
Service activities relating to drinking water supply, wastewater and stormwater systems — Water and wastewater services for temporary settlements for displaced persons

Activités de service relatives aux systèmes d'alimentation en eau potable, aux systèmes d'assainissement et aux systèmes de gestion des eaux pluviales — Services d'eau et d'assainissement pour les installations provisoires pour les personnes déplacées

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 224, *Drinking water, wastewater and stormwater systems and services*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Natural disasters, climate change and wars resulting in the mass migration of populations fleeing their homes to temporary settlements such as refugee/internally displaced persons (IDP) camps has become a reality in many parts of the world. Temporary settlements are planned or spontaneous places where refugees or IDPs can reside and benefit from welfare provision, safety and protection, and other assistance from host governments and humanitarian actors. Reliable and good quality water supply for purposes such as drinking, sanitation, hygiene, e.g., WASH (water, sanitation and hygiene) is critical for the survival of the population in temporary settlements. Risks due to natural disasters also require consideration. For instance, earthquakes can cause damage to electricity and/or transportation infrastructure, which are relied on for the construction and operation of the drinking water supply network and wastewater treatment system.

In order to establish a reliable drinking water supply to temporary settlements, it is desirable to have a regular drinking water supply system based on a water source connection through fixed or temporary piping. If this is not possible, water tankers can be used to supply the required quantity of drinking water to the temporary settlement on a regular basis. The water sources used for this purpose should be suitable for drinking purposes. Where water sources that are suitable for drinking purposes are limited, water sources of lower quality can be used for sanitation and other non-potable use purposes only, and cannot be used as drinking water.

Dealing with the adequate disposal of wastewater produced in a temporary settlement is also of critical importance. Neglecting proper disposal of wastewater can seriously harm public health and the environment. It is desirable that the wastewater from temporary settlements will be conveyed by means of fixed or temporary pipeline infrastructure that will enable its removal from the area of the temporary settlement and treated by adequate installations outside the settlement. If this is not possible, portable wastewater tankers can be used to transfer the wastewater to another location outside the temporary settlement for proper treatment.

There are different types of temporary settlements e.g. emergency and/or transition camps. In most cases, drinking water and wastewater provisions can differ or need to evolve according to spatial and temporal factors.

An international guideline can provide information on the different possibilities for providing alternative water services (AWS) and alternative wastewater services (AWWS) to temporary settlements of displaced persons, the methods that can be used to implement such possibilities and the technical aspects that have to be accounted for when considering the implementation of different solutions to resolve the problems of AWS and AWWS that arise in such settlements.

The purpose of this document is to serve as a guideline for planning and setting up appropriate water and wastewater services for temporary settlements.

A guideline for drinking water service provision to temporary settlements can also facilitate communication between relevant parties, coordinate activities and contribute to cost saving. It can be used by relevant industry and stakeholders wishing to be prepared to cope with the issues of drinking water supply and wastewater disposal in temporary settlements.

Service activities relating to drinking water supply, wastewater and stormwater systems — Water and wastewater services for temporary settlements for displaced persons

1 Scope

This document provides guidelines for alternative water services (AWS) and alternative wastewater services (AWWS) to temporary settlements for displaced persons e.g. refugee/internally displaced persons (IDP) camps, for drinking, sanitation and hygiene purposes. It addresses AWS and AWWS principles and methods, operational planning and implementation.

This document provides guidelines for drinking water supply to temporary settlements, and the disposal of wastewater, by implementation of different methods; it does not deal with the ways of using water inside the temporary settlements. This document deals with drinking water quantity but does not provide methods for quality testing. Water quality test methods are included in the scope of ISO TC 147.

The document does make recommendations regarding public safety with respect to the location of distribution and collection points. On-site treatments are not discussed in this document but, depending on circumstances, they can be suitable. In such case helpful technical guidelines are provided in the bibliography of this document.

This document complements ISO 24527, whose scope excludes drinking water supplied to temporary settlements. It also complements other ISO TC 224's documents such as ISO 24518 and ISO/TS 24520.

This document is intended to be used by the responsible body for the provision of the water service. It can be used by interested parties such as water utilities, governments and governmental organizations, security bodies, international refugee agencies, related NGOs and relevant industry stakeholders.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 24513:2019, *Service activities relating to drinking water supply, wastewater and stormwater systems — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24513:2019 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

displaced person

a person who is forced to leave without their will their home or country

3.2

wastewater

water arising from any combination of domestic, institutional, commercial or industrial activities, surface runoff and any accidental sewer inflow/infiltration water and which can include collected stormwater, discharged to the environment or sewer

Note 1 to entry: Wastewater can flow in separate or combined sewer systems.

3.3

grey water

greywater

wastewater (3.2) from bathtubs and showers, hand basins, kitchen sinks, clothes washing and laundry tubes but excluding excreta and trade effluent

Note 1 to entry: It excludes used water from urinals or toilet bowls.

Note 2 to entry: Wastewater from kitchen sinks, food waste grinders or dishwashers can be excluded, subject to local requirements.

4 Principles for AWS and AWWs provision for temporary settlements

4.1 Responsibility

The authority which authorized the establishment of the temporary settlement should ensure that a consultation process is initiated among the entities concerned by the water services. This should allow for the designation of the responsible body to be in charge of the operation.

The first task of the responsible body in charge of the operation should be to establish an operational team.

The following are possible examples of responsible bodies: a local water utility, municipal authority, governmental bodies, military units, international bodies (e.g. UN WASH), NGO's, private companies (e.g. transport companies, containerized water companies).

A planning and operational team should be appointed of representatives of these relevant bodies, to allow a coordinated operation and determine the necessary decisions. The inclusion of representatives of the displaced persons in the temporary settlement should also be considered.

4.2 Main purposes of the operation

The main purposes of the operation should include the following.

- a) Bring to the temporary settlement enough water, in accordance with the AWS and AWWs plans which determine water allocation per capita per day, drinking water, and water for sanitation and hygiene purposes, considering the need for personal and public safety.
- b) Dispose of wastewater from the temporary settlement area to a dedicated site.

4.3 Temporary settlements categorization

For the purpose of this guideline, temporary settlements should be categorized as follows.

- a) Temporary settlements that can be connected to existing drinking water and wastewater infrastructure.
- b) Temporary settlements that can be connected to existing drinking water and wastewater infrastructure, but with limited capacity.
- c) Temporary settlements that cannot be connected to existing drinking water and wastewater infrastructure.

These three types of temporary settlements require different AWS and AWWs approaches.

The categorization of the temporary settlements may include a combination between these three types, e.g. drinking water infrastructure is available, but no wastewater infrastructure is available, or vice versa.

Temporary settlements may also be categorized by the availability of a water source which may not be adequate for drinking purposes but can be used for sanitation purposes, e.g. on-site treated wastewater, grey water.

In such case of a combination of the three types of settlements, AWS and AWWs provision should be based on a combination between the approaches described in [4.4](#).

4.4 AWS and AWWs provision to temporary settlements approaches

4.4.1 Using existing drinking water and wastewater networks

The use of existing drinking water and wastewater networks is based on the condition that drinking water and wastewater infrastructure is available, i.e., water or wastewater infrastructure that is:

- physically present;
- has the capacity to supply additional population;
- has political and administrative approval to be used for the additional population.

To be able to use existing drinking water and wastewater networks, the planning and operational team should connect the temporary settlement to the existing infrastructure by erecting temporary standpipes connected to the networks. Inside the temporary settlement, the planning and operational team should connect the temporary standpipes to users (e.g. multi drinking water taps, toilets, showers, etc.) and connect the toilets and showers to the wastewater infrastructure.

The use of existing drinking water and wastewater networks is the preferred approach as it provides users with the most reliable AWS and AWWs services, as well as the highest level of WASH.

See more on the operational aspects of this approach in [Clause 6](#).

4.4.2 Using existing drinking water and wastewater networks but with limited capacity

When existing drinking water and wastewater networks are available but with limited capacity, the largest available quantity of water should be supplied from the infrastructure, while the rest of the water should be supplied as described in [4.4.3](#).

The largest possible quantity of wastewater should be disposed of through the infrastructure, while the rest of the wastewater should be disposed of by means of transportation, or by on-site wastewater treatment (for more information about on-site wastewater treatment, see ISO 23056 and ISO 24521).

4.4.3 Providing drinking water by means of transport

This approach of provision of drinking water by means of transport assumes that limited or no drinking water and wastewater infrastructure are available. To implement this approach the planning and operational team should use various means of transport for the drinking water (e.g., mobile tankers, trains, air crafts) in order to provide it to the temporary settlement and to dispose of its wastewater. While using these various means of transport, the quality of the distributed water should always be clear / well marked for everyone in the supply chain.

Inside the temporary settlement, temporary points of distribution (TPDs) should be established. Such TPDs should be the interface for users to receive drinking water and water for hygiene purposes.

Containerized drinking water may also be used in this approach.

In this approach, sanitation should not be based on water. The planning and operational team should use different types of toilets (e.g. chemical toilets, latrines) and make the necessary arrangements to dispose of the wastewater by means of transport (e.g. mobile wastewater tanker) out of the temporary settlement to a dedicated site.

The planning and operational team should communicate to users instructions:

- about the establishment of TPDs to supply drinking water according to a determined water allocation;
- about the use of provisional toilets/latrines;
- regarding hygiene practices;
- about the quality of the distributed water.

See more on the operational aspects in [Clause 6](#).

4.4.4 Only drinking water infrastructure available

If only drinking water infrastructure is available, drinking water should be supplied as described in [4.4.1](#).

In the absence of wastewater network, an assessment should be completed to decide the best approach to wastewater. The planning and operational team can build a provisional wastewater lagoon for the temporary settlement, to dispose of – or disinfect – the wastewater according to the requirements of the responsible body, as described in [4.4.3](#).

4.4.5 Water source not adequate for drinking is available

When a water source that is not adequate for drinking is available, if it can be connected to the temporary settlements by temporary standpipes, it should be connected only to toilets and showers. Drinking water should be supplied as described in [4.4.2](#). If wastewater infrastructure is available, it should be connected as described in [4.4.1](#). If not, wastewater should be addressed as described in [4.4.4](#).

This approach, of using a water source that is not adequate for drinking, can be difficult to manage and lead to health issues so it should only be selected when other solutions cannot be implemented.

If a water source not adequate for drinking is available and used, the responsible body should communicate to the camp management that the water cannot be used for drinking purposes, so that the camp management can communicate this to the users.

4.4.6 A Natural water source is available

Where a natural water source such as a river or a lake is available near the temporary settlement, it may be used for hygiene purposes (e.g., shower, laundry), pending approval by the relevant authority for this use.

AWS and AWWS should be supplied according the circumstances, as described in [4.4.1](#) to [4.4.5](#).

The planning and operational team should inform users about the permitted uses (e.g. washing, laundry) and uses that are not permitted (e.g. drinking) and why they are not permitted, see also [6.7](#).

4.4.7 Creating a new water source

If there is no water source available near the temporary settlement, the planning and operational team should consider, according to geological conditions, the drilling of a new well(s), seawater desalination, mobile membrane filtration of stormwater / grey water etc., if the relevant means are available. See also [6.7](#), [6.8](#) and [Annex A](#) g).

Wastewater can also be treated within the temporary settlement for various uses. See further guidance on ISO 24521; ISO 23056.

4.4.8 Water allocation

The planning and operational team should determine a water allocation per capita per day. The amount of water allocation can vary between approaches (for example: the water allocation when using the approach described in 4.4.1 can be larger than the water allocation when using other approaches).

The planning and operational team should take into consideration that water allocation needs to be enough for WASH.

4.4.9 Water quality

The planning and operational team should take all practical actions to ensure the quality of the water is fit for purpose.

4.4.10 Grey water

For the purpose of saving drinking water, especially when the availability of drinking water is limited, grey water may be used for sanitation. In this case, appropriate infrastructure should be installed. The source of grey water is preferred to be within the camp but may also be outside, with the use of means of transport.

See more on ISO 23056 and in the WHO Guidelines for drinking water quality.

5 Planning for AWS and AWWs provision for temporary settlements

5.1 General

AWS and AWWs provision for temporary settlements should be dealt with by the designated planning and operational team. This team should be assembled according to the specific circumstances and location of the event. The planning and operational team should include representatives of relevant bodies (e.g. a local water utility, municipal authority, governmental bodies, military units, UN, NGOs). The inclusion of representatives of the displaced persons in the temporary settlement can be considered. The planning and operational team for AWS and AWWs for temporary settlements can be supervised by the temporary settlement management team.

The planning and operational team should evaluate the temporary settlement's situation and needs such as location, water sources, water and wastewater infrastructure, number of people, etc., including the provision of services to users with special needs.

According to this evaluation, the planning and operational team should decide on the adoption of one of the approaches of AWS and AWWs provision and, in accordance, plan the actions needed to implement and operate the chosen approach. Cooperation with other stakeholders should be considered in the selection of the chosen approach.

Stakeholder engagement and consultation is fundamental to select and develop an appropriate water and wastewater solution. Each group of users, including vulnerable groups and minorities that will face different challenges like children, elders, women and different ethnic groups, should be represented in planning and operational teams. Users' opinions and views should inform the design process and be incorporated into the project during the entire lifecycle. Users should be consulted before any change is implemented.

Consideration should also be given to the requirements related to the dismantling and removal of temporary structures after the need for them has passed.

See more information on The Global Wash Cluster website: <https://washcluster.net/>

5.2 Planning

5.2.1 Establishing scenario for individual temporary settlement

The planning and operational team should take the following into consideration.

- a) The size of the temporary settlement area, the current or anticipated number of people; and any likely future changes to the population.
- b) The availability of drinking water and wastewater infrastructure in the temporary settlement's area and the possibility of connecting the temporary settlement to this infrastructure, considering the system's relevant characteristics such as the drinking water supply system's gravity/pressure; pumping stations; pressure zones; drinking water quality, system constraints etc. The possibility of establishing grey water infrastructure for sanitation purposes should also be considered.
- c) The characteristics of the temporary settlement area, such as topographical features that provide access or act as barriers (e.g. highways, rivers, railways).
- d) Public health risks,
- e) The availability of natural water sources such as rivers, lakes, springs, wells, etc.,
- f) The characteristics of the temporary settlement users, including their demographic and socio-cultural requirements.
- g) The available resources (including personnel).
- h) The host population and level of tolerance to the temporary population.
- i) Political barriers, e.g., approvals needed to connect into existing networks.

5.2.2 Decisions and actions to be taken

Based on the established scenario, the planning and operational team should undertake the following steps.

- a) Decide which approach of AWS and AWWS to adopt, see [4.3 a\)](#) to [4.3 c\)](#);
- b) Decide on the type and quantity of AWS and AWWS resources to be deployed (e.g. containerized drinking water, water tankers, standpipes) and the timescale for their provision.
- c) Prepare the logistics and engineering plans to implement the chosen approach for the required quantity and quality of AWS and AWWS provision. If the adopted AWS and AWWS approach relies on existing infrastructure (as described in [4.4.1](#)) – preparing an engineering plan to connect to the infrastructure, including the necessary resources.
- d) Identify the necessary personnel and its functions to implement the AWS and AWWS services supply plan.
- e) Identify the most appropriate means of securing assets.
- f) Define the strategy to consult on, and communicate the provisions to users.

5.2.3 Securing resources and planning for their mobilization

Planning to secure and mobilize resources for AWS and AWWS provision should include the following:

- a) consideration of environmental factors;
- b) demographic and cultural characteristics of the users;
- c) engineering plans and operational schemes;

- d) per capita drinking water allocation(s) per day;
- e) resources for the TPDs' operation;
- f) alternative water sources;
- g) alternative wastewater services;
- h) internal and external communications;
- i) users with special needs.

See detailed information on planning to secure and mobilize resources for AWS and AWWS provision in [Annex A](#).

6 Implementation of AWS and AWWS provision for temporary settlements

6.1 General

The planning and operational team should determine during the planning stage ([Clause 5](#)) which AWS and AWWS provision approach, outlined in [4.4](#), is to be implemented.

6.2 Using the existing drinking water and wastewater networks

6.2.1 General

In this approach, according to an evaluation by the planning and operational teams, there is water and wastewater infrastructure in the temporary settlement's area and it is possible to connect the temporary settlement to this infrastructure.

The first step to this approach should be to engage with the network service provider, for both water and wastewater. The planning and operational team should, along with the service provider, assess the capacity of the network and agree the support required to ensure that the system remains functional while meet the requirements for both host and temporary populations.

6.2.2 Distribution of drinking water by connecting to an existing drinking water supply system

The implementation of and connections to drinking water infrastructure should be carried out by persons authorized by the water utility.

The steps for the implementation of this approach should include the following.

- Analyse drinking water quality according to drinking water quality requirements. If the water in the drinking water distribution system does not have the quality needed for drinking, it may only be used for sanitation and hygiene. In such a case, the planning and operational team should supply drinking water following one of the other approaches described in [4.4](#).
- Make sure that the water infrastructure can supply the amount of water needed to the temporary settlement.
- Make the necessary preparations in the water infrastructure before the connection (e.g. installing hydrant(s), pumps).
- Supply pipes of the desired length and diameter, to be installed and connected to the drinking water supply system.
- Install water equipment (e.g. pumps, pressure reducers).
- Connection to user facilities (taps, toilets, showers).

- Backflow preventers should be placed at the point of connection of the temporary settlement's distribution system to the point of supplied drinking water.

6.2.3 Connecting to the wastewater infrastructure

The implementation of and connections to wastewater infrastructure should be carried out by persons authorized by the water utility.

The steps for the implementation of this approach should include:

- making sure that the wastewater infrastructure can collect and treat the required amount of wastewater from the temporary settlement;
- making preparations in the wastewater infrastructure before the connection;
- bringing pipes of the desired length and diameter, installing them and connecting to the existing wastewater network;
- connecting to user facilities (toilets, showers etc.).

Grey water can also be reused. In such case appropriate infrastructure should be installed.

6.3 Providing drinking water by means of transport

6.3.1 General

In this approach, TPDs should be established across the temporary settlement. The planning and operational team should advise users to independently approach a TPD to get drinking water according to the determined drinking water allocation. The planning and operational team should place the TPDs according to the number of users in the temporary settlement and deploy them so that all users can easily access a TPD. A member(s) of the planning and operational team should be present to guide and assist users.

Safety and security measures should be taken in order to prevent accidents and harm to users and personnel.

The TPD should include equipment for the adequate dispensing of drinking water such as water tanks, containerized drinking water and access points. Other accessories can be made available for use by the planning and operational team representative(s), such as: radio communication equipment, night-time lighting, flashlights, basic tools, first aid kit, megaphones, etc.

6.3.2 Drinking water source(s) and transporting

In this approach the planning and operational team should locate at least one drinking water source from which it is possible to supply the required amount of drinking water to the temporary settlement. The drinking water source(s) should be as close as possible to the temporary settlement. It is highly desirable to have more than one source of drinking water to increase the reliability and efficiency of the drinking water supply.

Drinking water should be transported from the source(s) to TPDs in the temporary settlement. It should be transported by mobile tankers or towed bowsers (trailer with tank) in cycles throughout the temporary settlement. These vehicles should be equipped with pumps to deliver the drinking water to the static assets in the TPDs efficiently and quickly. The number of mobile tankers and/or towed bowsers should be determined according to the number of users in the temporary settlement and the intended water allocation.

6.3.3 Static water tanks connected to multi drinking water taps

Static water tanks should be connected to multi drinking water taps, from which users can draw drinking water. The static water tanks should be placed in the TPDs. Each static water tank should be

replenished by mobile tankers periodically (typically several times a day) with fresh drinking water from an exterior resource configured for rapid refilling from mobile tankers. The efficiency of this method depends on the reliability of the replenishment cycles and minimization of AWS overuse by users. The overall number of static water tanks in the temporary settlement and the number of them in each TPD should be determined according to the number of users and the water allocation.

6.3.4 Static assets (water tankers, towed bowsers or tanks)

Distribution of drinking water to static AWS assets (e.g. mobile water tankers, towed bowsers or static tanks) can be undertaken as described in 6.3.2. In this method, the replenishment may be done by another mobile water tanker, or by the rotation of full mobile tankers or towed bowsers for depleted ones. In this method, the planning and operational team should strive to provide water continuously, unless interrupted briefly by the rotation of the mobile tankers or towed bowsers.

6.3.5 Containerized drinking water

To supply containerized water to a temporary settlement, prior arrangements with containerized drinking water producers or suppliers should be made, and stock is likely to be delivered in bulk (e.g. palletized and packaged in plastic wrapping for stability/security).

For TPDs utilizing a spacious location, the layout of the TPDs should allow for the safe unloading and breaking down of bulk deliveries under the control of personnel. Users should be prevented from undertaking this task.

Arrangements for the storage, separation and recycling of bulk delivery waste materials should be considered. Arrangements for environmentally acceptable methods of collection and disposal of empty drinking water containers should be implemented.

The planning and operational team can decide, according to circumstances, to use water tanks (6.3.3) in combination with containerized drinking water.

6.3.6 Reservoir

The planning and operational team can decide, according to circumstances, to use a reservoir inside or near the temporary settlement. The use of a reservoir can contribute to the reliability of the AWS, as mobile tankers will be filled up by the reservoir rather than static assets in the TPD. In such cases, drinking water from the reservoir should be delivered to the TPDs by standpipes if possible or by small mobile tankers.

The planning and operational team should periodically check the water quality in the reservoir and according to water quality requirements and should take all required measures to keep this quality.

6.3.7 AWWS

In this approach, wastewater disposal should not be based on water. The planning and operational team should use other types of toilets (e.g. chemical toilets, latrines) and make the arrangements to dispose of the waste by means of transport (e.g. mobile wastewater tanker) out of the temporary settlement to a dedicated site. On-site wastewater treatment should be also considered (see ISO 24521).

As this document does not deal with sanitation and hygiene inside the temporary settlement, details and guidance about toilets, latrines, showers are not provided here. See [7], [8], [11], [12], [13] for more information.

6.4 Wastewater infrastructure not available

In such cases, drinking water should be supplied as described in 6.2.2.

For AWWS, the following actions should be taken.

- Building a wastewater provisional lagoon outside the temporary settlement. The location of the provisional wastewater lagoon should be determined in consultation with the relevant authority, considering public health aspects.
- Installing pipes to connect to user's assets (e.g. toilets, shower) to deliver wastewater to the provisional lagoon.
- Treating/disinfecting the wastewater in the lagoon according to the water quality required, and to minimize failure and foul odour.
- Evacuating the wastewater to a dedicated site, using wastewater mobile tankers in a safe and secure manner that avoids spillage and contamination on site and en route.

6.5 Drinking water and wastewater networks are available but with limited capacity

This situation requires a combination of water supply and wastewater disposal through the use of infrastructure (6.2) and transport (6.3).

In such cases, as much of these services as possible should be provided through the infrastructure and the rest by means of transport. Use of grey water should be considered, to save as much drinking water as possible. For this, an appropriate infrastructure may be required.

6.6 Water source not for drinking is available

In cases where water is not of sufficient quality for drinking purposes (e.g. grey water, the source of which is preferred to be within the camp), the water may be used for hygiene or other purposes but drinking water should be supplied as described in 6.2.3.

AWWS should be supplied as described in 6.2.2 and 6.3 (if a wastewater infrastructure is available), or as described in 6.3.7 (if no wastewater infrastructure is available).

6.7 Natural water source is available

In case a natural water source such as a river or a lake which is not being used as a source for drinking water is available inside or near the temporary settlement, it may be used for hygiene purposes (e.g. shower, laundry) if approved by the relevant authority for the intended uses.

The simplest way to use this water source is to have users come to the source and use it directly for washing and laundry. Still, this direct access is not recommended, as it could contaminate the water sources and introduce a range of potential health and safety risks to the users (health and safety risks). If possible, the natural water source should be protected, and the water pumped, treated and stored for use in the temporary settlement.

The planning and operational team should consider pumping water from the source and conducting it by pipes to the temporary settlement, if the assets needed for that are available. In that case, water that is insufficient for drinking should be supplied as described in 6.2.2.

The planning and operational team should consider the use of the natural water source for drinking if a portable water treatment system(s) is available and is approved by the relevant authority for this use. In such cases, drinking water should be supplied from the natural source (after treatment) to the temporary settlement as described in 6.3.

6.8 Creating a water source

The planning and operational team should consider, according to geological and hydrological conditions, drilling a well(s) in order to supply drinking water or water for other purposes (according to the available water quality). If needed and possible, water from this source should be treated to reach a drinking water quality, as described in 6.7.

Supplying water from the well(s) to the temporary settlement should be carried out by one of the means described in [6.2.2](#) and [6.3](#).

7 Internal and external communications

7.1 General

The planning and operational team should consider, based on relevancy, providing information to the relevant stakeholders about its AWS and AWWS provision plans. The planning and operational team should use its chosen communications strategy and tools to convey information about the AWS and AWWS deployment. The strategy should permit two-way communication with stakeholders allowing AWS and AWWS deployment to be amended as necessary to address relevant issues.

7.2 What to communicate

7.2.1 Information to users

Information distributed to users in a temporary settlement should be consistent and include:

- a) the nature of the AWS and AWWS response;
- b) reassurance that the situation remains under control;
- c) guidance and advice on appropriate and inappropriate behaviours by users, according to the adopted approach of AWS and AWWS;
- d) details of the AWS and AWWS deployment (or where to find such details);
- e) information about the quality of water and permitted uses;
- f) reassurance on the preservation of drinking water quality and self-help steps to aid its preservation;
- g) where to find further information and the nature of further updates;
- h) how to report service problems.

7.2.2 Information to other stakeholders

Supplementary information distributed to other stakeholders during an AWS and AWWS provision to a temporary settlement may include:

- a) reports to responsible bodies (mandatory and voluntary);
- b) further details of the temporary settlement's management team and other relevant bodies response;
- c) implications for individual stakeholders;
- d) constraints, risks and opportunities arising from the operation;
- e) requests for support from individual stakeholders;
- f) proposed communication arrangements, information sources and update frequencies.

7.3 Preparing stakeholders of a temporary settlement involving AWS and AWWS provision

7.3.1 Tailored messaging

The planning and operational team should provide information to users on how the team and the users are to respond during an AWS and AWWS provision. Other stakeholders can require more nuanced advice, and possibly face-to-face briefings to ensure that all expectations are discussed and outputs agreed.

7.3.2 Preparing key stakeholders

Depending on the relationship with the key stakeholders, more sensitive information regarding preparation requirements may be communicated, in the language(s) understandable to the stakeholders. This may include the planning and operational team's forecast of the demand and operational limits of the AWS and AWWS provision.

The planning and operational team should provide information to the relevant stakeholders about its AWS and AWWS provision plans. Key assumptions, constraints or limitations affecting such a response should be shared with key stakeholders, subject to their relevance and appropriate security requirements.

7.4 AWS and AWWS information communication in the temporary settlement

7.4.1 Tailored messaging

The planning and operational team should provide information to users in the temporary settlement about what is being done to deploy an AWS and AWWS and the users' role during the deployment of the AWS and AWWS. The planning and operational team should use mainly traditional communication methods in the temporary settlement, but dynamic and modern communication methods should also be used.

Other stakeholders can require more nuanced, direct and individual briefings.

The planning and operational team should determine, jointly with each stakeholder, the most appropriate means of this stakeholder's communications, including the language(s) understandable to the stakeholder(s).

7.4.2 Communicating methods with users

Traditional communication methods may include:

- 1) printed advisory and warning notices;
- 2) newspapers (reports and paid advertisements);
- 3) billboards;
- 4) loudspeaker announcements (manual, vehicular or airborne);
- 5) portable electronic messaging signs.

Dynamic communication methods may include:

- a) temporary settlements management team website (if it exists);
- b) mobile phone tools and applications, to deliver notices and information and collect direct feedback from users;

- c) websites of external stakeholders (using links to the relevant page(s) of the team management's website to maintain the currency of information);
- d) media outlets (radio, television, newspapers, websites and other internet portals);
- e) social media;
- f) relevant bodies' call centre(s) (using temporary staffing or recorded messaging where necessary to manage increased call volumes and resourcing constraints).

7.4.3 Communicating methods with other stakeholders

Given the dynamic nature of an AWS and AWWWS response in a temporary settlement, tailored communication should also be offered to relevant stakeholders depending on their preferences. This communication should supplement existing communication methods and be consistent with the information being supplied to all users.

Such communication methods may include:

- a) phone communications (at pre-determined intervals or ad-hoc);
- b) email updates;
- c) faxed reports;
- d) management team representation within local, regional or national contingencies bodies or committees or vice versa;
- e) regular face to face reporting.

7.4.4 Communication tools and techniques

Useful communication tools and techniques may include:

- a) pre-prepared AWS and AWWWS script templates for completion during an event;
- b) frequently asked question and answer (FAQ) sheets dealing with common issues and concerns associated with AWS and AWWWS in temporary settlement;
- c) customer response scripts for all relevant personnel;
- d) briefing notes for personnel who can be approached directly by users for the latest information;
- e) regular updates for all personnel and third parties' support teams to assist them in answering queries.