

## WASH Technical Operations: Water Supply and Treatment

### Scope and Application

*Objective of the intervention: To ensure the human right to water is realized for all without discrimination, ensuring sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use.*

### Water source selection and extraction

Water sources can include rainwater, groundwater or surface water (rivers, springs), trucked or bottled water, as well as in some cases grey-water re-use (refer Wastewater Management section of WASH Technical Operations: Sanitation page). The water source should be based on the most feasible option, with consideration for distance to the source, water quality, and population needs, as well as peak usage times, flow rates, and water requirements for specific users. The water source should be protected as much as possible to reduce contamination originating from the source to reduce treatment requirements along the water supply chain.

The context analysis (refer to Context Analysis of WASH Programming page) (including engagement with local community and sanitary surveys) will provide information that will assist in water source selection, as well as enable a risk assessment for consideration for longer-term water resources and livelihoods. For example, early hydrology and hydrogeological studies should be undertaken to gain an understanding of the various water resources and their behaviour under multiple conditions and seasons. In addition, the context analysis can provide additional relevant socio-cultural information for selecting the water source.

### Water distribution

Water can be transported via gravity fed or pumped pipes or water trucking. Whenever feasible, gravity fed systems should be used due to their comparatively minimal operation and maintenance requirements, and therefore sustainability. Both gravity fed and pumped pipe design networks should be carefully planned to consider the least energy, water quantity requirements and distribution points, types of pipes, as well as disaster risk reduction (e.g. for landslide prone areas). Water trucking, even if not avoidable in some cases, should be limited as much as possible and always considered as a temporary measure due to the complex management, the greenhouse gas emissions (as discussed in the Integrating Climate Change and the environment into WASH programmes section of the Cross-cutting Themes Within WASH page) and the risk of corruption.

### Water treatment

During the first phase of an emergency - if no prior testing has been undertaken - treatment should occur on all water sources where possible, whilst also noting that the priority should be given to sufficient water quantity over water quality where it is not possible to meet both supply and treatment requirements. The quantity of the water supplied should be in line with Sphere or national or WASH sector / cluster agreed standards for the response. The quality of the water should aim to align to WHO's Guidelines for Drinking Water Quality or to national or WASH sector / cluster guidelines if are stricter. Drinking water points should include systematic monitoring of water quality parameters to assess for contamination, enabling the treatment process to be modified to address any issues. Treatment can include a wide variety of technologies depending on the context, each with its benefits and challenges.

### Water storage and delivery

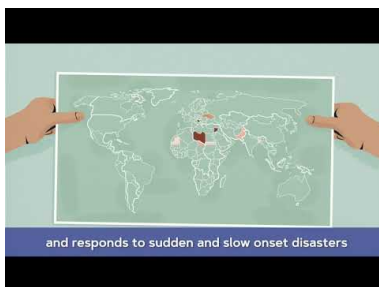
Water should be made available for all uses of water including drinking, cooking, and hand-washing at locations such as water points, water yards, household connection, collection and storage by users, as well as large communal storage tanks. Where pertinent, water should be made available to livestock (e.g. animal trough from spill over water at water points). Users should be provided with clean vessels for collection of water if collection is required (see Management of WASH NFI section of the WASH Technical Operations: Drainage, Vector Control, Management of WASH NFI page) so that contamination doesn't occur along the water supply chain.

### Links

- [SPHERE Standards, Water Supply](#)

- [Global WASH Cluster: Water Zip Drive](#)

## Media



[Approaches to deliver IOM WASH in emergencies](#)

## References and Tools

- [WHO Guidelines for drinking-water quality \(4th edition\)](#)
- [Directives de qualité pour l'eau de boisson: Quatrième édition intégrant le premier additif](#)
- [Guías para la calidad del agua de consumo humano: Cuarta edición que incorpora la primera adenda](#)
- [Compendium of Water Supply Technologies in Emergencies \(1st Edition\)](#)

## Other Entries in this Topic

- [Water, Sanitation and Hygiene \(WASH\)](#)
- [WASH Approaches](#)
- [Cross-Cutting Themes within WASH](#)
- [WASH Programming](#)
- [WASH Technical Operations: Sanitation](#)
- [WASH Technical Operations: Drainage, Vector Control, Management of WASH NFIs](#)

## Contacts

IOM's Global WASH Support Team is available to support country missions in a variety of ways as outlined in the IOM Global WASH Support Team mechanisms, including surge support, remote support and/or monitoring, evaluation, and learning.

The Global WASH Support Team can be contacted for additional information or specific guidance at [washsupport@iom.int](mailto:washsupport@iom.int).

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