand excluded from routine maintenance and quality control programmes?**[c] Failure of the responsible management entity to routinely inspect, maintain and monitor the quality of water at the tapstand may result in unsafe drinking-water being supplied.	❑	❑	❑	

SANITARY INSPECTION FORM: Piped distribution – tapstand

Sanitary inspection questions		NA	No	Yes	If Yes, what corrective action is needed?
7	**Does the tapstand water lack disinfection?** [b,c] Failure to adequately disinfect water with chlorine (or provide an alternative appropriate means of disinfection, such as ultraviolet [UV] or ozone) can result in unsafe drinking-water being supplied.	❑	❑	❑	
	Total number of Yes responses				

[c] Risk factor is not illustrated in Figure 1. To answer this question, interview the operator or management entity as appropriate. Check activity log books for confirmation. Provide further information in Section C to support your answer if necessary.

C. ADDITIONAL DETAILS

Include any additional risk factors,[d] recommendations, observations or remarks from users of the water source (e.g. problems with the taste, odour or appearance of the water, water source reliability). Attach additional sheets and photographs if needed.

[d] These risk factors should be considered for future inclusion in Section B.

D. INSPECTION DETAILS

Name of inspector: _____

Organization: _____

Designation/title of inspector: _____

Signature: _____ Date: _____

Name of water supply representative: _____

Contact number (if available): _____

Signature (if available): _____ Date: _____

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Water, Sanitation, Hygiene and Health Unit
Avenue Appia 20, 1211 Geneva 27, Switzerland
Email: gdwq@who.int
Website: https://www.who.int/health-topics/water-sanitation-and-hygiene-wash

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Piped distribution – tapstand

This technical fact sheet provides background information on a tapstand, which supports the sanitary inspection of a drinking-water supply.

A tapstand (also referred to as a standpost)[a] provides a point of delivery to users from which drinking-water is collected and transported (e.g. collected in a jerrycan and transported to a home).

Water supplied from tapstands should be appropriately treated/disinfected. If chlorine disinfection is practised, the tapstand water should have an adequate disinfection residual to help protect the water from harmful microorganisms during user transport, storage and handling.[b]

Figure 1 shows a typical drinking-water tapstand supplied by a piped distribution network. This figure shows a typical design. Other designs can also provide safe drinking-water.

The water collection area should be built so it is accessible for all users.[c]

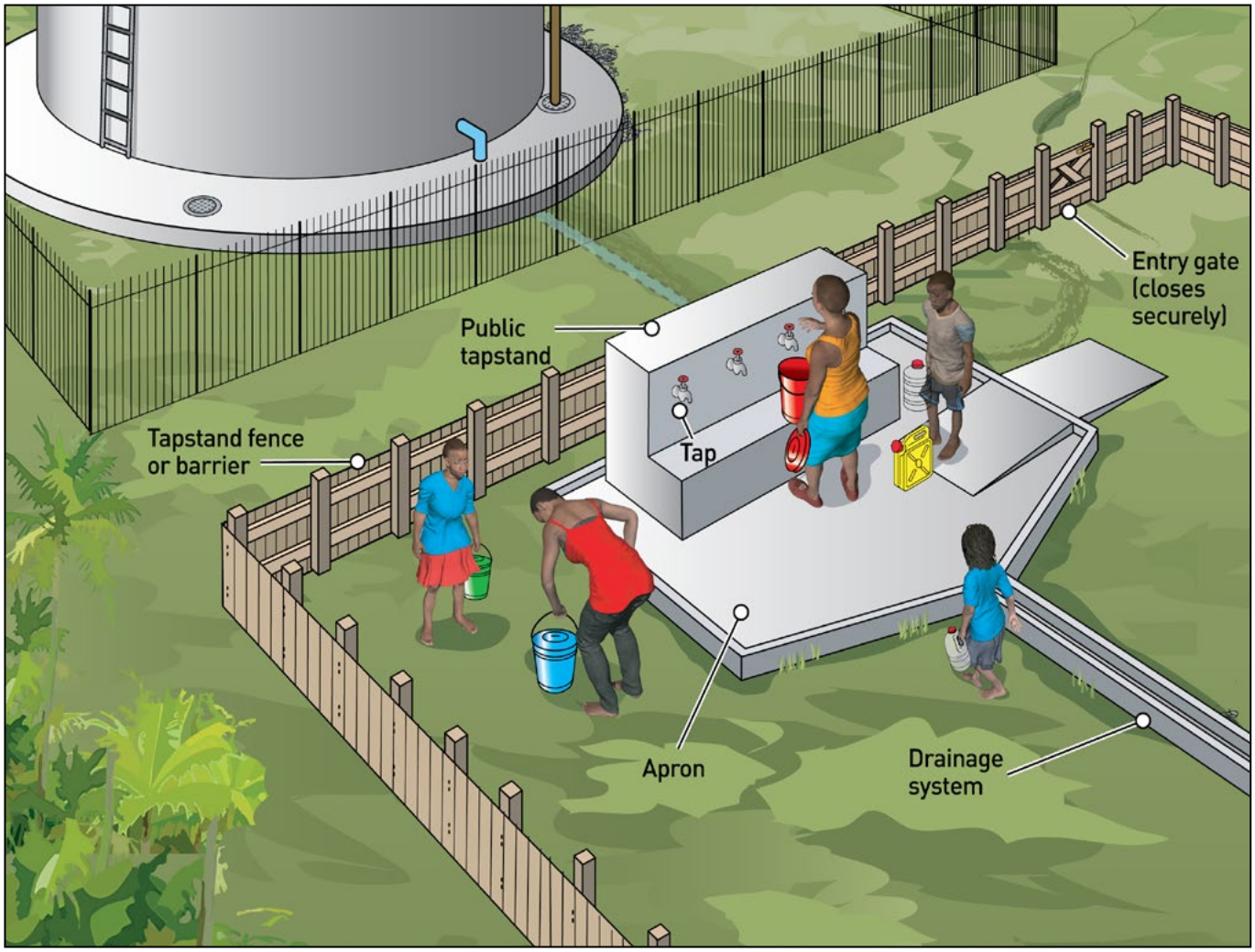

Figure 1. A common drinking-water tapstand in a sanitary condition

Note – For guidance on the storage tank and piped network components, see the corresponding sanitary inspection packages.

[a] This guidance may be adapted for private taps as required (e.g. yard tap or household tap within the boundary of a user's premises).

[b] For guidance on adequate chlorine disinfection, refer to the *Management advice sheet.*

[c] For guidance on designing accessible facilities, refer to Water and sanitation for disabled people and other vulnerable groups: designing services to improve accessibility (Jones & Reed, 2005).

Typical risk factors associated with tapstands are presented in the corresponding *Sanitary inspection form.*

Tapstands typically include the following main components.

- **Tap:** Allows users to collect water from the tapstand in a sanitary way, minimizing water wastage or spillage. The tap also allows easy collection of water quality samples for analysis. The tap should be raised off the ground to minimize the risk of contamination during water collection.
- **Apron:** A reinforced stone, brick or concrete floor built around the tapstand to drain water away from the collection area. The apron should slope down from the collection area to a drainage system. The apron also provides a standing area for users when collecting water.
- **Drainage system:** Directs water away from the collection area to a drainage area or soakaway. The drainage system should slope down from the apron. This helps to prevent water ponding and stagnating, which could contaminate the collection area.
- **Fence or barrier:** A physical barrier to prevent animals from contaminating the tapstand area or damaging the components. It may also prevent unauthorized access by people. The fence or barrier should have an entry point (e.g. a gate) that can be closed tightly and latched shut/locked.

Additional considerations

When constructing new tapstands or rehabilitating old ones, all materials used should be safe for contact with drinking-water (e.g. using materials approved through an appropriate certification scheme, including for lead-free or low-lead materials).

Tapstands should be fitted with appropriate backflow prevention devices to minimize the risk of contaminated water entering the piped network (e.g. during low pressure events such as pipe breaks or supply outages).

The tapstand should be designed in a way that avoids the need to use tap attachments (e.g. hoses) when filling collection vessels. If tap attachments are necessary, they should have a dedicated sanitary storage area for when they are not in use (e.g. a clean, dry storage area raised off the ground, with a securely fitting hose cap).

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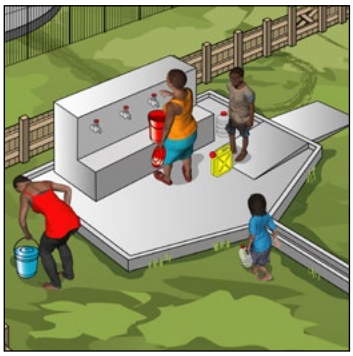
World Health Organization

Piped distribution – tapstand

This management advice sheet provides guidance for the safe management of a tapstand, which supports the sanitary inspection of a drinking-water supply.



Guidance for typical operations and maintenance (O&M) activities is provided in Table 1, including suggested frequencies for each activity. These activities are important for keeping the tapstand in good working condition and protecting drinking-water quality.

Table 2 lists potential problems that may be identified during a sanitary inspection, and provides basic corrective actions to consider for each problem.

This management advice sheet can also support routine management and monitoring practices, which are required to help ensure the ongoing safety of the water supply.

A. OPERATIONS AND MAINTENANCE

Basic O&M can usually be carried out by a trained user, caretaker or operator (e.g. simple maintenance tasks such as cleaning the water collection area). Larger repairs and maintenance tasks may need skilled labour which can be provided by local craftspeople, or with support from outside of the local area.

The condition of the tapstand and components should be inspected routinely to help prevent contaminants entering the water supply. Any damage or faults should be repaired immediately (e.g. leaking tap, blocked drainage system, broken fence). Standard operating procedures (SOPs) should be developed for important O&M tasks (e.g. replacing a tap). These should be followed by trained individuals so the work is carried out safely and the water supply is not contaminated during the work.

Particular attention should be given to maintaining the tap in a clean and good working condition. Where possible, the use of tap attachments (e.g. hoses) should be avoided. Where tap attachments must be used, these should be stored in a sanitary way (e.g. in a clean, dry area, off the ground, capped ends) and cleaned and disinfected regularly.

Adequate treatment/disinfection are required before consuming the drinking-water if the water source is vulnerable to contamination, or if the water could be contaminated due to unhygienic storage and handling by the user during transport or in the home. Where chlorine disinfection is practised, trained operators should have access to a chlorine testing kit. Operators should ensure an adequate free chlorine residual concentration[a] at the tapstand by monitoring at regular intervals following SOPs (see Table 1) and the results recorded (e.g. in a log book).[b] Chemicals (e.g. chlorine) or testing reagents should be used before their expiry date and stored appropriately according to manufacturer's instructions.

If not already in place, the responsible management entity should work towards the development of a water safety plan (or equivalent risk management approach). This should cover the entire water supply (i.e. source/catchment, water treatment plant (if present), distribution and storage, and user practices). This will help ensure the safe management of the water supply. The water safety plan should reflect the complexity of the water supply and the local resources and capacity (e.g. a more basic water safety plan is appropriate for simple piped supplies where resources and capacity are limited).[c]

Table 1. Guidance for developing an operations and maintenance schedule

Frequency	Activity
Daily to weekly	• Check and clean the tapstand facility, including the taps. Remove any polluting materials (e.g. faeces, rubbish). • Check that the taps are working. Repair or replace damaged parts as needed, then clean and disinfect the tap (e.g. with chlorine). • If there is a tap attachment (e.g. a hose), check and clean it. Ensure it is stored in a sanitary way (e.g. fully drained, off the ground). • Check that the drainage system is clear and functioning. Remove debris or repair as needed. • Check that the fence or barrier is in good condition and that the entry point (e.g. gate) can be closed securely and latched shut/locked. Repair as needed. • Where chlorination of the water supply is practised, check the free chlorine residual concentration at the tapstand. Optimize the chlorine concentration upstream as needed (e.g. by increasing the chlorine dose at a water treatment plant, batch dosing the storage tank).[a] Once the chlorine concentration has been optimized, flush the affected sections of the network as needed until an adequate disinfection residual is obtained.[d]
Monthly to every three months	• Inspect the tapstand structure in detail for damage or failure. Repair as needed.
Ongoing routine programmes	• Maintain tapstand components (e.g. routine replacement of tap O-rings, washers, valves to avoid tap seizing or leakages, or backflow).
As the need arises[e]	• Perform maintenance tasks (e.g. tap maintenance). • Monitor water use to identify changes (e.g. during periods of drought). • Ensure procurement of any materials in contact with drinking-water and water treatment chemicals (where used) are safe for drinking-water use.

[a] Where chlorine disinfection is practised, the free chlorine residual concentration should be at least 0.2 mg/L at the point of use. This means that the free chlorine residual concentration at the tapstand should be higher (e.g. at least 0.5 mg/L at pH less than 8 after at least 30 minutes contact time) - this can allow for chlorine decay during user transportation, storage and handling. Note that chlorine effectiveness is impacted by several factors including turbidity, pH and temperature. Chlorine doses or contact times will need to be adjusted to ensure adequate chlorine residual concentrations based on the local context. The free chlorine residual concentration in the water should also consider user acceptability. For more information, refer to Technical notes on drinking-water, sanitation and hygiene in emergencies: measuring chlorine levels in water supplies (WHO & WEDC, 2013).

During outbreaks of waterborne disease, or when faecal contamination of a drinking-water supply is detected, the residual free chlorine concentration should be increased to at least 0.5 mg/L throughout the network as a minimum immediate response pending further investigation. *Note* – the concentration of chlorine should always be less than 5 mg/L in drinking-water prior to consumption.

[b] For basic guidance on optimizing and monitoring chlorine disinfection in piped networks, refer to Principles and practices of drinking-water chlorination: a guide to strengthening chlorination practices in small-to medium sized water supplies (WHO SEARO, 2017).

[c] For information on water safety planning, refer to Water safety planning for small community water supplies: step-by-step risk management guidance for drinking-water supplies in small communities (WHO, 2012).

[d] In water scarce areas, consult with local health authorities before flushing to make sure that the risk to water quality justifies the loss of water. Alternative water supply arrangements may then be needed to ensure that users have sufficient water quantity to meet domestic needs.

[e] See Table 2 for potential problems that could trigger these activities.

General notes

- The suggested frequencies in Table 1 are a minimum recommendation. The frequency of activities may need to be increased depending on the local context. A suitable O&M schedule should be made for each site, including who is responsible for performing the work. Completion of activities as per the O&M schedule should be recorded, including additional details for any problems identified and corrective actions undertaken.
- Only people with relevant training and skills should undertake the activities in Table 1. Care should be taken when handling disinfection products.
- For guidance on appropriate frequencies for monitoring (e.g. sanitary inspections, water quality testing), refer to Guidelines for drinking-water quality: small water supplies (WHO, 2024).

B. PROBLEMS AND CORRECTIVE ACTIONS

Each problem in Table 2 is linked to the same question number in Section B of the *Sanitary inspection form*. Where relevant, corrective actions should be completed by trained individuals according to SOPs. Where needed, develop awareness raising and education programmes, and if necessary, local rules or regulations, to support safe drinking-water management in the context of the guidance provided in Table 2.

If problems are identified that represent an immediate threat to drinking-water safety (e.g. likely presence of faecal contamination in the water supply, positive *E. coli* detection), consider what immediate actions should be taken to minimize the risk to public health (e.g. advise users to seek an alternative safe drinking-water source, disinfect the water at the point of use).

Table 2. Common problems associated with a tapstand, and suggested corrective actions

Question	Problem identified	Corrective actions to consider
1	The tap is dirty or in poor condition (e.g. damaged, severely corroded, leaking), which could allow contaminants to enter the water during collection, or result in water loss.	• If the tap is dirty, clean and disinfect the tap (e.g. with chlorine). • If the tap is in poor condition, repair or replace the tap, then clean and disinfect it. • Communicate the importance of routine tap cleaning/ maintenance.
2	There is a tap attachment (e.g. a hose) that is dirty, or stored in an unsanitary way, which could allow contaminants to enter the water.	• If dirty, clean and disinfect (e.g. with chlorine) the tap attachment. • If there is no dedicated sanitary storage place for the tap attachment, install a storage space (e.g. a hook raised off the ground, with a cap for the end of the hose). • Communicate the importance of routine cleaning/maintenance, and returning the tap attachment to the dedicated storage location after each use. Consider installing information signs at the tapstand to remind users of the risk. • Investigate modifications to the tapstand so that tap attachments are not required.
3	The drainage is inadequate (e.g. absent, damaged or blocked drainage channel or soakaway), which could result in stagnant water contaminating the tapstand area.	• If a drainage system is absent, dig a temporary channel to divert water away from the water collection area. Construct a permanent solution as soon as possible. • If a drainage system is not working correctly, consider whether maintenance is needed (e.g. repair, cleaning), or if deepening, widening or extending is required.
4	The fence or barrier around the tapstand is missing or inadequate, which could allow animals or unauthorized people to contaminate or damage the tapstand area.	• If absent, construct a robust fence or barrier with a lockable gate that closes securely. • If a fence or barrier is present but inadequate to prevent access, repair or replace it. • If the entry point (e.g. gate) to the tapstand area is damaged and/or does not close securely, repair or replace it.

Table 2. ...continued

Question	Problem identified	Corrective actions to consider

5	There are sources of pollution (e.g. open defecation, animals, rubbish, commercial activity, open drains) around the tapstand that could contaminate the water collection area.	• Where practical, remove the pollution (e.g. remove animal faeces, rubbish). Communicate the importance of maintaining the tapstand area in a clean condition.
		• Consult with local authorities and users to consider:
		  ○ appropriate actions to relocate or eliminate the source of pollution
		  ○ other actions to minimize the issue from occurring again (e.g. awareness raising, signage, enforcement measures).

6	The tapstand is excluded from routine maintenance and quality control programmes.	• Develop and implement an appropriate routine maintenance and quality control programme, liaising with relevant authorities if appropriate. • Where needed, ensure adequate provision is made for water quality testing equipment and consumables, alongside appropriate SOPs and training for operators.
7	The water at the tapstand is not adequately disinfected.[a]	• Develop the necessary SOPs and provide operator training on adequate disinfection practices (including on the use of free chlorine residual test kits where chlorination is practised, and turbidity and pH where possible). • Ensure adequate provision is made to procure chlorine (or an appropriate alternative means of disinfection), along with water quality testing equipment and consumables for monitoring. • Ensure disinfection is practised correctly and consistently, and is optimized through routine monitoring and water quality testing.

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