A red and white cover with a bucket

AI-generated content may be incorrect.

Editable versions

*v. March 2025*

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# Note

This document provides reference checklists to help strengthen emergency preparedness and response (“readiness”) of water, sanitation and hygiene (WASH) services in the context of the war in Ukraine.

The checklists are editable versions of those presented in the source publication *Checklists for strengthening water, sanitation and hygiene emergency preparedness and response: focus on Ukraine*. Copenhagen: WHO Regional Office for Europe; 2025. Licence: [CC BY-NC-SA 3.0 IGO](https://creativecommons.org/licenses/by-nc-sa/3.0/igo/) (<https://iris.who.int/handle/10665/381471>, accessed 19 May 2025).

These editable versions support adaptation of the checklists to better suit a given context. Refer to the source publication for guidance on the application of the checklists, including examples of how to complete tables A-F below.

# WASH readiness assessment checklists

## A. Leadership and coordination checklist

| **No.** | **Questions on leadership and coordination** | **Relevance to health** | **Key considerations** | **Identified gaps** | **Actions** | **Stakeholders** |
| --- | --- | --- | --- | --- | --- | --- |
| **Stakeholders** | | | | | | |
|  | Is there a **lead agency** or entity responsible for coordinating WASH preparedness and response in the local context? | Leadership and coordination are necessary for efficient and effective WASH services and activities to prevent the spread of infectious diseases that can cause widespread illness and outbreaks. | * Has a legitimate organization, or cluster of organizations, been designated as leading and coordinating WASH activities? * Is a document available that defines the leading body or organization? * Is the structure and reporting of the leading organization or cluster clear? * Who are the key stakeholders in the local context who need to be brought around the table to discuss WASH resilience, readiness and response? * Are key WASH functions (drinking-water, sanitation and hygiene) clearly identified, with leadership and coordination roles set out? |  |  |  |
|  | Have **clear roles and responsibilities** been allocated, agreed and clearly communicated for organizations, individuals and the community? | Confirmation and acceptance of roles and responsibilities are necessary for efficient and effective WASH services and activities to prevent the spread of infectious diseases that can cause widespread illness and outbreaks. | * Have roles and responsibilities for WASH functions and activities (drinking-water, sanitation and hygiene) been clearly identified, communicated and agreed among relevant local stakeholders who share responsibility for WASH services? * Is a summary available of organizations that are included in the WASH system, with a definition of their functionality? * Have alternative and backup organizations and individuals been identified in case of lack of availability? |  |  |  |
|  | Have **cross-discipline** **working groups** been formed to deliver specific tasks and exchange ideas? | Cross-discipline teams can help optimize the targeting of limited resources for maximal the health benefit. | * Have suitable cross-discipline working groups been formed to help draw upon one another’s skills and experiences to optimize WASH-related interventions? |  |  |  |
| **Priorities** | | | | | | |
|  | Have **priorities** been identified to help focus limited resources on the most important aspects of WASH? | Targeting WASH services and activities to the areas of greatest importance or vulnerability helps to minimize the spread of infectious diseases. | * Has a rapid situation assessment been completed by gathering relevant information and conducting on-the-ground inspections of WASH systems to the extent that it is safe to do so? * Has a rapid needs assessment been completed to set priorities by mapping strengths and weaknesses in terms of human resources, strength of infrastructure and procurement? * Have the water supply and sewerage networks been mapped to identify vulnerabilities and critical points that need protecting and backing up? * Have health effects from microbial pathogens been identified as the number one priority concern? * Have vulnerable groups (including infants and elderly, disabled and immunocompromised people) been identified as those with the greatest need for support? * Have critical facilities, such as health-care facilities and shelter areas, been identified as first priorities for support? * Have priorities been specified for each community? * Is a system in place to revisit and revise priorities as the situation changes over time to ensure that they remain relevant? |  |  |  |
| **Funding sources** | | | | | | |
|  | Have **funding sources** been secured to pay for human resources, capital and operational expenditures? | Funding is required to sustain WASH services and activities to prevent the spread of infectious diseases that can cause widespread illness and outbreaks. | * Have costs of providing and supporting WASH services been calculated? * Do these calculations account for changes due to the conflict (e.g. increased costs of consumables and logistics)? * Have the effects of preparation for, and response to, attacks been factored into the cost estimates? * Are water and sanitation tariffs sufficient under the current conditions to cover the basic operating costs of services? * Are sources of revenue secure in the face of changes in population relocating, leading to regional increases or decreases in population levels? * Have backup revenue or financing sources been secured? |  |  |  |
|  | Have **donor agencies** been given clear direction as to what the WASH support needs are? | To maximize public health, benefit donations from donor agencies need to be prioritized according to need and suitability for the context. | * Have the priority needs been clearly communicated to donor agencies? * Have the precise technical characteristics and specifications for supplies from donors been clearly communicated? |  |  |  |
| **Human resources** | | | | | | |
|  | Have **essential workers** been identified, with personnel covering key roles always put on standby and in a state of readiness, and protected from military attack? | Lack of personnel capable of delivering WASH services and activities can lead to the spread of infectious diseases. | * Are alternative trained decision-making focal points available, who are familiar with emergency response plans, with the authority and resources to plan and direct emergency efforts? * Have critical WASH workers been identified and retained in readiness to support WASH services? * Have critical infrastructure workers been protected from mobilization to the defence forces to ensure their availability for WASH activities? * Have critical WASH workers been given security protection to complete their work (through arrangement of escorts, safe corridors, provision of appropriate ballistic personal protective equipment and armoured vehicles where appropriate)? * Can workers be transferred from neighbouring vodokanal systems if the need arises? * Have personnel and backup personnel been trained on how to operate systems, including during normal operations and if systems are compromised by conflict? * If systems run on automated electronic control systems, are procedures set up to operate them manually if those controls systems fail? * Does training cover alternative water supply and sewerage systems? * If necessary, has safe staff accommodation been organized near workplaces, including provision of drinking-water and food? * Has permission been provided to mobilize critical infrastructure specialists during curfew – in particular, specialists from the Regional Centre for Control and Prevention of Illness? |  |  |  |
| **Planning** | | | | | | |
|  | Have WASH **preparedness and response plans** been developed, and have personnel been trained to undertake relevant action? | Lack of familiarity with plans due to poor training and rehearsal can lead to poor implementation of plans that prevent health benefits being realized. Rehearsals/drills can also reveal flaws in plans so that they can be improved. | * Have probable events been anticipated and emergency management plans put in place to be prepared to respond when needed? * Have key personnel been made aware of, and trained in, the WASH preparedness and response plans? * Have joint multiple stakeholder rehearsals and training exercises been undertaken to help with both training and practical testing of plans to respond to different scenarios? * Have backup materials, resources and facilities been made ready if the need for these is identified in the emergency management plans? * Are systems in place to ensure good communication and coordination among all local stakeholders in accordance with the emergency management plans? * Have lessons learned been documented, and plans revised following operational experiences from rehearsals and drills? |  |  |  |
|  | Have **contact details** been documented for key personnel from all relevant organizations, along with their availability, to enable rapid contact when needed? | Inability to contact key personnel involved in delivering WASH services and activities can lead to the spread of infectious diseases, which can potentially harm more civilians than military conflict. | * Have contact details been shared to enable key WASH workers to be contacted as needed? * Have backup communication systems been arranged, such as two-way radio networks, in case mobile phone networks are not working? * Can key workers be always contacted if the need arises? * Are contact details of key WASH organizations shared to improve communication (including availability during curfews, for example)? |  |  |  |
|  | Have **WASH systems and infrastructure** been described in relevant documentation? | Health-related planning and prioritization draws on basic WASH systems information. | * Are maps, plans, descriptions and general information on WASH systems and infrastructure collated and made ready? * Are points and systems that are essential for WASH services and that are most vulnerable to attack, or that have been subjected to attack, been identified? * Have options for alternative water sources and distribution modalities been identified, based on mapping? * Have vulnerable communities or facilities been identified and documented (e.g. using geographical information system (GIS) mapping)? |  |  |  |
| **Rural areas** | | | | | | |
|  | Have the **special WASH needs of rural areas** been considered? | Rural areas lack access to centralized WASH services; they can be isolated and vulnerable to adverse health consequences as a result. | * Have communication plans been put in place for rural areas on the principles of WASH that take into account that most are not served by a centralized water supply or connected to a sanitary drainage system? * Have minimum WASH requirements been documented for isolated rural areas that are sufficient to prevent disease transmission and protect dignity? |  |  |  |

## B. Drinking-water supply services checklist

| **No.** | **Question on drinking-water supply** | **Relevance to health** | **Key considerations** | **Identified gaps** | **Actions** | **Stakeholders** |
| --- | --- | --- | --- | --- | --- | --- |
| **Supplies** | | | | | | |
|  | Are plans in place to prepare for, and respond to, a ***temporary* loss of electrical power** supply to **centralized** systems for a few hours or days? | Power is often required for water treatment and disinfection, to maintain system pressure to stop contamination entering the distribution system, and to maintain a continuous supply of adequate quantities of safe and acceptable drinking-water. Thus, loss of power can lead to microbiologically unsafe drinking-water, or result in inadequate quantities of water for domestic needs (e.g. hydration and hygiene) and use of less safe alternative sources, which in turn can cause illness. | * What actions are undertaken in anticipation of possible power failure, such as keeping water storage facilities as full as possible, and reconfiguring the system to run off gravity where practicable? * What are the backup power supply options, such as batteries or generators; what is their capacity; and is this sufficient to meet critical power needs? * How long can the facility operate without power, based on available fuel supplies and/or system storage? * How sufficient is the generator fuel supply (including available funds, supply route/chain and safety/security of storage)? * What human resources are available to manage backup power supplies (including routine maintenance and testing)? * What communication protocols are available with energy generators and distribution system suppliers? |  |  |  |
|  | Are plans in place to prepare for, and respond to, a ***prolonged* loss of electrical power** supply to **centralized** systems for a few weeks or months? | Long-term loss of power can lead to the problems described in question 1 occurring for longer periods, and may permit outbreaks to arise by setting up new disease transmission cycles – leading, for example, to cholera and/or typhoid. | * If the power failure is prolonged, are there ways to set up alternative power transmission lines? * Are large-scale generators with fuel supplies available (and with sufficient capacity) to power treatment plants and pumps? * Are plug-in points in place to connect generators at all powered sites? * Is a plan in place for ensuring system integrity and water quality following system depressurization that would probably occur during an extended power outage? * Is a plan in place for ensuring system integrity and water quality following system depressurization that would probably occur during an extended power outage? * Is a plan in place for relaunching the power supply after restoration of water facilities that considers the effect on power stability? * Have safe water supply options not reliant on power been arranged (see question 18)? |  |  |  |
|  | Are contingencies and alternative supply options in place in case of loss of **supply chain** for water disinfection, coagulation, pH adjustment and other essential chemical deliveries? | Loss of disinfection or coagulation can result in supply of microbiologically unsafe drinking-water that can cause illness. | * Which chemicals are delivered regularly to treatment plants and are therefore vulnerable to supply being cut off? * Are stock and inventory management processes in place – for example, suitable storage space, conditions (dry, sealed and out of sunlight) and turning over of stock to keep it in its useful shelf-life date? * Have required minimum reserves of relevant supplies been determined and documented to manage stocks and project how demand might change with increases or decreases in population or supply of water? * Are sufficient stocks of chemicals stored on site? * For short shelf-life chemicals, such as liquid sodium hypochlorite, what is the shelf-life? * Are backup chemicals stored (if required, such as gas, liquid, powder or tablets) following storage safety measures? * Is operator capacity sufficient to implement the use of alternate chemicals as needed (including alternative disinfectants such as potassium hypochlorite)? * Has regular communication with suppliers been established to review the situation in the supply chain? * Have multiple delivery routes been established that are appropriate for the typical delivery vehicle sizes anticipated? * Have logistics and safe transportation been arranged for hazardous or explosive substances? * Is there capacity for onsite chlorine generation using salt and electricity, rather than shipping in chlorine from elsewhere? * Who can be approached in an emergency if enough chemicals are no longer available (e.g. alternative vendors or neighbouring vodokanals)? * What are financing options to pay for disinfectants if funding is limited? * Can “emergency contracts” be set up (e.g. the public electronic procurement system Prozorro) in emergency situations? |  |  |  |
|  | Are contingencies in place in case of loss of **supply chain** for water supply materials, such as pipes and parts? | Lack of water supply infrastructure (such as pipes and parts) can delay repairs being made; this can lead to inadequate quantity of safe and acceptable drinking-water, or to microbiologically unsafe drinking-water. Inability to maintain distribution of adequate quantities of safe and acceptable water may lead to use of less safe alternative drinking-water sources, which may cause illness. | * Has an inventory been collated of what parts and fittings are required to repair and replace any damaged infrastructure? * Which parts and fittings are delivered only after failures occur and are not stored locally, making the system vulnerable to supply being cut off? * Who can be approached in an emergency if critical infrastructure parts are lacking? * What are financing options to pay for spare parts and repairs if funding is limited? * Is there a mechanism for activating “emergency contracts” for the purpose of prompt procurement of necessary materials (e.g. Prozorro) in emergency situations? |  |  |  |
|  | Are systems in place to ensure that only **suitable** **chemicals** are used to treat drinking-water that will not make the water unsafe or unacceptable? | Use of chemicals to treat water may introduce substances that are toxic or that make the water unpleasant to drink. | * What certification, accreditation or registration do chemical suppliers have with respect to the suitability of those chemicals for drinking-water? * Are agreements in place with chemical suppliers to warrant that the quality of the supplied chemical is suitable for drinking-water use? * If the required chemical grades cannot be obtained, have alternative grades been identified of a chemical that may be acceptable if drinking-water grade chemicals are not available (e.g. food grade or medical grade)? |  |  |  |
| **Infrastructure** | | | | | | |
|  | Are plans in place to prepare for, and respond to, **damage to the infrastructure** of **centralized** water supply systems, such as water treatment plants, pipelines, storage facilities and pumps? | Damage and associated loss of system pressure can lead to insufficient supply (and potential for use of less safe alternative water sources), and/or contamination of the water supply (e.g. due to ingress of harmful contaminants into distribution system), and thus to illness. | * Is an updated asset register in place, including an inventory of all key assets? * Does the asset register include information on the current performance of these assets (or proxies such as condition, age and usage) to be able to determine the nature (i.e. failure mode) and timing of possible failure (i.e. remaining functional life)? * Have stocks of materials, parts, fittings and chemicals been built up to allow for increased rates of damage during attacks? * Are the materials, parts, fittings and chemicals stored in multiple locations in case one is damaged or destroyed? * Are the materials to be used fit for purpose and safe for contact with drinking-water? * Will rapid inspection take place following attacks to assess damage to critical infrastructure? * Are manual backup systems in place and operable in case of loss of electromechanical or supervisory control and data acquisition (SCADA) systems – online telemetry systems for monitoring and control of operations (if present)? * Are mobile treatment units needed and, if so, are they available and with sufficient capacity to meet critical needs? * What human resources and equipment are available to carry out repair works? * Is there provision for limiting the use of water from the main water supply networks to the most essential users? * Is a mechanism or plan in place for prioritizing responses in the event of destruction in order to best target limited resources? |  |  |  |
|  | Are plans in place to prepare for, and respond to, **loss of access and isolation** of **centralized** water treatment works and other infrastructure (such as storage tanks and pumps) due to bridges or roads being impassable or mined? | Inability to access the water infrastructure to operate it can lead to inadequate quantities of microbiologically safe and acceptable drinking-water, and thus to illness. | * Are backup plans in place to access sites if roads or bridges are lost or made impassable, or are not safe to access? |  |  |  |
|  | Are plans in place to prepare for, and respond to, **loss of** **decentralized** **water supply** systems as a result of strikes on wells, rainwater tanks and bores? | Loss of safe decentralized water sources due to physical damage or contamination events can lead to inadequate quantities of microbiologically safe and acceptable drinking-water and in turn to use of less safe alternative water sources, and thus to illness. | * Have local government authorities and community members planned where they will get their water from if their normal decentralized source is lost? * Have local partners and associated technical support been put on standby to respond to situations where the normal decentralized source is lost? * Have specific contingency plans been prepared to help respond to the failure of decentralized water supply systems (e.g. boreholes, wells and rainwater tanks)? * Have these contingency plans included necessary materials and equipment for capture, treatment and transport (if necessary) of water to consumers? * Has critical decentralized infrastructure been identified and prioritized (e.g. hospitals, schools and shelters)? |  |  |  |
|  | Are plans in place to prepare for, and respond to, a **loss of electrical power** supply to **decentralized** systems (e.g. dug wells and boreholes)? | Power is often required for abstraction of water from certain decentralized systems (e.g. dug wells and boreholes serving households or community institutions), and may also be needed for bulk storage (e.g. filling overhead tanks) as well as for point-of-use water treatment and disinfection (where applied). In many such systems, a lack of bulk storage capacity means that power outages can result in immediate loss of water supply (e.g. in the case of private boreholes with electric pumping). Thus, loss of power can lead to microbiologically unsafe drinking-water, or result in inadequate quantities of water for domestic needs (e.g. hydration and hygiene), and can cause illness. | * What actions are undertaken in anticipation of possible power failure, such as keeping bulk water storage as full as possible (where present)? * What are the backup power supply options, such as batteries or generators; what is their capacity; and is this sufficient to meet critical power needs? * How long can the system operate without power based on available fuel supplies and/or system bulk storage? * How sufficient is the generator fuel supply (including available funds, supply route/chain and safety/security of storage)? * Have alternative pumping/distribution means been considered in the event of power outages (e.g. solar powered pumps or reconfiguring systems to run off gravity if possible)? * What capacity is there for those managing the decentralized supply to manage backup power supplies (e.g. generator routine maintenance and testing)? |  |  |  |
| **Events** | | | | | | |
|  | Are there means in place to monitor and ensure the supply of **safe drinking-water during an event**? | Microbiological and other forms of contamination of water can pose a threat to public health. Prevention of contamination is dependent on being able to monitor and control the system. | * Is there access to secure and reliable remote telemetry for monitoring and control of water treatment processes? * Is there access to basic field testing kits for monitoring critical treatment processes (e.g. pH of coagulant-dosed water, filtered water turbidity, treated water free chlorine residual and pH)? * Is it possible to undertake visual and manual operational checks (e.g. to check floc formation, filter height, filter bed distribution following backwash, pressure and flow rates, and perform visual checks on treated water storage covers)? * Is it possible to survey key water distribution assets, such as above ground storage tanks, underground storage tanks and buried transmission lines for signs of damage? |  |  |  |
|  | For **centralized** systems, are **source water** **contamination event preparation and response plans** in place in the event of fire, explosion, construction debris, landslips, dam bursts, floods, sewage, industrial or agricultural wastewater overflows or leakage from oil and gas stations, and other contamination events? | Source water contamination can make water microbiologically unsafe or even deadly, particularly as many contaminants cannot be removed by treatment. Chemical contamination can affect the taste/odour and acceptability of the water, but in many cases short-term exposure through drinking-water is not likely to lead to health impairment. | * Is an early warning system or any other communication mechanism in place to report on possible contamination due to damage to the sites in a timely manner? * Are a summary of potential contamination sources in the catchment area(s) and a plan to assess risk rapidly if contamination occurs in place? * Have arrangements been put in place to permit access and actions within sanitary and protective zones in cross-border territories? * Are response plans in place if contamination occurs that makes the water unsafe? * Have reporting lines been established with the relevant authorities and stakeholders (e.g. consumers) for notification of incidents leading to source water contamination and communication on health risks and preventing/protective measures? * Have systems been set up to undertake inspections of water sources in use to check for possible contamination following bomb damage or sabotage (e.g. major chemical spills or sewage overflows or leakage) in surface waters or groundwater recharge areas, and to identify potential pollution sources rapidly? * Is a credible water quality testing laboratory available that can provide rapid testing? * Are contingency plans in place to respond to findings of contamination, such as actions for disinfection of surface and underground water intakes and equipment – especially if there are unburied bodies of military and civilian personnel as well as natural burials at the sites, or to remove potential pollution sources (such as containers of toxic chemicals) from water sources, water catchments and recharge areas? * If water quality cannot be assured, are plans in place to distribute bottled water, or communications protocols to advise consumers to boil or treat water used for drinking or food preparation? |  |  |  |
|  | For **centralized** systems, are **restoration and rescinding protocols** in place for areas that are being repopulated after being abandoned, covering recommissioning and restoring the treatment works, treated water storages, pipe networks and building plumbing? | Restoring safe water and communicating water safety to the community helps protect public health by reducing the time that people may use less safe alternative water sources. | * Are rapid assessment protocols in place to identify potential microbiological risks in repopulated areas that need to be mitigated? * Once microbiological risks have been assessed, are systems in place to identify chemical and radiological risks? * Are zone maps and flushing plans available to drive safe water through the system and flush out potentially contaminated water? * Are supplies and testing plans in place to check water quality after the flushing? * Are means in place to communicate with communities when it is safe to use water and what steps they need to take within their residences first (e.g. flushing internal plumbing for an appropriate velocity and duration, advice to boil water and so on)? |  |  |  |
|  | For **decentralized** systems, are plans in place to prepare for, and respond to, **contamination** in the event of fires, explosives, building debris, landslips, sewage, industrial or agricultural wastewater overflows or leakage, oil from filling stations, and other contamination events? | Source water contamination can make water unsafe, particularly as many contaminants cannot be removed by onsite or point-of-use treatment devices. | * Is an early warning system or any other communication mechanism in place to report on possible contamination due to damage to the decentralized sites in a timely manner? * Do local government authorities have a summary of potential contamination sources in the area(s) in which decentralized water is used and a plan to assess risk rapidly if contamination occurs? * Do local government authorities have response plans if contamination occurs that makes the water unsafe? * What local partners are available to remedy such situations? * Have reporting lines been established to notify the community of incidents leading to source water contamination, and to provide updates on what steps are being taken and what their role is? * Are water testing services or advice available for the community to use, including on simple, rapid field tests? * Has clear guidance been provided on approved and suitable point-of-use water treatment devices and approaches, including boiling water? * Has clear guidance been provided on how to remediate contaminated water sources, or on experts that can be asked to provide such advice if required? |  |  |  |
| **Supporting systems** | | | | | |  |
|  | Is a plan in place to prepare for, and respond to, a **loss of key personnel**, such as skilled operators? | Absence of skilled personnel can lead to inability to operate the water infrastructure appropriately to provide sufficient, acceptable, safe drinking-water, and thus result in illness. | * Are lists of key personnel and their functions and skills available? * Are practical training programmes in place to increase the availability of skilled operators and other key personnel – particularly on critical functions (e.g. filter backwashing, effective chlorination and mains repair)? * Can staff be transferred from neighbouring vodokanal systems if the need arises? * Could staff be relocated and based onsite at, or very close to, key locations to support continuity of service? * Are staffing needs systematically determined using a staffing schedule? |  |  |  |
|  | If the **laboratory is inoperable,** are means of undertaking water quality surveillance available? | Providing water quality assessment, quality assurance and surveillance can help demonstrate drinking-water safety and detect contamination. | * Have chlorine testing kits or test strips been procured and placed at points of need? * Are field test kits and sufficient consumables readily available at points of need to test water for faecal indicators and priority chemicals? * Have staff been trained to use field testing equipment and interpret results? * Do laboratories have backup power supplies in place for testing protocols that require electricity? * Have laboratories that are available for water testing been identified and contacted to be on standby? |  |  |  |
|  | Have **credible international standards and guidelines** been identified that would permit solutions that include chemicals, materials, reagents, treatment systems, tests, procedures and similar to be used to fill gaps in those available within the country? | Delays arising from seeking Ukrainian authority approvals to use materials, chemicals or procedures, or to interpret results, may lead to delays or postponing urgent actions that could in turn prolong unsafe water supply scenarios. | * Have international standards or guidelines been defined that are considered acceptable in situations where there are no suitable Ukrainian versions? * Has a hierarchy of standards or guidelines been defined to help select the most suitable solutions for Ukrainian use rapidly? |  |  |  |
| **Alternative water supplies** | | | | | |  |
|  | If the **normal water supply becomes contaminated**, do stakeholders and the community have preparations and contingencies in place to enable point-of-use water treatment and safe storage and handling of drinking-water? | The community (including critical settings such as health-care facilities and schools) needs to have ways to make water microbiologically safe to prevent illness if their normal water source is still available but may be contaminated with substances that are hazardous to health. | * Have materials for point-of-use water treatment options (such as water disinfection tablets or household filters) been stockpiled or provided to the community and critical settings, along with clear directions and behaviour support for their correct and consistent use? * Is material available on safe ways to store and handle water in the household and in critical settings, including use of dedicated water storage containers that are covered and regularly cleaned, and shelf-life? * Has a system been established to monitor use of household water treatment and safe handling and storage practices? |  |  |  |
|  | Are alternative community-scale supply options available in case of **total loss of the water supply** that is used under normal conditions? | The community needs to have access to adequate quantities of microbiologically safe and acceptable quality water even if their normal water supply is lost, otherwise illness can arise. | * Have alternative local-scale or individual-scale water source options been mapped and communicated to the local population? * Have means of treatment of alternative water sources been made ready and put on standby? * Have alternative means of distribution of water (such as use of approved water tankers or temporary water distribution points) been devised and made ready? * Has consideration been given to how easily and safely such sources can be accessed (e.g. considering conflict-related dangers and similar)? * Has guidance been prepared on minimum water quantity requirements for health protection (e.g. hydration and hygiene)? * Has consideration been given to how to ensure continued supply to critical settings such as health-care facilities and food production, among others? * Has consideration been given to vulnerable groups, such as frail, elderly or disabled people, and whether they would have difficulty getting to alternative water sources? * Does the community have equipment (rapid tests) for monitoring free chlorine residual in drinking-water? * Does the community have equipment for rapid detection of microbial contamination of drinking-water? * Has a procedure been developed for monitoring and reporting the quality of drinking-water provided through these alternative water supply options? |  |  |  |
| **Communication** | | | | | | |
|  | Are materials, messages and systems for **communication with the local population** in place? | Critical users (e.g. health-care facilities, aged-care/childcare facilities) and the broader community need to receive timely and effective information in a way that is accessible to all users, including disadvantaged and vulnerable people (e.g. users on home dialysis). Information should include whether the water is microbiologically safe to drink, and advice on where to find alternative sources and on how to make it microbiologically safe, to prevent illness. | * Is critical advisory guidance for the local population prepared, including advice on boiling water, water avoidance advisories, information on the location of alternative water sources, and advice for household water treatment and safe handling and storage? * Which options for communicating with the local population are available, such as short messaging service (text message), radio, newspaper, internet, public notices, social media, public loudspeaker announcements, communications through schools and direct visits (e.g. to elderly people)? * Can this information be accessed by all members of the community (e.g. community members who are vulnerable, disadvantaged, less literate, visual or hearing impaired, or who lack access to phone or internet)? * Have emergency lines/direct communication channels been established for critical users (e.g. institutions with vulnerable people)? * Is there a clear mutual understanding and agreement between local actors and authorities about who communicates what and when (e.g. different branches of government, their structural divisions and other institutions involved in the response, between executive authorities and so on)? * Has this messaging and communication considered vulnerable groups, such as frail, elderly and disabled people, and whether they would have difficulty getting to alternative water sources? * Has the effectiveness of communication been assessed, and the feedback used to improve communication in the future? |  |  |  |
|  | Is the community aware of the need to **conserve drinking-water** during times of conflict? | The community can help to conserve its microbiologically safe drinking-water, and thereby reduce the risk of running out, resulting in a requirement to use microbiologically unsafe water that may cause illness. | * Have water supplies been formally designated as critical facilities, with high priority for power supply reliability? * Have priority settings – such as hospitals and social/care institutions – been prioritized, and have contingency stocks of tanks for installation inside institutions been put in place? * Have measures been developed for centralized water storage, and are recommendations in place for the population on drinking-water storage in winter, including at sub-zero temperatures and in the absence of centralized heating? * Have recommendations been made to institutions and the general population, such as safe storage of water locally, promoting minimum use of water by the community to conserve it, minimizing the running of taps and using water-washed sanitation only when required, and considering promoting reusing and recycling some water where safe to do so – e.g. using water from washing of clothes or from kitchens for flushing of toilets or for irrigation uses? Is support in place if required to provide storage containers for targeted households to facilitate this? * Has use of alternative water been considered for purposes that may not require drawing from the drinking-water supply, such as irrigation, washing down surfaces or firefighting? |  |  |  |

## C. Sewerage and sanitation services checklist

| **No.** | **Questions on sanitation services** | **Relevance to health** | **Key considerations** | **Identified gaps** | **Actions** | **Stakeholders** |
| --- | --- | --- | --- | --- | --- | --- |
| **Supplies** | | | | | | |
|  | Are plans in place to prepare for, and respond to, a ***temporary* loss of electrical power** supply to **centralized** sanitary drainage systems for a few hours or days? | Maintaining wastewater treatment operation is essential to avoid the spread of infectious diseases. Maintaining pumping pressure is critical to remove sewage in water-washed systems. These systems depend on power. | * What actions are undertaken in anticipation of possible power failure, such as keeping sewer pump station wet wells at minimum levels, or reconfiguring the system to run off gravity where practicable? * What local actions are recommended to institutions and the general population, such as onsite sanitation and waste collection? * What are the backup power supply options, such as batteries or powerful generators; what is their capacity; and is this sufficient to meet critical power needs? * How long can the facility operate without power, based on available fuel supplies and/or system storage? * How sufficient is the generator fuel supply (including supply route/chain and safety/security of storage)? * What human resources are available to manage backup power supplies (including routine maintenance)? * What communication protocols are available with energy generators and distribution system suppliers? * Have sanitation services been formally identified as being high priority and critical facilities for power reliability? |  |  |  |
|  | Are plans in place to prepare for, and respond to, a ***prolonged* loss of electrical power** supply to **centralized** sanitary drainage systems for a few weeks or months? | Long-term loss of power can lead to the problems described in question 1 for longer periods, and may permit new pandemics to arise by setting up new disease transmission cycles –leading, for example, to cholera and/or typhoid. | * If the power failure is prolonged, are there ways to set up alternative power transmission lines? * Are large-scale generators with fuel supplies available (and with sufficient capacity) to power treatment plants and pumps? * Are plug-in points in place to connect generators at all powered sites? * Is a plan in place for relaunching the power supply after restoration of wastewater treatment facilities that considers the effect on power supply stability? * Have alternative safe wastewater storage and management systems that do not rely on power been arranged (see question 14)? |  |  |  |
|  | Are emergency supply and alternative options in place in case of disruptions to the **supply chain** of materials for the **centralized** sanitary drainage system, such aspipes, parts and wastewater treatment plant components? | Maintaining wastewater containment is essential to prevent contamination of the environment and ensure safe disposal to avoid the spread of infectious diseases. Maintaining system connectivity is critical to removing wastewater. | * Has an inventory been collated of what parts and fittings are required to repair and replace any damaged infrastructure, and to maintain air supply and chemical dosing and cleaning? * Which parts and fittings are delivered only after failures occur and are not stored locally, thus being vulnerable to supply being cut off? * Who can be approached in an emergency if critical infrastructure parts are lacking? * What are financing options to pay for spare/parts and repairs if funding is limited? |  |  |  |
|  | Are emergency supply and alternative options in place in case of disruptions to the **supply chain** of chemicalsfor the **centralized** sanitary drainage system, including disinfectants? | Loss of chemicals can lead to failures in sewer operation and sewage treatment, and can lead to untreated wastewater and thus pathogens being discharged into the environment, which can become a source of infection. | * How much of each sewerage cleaning and treatment chemical is stored on site? * Which chemicals are delivered regularly and are not stored on site and are hence vulnerable to supply being cut off? * What is the shelf-life of the stored treatment chemicals, particularly disinfectants? * Is there established communication with suppliers to regularly review the situation in the supply chain? * Have multiple delivery routes been established that are appropriate for the typical delivery vehicle sizes anticipated? * Who can be approached in an emergency if we foreseeably no longer have enough chemicals available (e.g. alternative vendors or neighbouring vodokanals)? * What are financing options to pay for chemicals if funding is limited? |  |  |  |
| **Infrastructure** | | | | | | |
|  | Are plans in place to prepare for, and respond to, extensive damage to major **centralized sanitary drainage system** **infrastructure**,such as treatment plants or sewerage pipelines and pumps? | Loss of operation to remove and safely dispose of wastewater away from areas where people reside can lead to the spread of infectious diseases. | * Is an updated asset register available, including an inventory of all key assets? * Does the asset register include information on the current performance of these assets (or proxies such as condition, age and usage) to be able to determine the nature (i.e. failure mode) and timing of possible failure (i.e. remaining functional life)? * Have downstream vodokanals, receiving environments and areas that need protecting from wastewater been identified? * Have stocks of materials, parts, fittings and chemicals been built up to allow for increased rates of damage during attacks? * Are the materials, parts, fittings and chemicals stored in multiple locations in case one is damaged or destroyed? * Will rapid inspection take place following attacks to assess damage to critical infrastructure? * Are manual backup systems in place and operable in case of loss of SCADA systems (if present)? * What human resources and equipment are available to carry out repair works? |  |  |  |
|  | Are preparedness and response plans for **isolation** of the **centralized** sanitary drainage system and other infrastructure facilities (for example, storage tanks and pumps, sewage pumping stations and biological sewage treatment facilities) in case of impassability or mining bridges and roads? | Inability to access and operate systems to remove and safely dispose of wastewater can lead to the spread of infectious diseases. | * Where reasonably practicable to implement, are backup plans to access sites in place, in case roads or bridges are lost, made impassable or not safe to access? |  |  |  |
|  | For **decentralized** (local) systems (for example, hospitals, radiological departments, industrial premises and so on), are plans in place to prepare and respond to **pipeline failures, leakages or overflows**? | Overflows and leaks of wastewater in areas where the community resides, or where the sewage might otherwise cause contamination that can in turn exposure the community, can lead to the spread of infectious diseases. | * Have receiving environments and areas that need protecting from wastewater been identified? * Do local government authorities have response plans if overflows and leaks occur? * Have local government authorities established reporting lines with the community for the notification of incidents leading to wastewater leaks and overflows? * What local partners are available to remedy such situations? |  |  |  |
| **Events** | | | | | | |
|  | For **centralized** sanitary drainage systems, are **contamination event preparation and response plans** in place in the event of wastewater overflows or leakage that may affect local community? | Wastewater overflows or leakage can release pathogenic microorganisms onto land, into the aquifer and soil, and on areas that people may come into contact, which can result in illness. | * Does the community have advice about identifying and calling in leaking or overflowing sewerage infrastructure? * Does the community have advice about avoiding areas that are contaminated by leaking or overflowing sewage? * What local partners are available to remedy such situations? |  |  |  |
|  | For **centralized** sanitary drainage systems, are **contamination event preparation and response plans** in place in the event of wastewater overflows or leakage that may affect downstream users of water? | Wastewater overflows or leakage can release pathogenic microorganisms into drinking-water sources, recreational water and water used for irrigating food and livestock production, which can result in illness. | * Is a list available of the people at most risk (such as aquaculture, food production, recreation and drinking-water users), and is a plan available to assess risk rapidly and notify those people if contamination occurs? * What local partners are available to remedy such situations? * Are communication protocols in place to inform downstream stakeholders about possible wastewater contamination events? |  |  |  |
|  | For **centralized** sanitary drainage systems that rely on water-washed sanitation, are **preparation and response plans** in place in the event of loss of water resulting in lack of water for flow and blockage of sewer or poor quality of sewage? | Loss of hydraulic flows to remove and safely dispose of wastewater can lead to the spread of infectious diseases. | * Are estimates of the minimum flows required to keep the centralized water-washed sewerage system and wastewater treatment functional available? * Are regular assessments made of needs for modification of the sewerage system to operate with reduced water flows? If so, have costed modification plans been developed, and are the needs reflected in the municipal and/or national budget programmes? * Are backup plans in place if the sewer is blocked, such as methods to unblock the sewer? |  |  |  |
|  | For **industrial connections** that require wastewater pretreatment prior to discharge to **centralized** sanitary drainage systems, is a preparation and response plan in place (including notification protocols) in the event of pretreatment failure? | Failure to pretreat particular effluents prior to discharge to centralized sanitary drainage systems can lead to failures in sewer operation and sewage treatment, which can lead to untreated wastewater (and thus pathogens/chemicals) being discharged into the environment, which can become a source of illness. | * Is a documented list available of industrial connections that are known to require pretreatment, including the nature/volume of the wastewater being pretreated and the pretreatment processes that are in place? * Is a plan in place for what to do in the event of a loss of pretreatment (e.g. onsite holding tanks for the industrial wastewater)? * Are any early warning systems in place to monitor occurrence of a pretreatment failure (e.g. onsite at the industrial premises, or within the sewerage network)? * What notification/communication protocols are in place between the industrial connection and the sewerage system operators in the event of a known pretreatment failure? * What measures are in place at the sewage treatment plant to minimize the impact of shock loads arising from pretreatment failures (e.g. storage tanks and diversions)? |  |  |  |
| **Supporting systems** | | | | | | |
|  | Is a plan in place to prepare for, and respond to, a **loss of key personnel** such as skilled operators? | Absence of skilled personnel can lead to inability to operate the wastewater infrastructure appropriately, and thus to unsafe discharge. | * Are lists of key personnel and their functions and skills available? * Are practical training programmes in place to increase the availability of skilled operators and other critical personnel? * Could staff be relocated and based onsite at, or very close to, key locations to support continuity of service? * Can staff be transferred from neighbouring vodokanal systems if the need arises? |  |  |  |
|  | Do you have means of **finding wastewater leakages**? | Leaking sewage can spread diseases. Locating and repairing points where wastewater is being discharged and polluting land and water can help to prevent transmission of diseases. | * Have methods for finding leaking septic and sewerage systems been deployed to locate leaks rapidly after strikes? |  |  |  |
| **Alternative wastewater services** | | | | | | |
|  | Are alternative service options available at the level of the entire community in the event of a complete **loss of centralized** sanitary drainage systems? | Loss of sanitation can lead to microorganisms in faecal waste and food waste being disseminated. This may promote disease transmission. | * Are sufficient portable toilets, and associated handwashing facilities, ready to be mobilized to key locations if sanitation services are lost? * Are decentralized backup toilets with handwashing facilities available at critical facilities housing vulnerable populations, such as hospitals, homes for elderly people and shelters? * Have options for setting up temporary areas for safe disposal of excreta and hazardous waste been set up and communicated to the community, such as dry, mobile toilets or areas away from water sources? * Have alternative local excreta and hazardous waste disposal options been mapped and communicated? |  |  |  |
|  | Are preparations and contingencies in place for stakeholders and the community to enable **household-level** excreta and hazardous solid and liquid waste disposal in local areas in case of total loss of **centralized** water-washed sewerage systems and inability to set up community-scale options? | The community needs to be able to dispose of excreta and hazardous waste safely to avoid disease dissemination. | * Do people have advisory guidance along with the means (e.g. personal protective equipment and training) to help collect and dispose of excreta safely? * Are local government authorities prepared for designating areas for household products, hazardous solid and liquid waste, and excreta disposal and treatment, considering alternatives in local areas? * Have vehicles been dedicated to collecting excreta and hazardous solid and liquid waste, and has the community been advised on how to use those services? |  |  |  |
|  | Are contingency plans in place to dispose of excreta and hazardous solid and liquid waste safely if **decentralized systems** **can no longer be maintained and serviced** due to loss of waste collection, power or servicing support? | The community needs to be able to dispose of excreta and hazardous solid and liquid waste safely to avoid disease dissemination. | * Has the importance of safe disposal of excreta and hazardous liquid and solid waste been clearly communicated? * Have alternative local-scale or individual-scale solid and liquid waste disposal options been devised and communicated to the local population? * If areas for disposal are not defined, are routes for the removal of waste defined? * Are local government authorities prepared for designating areas for excreta and hazardous solid and liquid waste disposal in local areas? |  |  |  |
| **Communication** | | | | | | |
|  | Are materials, messages and systems for **communication with the local population** in place? | The community needs to receive timely and effective information on whether wastewater and hazardous solid and liquid waste management systems are functioning, what to do if they are not, and how they can play a role in keeping the systems functional. This will support safe disposal of excreta and hazardous solid and liquid waste to avoid disease dissemination. | * Is critical advisory guidance for the local population prepared, including advice on avoiding blocking pipes and pumps with rags and other debris, on reducing flows to water-washed sewers, and on hygienic use of alternative systems such as composting systems or designated defecation areas? * Which options for communicating with the local population are available (such as short messaging service (text message), radio, newspaper, internet, public notices, social media, public loudspeaker announcements, displays at apartment buildings and direct visits)? * Is there a clear mutual understanding and agreement between local actors and authorities about who communicates what and when? * Has the effectiveness of communication been assessed, and the feedback used to improve communication in the future? |  |  |  |

## D. Hygiene checklist

Note that hygiene interventions depend on availability of water in sufficient quantity and quality. In addition, hand and other hygiene washing stations may require a connection to sanitary drainage systems. Therefore, hygiene needs should also be considered when completing checklists B (drinking-water supply services) and C (sewerage and sanitation services).

| **No.** | **Questions on hygiene** | **Relevance to health** | **Key considerations** | **Identified gaps** | **Actions** | **Stakeholders** |
| --- | --- | --- | --- | --- | --- | --- |
| **Supplies** | | | | | | |
|  | Are alternative **handwashing guidance and materials** in place in case water is not available? | Good hand hygiene is essential to prevent the spread of many infectious diseases. | * Are materials available for hand hygiene that do not require access to water and soap, such as alcohol-based hand rubs/cleansers or sanitizer? * Are recommendations in place for minimum standards for hand hygiene-related supplies? |  |  |  |
|  | Are alternative **menstrual hygiene guidance and materials** in place in case water and materials are not available? | Good menstrual health and hygiene is essential to prevent reproductive and urinary tract infections and mental health issues from social stigma. | * Are safe alternative materials for menstrual health and hygiene available if the locally preferred materials are not accessible? |  |  |  |
| 3. | Does the community have **availability of a reserve of sufficient** soap, menstrual hygiene products, toilet paper, nappies, cleansers, sanitizers, wipes and other hygiene products for personal, hand, menstrual and food hygiene activities? | Maintaining supplies that support adequate hygiene activities is important to prevent the spread of infectious disease and to maintain dignity. | * Has a systematic analysis been carried out of the required minimum materials and needs to ensure and maintain hygienic living? * Has a systematic analysis been carried out of the accessibility and availability of hygiene materials for the population? * What supply chains are available to replenish stocks in the community? * Are recommendations in place for a minimum personal hygiene kit for various contexts, such as health-care facilities, childcare facilities, food preparation facilities, schools, farms and households? |  |  |  |
| 4. | Is special attention given to the hygiene situation and needs of the most vulnerable groups? | Meeting the hygiene needs of vulnerable groups is essential to protect their health, prevent disease, and promote dignity and inclusion in society (e.g. good incontinence care is essential to prevent skin infections and urinary tract infections and mental health issues from social stigma). | * Are the specific hygiene challenges for vulnerable groups in the community understood? * Are adequate resources and support systems in place to meet these hygiene need? * Are vulnerable groups considered in the planning of hygiene supplies? |  |  |  |
| **Infrastructure** | | | | | | |
| 5. | Are provisions in place for alternative or communal hygiene facilities if dedicated domestic infrastructure (such as sinks with running water in kitchens or bathrooms) becomes unavailable (e.g. due to damage from an attack or the need to leave usual habitations for temporary shelters)? | Good hygiene (hand, personal, menstrual, food and household) is essential to prevent the spread of many infectious diseases, and is ideally enabled through the provision of dedicated infrastructure. | * Is guidance in place for the affected population on how to access safe alternative hygiene facilities (e.g. for handwashing, washing/drying reusable hygiene materials such as nappies and menstrual pads)? * Is guidance in place for responsible authorities on how to construct temporary infrastructure where required (e.g. handwashing stations)? * Is guidance in place for the affected population on how to practise hygiene safely where dedicated infrastructure is lost? * Is guidance in place for the affected population on how to use existing hygiene infrastructure in a safe, socially acceptable and dignified way? |  |  |  |
| **Communication** | | | | | | |
| 6. | Are materials, messages and systems for **communication with the local population** in place to promote appropriate hygiene behaviours? | Good personal, hand, menstrual, household and food hygiene are essential to prevent the spread of many infectious diseases. | * Are promotional messages in place that encourage diligent and regular hand hygiene practices with water and soap (if available)? * Do the public messages contain the indication that for hygiene purposes water may be used that is of sufficient quality, but which may be of lower quality than that required for drinking? * Are appropriate and accessible promotional messages in place that encourage diligent food and household hygiene practices to help educate the community, including most vulnerable groups, and to encourage good behaviours? * Is guidance and advice readily available on the use of alternative cleansers? * In areas that are being repopulated after being abandoned due to military activity, are public notices prepared warning of contact with debris, solid waste, dead animals and sewage spills, among others? * Are targeted promotional messages in place that encourage the use of safe alternatives for hygiene materials in case access to existing materials is disrupted (e.g. menstrual pads, nappies and incontinence materials)? * Has the effectiveness of communication been assessed, and the feedback used to improve communication in the future? |  |  |  |
| **Health-care facilities** | | | | | | |
| 7. | Have health-care facilities been prioritized and targeted for education, awareness and provision of essential hygiene systems and resources? | Health-care facilities often house the most vulnerable members of the community, and can be locations that can spread disease readily if hygiene is of a poor standard; they therefore need special consideration. | * Are the locations and status of health-care facilities known? * Do health-care facilities have hygiene management plans and needs assessments? * Are promotional messages in place that encourage good hygiene practices in health-care facilities? * Are sufficient systems and resources in place to maintain high standards of hygiene and health-care facilities? |  |  |  |

## E. Checklist for other considerations

| **No.** | **Question on other WASH aspects** | **Relevance to health** | **Key considerations** | **Identified gaps** | **Actions** | **Stakeholders** |
| --- | --- | --- | --- | --- | --- | --- |
|  | Have the special needs of remote, rural and decentralized contexts been adequately considered? | Remote, isolated and rural locations are typically less vulnerable to direct impacts of conflicts, but are also less accessible by supporting services, such as health-care and alternative WASH services. This can leave people in such locations particularly vulnerable if WASH services become compromised. | * Decentralized systems are often less vulnerable to the impacts of conflict, but are there situations that need special consideration, such as power outages, and/or decentralized WASH services supporting health-care facilities? * Are supply chains and logistics vulnerable (which may include supply chains relating to emptying septic systems, supplying personal hygiene products and householder water treatment products) even if local residences are not being targeted? |  |  |  |
|  | Have WASH services at critical nodes such as ports and transport hubs, and the protection of such hubs to ensure WASH supply chains, been considered? | A breakdown in transport hubs will have effects that prevent delivery of WASH services, since materials and chemicals will become unavailable. | * Have transport hubs been supported by reliable WASH services? * Have supply chains been secured through transport hubs for critical materials, chemicals and human resources, including for emergency deliveries? |  |  |  |
|  | Have research organizations been mobilized to support WASH preparedness and response? | Research organizations can access expertise and analytical facilities that enable them to provide important information. | * Have research organizations been testing water and wastewater, and communicating the results to identify areas of contamination? * Are researchers predicting risks and recommending methods to reduce risk? |  |  |  |

## F. Improvement action plan template

The improvement actions identified through completion of checklists A–E can be consolidated into an improvement action plan. A template is provided below for consideration, which can be adapted to the local context as required. Additional rows should be added as needed.

| **No.** | **Improvement action** | **Reason for the action** | **Responsible party/parties** | **Source(s) of funding** | **Due date** | **Status** |
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