

WATER, SANITATION AND HYGIENE GUIDELINES



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LIST OF ACRONYMS

BoQ	Bill of Quantities
CLTS	Community-Led Total Sanitation
COOPI	Cooperazione Internazionale
CtC	Child-to-Child
DRR	Disaster Risk Reduction
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
GDWQ	Guidelines for Drinking-Water Quality
HRP	Humanitarian Response Plan
IASC	Inter-Agency Standing Committee
IPC	Infection Prevention and Control
ISWM	Integrated Solid Waste Management
JMP	Joint Monitoring Program
KAP	Knowledge, Attitudes, and Practices
LCA	Life Cycle Assessment
MHM	Menstrual Hygiene Management
MIRA	Multi-Cluster/Sector Initial Rapid Assessment
MoU	Memorandum of Understanding
NARE	Needs Assessment for Refugee Emergencies
NFI	Non-Food Item
ODF	Open Defecation Free
OMS/WHO	Organizzazione Mondiale della Sanità / World Health Organization
PHAST	Participatory Hygiene and Sanitation Transformation

PRA	Participatory Rural Appraisal
RNA	Rapid Needs Assessment
SDG(s)	Sustainable Development Goal(s)
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
SOP(s)	Standard Operating Procedure(s)
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WEDC	Water Engineering and Development Centre
WSSCC	Water Supply and Sanitation Collaborative Council

EXECUTIVE SUMMARY

In recent decades, the increasing demand for water resources - and their misuse - has risen the risks of pollution and severe water stress in many parts of the world. The frequency and intensity of local water crises are increasing, with severe consequences for public health, environmental sustainability, food and energy security and economic development.

COOPI carries out emergency and development projects in various intervention sectors and amongst these the water, sanitation and hygiene (WASH) sector has always been one of the cornerstones of COOPI's work in the world. For COOPI working to improve the access to and the availability, quality and conscious management of these resources means guaranteeing a human right and improving food security and population health whilst preserving the environmental aspects associated with them.

Given the great importance that COOPI places on this sector of intervention, the organisation intends to equip itself with the tools necessary to guarantee the quality of its WASH activities. The setting out of these WASH guidelines therefore responds to the necessity identified within the organisation during the planning of the water and sanitation proposals.

The objective of these guidelines is to support COOPI's field staff with an instrument that will help them structure WASH proposals and interventions including all the necessary elements for the correct realisation of the various actions, with the aim of developing a quality and sustainable project.

The methodology used to set out these guidelines consists first and foremost in a review of the literature for this sector to elaborate the general framework and obtain technical references. Secondly, in the past few years a mapping of COOPI's WASH sector projects has been carried out. As a result, these indications are in line with COOPI's interventions within the sector. In order to make the document participatory, various semi-structured interviews have also been carried out in various countries with COOPI's key Wash sector personnel.

These guidelines are structured in five different thematic areas that correspond to the five environments described within the Sphere manual, within which COOPI has implemented projects during the last few years: hygiene promotion, water supply, faeces management, solid waste management and WASH in disease hotspots and healthcare settings. Furthermore, it includes a section that describes the interaction between the water and hygiene sectors and the other COOPI intervention sectors. Finally, the last chapter focuses on the importance of the active participation in the national and local coordination systems.

We have attempted to make the document brief and concise, therefore links to additional resources are provided at the end of the document in such a way that the person using these guidelines can look into this more deeply if they so wish.

1. INTRODUCTION

1.1. BRIEF PRESENTATION OF COOPI

COOPI - Cooperazione Internazionale is a humanitarian organisation founded in 1965. During its almost 60 years of activity, COOPI has worked in 73 countries, involving thousands of local operators and providing direct assistance to millions of women, men, girls, boys and their communities. Their mission is to contribute, via the commitment, motivation, determination and professionalism of their staff, to the process of reducing poverty and growing communities worldwide. COOPI intervenes in emergency, reconstruction and development contexts.

COOPI carries out emergency and development projects in various intervention sectors: food security, protection, nutrition, education in emergencies, health, environment, and Disaster, Risk Reduction (DRR) and of course Water Sanitation and Hygiene (WASH).

Interventions in the water, sanitation and hygiene sector have always been the cornerstones of COOPI's global work. COOPI has always recognised the importance of the water and sanitation resources to guarantee the survival and development of populations. For COOPI working to improve the access to and the availability, quality and conscious management of those resources means guaranteeing a human right and improving food security and population health whilst preserving the environmental aspects associated with them.

1.2. WASH GUIDELINES

The setting out of these WASH guidelines therefore responds to the necessity identified within the organisation during the planning of the water and sanitation proposals. Furthermore, the WASH sector is one of COOPI's principal intervention sectors and is a sector that, due to its complexity, requires strategic tools that are specific to its organisation.

The **objective** of these guidelines is **to support COOPI's field staff with an instrument that will help them structure WASH proposals and interventions** including all the necessary elements for the correct realisation of the various actions, with the aim of developing a quality and sustainable project.

The development of the guidelines has tried to be **participatory**, involving COOPI's field staff engaged in WASH projects. We have also tried to make the document as **brief** as possible, but at the same time **practical and operational**, and this is the reason why the advice and warnings are included throughout the entire document. In short, the document is **adapted to COOPI's WASH sector interventions**.

These guidelines are structured in five different thematic areas that correspond to the five areas described within the Sphere manual: hygiene promotion, water supply, faeces management, solid waste management and WASH in disease hotspots and healthcare contexts. Furthermore, it includes a section that describes the interaction between the WASH sector and the other COOPI intervention sectors. Finally, the last chapter covers the importance of active participation in national and local sector coordination systems.

1.3. METHODOLOGY FOLLOWED FOR THE DEVELOPMENT OF THE GUIDELINES

The methodology used for the development of the guidelines has followed 4 work phases:

a) Literature Review. The literature review served to i) define the political and institutional framework for the WASH sector within which the guidelines were developed and ii) review the sector standards to determine if the projects implemented by the organisation are aligned with them and which areas require technical support.

b) Mapping of COOPI projects. The mapping was concentrated on the countries in which the organisation implemented WASH projects between 2018 and 2021. The mapping defined the countries in which the WASH sector is a relevant sector and therefore identifying the key people to interview and the documents to review for the participatory development of this document. The 5 countries selected, in which COOPI has carried out the greatest number of WASH projects during the time frame under review, are: Ethiopia, Sudan, Somalia, Iraq and Peru. In total 54 WASH projects were examined in these 5 countries, plus two other WASH projects in Lebanon and Bolivia.

c) Semi-structured Interviews. The interviews were carried out with 15 key operators that work in projects related to the WASH sector or who are involved in their implementation, such as the country representative, the program coordinators, or other functions agreed with the countries identified during the mapping.

d) Document revision/review. The document was reviewed and validated from a technical viewpoint.

2. WATER, SANITATION AND HYGIENE (WASH)

In recent decades, the increasing demand for water resources - and their misuse - has risen the risks of pollution and severe water stress in many parts of the world. The frequency and intensity of local water crises are increasing, with severe consequences for public health, environmental sustainability, food and energy security and economic development. The strong demographic growth increased migratory flows and the unsustainable economic practices are, from an environmental viewpoint, influencing the quantity and quality of the water we have, rendering/making water an ever more scarce and costly resource, especially for the poor, the marginalised and the vulnerable¹.

Over the years, the international community has increasingly recognised the importance of access to water and to sanitation services, to the point of including them in the Sustainable Development Goals (SDGs). COOPI's work fits into this regulatory reference context, supporting through its interventions the efforts of the international community and local governments in achieving this global development goal.

¹ <https://sustainabledevelopment.un.org/topics/waterandsanitation>



THE INTERNATIONAL COMMUNITY AND WATER

1977: The importance of water is recognised at an international level at the Mar del Plata conference: an Action Plan on the “Community Water Supply” is created and it is declared that all people/populations have the right to access drinking water in the quality and quantity in line with their basic needs.

1981-1990: “International decade of drinking water and sanitation services”

1992:

- United Nations conference on the environment and development, Rio de Janeiro (Agenda 21, chapter 18)
- International conference on water and the environment (ICWE), Dublin.

2000: The Millenium Declaration on development calls for the world, by 2015, to half the percentage of people that do not have access to drinking water, as well as the percentage of people who do not have access to sanitation services.

2003: International Year of Fresh Water

2005-2015: Decade of “Water for Life”

2008: International Year of Hygiene

2010: human right to water and sanitation services is specifically recognised at the United Nations General Assembly through resolution 64/292²

2015: At the United Nations Summit the 2030 Agenda for Sustainable Development³ is adopted which includes the Sustainable Development Goal 6⁴ (Sustainable Development Goal, SDG in English) on water and sanitation services

2018-2028: “International Decade for Action - Water for sustainable development”

² <https://undocs.org/A/RES/64/292>

³ <https://sdgs.un.org/2030agenda>

⁴ <https://sdgs.un.org/goals/goal6>

2.1. DEFINITION OF THE SECTOR AND GLOBAL FRAMEWORKS

Water is essential for sustainable development and the elimination of poverty and hunger, and it is essential for human development, health and wellbeing. The challenges related to water, like limited access to drinking water and sanitation services, the increasing pressure on water resources and on ecosystems, disasters and the exacerbated risks of drought and flooding, have received growing attention in the development arena⁵.

WASH is the collective term for water, sanitation and hygiene. Even if each of them is a separate field of work, they are interdependent and help to keep people healthy. Without sanitation, sources of water for drinking and cooking can be contaminated. Without safe water, people are exposed to disease and infection. Without soap and other hygiene products, including feminine hygiene products, pathogenic agents can be dispersed amongst families and communities⁶. Lastly, when increasing the availability of water, you need to provide for its disposal in a safe and sustainable fashion.

The United Nations recognises the right of human beings to water through the **General Commitment n.15 - The right to water** which confers on every person the right to an amount of water, for personal and domestic use, that is **sufficient, safe, acceptable and physically and economically accessible**. When these conditions are not met or when there is no safe access to water, people are exposed to serious risks to human safety, due to poor health and the unstable livelihoods. We define the concepts in detail here below:

- **Sufficient.** The water supply for personal and domestic use must be sufficient and continuous. The World Health Organisation (WHO) establishes that each person needs 100 litres of water per day to ensure basic physiological, food and hygiene requirements.
- **Safe.** Water for personal and domestic use must be safe, that is free of microorganisms, chemical substances and risks of radiation that constitute a risk to human health. Generally, the safety references for drinking water are defined by national and/or local water quality standards. The WHO guidelines on the quality of drinking water provide the basis for the development of national standards that, if correctly applied, guarantee the safety of drinking water.

⁵ UN Secretary-General's Plan: Water Action Decade 2018-2028. <https://wateractiondecade.org/>

⁶ Adapted from <https://www.unhcr.org/water-sanitation-and-hygiene.html>

- **Acceptable.** Water must be acceptable in terms of colour, smell and taste for all personal and domestic uses.
- **Accessible.** Accessibility is understood to cover four related dimensions: physical accessibility - water and sanitation facilities must be physically accessible by and within safe reach of all sectors of the population; they must be of an adequate quality, culturally appropriate and with a gender perspective, sensitive to the needs of life and privacy; economic accessibility - both direct and indirect costs and charges associated with the supply of water must be accessible and must not compromise the realisation of other international rights; non-discriminatory - water and related services must be accessible even to the most vulnerable and marginalised elements of the population; accessibility of information - including the rights to seek, receive and distribute information relevant to the water issue.

The benefits of having access to a better source of drinking water can only be fully realized when there is also access to improved sanitation services and good hygiene practices are observed⁷.

Sanitation services are not just latrines and toilets: good hygiene practices, adequate services and structures used together provide the hygienic environment that each person needs to combat diseases and grow healthy. The lack of sanitation services can be an obstacle to individual prosperity and sustainable development. When individuals cannot access private and dignified sanitation facilities, the exercise and enjoyment of their rights may be threatened (such as the right to health or children's education). Furthermore, when health systems are overwhelmed and production levels decline, whole economies are affected.

Good hygiene is fundamental to prevent the spread of infectious diseases and to lead a long and healthy life. For households, good hygiene means avoiding disease and spending less on health care. In certain contexts, it can also guarantee the social status of a family and help people to keep their self-confidence. That said, important hygienic behaviours are difficult to practice without the correct knowledge and skills, adequate support from the community and the conviction that their own behaviour can actually make a difference.

It is also vital to underline the importance of environmental hygiene, which consists of maintaining the environmental hygiene and sanitation in perfect condition in order to prevent people's health from suffering. Environmental hygiene has enormous benefits for the community: a healthy environment contributes towards improving people's quality of life, reducing diarrheal diseases and helping to improve social outcomes in the community.

⁷ <https://www.unwater.org/>



SOME GLOBAL DATA AND STATISTICS

- 1 in 4 health care facilities lacks basic water services;
- 3 in 10 people lack access to safely managed drinking water services and 6 in 10 people lack access to safely managed sanitation facilities;
- At least 892 million people continue to practice open defecation;
- Women and girls are responsible for water collection in 80 per cent of households without access to on-site water/water on premises;
- Between 1990 and 2015, the proportion of the global population using an improved drinking water source has increased from 76 per cent to 90 per cent;
- Water scarcity affects more than 40 per cent of the global population and is projected to rise. Over 1.7 billion people are currently living in river basins where water use exceeds recharge;
- 2.4 billion people lack access to basic sanitation services, such as toilets or latrines
- More than 80 per cent of wastewater resulting from human activities is discharged into rivers or sea without any pollution removal;
- Each day, nearly 1,000 children die due to preventable water and sanitation-related diarrheal diseases
- Approximately 70 per cent of all water extracted from rivers, lakes and aquifers is used for irrigation
- Floods and other water-related disasters account for 70 per cent of all deaths related to natural disasters.

From: Sustainable Development Goals. Goal 6: Ensure access to water and sanitation for all, <https://www.un.org/sustainabledevelopment/water-and-sanitation/>

2.2. INTERNATIONAL STANDARDS

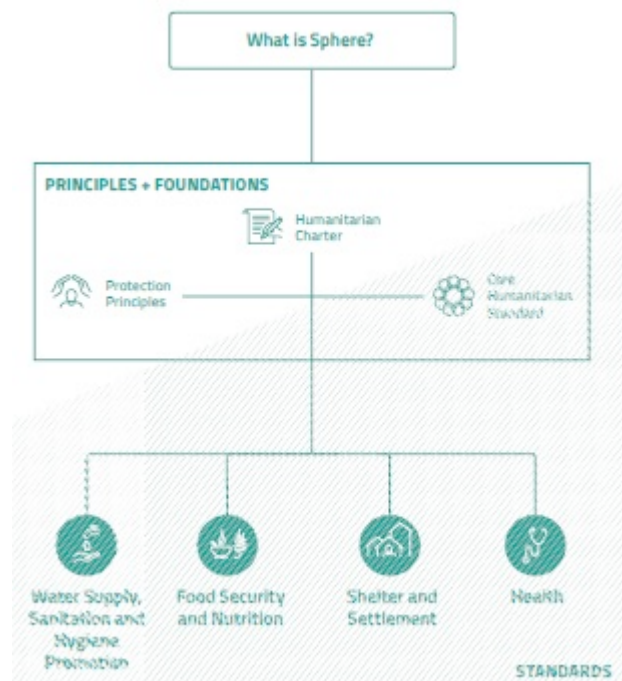
In a global and international context there are various standards and best practices that have proven to be essential for the execution of a WASH sector intervention. For this document, particular attention has been made to two sets of standards, given their global reach, their widespread use and the global consensus surrounding their effectiveness.

2.2.1. SPHERE Standard

The Sphere Project - or simply Sphere - was launched in 1997 by a group of Non-Governmental Humanitarian Organisations (NGO), together with the Red Cross and Red Crescent movement. Their **goal** was to improve the quality of their disaster response interventions and to take responsibility for the same.

The Sphere has developed a reference manual made up/consisting of the following chapters:

- ❖ The Humanitarian Charter: The milestone of the *Sphere* Manual, that expresses the conviction shared amongst humanitarian actors that all people affected by crises have the right to receive protection and assistance. This right ensures the basic conditions for a dignified life. The Charter provides the ethical and legal foundation to the principles of protection, the basic Humanitarian Standard and the Minimum Standards.
- ❖ Principles of Protection: A practical translation of the legal principles and rights outlined in the Humanitarian Charter in four principles that characterise all humanitarian responses.
- ❖ Basic Humanitarian Standard: Nine commitments that describe the essential processes and the organisational responsibility to ensure quality and responsibility in achieving the minimum standards. The four technical chapters include the minimum standard in the key response areas:
 - Water supply, sanitation and hygiene promotion (WASH)
 - Food security and nutrition



- Refuge and settlement
- Health

The **Minimum Standards for Water Supply, Sanitation and Hygiene Promotion (WASH)** are a practical expression of the shared principles and commitments of humanitarian organisations and the common principles, rights and duties that govern humanitarian action. An adequate quantity of safe water is necessary to prevent death due to dehydration, to reduce the risk of dehydration borne diseases, and finally to guarantee the hygienic requirements for the consumption, cooking, personal and domestic use of said water. The right to water and sanitation is inextricably linked to other human rights, including the right to health, the right to housing and the right to adequate food. As such, it constitutes one of the essential preconditions for human survival. The Sphere manual sets out the WASH standards detailed below and describes the guidelines, indicators and good practices to achieve them.

Hygiene Promotion

Standard 1.1: Hygiene Promotion. People are aware of key public health risks related to water, sanitation and hygiene, and can adopt individual, household and community measures to reduce them.

Standard 1.2: Identification, access to and use of hygiene items. Appropriate items to support hygiene, health, dignity and well-being are available and used by the affected people.

Standard 1.3: Menstrual hygiene management and incontinence. Women and girls of menstruating age, and males and females with incontinence, have access to hygiene products and WASH facilities that support their dignity and well-being.

Water Supply

Standard 2.1: Access and water quantity. People have equitable and affordable access to a sufficient quantity of safe water to meet their drinking and domestic needs.

Standard 2.2: Water quality. Water is palatable and of sufficient quality for drinking and cooking, and for personal and domestic hygiene, without causing a risk to health.

Excreta management

Standard 3.1: Environment free from human excreta. All excreta is safely contained on-site to avoid contamination of the natural, living, learning, working and communal environments.

Standard 3.2. Access to and use of toilets. People have adequate, appropriate and acceptable toilets to allow rapid, safe and secure access at all times.

Standard 3.3. Management and maintenance of excreta collection, transport, disposal and treatment. Excreta management facilities, infrastructure and systems are safely

managed and maintained to ensure service provision and minimum impact on the surrounding environment.

Vector control

Standard 4.1. Vector control at settlement level. People live in an environment where vector breeding and feeding sites are targeted to reduce the risks of vector-related problems.

Standard 4.2. Household and personal actions to control vectors. All affected people have the knowledge and means to protect themselves and their families from vectors that can cause a significant risk to health or well-being.

Solid waste management

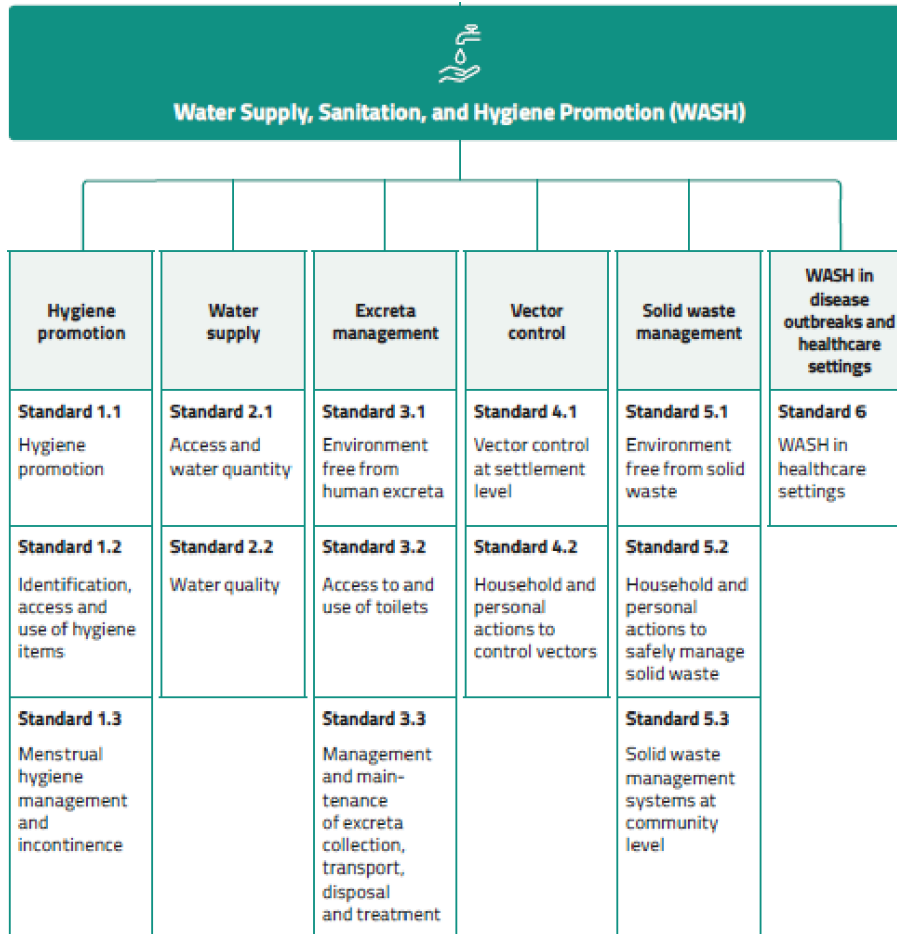
Standard 5.1. Environment free from solid waste. Solid waste is safely contained to avoid pollution of the natural, living, learning, working and communal environments.

Standard 5.2. Household and personal actions to safely manage solid waste. People can safely collect and potentially treat solid waste in their households.

Standard 5.3. Solid waste management systems at community level. Designated public collection points do not overflow with waste, and the final treatment or disposal of waste is safe and secure.

WASH in disease outbreaks and healthcare settings

Standard 6.1. WASH in healthcare settings. All healthcare settings maintain minimum WASH infection prevention and control standards, including in disease outbreaks.



2.2.2. World Health Organisation (WHO)

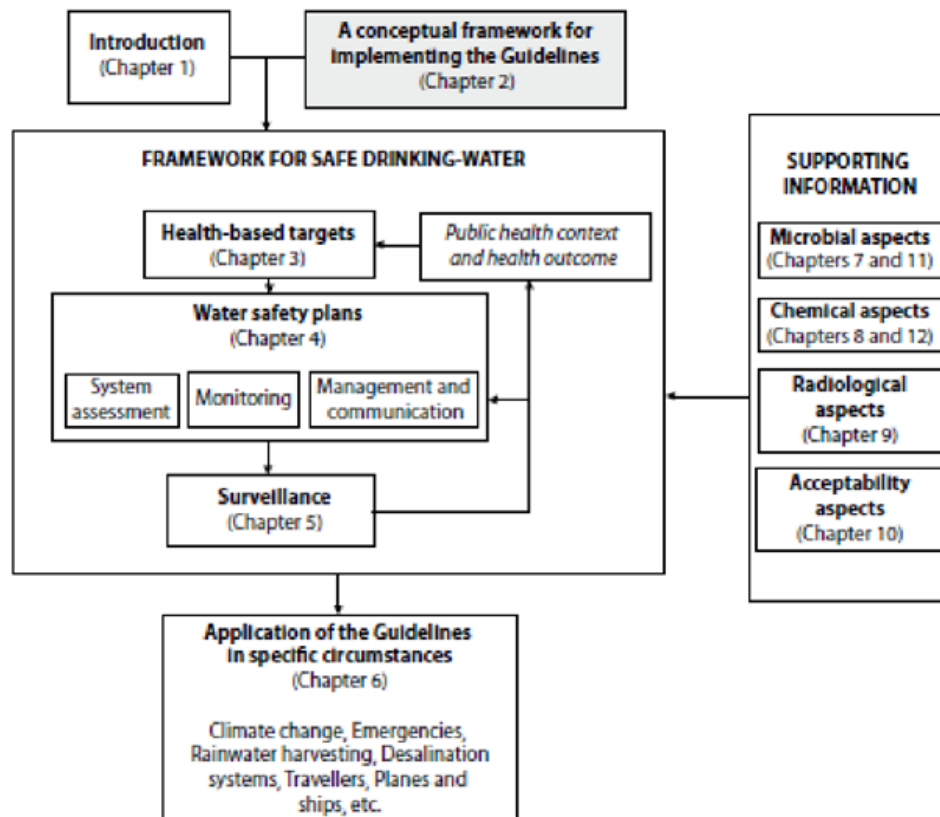
WHO produces international standards on water quality and human health in the form of these guidelines⁸ that are used as the basis for regulation and the definition of standards worldwide.

The Guidelines for Drinking-Water Quality (GDWQ) promote the protection of public health by supporting the development of locally relevant standards and regulations (health-based objectives), the adoption of management approaches to risk prevention that cover from basin to consumer (water safety plans) and independent monitoring that the water safety plans are implemented and effective and that the national standards are adhered to.

⁸ WHO, 2017. "Guidelines for drinking-water quality", <https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/water-safety-and-quality/drinking-water-quality-guidelines>

The guidelines have the aim of sustaining the development and implementation of risk management strategies that will guarantee the safety of drinking water via the control of dangerous constituents in the water. The guidelines describe the minimum requirements for safe practice to protect consumer health and indicate the numerical “guide values” for water constituents or water quality indicators.

The guidelines provide the nation authorities with a scientific starting point to develop drinking water regulations and standards that are appropriate to the national situation.



3. COOPI'S AREAS OF INTERVENTION IN THE WASH SECTOR

3.1. TRANSVERSAL ACTIONS

Before going into the detail of each WASH element, two actions are described that must be carried out in any WASH intervention. These are: 1) Needs assessment, which must be the first step, is essential in order to define the results and the activities; 2) monitoring, which must be carried out throughout the whole intervention, and the intermediate and/or final assessment.

Further resources are included in Annex 2 of these guidelines.

3.1.1. Wash needs assessment

In both emergency and development projects it is necessary to carry out/undertake/perform a WASH needs assessment. In general, the **aims/goals/objectives of a WASH needs assessment** are⁹ :

- a) Identify the available water sources and the soil condition in the area of affected area.
- b) Assess the soil conditions and the environmental factors that may influence decisions on the appropriate sanitation options.
- c) Assess the main hygiene practices in terms of water needs and hygiene habits.
- d) Identify the cultural habits of the population that may influence their sanitation preferences.
- e) Identify specific vulnerabilities, for example disabilities and people with specific illnesses/diseases to adapt the WASH services accordingly.
- f) Assess the national and local capacity to guide or support the response.



FIVE KEY STEPS TO NEED ASSESSMENT

- Identify resources and develop the assessment plan
- Collect data
- Analyze and interpret
- Report the results
- Design/Modify interventions

UNHCR WASH Manual (2017)

⁹ UNHCR, 2017. "UNHCR WASH Manual: Practical Guidance for Refugee Settings", <https://wash.unhcr.org/unhcr-wash-manual-for-refugee-settings/>

The time available and the emergency situation (or otherwise) will determine the duration of the assessment, the objectives and the methodology to be used. Depending on the nature of the humanitarian crisis, different organisations are responsible for coordinating the response, applying different frameworks for the initial rapid assessments.

- Needs Assessment for Refugee Emergencies¹⁰ (NARE) To rapidly assess the humanitarian crises in which the population is forcibly displaced across borders, the United Nations High Commissioner for Refugees (UNHCR) applies the NARE framework.
- The Multi-cluster/sector Initial Rapid Assessment¹¹ (MIRA). In crises which do not involve refugees, the MIRA inter-agency framework applies. The MIRA tool is the first step in the assessment and monitoring framework used within 72 hours of the crisis.
- Initial rapid WASH needs assessment¹². The initial rapid assessments can also be used in prolonged crises, if the emergency situation becomes unexpectedly intense or when areas that were previously inaccessible due to insecurity become accessible.
- Complete Wash needs assessment. This can be carried out at any point during the humanitarian emergency in order to monitor progress and to obtain information on the current impact of the WASH program, as well as on remaining gaps in the provision of WASH services. A complete WASH assessment report should extend to a maximum of 30 pages. With the aim of obtaining a more complete picture of the WASH situation, the global assessment should cover not only the aspects looked at during the Initial Rapid Assessment but also the following factors:
 - WASH management method: refers to who is responsible for managing the infrastructure, who pays and who does what, where, when and how in the management, operation and maintenance process of every component of the WASH system (water supply, waste/effluent management, solid waste management, hygiene and vector control).
 - Existing WASH legislation: it is important to be aware of the existing WASH legislation and to ensure this has been respected.
 - Institutional Capabilities: this refers to the capabilities of the water service and waste management suppliers (solid and liquid) and of the local authorities to perform their roles during a humanitarian crisis.

¹⁰ <https://emergency.unhcr.org/entry/50208/needs-assessment-for-refugee-emergencies-nare>

¹¹ <https://emergency.unhcr.org/entry/50179/multicluster-sector-initial-rapid-needs-assessment-mira>

¹² <https://emergency.unhcr.org/entry/38439/wash-needs-assessment#:~:text=An%20initial%20rapid%20WASH%20assessment%20should%20be%20carried%20out%20within,the%20need%20for%20external%20resources.>

3.1.2. Monitoring and evaluation

Regular monitoring of the WASH indicators is essential to understand if the WASH programs are on the right track to satisfy the basic requirements and the agreed objectives. The monitoring of the WASH indicators is essential for all actors to understand the progress that the WASH activities are making, including the beneficiaries themselves.

Monitoring should be put in place at the start of the action and continue until the end of the action or until a sustainable solution has been reached for the affected population. To ensure proper monitoring, SMART¹³ indicators should be included in the project design.

All the projects implemented by COOPI must adopt best practices and the monitoring and evaluation tools indicated in **the COOPI MEAL Guidelines** regardless of the technical sector of interest.

Every project is monitored on two levels:

- 1) **Process monitoring:** this is the daily monitoring of the action, to ensure a continuous update on the project progress.
- 2) **Result monitoring:** relates to the collection and analysis of the data on results and objectives to measure the short-medium term changes achieved by the project. It is normally at this level of monitoring that specific technical competencies are required relative to the implementation sector.

According to the UNHCR guidelines, the access indicators for WASH services must be monitored on a monthly basis. In the following paragraphs (from 3.2 to 3.6) several indicators are suggested for each sub sector of WASH intervention.

Monitoring should also be undertaken on security and accountability issues, particularly on the perceived safety, security and usability of the facilities. Particular attention should be paid to obtaining feedback from people belonging to marginalised or vulnerable groups¹⁴.

Data collection. On the following Global Wash Cluster website, it is possible to find some examples of the data collection formats (questionnaires, tests, forms, etc.) to be used in the sector:

¹³ Acronym "Specific, Measurable, Achievable, Relevant and Time-bound".

¹⁴ "Vulnerable groups are people who have often been shown to be most at risk of various problems in different emergencies, including women, children, the elderly, people suffering from severe social stigma, prisoners, young men at risk of detention, kidnapping or targets of violence, extremely poor people, refugees, internally displaced persons and migrants in an irregular situation, people with pre-existing and severe physical, neurological or mental disabilities or disorders, as well as people with chronic diseases ", IASC Guidelines on Mental Health and Psychosocial Support in Emergency Settings.

<https://washcluster.atlassian.net/wiki/spaces/CTK/pages/10790113/WASH+assessment+implementation>¹⁵

The most common forms of data collection for the WASH sector are:

- ✓ Quantitative questionnaires for families/individuals within the communities (to investigate different aspects, from access to water and infrastructures to hygiene practices);
- ✓ KAP (Knowledge, Attitude and Practices) survey);
- ✓ Questionnaires to assess the WASH infrastructure and practices within schools and healthcare facilities (usually completed via direct observations or interviews with key actors);
- ✓ Mapping of the WASH infrastructures (different methods can be utilised to carry out a mapping of this type depending on the context);
- ✓ Water quality testing.

To carry out a correct and reliable quantitative data collection (for example with a questionnaire) it is necessary to know and adopt recognised sampling methodologies, obviously chosen based on feasibility criteria relating to the context, logistics, resources and time. At the following [link](#) you can find several quick orientation guides on topics such as: sampling, survey methods, interview methods, data collection software.

KAP¹⁶ surveys. A KAP survey is one of several quantitative data collection methods that utilises standardised questionnaires with predefined questions and that provides access to quantitative and qualitative information on knowledge, attitudes and practices (KAP) of the people interviewed. The WASH actors should aim to carry out an initial basic KAP survey and then at least once a year thereafter (ideally twice if there are distinct wet and dry seasons). The results of the KAP survey should be used to help adjust the WASH activities, in particular the aspects of hygiene promotion.

WASH infrastructure mapping. A simple mapping of the WASH structures (for example water points, hygiene services, shower cubicles, solid waste collection points) can help to have a clear picture of the coverage and the conditions. This mapping can be carried out using Google Earth and colour coding the infrastructure conditions according to their state of repair and the need for intervention. In addition, the information collected through mapping can be cross referenced with the information from other sectors in the area to see if there is a correlation, for example the relationship that could exist between a lack of WASH services and the spread of disease. For a more precise and detailed mapping, it is suggested that a Geographic Information System (GIS) is used. There are many GIS on the market, it is

¹⁵ In particular, visit section 2. Develop Indicators and Questionnaires Key guidance & tools.

¹⁶ “Knowledge, Attitudes, and Practices”

recommended to find one that is best suited to the extent and detail of the work to be carried out and, if possible, using an open source GIS.

3.2. HYGIENE PROMOTION

Hygiene promotion is the term used to describe the activities that aim to encourage a change in behaviour with the ultimate goal of preventing water and sanitation related diseases (WEDC, 2014). Behaviours promoted through hygiene awareness activities help keep people and their environment clean and healthy. The main purpose of hygiene promotion is to encourage virtuous changes in people to reduce or eliminate high-risk unsanitary behaviours and to encourage the adoption of appropriate behaviours. This change should be voluntary and usually occurs only when a desire for change arises from the people themselves.

3.2.1. Key actions in the planning of hygiene promotion interventions

Hygiene Promotion

Independent of the methodology used for hygiene promotion, there are various actions that must be foreseen when planning and carrying out a hygiene promotion campaign:

- ✓ **Community mobilisation.** It is essential that the community is mobilised from start to finish of the hygiene promotion campaign, regardless of the methodology used. The objectives of the intervention and the communication channels to be used must be explained to the community taking into particular consideration the group most at risk or most involved in the promotion of good practices at home and family level such as women and children.



FIVE CRUCIAL MOMENTS TO WASH YOUR HANDS WITH SOAP

1. After defecation
2. After changing a baby's diaper/handling baby feces
3. Before preparing or cooking food
4. Before eating
5. Before feeding a baby

- ✓ **Training of facilitators.** For the action to be successful, facilitators or community workers trained in the methodology to be applied are needed. Facilitators can be community members who can be trained during campaign development.
- ✓ **Identification of the communication channels best suited to the context of the project.** For the campaign to be successful, it is necessary to identify the target group

(s) of the population at which the campaign is aimed and also the communication channels preferred by these groups (radio, television, social media).

- ✓ **Monitoring and evaluation.** It is necessary and important to monitor hygiene promotion activities to know what progress has been made and whether the objectives have been met. Monitoring should involve the population concerned, including all groups of people most exposed to the project topic (women, men, children, vulnerable people). Different tools can be used for monitoring and assessment, such as Focus Group Discussions (FGD), *transect walks*¹⁷, observations, discussions with the interested community. The timing and frequency of monitoring will depend on the context.

¹⁷ The transect walk is a systematic walk together with members of the local community along a defined path within the project area in order to know the conditions of water and sanitation in that area: through observation, listening and questions you can produce a diagram of the area. <https://sswm.info/humanitarian-crisis/urban-settings/planning-process-tools/exploring-tools/transect-walk>



BOX 1. METHODOLOGIES USED BY COOPI FOR HYGIENE PROMOTION¹⁸¹⁹²⁰

COOPI mainly uses three methodologies to promote hygiene: Participatory Hygiene and Sanitation Transformation (PHAST), Community Led Total Sanitation (CLTS) and a child-centred methodology, child-to-child approach (CtC).

The PHAST approach is a participatory learning methodology that seeks to empower communities to improve their own hygiene behaviours, to reduce diarrheal diseases and to encourage effective community management of water and sanitation services (WSSCC, 2009). The PHAST participatory methodology is divided into 7 phases, each of which has one or more associated activities and each activity a participatory tool. When developing a proposal with the PHAST methodology and implementing an intervention in this area, it is necessary to be able to count on experienced community operators trained in participatory techniques. If they are inexperienced they must be trained and this has an impact on the budget, the timing of the project and the results of the action. In addition, it must be considered that the implementation of the PHAST methodology takes time to ensure the necessary participation and community mobilization.

CLTS is an approach to rural hygiene that helps communities recognize the problem of defecation in the open air. The methodology focuses on realising a behavioural change in hygiene and health practices. Behaviour change is stimulated by facilitators outside the community, but it is decided and driven by the community, in a cooperative way. It begins by giving people the tools to make their own health and hygiene profile through the observation and analysis of their open defecation practices and the effects they have. Once the community understands the objectives and recognises that open defecation creates problems for its members, then Participatory Rural Appraisal (PRA) methods are adopted, with the aim of eventually becoming "open defecation free" (ODF).

The CtC approach facilitates children's understanding of healthy behaviours and allows them to identify health / development priorities in a fun, stimulating and interesting way. It has also been shown that they then reproduce these behaviours even at home, creating a virtuous circle of information and awareness (WaterAid, 2013). When applying this methodology at school level, where it has proven to be most successful, it is important not to forget that the real protagonists are the children and not the teachers,

¹⁸ To learn more about PHAST: <https://apps.who.int/iris/handle/10665/63812>

¹⁹ To learn more about CLTS: <https://www.communityledtotalsanitation.org/>

²⁰ To learn more about CtC: <https://www.communityledtotalsanitation.org/resource/child-child-approach-community-led-total-sanitation>

even if they can be trained themselves. Therefore, facilitators must have specialised skills in working with children through appropriate techniques and languages.

Identification, access and use of hygiene items

- ✓ **Sectoral coordination.** The intervention must take into account the coordination groups present at a local level, such as thematic groups, WASH clusters, community representatives or local authorities. Coordination with these actors helps ensure better planning, avoids duplication and identifies gaps in aid distribution. This coordination activity makes it possible to take into consideration the existing information collected by other actors in the sector, relating for example to specific needs or to the identification of the groups most at risk.
- ✓ **Identification and selection of beneficiaries.** In the process of identifying beneficiaries, the first step is to define the target categories of the population (e.g. categories with a particular status such as displaced persons, refugees or migrants). The second step is to define the vulnerability criteria (e.g. female-headed households, child-headed households, households that include pregnant or breastfeeding women). The third step is the selection of beneficiaries and their validation through community mobilisation or with community representatives.
- ✓ **Community information.** The communities that will receive the kits must be informed of the date and time of distribution, the method of distribution (door-to-door, collection, grouping, etc.), the type and quantity of items, the selection criteria, what the beneficiaries are expected to bring to the distribution (e.g. identification documents), the number and type of community volunteers needed. This information must be disseminated using communication channels appropriate to the context and to the specific needs of the target groups (radio, social media, flyers, word of mouth).
- ✓ **Composition of the kit.** The selection of hygiene items should be done via consultations with the beneficiaries concerned. If full consultation is not possible at the time of the emergency, communication channels must be established with the affected population to change the initial composition of the kits as needed or the thematic coordination groups or other organisations already present on site can be contacted. Standard hygiene kits serve as a guide and ensure minimum quality criteria, although the exact content will depend on specific circumstances (WASH Cluster, 2019). See attachment 5 for examples of kits distributed by COOPI.



WHAT CRITERIA MUST A HYGIENE KIT MEET?

- It must respond in an inclusive way to the needs of the beneficiaries according to their age, sex, specific needs;
- Must be assembled locally with content purchased from local suppliers (if possible) using readily available materials;
- Contents must be selected in consultation with local communities, taking into account any specific needs;
- Content must be tailored to meet the hygienic needs of affected populations, including culturally appropriate and context-specific articles;
- Distribution must be coordinated with other humanitarian organisations.

- ✓ **Distribution and frequency.** All distribution must ensure that beneficiaries can access them securely, with dignity and without harm or discrimination. This [document](#) provides guidance on how partners can integrate security into their deployments. In addition, the frequency of distribution should also be considered so that needs are covered over the entire time frame required.
- ✓ **Procurement and storage.** The availability and reliability of local capacity in the area should be assessed before resorting to external sources. Procurement procedures must be transparent to avoid suspicions of favouritism or corruption. Sufficient documentation and procurement forms (bills of lading, inventory books, reporting forms, etc.) must be available at all locations where goods are received, stored and shipped. When choosing a warehouse to store kits, the following factors must be considered: safety, capacity, ease of access, structural strength, and the absence of direct threats.

Menstrual hygiene management

All aspects mentioned in the distribution of hygiene kits should be applied to the distribution of menstrual hygiene kits. Additionally, the following points should be taken into consideration when planning menstrual hygiene promotion actions:

- ✓ **Consultations and participatory planning.** The strategies and materials used by girls and women vary according to the context and other elements such as beliefs, attitudes, perceptions. Consultation with girls, women and other menstruating people is essential to understand the range of materials that are available, that are currently used and that are preferred in a specific context, as well as the common practices that exist around their use (UNICEF, 2019).

Qualitative (group discussion, structured and semi-structured interviews) and quantitative (surveys, market evaluation, transect walks) methods can be used to obtain information on the materials to be included in the hygiene kit.



TIPS FOR EFFECTIVE CONSULTATION AND COLLECTION OF DATA ON MENSTRUAL HYGIENE

- Where appropriate, include teenage girls and women in the research and investigation team and provide them with training and support to conduct discussions with other teenage girls and women;
- Involving girls with disabilities in the community and their carers;
- Include men and boys, especially those involved in program implementation or the humanitarian response;
- Guarantee an ethical and confidential consultation process;
- Disseminate results widely to reduce duplication of effort.

Adapted from «Guide to menstrual hygiene materials», UNICEF (2019)

- ✓ **Development of local technical skills and abilities.** Menstrual health and hygiene is a new area of work for many organisations and their members, which means that staff may lack the knowledge and skills to design and implement successful menstrual health programs. In order for the health and menstrual hygiene programs to be effectively implemented, COOPI's field staff must receive specific training. [Training guides](#) and training [toolkits](#) are available for this purpose. United Nations agencies, in particular UNICEF, also offer specific training.
- ✓ **Awareness campaign.** It is also important to ask questions about formal and informal communication channels, people's communication preferences and which channels they feel confident about (UNHCR, 2017). The campaign must raise awareness that many girls regularly skip school because school does not meet their menstrual needs: access to menstrual materials, cycle-friendly facilities, access to information and a stigma-free environment. International campaign days such as Menstrual Hygiene Day (May 28) can be used to spread awareness messages. Furthermore, such awareness campaigns should touch on issues related to reproductive health and gender equality.

A list of resources related to hygiene promotion, identification, access and use of hygiene items and menstrual hygiene management has been included in Annex 2.

3.2.2. Useful indicators²¹

Hygiene promotion

- % of households that have the facilities at home for washing their hands with soap and water
- Number of people per hygiene promoter
- Number of people who report washing their hands with soap at key moments

Identification, access and use of hygiene items

- Number of people who have regular access to soap to meet hygienic needs
- Number of households with soap and water in a place to wash their hands

Menstrual hygiene management

- % of women of reproductive age reporting that the menstrual hygiene material was adequate (one kit per woman of reproductive age)
- % or # of institutional and public WASH facilities (e.g. schools, health centres) built taking into account Menstrual Hygiene Management (MHM)

3.3. WATER SUPPLY

Everyone has the right to safe drinking water. This is true in stability and crisis, in urban and rural contexts, and in every country in the world. When children do not have access to safe drinking water, it negatively impacts their health, nutrition, education and every other aspect of their life. Girls, women and people living with disabilities are particularly affected. However, today 2.2 billion people lack access to safe water and are forced to rely on potentially contaminated sources or to purchase water from unregulated vendors, putting their health and safety at risk (UNICEF, 2021).

Access to water is not guaranteed: water must be available, accessible and safe. This means it must come from a reliable source such as a well, tap, or hand pump; free from biological and chemical contamination; readily available for at least 12 hours a day; and located on the premises of a family or close at hand.

Millions of people depend on water sources that are at a high or moderate risk of faecal contamination due to a lack of poor sanitation or sewage systems. Even water that is safe at source (for example, from a water treatment plant or well) is at risk of being contaminated if it is not treated, transported, stored and handled safely.

²¹ Disaggregate data by gender and by specific vulnerable groups, such as people with disabilities.

3.3.1. Key actions in the planning of a water supply intervention

Access and quantity of water

The key actions to be included in interventions involving the rehabilitation/construction of water infrastructures are detailed below. These actions are not chronologically ordered as the order of execution of the actions will depend on the context, the progress of the project and the data available.

- ✓ **Needs assessment.** See section 3.1.1. of these guidelines.
- ✓ **Definition of the type of intervention.** Based on the results of the needs assessment, the type of intervention to be implemented will be defined. This phase is essential because it is where the heart of the water supply intervention is defined and will have a major impact on the project budget.

Furthermore, it is necessary to reflect on COOPI's technical capabilities to carry out the water works. In many countries, COOPI is unable to carry out construction works and subcontracts the construction of the works to engineering or construction companies. In this case COOPI plays the role of supervisor of the works.

Below is a brief explanation of the key issues to consider when defining activities. A 'roadmap' detailing the essential steps to implement this type of action is included in Annex 3.



THE IMPORTANCE OF TECHNICAL PERSONNEL

It is important to make sure that the technical design, the methods of implementation and the tools to be used are clear, because the companies to which the work is subcontracted are not always able to carry out work that meets the needs and expectations of donors.

Furthermore, **COOPI must be adequately equipped with technical personnel capable of understanding the work to be done and assessing the result.** In this way the supervision of the works will be done properly, the construction company will have clear indications on how to proceed, and major problems will be avoided in the construction phase. Materials to be used and technical drawings must be evaluated and approved by competent personnel before the start of the work, in order to avoid problems later.

- **Choice of the most suitable water sources for the purpose of the intervention.** Of the sources identified during the needs assessment, it is necessary to select those that are

most relevant. The following factors should be considered when choosing the source (or sources) of water²²:

- availability, safety, proximity and sustainability of a sufficient quantity of water. Regarding availability, it is important to underline that availability must be assessed at the most critical moment of the year, which for example in the case of a spring could be at the end of the dry season;
 - necessity and feasibility of water treatment, both wholesale and domestic;
 - social, political or legal factors that influence source control, especially during conflicts;
 - ownership, customs, superstitions regarding the sources, history of the source.
- Verification of the water quality of the identified source(s). If there are national standards for water quality (physical, chemical and bacteriological conditions), these standards should be used. If they do not exist, [WHO water quality standards are normally used](#).
- Estimation of the life span. This is the expected lifespan of a system before it needs major repairs, replacements, or upgrades. A number of factors must be taken into consideration when estimating the life span:
- Development stability. All design is based on making assumptions about the future. Predicting future needs in areas subject to rapid population changes (such as refugee camps) is very difficult. In these areas, short-term projects may be more appropriate. This period can be a few months in the case of a refugee camp.
 - Materials and equipment. The useful life of a water system should be less than or equal to the useful life of the materials used. Most projects include a variety of materials and equipment, so some parts of the project will have a shorter or longer life than others. A pump will be unlikely to last as long as the water system, and will need to be replaced multiple times, but the rest of the infrastructure (tanks, water points, pipes, etc.) should last for the life of the water system.
 - Water distribution networks can be of two types: ring (closed) or grid system (open). Both types have advantages and disadvantages that must be considered when designing the network. Ring water distribution networks are easier to adapt than branched networks but are complicated to design and require complex hydraulic controls. Open or branched networks are more common because they are easier to design and operate, but instead have the drawback that in the event of failure or breakage of any of the pipes that compose it, all the users served by the pipes downstream of the break will have to be left without service. Planning the

²² Sphere Association, 2018, "The Sphere Handbook. Humanitarian Charter and Minimum Standards in Humanitarian Response".

construction of additional storage tanks during the life of the project can also be an appropriate way to allow a distribution system to cope with increased demand. If your budget allows, you need to correctly size your system right from the start.

- Where communities are responsible for building, operating, or maintaining the water system, they may need training and support to perform tasks properly. A common practice is for the community to select a group of people with technical skills to participate in the construction of the water system, in order to receive on-the-job training.
- Budget constraints are often the deciding factor in determining the duration of a project.

This [publication](#) can help you choose the most suitable technology.

- Estimate of population and demand. An important decision to make regarding the supply network is the design period, i.e. how long the system will be in service. This decision is important because it will determine how many people will be served. Networks must be designed with the population in mind at the end of the design period, which is typically 15-20 years. Making forecasts beyond 15-20 years triggers uncertainty and increases the initial investment. There are several formulas for estimating the future population: arithmetic, geometric or potential. In addition, the basic demand must be established, which is the amount of water that will be consumed by the population and includes all uses: cooking, washing, drinking, working.
- Identification of the hydraulic characteristics and optimal performance of the water resources to be extended/rehabilitated. Depending on the type of resource, pumping and recovery tests (in the case of groundwater, extracted from wells by means of pumping systems) and flow measurements will be required (in the case of springs). It is essential to know whether the measured performance is sufficient to meet user needs.



IMPORTANCE OF TECHNICAL DRAWINGS

For the preparation of the proposal it is normal to make some technical drawings to support the preliminary hydraulic calculations, even if these drawings are not normally included in the proposal presented to the donor.

On the other hand, technical drawings are essential when construction work has to be carried out. It is necessary to have detailed plans of all the elements that make up the supply network (pipes, fittings, water tanks, water points, connections) and also the plans of the pipeline diagram and the location of the singular points (valves, elbows, tee). Important! A full set of plans must be left with the community (water committee or local authority), which will certainly need it.

- Calculation of pipeline sizing, sizing of tanks and water points. For the preparation phase of the proposal it is sufficient to make some basic hydraulic calculations to estimate the cost of the work (pipes, materials, infrastructure to be built, necessary machinery, earth movements, field studies). Of course, when implementing the project, it is necessary to carry out precise hydraulic calculations. If COOPI does not have the technical staff to make these calculations, it will be necessary to subcontract the calculations to a consultant, an engineering company or even the construction company that will carry out the work.
- Topographic measurement. The objective of a topographic survey is to determine the geographical position (latitude and longitude) and the difference in heights of all the points that make up a water distribution system. Before embarking on an activity that requires detailed topographical knowledge, a topographical survey should be carried out using a clinometer and/or spirit level (to accurately assess height differences along a given path), a tape measure (to calculate precise distances between points along a given path) and a GPS (to acquire the horizontal coordinates - latitude and longitude - of each point along a given path). This will allow accurate determination of the topographical characteristics of the route chosen for the transmission and distribution pipelines. During the survey, streams, rivers, obstacles, valley bottoms (even small ones), ridges (even small ones) and other significant topographical variations should be highlighted in the survey report.
- Civil works. Civil works must be carried out on the basis of precise technical drawings for the infrastructures to be built, which clearly indicate the type and quality of the materials. If this data is not known or is left to the construction companies, it could lead to major problems. When designing water infrastructure, we must also remember to design drainage systems so that wastewater does not become a health hazard or breeding ground for transmission vectors (Sphere, 2018).



A digital elevation model (such as the one you can get with Google Earth) can be used for preliminary studies in order to gain general ideas about the topography of a given site. This allows for the development of projects and rough estimation of the quantities of materials and work (e.g. for use in drafting project proposals).

However, to build a supply network it is necessary to do a topographic survey, preferably using a topographic layer. A digital terrain model is not enough!

- ✓ **Verification of financial and economic sustainability**²³. If the plumbing aspects are important for the service to exist, the economic aspects are crucial for the network to be a key service that improves the social and economic development of a community. According to Sphere's minimum standards, water costs should not be more than 3-5% of household income. During the needs assessment it is important to try to find out what % of household income is spent on water supply. In fact, the final result of the economic and financial sustainability analysis is to study the costs that water would have for each of the alternatives contemplated. The objectives of the financial sustainability analysis are:
 - Determine which of the possible alternatives achieves the desired result with the lowest resource cost.
 - Verify that the operating cost of the alternative falls within what users would be willing to pay and is therefore sustainable once the system is handed over to the communities.
- ✓ **Management, operation and maintenance**. System management and maintenance are essential to ensure the sustainability of the infrastructure and its operation throughout the lifespan for which it was designed. There are different management models and the choice of the most convenient one will depend on many factors (institutional, social, economic). Each model has advantages and disadvantages that should be taken into consideration when choosing the most appropriate model for each context. In any case, it is important to involve the beneficiaries in the decision-making process. In many cases, local authorities are responsible for the operation and maintenance of drinking water supply networks. However, the technical and material capabilities of local authorities are often limited and cost recovery is low. Another option for the management, operation and maintenance of water infrastructure

²³ Arnalich, S. 2008, "Abastecimiento de Agua por Gravedad Concepción, diseño y dimensionado para proyectos de Cooperación".

is the creation or strengthening of WASH committees (WASHCo). This type of community management has many advantages, but also disadvantages, as it is difficult to apply on a large scale and has difficulty in ensuring sustainable services for all. The network can be managed by a private company: companies tend to focus on economic efficiency and service delivery, but tend to ignore the particular social, cultural and political dimensions of the water sector. Finally, it is possible to opt for a hybrid management model that combines community management and private management, trying to exploit the benefits of each model.

- ✓ **Schematic test.** Once the water system has been completed in all its parts, it is recommended that a test be carried out before handing it over to local actors. All elements of the system must be tested: electromechanical equipment (pumps, generators, solar energy systems, etc.), pipes, water tank, valves and fittings, pressure at the water points (which should guarantee a minimum standard pressure when all taps of the system are open at the same time).
- ✓ **Delivery of the water system.** At the end of all the above steps, the water system will be delivered to the relevant WASHCo and to the local authorities.
- ✓ **Monitoring and evaluation.** See section 3.1.2. of these guidelines.



ADVICE ON COMMUNITY PARTICIPATION IN THE MANAGEMENT AND MAINTENANCE OF THE SYSTEM

- Participatory working methods are of fundamental importance: not simply participatory contributions of work and money, but a continuous process of shared decision between COOPI and the main stakeholders in all phases of the project cycle;
- It is important to involve community members in relation to aspects of service design, for example through the choice and location of the service;
- In the case of community management of the system (for example through a WASH committee) it is necessary to train its members: capacity building requires time, as well as financial and human resources;
- Incorporate the issue of the transfer of responsibility from the start of the project, clearly recognizing that it is a process and not an event;
- Wherever possible, make the change cost-effective for those involved in the operation and management, i.e. create paid jobs in the operation and management of services and reduce or eliminate dependence on voluntary work;
- Where possible, use technology that is easy to maintain and repair, with a reliable supply of spare parts and technical support available locally.

Adapted from «Water for Low-income Communities», WEDC 2019

Water quality²⁴

Even if the water is clear, it doesn't necessarily mean it's safe. It is important to evaluate the safety of water by considering the following three qualities:

- Microbiological - bacteria, viruses, protozoa and worms.
- Chemical - minerals, metals and chemicals (natural and artificial).
- Physical - temperature, colour, smell, taste and turbidity.

Safe drinking water should have the following microbiological, chemical and physical qualities:

- Free of pathogens
- Concentrations of chemicals must be below WHO (or country) limits

²⁴Adapted from WHO, 2017, "Guidelines for drinking-water quality"

- Clear
- Tasteless and colourless (for aesthetic purposes)

When considering the quality of drinking water, microbiological contamination is the primary concern, as it is responsible for most of the diseases and deaths associated with unsafe water consumption.

✓ **Test to measure water quality**

- Portable test kits. Analyses for many physical, chemical and microbiological contaminants can be performed in a field laboratory using specially designed, portable and relatively easy to use products. A significant advantage of field analysis is that tests are performed on freshly collected samples whose characteristics have not been contaminated or otherwise changed due to storage and transport over long distances.
- Laboratory test. Water quality tests can also be performed in the laboratory. This method requires facilities, trained technicians, equipment, and other support materials. Laboratory tests can be useful if the number of samples is limited and if the project is located near an urban area where there is a laboratory.

✓ **Operation and maintenance.** Trained individuals can perform qualitative observations and tests with the help of portable toolkits. Laboratory work (mobile or fixed) must be carried out by experts. The equipment must be cleaned and maintained after being used. The instructions of the manufacturers must be taken into consideration. There are standard sample collection methods that ensure that the monitoring result is replicable and repeatable.

✓ **Applicability.** The techniques described can be applied anywhere in the world. The technique used depends on the location, needs and duration of the water analysis program. It is important that programs are carefully planned and executed seriously to avoid breakdowns.

A template for water quality monitoring is included in Annex 4.

3.3.2. Useful indicators

Access and quantity of water

- X% of the population uses safe water for drinking
- % of households with at least XX litres of safe water for drinking, cooking and personal hygiene per person per day
- % of the water management committees are capable of ensuring the repair of the water source
- number or % of target households using basic drinking water services
- % of users who consider basic WASH services functional in target structures

- average time required to reach the water source, collect the water (including queues) and take it home
- % of households who store their drinking water safely in clean containers
- % of girls and women who report feeling safe when accessing water

Water quality

- % of households whose drinking water contains 0 faecal coliforms per 100 ml of sample
- % of targeted water points with 0 faecal coliforms per 100 ml of sample
- % of [select: targeted water points / household water samples] with free residual chlorine between 0.2 and 0.5 mg / l

3.4. EXCRETA MANAGEMENT

The safe disposal of human faeces constitutes the first impediment to the generation of diseases, helping to reduce their transmission through direct or indirect channels. Safe disposal is therefore a key priority and in most disaster situations it should be addressed with the same timeliness and effort as the water supply system. The provision of adequate services constitutes one of several fundamental humanitarian responses to human dignity, safety, health and well-being.

3.4.1. Key actions in the planning of excreta management

- ✓ **WASH needs assessment.** See section 3.1.1. of these guidelines.
- ✓ **Definition of the type of intervention.** Based on the results of the needs assessment, the type of intervention to be implemented will be defined. The primary aim/goal/objective of any sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. Furthermore, a sanitation system must be economically sustainable, socially acceptable and technically and institutionally appropriate, and must also protect the environment and natural resource.
 - Analysis of socio-cultural and institutional aspects. A sanitation system will last and can only be sustainable if it is appropriate and accepted by the community. This concerns the whole sanitation system, that is to say not only the toilets/latrines, but also the maintenance, functioning, recharging and reuse of the system adopted. As regards the institutional aspects, it must comply with the legal framework and must allow for a stable and efficient institutional environment.
 - Selection of the most suitable technology. A sustainable sanitation system uses technology and an operating mode which is well adapted to local circumstances. This includes the functionality of the system and the ease with which the entire system, including collection, transportation, treatment and reuse and/or final

disposal, can be built, managed and monitored by the local community and/or local public service technical teams. In addition, the robustness of the system, its vulnerability to power outages, water shortages, floods, etc. and the flexibility and adaptability of its technical elements to the existing infrastructure and to demographic and socio-economic evolution are important aspects that need to be assessed. This [compendium of sanitation technologies](#) can be helpful in making the selection of the most suitable technology.

- Financial and economic issues. The cost of a sanitation system must meet the financial means of households, communities or institutions and include not only the construction costs, but also the costs deriving from the operation, maintenance and reinvestment required by the system.
- Environment and natural resources. To be sustainable, the sanitation system must protect and respect the environment and natural resources. Whenever possible, the resources contained in faeces and sewage should be recycled. The system must use little energy, water or other resources (for example, for construction, operation and maintenance).
- Health and hygiene. The sanitation system must place an effective barrier between the user and the environment and must avoid exposure that could affect public health at all points of the health system: from the toilet, through the collection and treatment system, to the point of reuse or disposal.

3.4.2. Useful indicators

- Number or % of people with access to dignified, safe, clean and functional faecal disposal facilities
- % of households that use basic hygiene services
- % of households that keep their toilets clean
- % of target institutes that have improved accessible sanitation facilities
- Number or % of target schools with separate improved accessible sanitation facilities for boys and girls
- % of caregivers who safely dispose of their children's faeces
- Number of people per toilet
- % of WASH promoters who passed the theoretical and practical test

3.5. SOLID WASTE MANAGEMENT

Solid waste management is considered to be one of the most serious environmental issues facing urban areas in developing countries (UN-Habitat, 2011). Waste management is a basic human need and can also be considered a "basic human right". The provision of adequate

sanitation and solid waste management go hand in hand with the provision of drinking water, housing, food, energy, transportation and communications as essential to society and the economy as a whole²⁵.

3.5.1. Key action in the planning of a solid waste management intervention

- ✓ **Needs assessment.** It is clear that it is necessary to assess the situation and context of solid waste management, before developing the proposal or as a first activity, as a background study. COOPI uses the Life Cycle Assessment (LCA) methodology to evaluate the environmental performance of products or services during their life cycle, for example in the specific case of construction waste. In any case, there are different evaluation methods depending on the aspect or aspects to be evaluated: economic, social, institutional, technical, organisational²⁶. The needs assessment serves not only to identify needs but also to identify, inventory and evaluate resources by looking at existing infrastructure, nearby facilities and other public and private resources. The assessment should also be used to obtain information on the type and volume of waste, to obtain demographic data (present and future population, companies or businesses in the area) and to assess the costs of equipment and labour. One of the objectives of the needs assessment is the analysis of the waste generated (volume, type of waste, where it is produced, who generates it), since it will affect the type of intervention to be carried out.
- ✓ **Involvement of stakeholders²⁷.** To create a coherent solid waste management plan and maintain long-term support for its operation, stakeholders need to be involved in the whole process. This involves waste generators, waste managers, the informal sector, the private sector and all other individuals and organisations that have an impact on solid waste management. Effective stakeholder participation makes it possible to exploit the different perspectives of solid waste management to improve the quality of the decision-making process. It also allows communities to better understand the dynamics of local government and strengthens transparency and trust in it.
- ✓ **Preparation of the solid waste management plan.** When carrying out a solid waste management project there should always be a planning phase together with the parties

²⁵ UNEP, 2015, "Global Waste Management Outlook", <https://www.unep.org/resources/report/global-waste-management-outlook>

²⁶To learn more: Zurbrügg, C., 2013. "Assessment methods for waste management decision-support in developing countries"
https://www.eawag.ch/fileadmin/Domain1/Abteilungen/sandec/publikationen/SWM/Assessment_Approaches/thesis_cz.pdf

²⁷Text adapted from "Best Practices for Solid Waste Management: A Guide for Decision-Makers in Developing Countries", United States Environmental Protection Agency (EPA), October 2020.

involved. Solid waste management planning is particularly important due to the large number of actors involved in the process. Furthermore, having a Solid Waste Management Plan increases the likelihood that waste management will continue even if there are political changes. Planning should be done on the basis of the data obtained in the needs assessment and after the involvement of the stakeholders with the collaboration of the actors.

- Set goals and objectives
 - Assess solid waste management options
 - Define recommended solid waste management options
 - Develop an implementation strategy
 - Secure funding for the implementation of the solid waste management system
 - Establish a monitoring and evaluation system
- ✓ **Signing of collaboration agreements with research institutes and universities.** Establishing agreements with research centres and universities is always a good practice. In the case of solid waste management, the role of these institutions can be different: i) fill specific technical gaps; ii) provide technical training to the actors involved; iii) collaborate in awareness campaigns.
- ✓ **Raising awareness among stakeholders on solid waste management.** Raising awareness about the problems of the uncontrolled dumping of solid waste in the community should be an essential part of any intervention. In order to implement a suitable campaign, it is necessary to establish the objectives of the campaign, to know the target population (families, traders, farmers, breeders) and to define the key messages to be conveyed. It will also be necessary to know the most appropriate channels for the transmission of key messages. This [UN-Habitat guide](#) can help you design a waste management awareness campaign.

3.5.2. Useful indicators

- % of households who dispose of their solid waste safely
- Number of people who live in settlements with a functioning solid waste management system
- % of urban solid waste that is regularly collected and transported to the new waste treatment plants
- % of the total number of households and commercial institutions in the intervention area that separates waste at source

3.6. WASH IN DISEASE OUTBREAKS AND IN HEALTHCARE SETTINGS

To provide quality care, health facilities must have a safe and accessible water supply; clean and safe health facilities; hand hygiene facilities in care points and toilets; and appropriate waste disposal systems²⁸. However, the WHO / UNICEF JMP report, "WASH in Health Care Facilities" (2019), finds that 1 in 8 healthcare facilities have no water supply service and 1 in 5 have no sanitation system - impacting nearly 900 million and more than 1.5 billion people respectively.

3.6.1. Key actions in the planning of a WASH intervention in health care settings

- ✓ **Analysis of the existing situation.** Situation analysis is needed to examine the WASH environment in healthcare facilities, especially health and WASH policies, governance structures and other institutional arrangements, funding streams and stakeholders. In addition, the assessment should provide figures on the coverage of the WASH service and compliance with the minimum WASH standards (national if they exist, otherwise Sphere is recommended).
- ✓ **Considerations on the selection and installation of infrastructures.** The selection and installation of infrastructure in healthcare facilities should begin with a global discussion among stakeholders, with the following considerations: environmental and climatic (mitigation of the negative impact on the environment and users and resilience to climate shocks); safety (for users, operators and managers and the surrounding community); cultural (acceptability by users of a given technology); economic (funds required for capital costs and regular operation and maintenance); technological (energy requirements, local technical knowledge and availability of engineers and supply chains); workforce and training (personnel to install, operate and maintain); and legislation (accreditation or licensing processes). Continuous operation and maintenance of WASH infrastructure, particularly in rural areas, usually requires resources (e.g. for electricity), supply chains and trained personnel. Processes and tools such as WASH FIT help staff identify and prioritise risks and develop improvement plans for WASH, particularly when resources are limited.
- ✓ **Coordination with stakeholders and compliance with national minimum standards.** National standards and policies for WASH in healthcare facilities are needed to implement, monitor and regulate healthcare services. The standards dictate a set of requirements on the infrastructure and resources needed to deliver sustainable WASH services within healthcare facilities. These requirements will vary based on the type of assistance provided and the size of the facility.

²⁸ CDC, "Water, Sanitation, and Hygiene (WASH) in Healthcare Facilities", <https://www.cdc.gov/healthywater/global/healthcare-facilities/overview.html>

- ✓ **Capability building of health care personnel.** Investing in a well-trained and supported healthcare workforce enables healthcare systems to function well and respond adequately to challenges.
- ✓ **Community Involvement.** Community members and community organisations play an important role in ensuring that healthcare facilities provide the level of care citizens deserve and expect. In some countries, rural healthcare centres are managed directly by the community, giving local leaders and community members the power in decision making and management of WASH services and hygiene practices. Since patients may be uncomfortable discussing conditions in local healthcare facilities, it may be helpful to explore anonymous or more discreet ways of providing information, using approaches that do not exclude low-literate populations.



BOX 2. COOPI IMPLEMENTS THE WASH FIT²⁹ METHODOLOGY IN ECUADOR

In Ecuador, COOPI successfully implemented the UNICEF funded project "Covid-19, Strengthening the health and population of Muisne and Pedernales in terms of water, hygiene and sanitation", applying the WASH FIT methodology (Water and Sanitation for Health Facility Improvement Tool). The WASH FIT methodology was developed by UNICEF and WHO to evaluate water and sanitation services in healthcare facilities, apply necessary improvements and support the quality of water and sanitation infrastructure and services.

WASH FIT covers four broad areas: water, sanitation (including medical waste management), hygiene (hand hygiene and environmental cleanliness) and management. The guide is an adaptation of the water safety plan approach, which is recommended in the WHO guidelines on drinking water quality as the most effective way to ensure a continuous supply of safe drinking water. However, WASH FIT goes beyond water quality and analyses sanitation, hygiene, medical waste and other aspects of environmental health, healthcare facility management, and staff training. It is based on hygienic safety planning and the WHO infection prevention and control recommendations.

In this case COOPI acted as a facilitator of the WASH FIT approach since it was the managers and staff of the healthcare facilities who led the changes. Using the WASH FIT methodology, COOPI together with the operators of the 7 health centres made a diagnosis of the situation of the four WASH areas of these healthcare centres. Since the diagnosis, improvement plans have been developed and implemented for the 7 healthcare centres in the four WASH areas. The implementation of the improvement plans was also monitored. Finally, the application of the WASH FIT methodology made it possible to strengthen the infection prevention and control capabilities of community healthcare workers and staff of the 7 healthcare centres.

²⁹ To find out more/for further information: <https://www.who.int/publications/i/item/9789241511698>

WASH in disease outbreaks

During any epidemic, the Sphere manual³⁰ recommends that you always follow up-to-date technical guidance, as emerging diseases will have different risks and impacts. Infection prevention and control (IPC) guidelines for specific diseases should be followed as a matter of priority.

Community **involvement** remains a key component of the epidemic response to prevent the spread of the disease. The perceptions and beliefs that exist in the community can support or hinder a response, so it is important to understand and address them. Some social norms may need to be changed to prevent transmission of the disease. It is essential to promote specific measures for the prevention and treatment of diseases in the affected community, such as the use of a face mask and physical distancing spacing to stop the transmission of Covid-19.

As Sphere recommends, it is not always possible to intervene on all components of WASH. It is necessary to focus on the immediate risk to public health and build trust and accountability with communities. To respond to a pandemic, the World Bank proposes a series of actions in the preparation and concrete response to the emergency to ensure the prevention and control of infections in healthcare centres and communities³¹:

- The **provision of clean drinking water and sanitation and the management of medical waste** in healthcare facilities are essential to provide quality healthcare services, protect patients, healthcare professionals and staff, and prevent further transmission. During an infectious disease epidemic, services must meet minimum quality standards and be separate for infected and uninfected patients. Support must be provided to ensure that services are not interrupted and that products such as alcohol-based soap and hand sanitizers are available. Temporary healthcare centres and quarantine sites should also provide these services.
- **Promote hand washing, food hygiene and safe water practices.** Hand washing and hygiene materials may include providing fixed and portable handwashing facilities, purchasing alcohol-based soap and hand sanitisers, providing water for handwashing and

³⁰The Sphere Handbook, <https://spherestandards.org/wp-content/uploads/Sphere-Handbook-2018-EN.pdf>

³¹The World Bank 2020, WASH (Water, Sanitation & Hygiene) and COVID-19
<https://www.worldbank.org/en/topic/water/brief/wash-water-sanitation-hygiene-and-covid-19>

water treatment at the point of use. Proven behaviour changing techniques can help increase the frequency and improve the practice of critical hygiene behaviours.

- The **rapid, low-cost provision of water services for communities, healthcare centres and schools** that currently lack access to a reliable and safe water supply is essential to enable handwashing, hygiene and disinfection. It is important to provide quick and timely access points for community water/water kiosks (which may include the supply of soap) in unserved urban and rural areas and for unserved healthcare centres and schools. This would include:
 - i) supply and operation of compact water treatment plants;
 - ii) construction and management of water points to supply water to strategic urban or rural points;
 - iii) supply and operation of water delivery trucks (bottled, bagged) and tankers, including adequate water storage for service operators.



BOX 3. COOPI'S RESPONSE TO THE COVID-19 PANDEMIC

On 11 March 2020, the World Health Organization declared the Covid-19 global pandemic. From the beginning COOPI, through its offices in almost 30 countries of intervention, has been at the forefront of the response.

In Peru, COOPI has implemented two UNICEF-funded projects to distribute family hygiene kits. With the aim of strengthening the prevention capacity of COVID-19, COOPI distributed 6,885 hygiene kits which benefited 27,545 people in almost 100 indigenous communities in the provinces of Loreto. The distribution was accompanied by an awareness campaign through key messages on good hygiene practices and protection from COVID 19.

In Malawi, COOPI is the leader of a consortium formed by 4 other INGOs to support the launch of the national vaccination campaign against COVID-19 in the central and northern areas of the country. COOPI's intervention will lead to greater effectiveness and efficiency of the national plan to launch the vaccine against Covid-19. To this end, the intervention aims to i) strengthen the capacities of national and sub-national health authorities and health professionals; ii) Increase current COVID-19 vaccine awareness efforts at the national, district and community levels, increasing community awareness of the campaign and building trust and understanding of the importance of vaccination; iii) provide technical support to district health offices to improve the planning and implementation of vaccination against COVID-19; and iv) ensure timely and quality monitoring to prevent possible collateral damage from campaigns. The project will benefit more than 1 million people in the intervention districts.

3.6.2. Useful indicators

Availability of water

- quantity of water sufficient for the different uses
- location and number of water points
- ratio between water points and patients or beds

Availability of toilets

- location and number of toilets
- ratio between toilets and patients or beds

Accessibility to toilets: distance of the toilets from the consultation areas

Availability of handwashing/hygiene services:

- location and number of handwashing/hygiene stations
- ratio between handwashing/hygiene stations and patients or beds

Availability of waste management

- location and number of waste bins and receptacles
- ratio between waste bins and patients or beds

Accessibility of waste: bins out of the reach of children

Waste quality: fenced waste storage area

4. THE INTEGRATION OF WASH MEASURES IN OTHER SECTORS OF INTERVENTION

4.1. WASH AND PROTECTION

WASH actors are responsible for ensuring that beneficiaries access services safely, without causing further harm (according to the humanitarian principle "do no harm"³²) or placing them in a position of vulnerability. They also need to promote meaningful access to services for all,

³²This humanitarian principle states that those involved in the humanitarian response are required to do everything possible to avoid exposing people affected by disasters or armed conflict to further damage, for example by building a water infrastructure in an unsafe or unhealthy area.

and the responsibility and participation of beneficiaries in the provision of WASH care. By integrating protection into WASH programming, humanitarian actors can maximise the positive impact of WASH programs on people's safety and dignity and support affected populations in accessing and enjoying their rights (UNHCR, 2019).

4.1.1. COOPI's approach

COOPI adopts two main approaches for its interventions in the protection sector. Firstly, it implements protection-focused programs with specific response activities (to prevent or stop rights violations); remedial activities (to ensure a response to damage and a violation suffered); transformative activities (to promote respect for rights and the rule of law). Secondly, COOPI integrates protection activities in emergency and development contexts to ensure the sustainable and participatory effectiveness of its programs.

COOPI pays particular attention to integrating protection into all its interventions by promoting an actual exercise of human rights, the safety of each person and the dignity of the person. For COOPI, mainstreaming protection in its interventions ensures a greater and longer-lasting impact. Through the systematic mainstreaming of protection principles, COOPI ensures that its activities are aimed at the most vulnerable populations, improving their security and dignity, and promoting and protecting their human rights. COOPI also makes sure its interventions do not contribute or perpetuate discrimination, abuses, violence, abandonment and/or exploitation.



4.1.2. Key action

In COOPI's protection procedures, the guidelines on protection mainstreaming and the guidelines on gender mainstreaming, there are sections dedicated to the integration of WASH actions in protection programs. These documents can be found on coopi.net.

Annex 2 includes a list of all COOPI documents on protection and additional resources to integrate protection into WASH interventions.

4.2. WASH AND FOOD SECURITY

It is clear that food security challenges cannot be solved until safe water, sanitation and hygiene (WASH) are available in the world's poorest communities. WASH interventions address three pillars of food security:

- Access to food. Many households spend part of their budget or available time on water. Accessibility to clean water and sanitation therefore facilitates access to food;
- Availability of food. Water services are used for domestic purposes (drinking, cooking, cleaning), for food production (crops, horticulture, poultry and livestock) and in income-generating activities;
- Use of food. Changing behaviours related to feeding and caring for children, and having access to and properly using safe water, hygiene and sanitation is essential to ensure good nutrition.

4.2.1. COOPI's approach to the food security sector

Whether it is for emergency or development interventions, COOPI recognises and takes into account the multidimensionality of the factors that act on the state of food security of individuals, communities and populations. This is concretely reflected in their interventions which, including various aspects, adopt an **'integrated' approach to the issue of food security**. COOPI considers access to water in adequate quantity and quality as an essential factor for the development of the communities with which it cooperates, recognizing the strong link between the management of this resource and food security.

COOPI therefore supports a strategic approach to water resources, in order to guarantee fair, efficient and sustainable management. As well as for the performance of production activities, water is also essential to ensure the use of resources which is essential to guarantee food security as much as their availability. The correct preparation of food also depends on an adequate availability of water, not only from a quantitative point of view, but also from a qualitative point of view.

4.2.2. Key actions to integrate the WASH in food security projects

In COOPI's standard operating procedures on Food Security there is a section dedicated to the integration of WASH actions in nutrition programs. Annex 2 includes a list of all COOPI documents on food security and additional resources to integrate food security into WASH interventions.

4.3. WASH AND NUTRITION

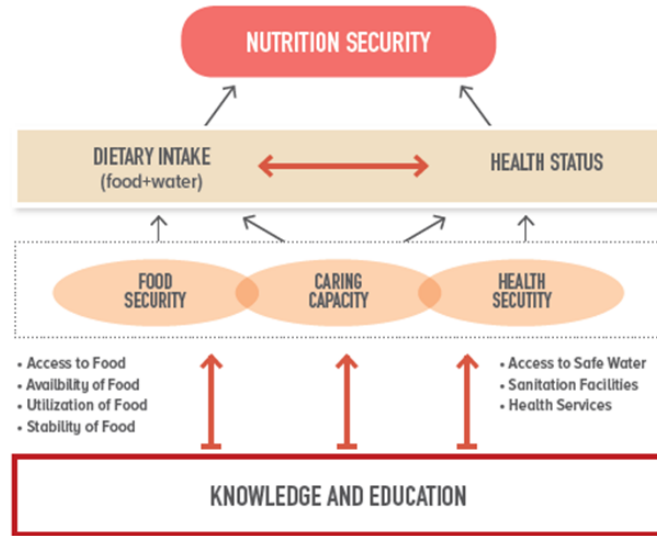
The relationship between WASH interventions in reducing some causes of malnutrition has been demonstrated in several studies conducted in recent years³³. The most common causes of malnutrition are poor hygiene and lack of access to clean drinking water. This causal relationship can manifest itself directly, with immediate consequences on people's health and normal growth, or indirectly, creating a long-term risk for people's nutritional status. The process works both ways: poor nutritional status reduces immunity and weakens the body's natural defences (skin and intestinal membranes), creating a predisposition to infections (such as diarrhoea) and reducing intestinal absorption (ACF, 2014).

4.3.1. COOPI's approach to the nutrition sector

For COOPI, good nutrition is a fundamental right for individuals. Improving the nutritional status of people and children is key to ending the vicious cycle of hunger, malnutrition and underdevelopment. With this in mind, COOPI has adopted the concept of nutritional security as part of its global intervention strategy. According to the FAO definition, "*nutritional security is a situation that exists when secure access to a nutritious diet is associated with a healthy environment, healthcare services and adequate care to ensure a healthy and active life for all family members*". Nutritional security differs from food security in that it also takes into account proper care practices, health and hygiene, as well as an adequate nutritional regimen³⁴.

³³ <https://washnutrition.wordpress.com/key-studies/>

³⁴ FAO, IFAD and WFP. 2014. "The State of Food Insecurity in the World. Strengthening the enabling environment for food security and nutrition", <https://www.fao.org/3/i4030e/i4030e.pdf>



Conceptual framework of Nutritional Safety (COOPI, 2016)

It is important to consider that the links between the various sectors are complex and specific for each context of intervention and require an in-depth analysis of needs and knowledge of the mechanisms and livelihoods of households and communities.

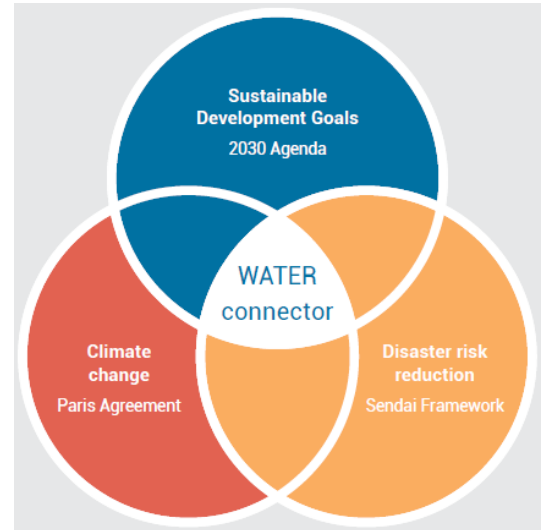
4.3.2. Key actions to integrate WASH in nutrition projects

In COOPI's Standard Operating Procedures on Nutrition there is a section dedicated to the integration of WASH actions in nutrition programs. Annex 2 includes a list of all COOPI documents on nutrition and additional resources to integrate nutrition into WASH interventions.

4.4. WASH, CLIMATE CHANGE AND DISASTER RISK REDUCTION

The scientific evidence is clear: the climate is changing and will continue to change, affecting societies primarily through water and its management. Climate change will affect the availability, quality and quantity of water for basic human needs, threatening the effective enjoyment of human rights related to water and sanitation for billions of people. The alteration of the water cycle will also involve risks for energy production, food security, human health, economic development and poverty reduction, thus seriously endangering the achievement of the Sustainable Development Goals (UN-Water, 2020).

In this context, countries have adopted the 17 Sustainable Development Goals (SDGs) which also include one linked to the WASH sector: "Ensuring the availability and sustainable management of water and sanitation for all" (SDG 6). Furthermore, approved in 2015, the **United Nations Framework Convention on Climate Change (UNFCCC)** entered into force in 2016³⁵: it addresses the need to limit the rise in global average temperature to well 2 ° C above pre-industrial levels by the end of this century, and to promote specific measures to adapt to the impacts of climate change.



Another important tool is the **Sendai Framework for Disaster Risk Reduction 2015-2030** adopted in 2015. Among its priorities, the Sendai Framework requires the strengthening and implementation of global mechanisms on hydrometeorological issues, to raise awareness and improve understanding of water-related disaster risks and their impact on society and to advance risk reduction strategies.

While these global agreements are distinct frameworks with their own sets of objectives, mechanisms and reporting requirements, they have an overlapping agenda.

4.4.1. *The COOPI approach*³⁶

In relation with climate change and environmental resources management, COOPI focuses above all else on measures to reduce the risks of natural disasters (Disaster Risk Reduction, DRR). In fact, in COOPI's vision, natural disasters must be interpreted not only as a function of the loss of human life and property but also as a structural element inherent in development models. In fact, natural disasters are often the result of unsolved problems related to the development of a country.

COOPI considers the environmental issue and DRR measures as essential elements of its action, promoting the correct management of environmental resources and the introduction of DRR actions in all its countries of operations. On the basis of the experience acquired and the international reference framework, COOPI has defined three key concepts around which the various actions in the field of the environment and DRR must be articulated and

³⁵ <https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change>

³⁶ From COOPI Policy on Environment and Risk and Disaster Reduction (2013), <https://www.cooapi.org/uploads/home/15ab225e596c90.pdf>

developed. These are: environmental sustainability, participation and integration of the principles of prevention, mitigation and preparation.

In the field of **environmental sustainability**, COOPI emphasises the importance of conserving natural and environmental resources to favour DRR and therefore sustainable development. COOPI's action focuses on the realisation of:

1. interventions related to land management (including soil conservation) and the waste management cycle;
2. climate change adaptation programs;
3. use of energy from renewable sources and innovations with respect to eco-sustainability;
4. awareness-raising activities regarding the correct use of environmental resources.

COOPI considers **participation** as a key element of the sustainability of the interventions. In fact, the organisation promotes the involvement of communities and institutions in the definition and implementation of all its interventions.

Finally, COOPI considers the integration of prevention, mitigation and preparation to be essential for its interventions also in other sectors such as the WASH sector.

4.4.2. Key actions to integrate climate change considerations and DRR into WASH programming

The following is a non-exhaustive list³⁷:

General considerations

- Plan and consider new investments (for example: reservoirs, irrigation systems, waste water treatments).
- Adapt the operation, monitoring and regulation practices of existing systems to new uses or conditions (for example: ecology, pollution, pollution control, climate change, population growth).
- Work on the maintenance, rehabilitation and redesign of existing systems (for example: dams, weirs/barrages, irrigation systems, canals, pumps).
- Make changes to processes and demands for existing systems and water users (for example: rainwater harvesting, water conservation, pricing, regulation, legislation, basin planning, financing for ecosystem services, participation of stakeholders, consumer education and awareness).

³⁷Adapted from UN-Water, 2010. "Climate Change Adaptation: The Pivotal Role of Water".

- Introduce new efficient technologies (for example: desalination, biotechnology, drip irrigation, reuse of waste water, recycling, solar panels).

Supply of drinking water and sanitation. The existing infrastructures for water supply and sanitation were previously designed for a different availability of resources and for a different use of water. This type of traditional infrastructure is likely to come under greater pressure due to hydrographic changes and warmer temperatures. In particular, the following key actions are proposed to integrate climate change into drinking water supply and sanitation projects:

- Improve or expand the availability of infrastructures for water supply and sanitation.
- Include provisions for the effects of climate change in the design of water infrastructures.
- Assess the infrastructures to improve their performance in response to changes in water availability, demand and quality as a result of climate change.

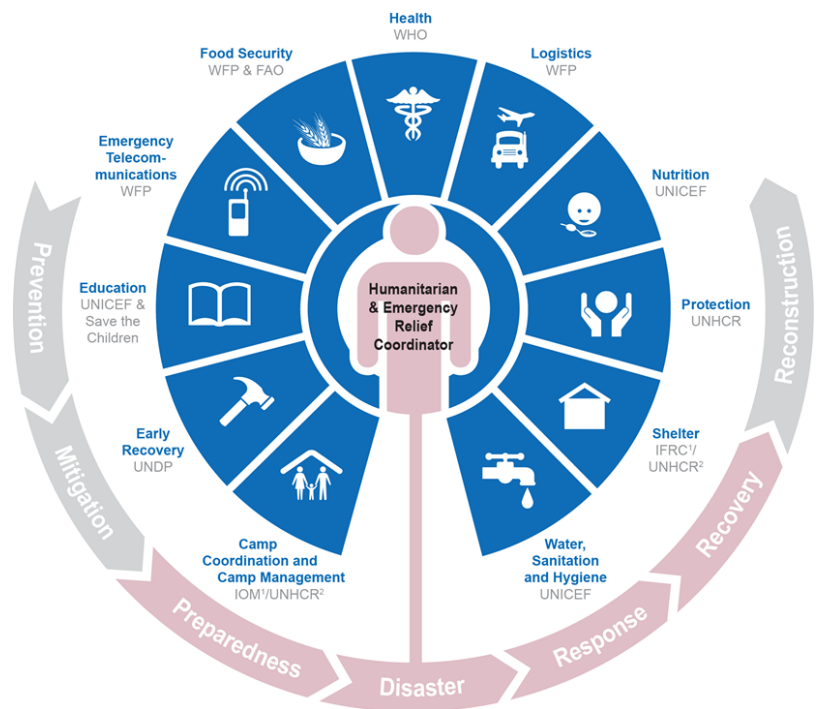
Agriculture. Climate change is expected to affect both rainy and irrigated agriculture, including feed and forage for livestock. This change will worsen the living conditions of rural populations who live in fragile environments and who depend on agriculture for their livelihood. The challenge is to increase the capacity of rural populations to cope with the impacts of climate change through greater resilience and preparedness, including diversification into non-agricultural activities. Some key actions to integrate climate change into agriculture-related water projects are:

- Promote initiatives that integrate land and water management
- Increase water storage infrastructure (surface and groundwater)
- Improve rainwater harvesting and water conservation methods

Annex 2 includes a list of all COOPI documents on the environment and additional resources to integrate climate change into WASH interventions.

5. COORDINATION MECHANISMS OF THE WASH SECTOR

In some countries there is a government ministry or agency that is responsible for the management of water resources, sanitary infrastructure and water supply. They also have the mandate to coordinate interventions in this area on their own territory through sectoral working parties or technical coordination groups at various levels. In many contexts, these coordination groups can also be technically supported by international cooperation projects or UN agencies, such as UNICEF. In the case of humanitarian contexts, it is possible that the government no longer has the capacity or no longer controls the entire territory in which the interventions are made. It is therefore possible that international coordination mechanisms will be activated with the support of the United Nations.



For example, following the humanitarian reform of 2005³⁸ and in order to find a solution to the proliferation of projects and interventions during the first phase of emergencies, the international community has created the system of clusters (or sectoral groups), i.e. the identification of a lead agency for each sector with the skills to coordinate interventions in the sector during the entire humanitarian response.

At a global level as well as in the various local emergency contexts, **WASH actions are coordinated by the WASH cluster of which UNICEF is the “leading agency”**. The cluster provides **technical and operational support** to all actors involved in WASH projects and activities in the country on a global as well as a national level. The cluster also develops and strengthens **the technical skills** of its partners through specific training and the dissemination of standards and work tools. Within the cluster, the strategic priorities of the

³⁸ Inter-Agency Standing Committee (IASC), <https://interagencystandingcommittee.org/iasc-transformative-agenda>

sector and the mobilisation of financial resources for the promotion of emergency projects in the sector are also discussed.

Finally, it should be noted that in emergency contexts with a strong presence of refugees, coordination is ensured by the WASH thematic group under UNHCR coordination.

Main functions of a cluster

- i) To coordinate humanitarian interventions in the WASH sector to ensure coverage of the areas of humanitarian action and avoid duplication of activities;
- ii) To plan and develop an emergency WASH strategy, identifying the intervention priorities, the needs to be met and the partners to collaborate with;
- iii) To identify and mobilise financial resources within the humanitarian process or through advocacy campaigns;
- iv) To monitor the humanitarian response;
- v) To develop the technical capabilities of the competent authorities and of each actor involved in the response.

National governments have the primary responsibility of supporting their populations, regardless of the nature of the intervention. For their part, clusters play a key role in strengthening the national capacities of humanitarian partners in their area of expertise.

A cluster can be adapted at a provincial level, according to the needs and the partners to be coordinated (regional, provincial, local level), by creating sectoral subgroups in areas of particular operational interest. These subgroups facilitate decentralised decision making and allow the response to be conducted according to identified needs, avoiding overlaps and gaps.

5.1. COOPI'S PARTICIPATION IN WASH CLUSTERS AND OTHER COORDINATION MECHANISMS

COOPI participates in the WASH coordination clusters or sectoral groups in the countries where COOPI implements WASH projects. Where they exist, COOPI also participates in clusters or regional coordination groups in the regions where it is involved in WASH projects, for example, the WASH-LAC.



BOX 4. COOPI'S PARTICIPATION IN THE WASH CLUSTER IN ETHIOPIA

In Ethiopia COOPI participates at various levels in the various clusters. COOPI is the WASH focal point for the Guyi area, is a member of the National WASH Cluster and is also part of the Strategic Advisory Group (SAG), a steering group that, among other functions, monitors humanitarian action and reviews the Humanitarian Response Plan (HRP). Participation in these groups is regular and active, for example within the working group for the distribution of NFI and the technical groups for evaluating documents.

This allows COOPI's office in Ethiopia to have updated information on the sector, to be in contact with the main humanitarian actors and to have visibility towards donors and the government. This positioning has been and continues to be essential for COOPI's success in the WASH sector in Ethiopia.

It is very important to participate in clusters or other coordination mechanisms, as the **benefits** are clear:

- ✓ Accessing key information on the sector
- ✓ Obtaining information on possible funding opportunities
- ✓ Getting in contact with donors and understanding their intentions (priorities, goals, areas of focus).
- ✓ Getting in contact with potential partners
- ✓ Accessing sectoral training opportunities through the cluster

But what should COOPI's participation in the WASH Cluster look like?

Participation in clusters and other WASH coordination mechanisms must first of all be **consistent**, it is necessary to participate in all coordination meetings. In this way, COOPI does not lose information and opportunities. Furthermore, COOPI must give an image of seriousness, responsibility and commitment. An irregular presence tarnishes the organisation's image.

Participation must be **strategic**, COOPI should participate in the working groups it is interested in based on the activities it carries out (see box 4).



Participation must also be **active**, i.e. COOPI must present the results of its work to the other members of the coordination group, for example the results of a survey or the evaluation of a project.

5.2. TOOLS AND RESOURCES

- ✓ **Inter-Agency Standing Committee (IASC).** The IASC is the longest standing and highest-level humanitarian coordination forum in the United Nations system. <https://interagencystandingcommittee.org/>
- ✓ **Global WASH Cluster (GWC).** <https://washcluster.net/>
- ✓ **Humanitarian Response.** Humanitarian Response is a specialised digital service of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA). <https://www.humanitarianresponse.info/es/coordination/clusters/what-cluster-approach>

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ANNEXES

ANNEX 1. GLOSSARY OF WASH TERMS

Basic sanitation. As established by the 2002 World Summit on Sustainable Development (WSSD), basic sanitation means the cheapest option to ensure sustainable access to safe, hygienic and affordable facilities and services for the disposal of the faeces and waste that provide privacy and dignity, while at the same time ensuring a clean and healthy living environment both at home and in the vicinity of users.

Blackwater. Black water is the mixture of urine, faeces, and wash water along with anal cleaning water (if water is used for cleaning) and/or dry cleaning materials. Black water contains stool pathogens and urine nutrients which are diluted in the rinse water.

Borehole Latrine. The borehole latrine is an (emergency) excreta disposal system where a borehole (typically 5-10m deep, 40cm in diameter) is combined with a slab and a superstructure. It is an alternative to pit or trench latrines where ground conditions allow it and tools and labour is immediately available locally.

Borehole (BH). It is a deep round hole made by a special tool or machine, especially one that is made in the ground when looking for water.

Brown water. Brown water is the mixture of faeces and waste water, and does not contain urine. It is generated by flush toilets that divert urine and, therefore, the volume depends on the volume of flushing water used. The pathogen and nutrient load of the stool is not reduced, but only diluted by the waste water. Brown water can also include anal cleaning water (if water is used for cleaning) and/or dry cleaning materials.

Deep dug well. Deep dug wells are wells dug more than 20 metres deep, so they are unlikely to be contaminated, but they are expensive to build

Deep Well. A deep well is a hand-dug water well that is over 7 metres deep and approximately 1.5 metres in diameter.

Dehydration. The process of reducing the water content of a sludge or sewage. Dewatered sludge may still have significant moisture content, but is typically dry enough to be transported as a solid (e.g. shovelled).

Desludging. The process of removing accumulated sludge from a storage or sanitary treatment facility (e.g., pit toilet, septic tank).

Diarrhoea. Diarrhoea is the passing of loose or liquid stools more frequently than is normal for the individual. It is mainly a symptom of gastrointestinal infection. Depending on the type of infection, diarrhoea can be watery (for example in cholera) or with blood (in dysentery, for example). Diarrhoea is caused by a variety of microorganisms including viruses, bacteria and protozoa.

Double pit latrine. Double pit latrines are latrines with several pits used in alternation. By constructing twin pits, it is possible to dig out a filled pit only after it has been lying fallow for a while (approximately one year) allowing the faecal matter to degrade while the other pit is put in use. Thus, smell and the health risk during excavation will be reduced.

Double Ventilated Improved Pit or double VIP. The double VIP has almost the same design as the single VIP with the added advantage of a second pit that allows it to be used continuously and permits safer and easier emptying.

Drinking water. Fresh water that is chemically and biologically safe for human consumption, either naturally or through purification.

Dry toilet. A dry toilet is a toilet that operates without waste water. The dry toilet can be a raised pedestal that the user can sit on, or a basin that the user squats on. In both cases, the excreta (both urine and faeces) fall through a drain hole

Faecal sludge. The faecal sludge comes from on-site sanitation technologies and has not been transported through a sewer. It is raw or partially digested, a slurry or a semi-solid, and results from the collection, storage or treatment of combinations of faeces and black water, with or without grey water. Faecal sludge is highly variable in consistency, quantity and concentration.

Faeces. It refers to (semi-solid) stools/faeces that are not mixed with urine or water. Depending on the diet, each person produces about 50 L of faecal matter per year. Fresh faeces contain about 80% water.

Fresh water. Water that occurs naturally on the earth's surface (lakes, rivers, etc.) and underground (groundwater in aquifers and underground waterways)

Grey water. Grey water is the total volume of water generated by washing food, clothes and dishes, as well as bathrooms, but not toilets. It may contain traces of faeces (for example, from washing nappies) and, therefore, also pathogens.

Groundwater. Water found below the earth's surface. The groundwater level can be a few centimetres or up to 100 metres below the surface. It is generally of good quality and can be used as drinking water. Therefore, care must be taken not to contaminate groundwater with the leaching of wastewater.

Hand pump. Hand pumps are a type of water lifting device that primarily serves community water supplies and which can be operated manually.

Hand-dug Well (HDW). The traditional and even more common method of obtaining groundwater in rural areas of the developing world is by means of wells dug, mostly by hand. With the preliminary knowledge that groundwater is present and rather close to the surface, a hole (5-30 metres) is excavated until it reaches the groundwater level.

Hydraulic gradient. The hydraulic gradient is the difference in the height of the water table from one distance to another. The liquid will flow down the hydraulic gradient from where the hydraulic head is highest to where it is lowest by gravity due to the pressure difference

Hydraulic head. The hydraulic head measures the water pressure expressed in height. For example, the pressure at the bottom of a lake filled with a 10m water column will receive a 10m water pressure expressed as hydraulic load.

Pit latrine. A pit latrine is a type of latrine that collects human faeces in a simple pit, hole or ditch in the ground. It is the most rudimentary and economical method of excrement storage and is usually used without the aid of water.

Ventilated Improved Pit latrine (VIP). The Ventilated Improved Pit latrine has the same principle as the common pit latrine, with the main difference being the addition of a ventilation duct that allows air to pass from the pit to the top of the roofing.

ANNEX 2. TOOLS AND RESOURCES

HYGIENE PROMOTION

General

- ✓ **Sustainable Sanitation and Water Management Toolbox.** SSWM Toolbox compiles thousands of "best of" tools aimed at optimising local sanitation and water management interventions. <https://sswm.info/>
- ✓ **The Sanitation Learning Hub.** This website offers tools, resources and approaches in relation to promoting hygiene. <https://sanitationlearninghub.org/>

Hygiene promotion

- ✓ **Hygiene Promotion Guidelines.** <https://wash.unhcr.org/download/hygiene-promotion-guidelines-unhcr-2017/>
- ✓ **WASH Guidelines for hygiene promotion in emergency operations.** <https://www.ifrc.org/water-sanitation-and-hygiene-wash>
- ✓ **Managing hygiene promotion in WASH programmes.** This is a simple and comprehensive guide that provides tools for planning and monitoring of hygiene promotion projects. <https://wedc-knowledge.lboro.ac.uk/resources/booklets/G013-Hygiene-promotion-booklet.pdf>

Menstrual Hygiene management

Menstrual hygiene management (MHM) in emergencies toolkit. A toolkit to integrate menstrual hygiene management (MHM) into the humanitarian response

<https://reliefweb.int/report/world/toolkit-integrating-menstrual-hygiene-management-mhm-humanitarian-response>

- ✓ **Menstrual Hygiene.** The UNICEF website provides valuable materials to articulate an approach to managing menstrual hygiene. <https://www.unicef.org/wash/menstrual-hygiene>
- ✓ **Menstrual Hygiene Day.** Global advocacy platform that brings together the voices and actions of NGOs, government agencies, individuals, the private sector and the media to promote good menstrual health and hygiene (MHH) for all women and girls. Provides materials for the implementation of awareness campaigns. <https://menstrualhygieneday.org/about/about-mhday/>

WATER SUPPLY

Access to and quantity of water

- ✓ **Compendium of Water Supply Technologies in Emergencies.** It offers a comprehensive and structured planning guide on new and existing technologies for water supply operations in humanitarian settings <https://www.washnet.de/en/publications/emerwater-compendium/>

Water quality

- ✓ **Guidelines for drinking water quality (WHO).** These guidelines provide good practice guidance to ensure that drinking water is adequate for human health. <https://www.who.int/publications/i/item/9789241549950>

FAECES MANAGEMENT

- ✓ **Sustainable SANitation Alliance (SUSANA).** It is an informal network of people and organisations sharing a common vision on sustainable hygiene <https://www.susana.org/en/>
- ✓ **Compendium of Sanitation Systems and Technologies.** It provides knowledge on a wide range of sanitation technologies as well as resource recovery and reuse options as a necessary goal for sustainable stool management. <https://www.eawag.ch/en/departement/sandec/publications/compendium/>
- ✓ **Compendium of Sanitation Technologies in Emergencies.** It provides a comprehensive and structured planning guide on existing and new technologies for sanitation operations in humanitarian settings. <https://www.washnet.de/wp-content/uploads/emergency-sanitation-compendium.pdf>

SOLID WASTE MANAGEMENT

- ✓ **The World Bank.** This World Bank website offers guidelines, manuals and courses on solid waste management. <https://www.worldbank.org/en/topic/urbandevelopment/brief/solid-waste-management>
- ✓ **What a waste 2.0.** World Bank publication including global, regional and urban trends in solid waste management. <https://datatopics.worldbank.org/what-a-waste/>
- ✓ **Environmental Protection Agency.** Best Practices for Solid Waste Management: A Guide for Decision-Makers in Developing Countries. https://www.epa.gov/sites/default/files/2020-10/documents/master_swmg_10-20-20_0.pdf
- ✓ **Global Waste Management Outlook (GWMO).** This document provides a possible inspiration for waste management, drawing conclusions and making recommendations to help policy makers and practitioners develop local waste management solutions. <https://www.unep.org/resources/report/global-waste-management-outlook>
- ✓ **International Solid Waste Association (ISWA).** <https://www.iswa.org/?v=cd32106bcb6d>

WASH IN DISEASE OUTBREAKS AND IN HEALTHCARE CONTEXTS

- ✓ **WASH in health care facilities.** WHO / UNICEF Knowledge Portal on Water, Sanitation and Sanitation in Healthcare Facilities, the global site for information and resources on the subject. <https://washinhcf.org/>
- ✓ **WASH for health care.** A toolbox for improving quality of care developed by USAID. <https://washforhealthcare.mcsprogram.org/>
- ✓ **Joint Monitoring Program (JMP in inglese) of WASH in health care facilities.** This site includes tracking basic water, sanitation, hand hygiene, health care waste management, and environmental cleaning (WASH) services in health care facilities. <https://washdata.org/monitoring/health-care-facilities>
- ✓ **WASH Fit.** <https://washinhcf.org/wash-fit/>
- ✓ **Core questions and indicators for monitoring WASH in health care facilities in the Sustainable Development Goals.** <https://www.paho.org/hq/dmdocuments/2017/2017-cha-washhcf-core-questions.pdf>

WASH AND PROTECTION

COOPI resources

- ✓ **Protection Policy (2016).** Available on the COOPI.net platform in Italian, English, Spanish and French.
- ✓ **COOPI policy on gender (2015).** Available on the COOPI.net platform in Italian, Spanish and English.
- ✓ **COOPI Childhood and Adolescence Policy (2011).** Available on the COOPI.net platform in Italian, English and French.
- ✓ **Sexual Exploitation and Sexual Abuse Protection Policy (2019).** Available on the COOPI.net platform in Italian and Spanish.
- ✓ **Protection Standard Operating Procedures (2015).** Available on the COOPI.net platform in English, French and Spanish.
- ✓ **COOPI guidelines on protection mainstreaming (2017).** Available on the COOPI.net platform in English and French
- ✓ **COOPI guidelines on gender mainstreaming.** Available on the COOPI.net platform in Italian, English and French.

Other resources

- ✓ **Global Protection Cluster.** Guidelines for Integrating Gender-Based Violence Interventions in Humanitarian Action. https://gbvguidelines.org/wp/wp-content/uploads/2015/09/TAG-wash-08_26_2015.pdf

- ✓ **INTERSOS.** Humanitarian WASH Interventions and Protection Mainstreaming: Hygiene Promotion, Sexual and Reproductive Health and Community-based Participatory Approaches.
https://www.academia.edu/34844579/Humanitarian_WASH_Interventions_and_Protection_Mainstreaming_Hygiene_Promotion_Sexual_and_Reproductive_Health_and_Community-based_Participatory_Approaches
- ✓ **UK Department for International Development.** Mainstreaming disability and making WASH programmes inclusive. This publication includes guidelines for making WASH services accessible to people with disabilities.
<https://www.gov.uk/government/organisations/department-for-international-development>

WASH AND NUTRITION

COOPI Resources

- ✓ **COOPI Nutritional Security Policy (2017).** Available on the COOPI.net platform in Italian, English and French.
- ✓ **COOPI Standard Operating Procedures (SOP) on nutritional security (2016).** Available on the COOPI.net platform in English and French.

Other resources

- ✓ **Action Against Hunger.** Guidebook on increasing nutritional impact through integration of WASH and Nutrition programmes. For practitioners in humanitarian and development contexts <http://bit.ly/2sw5vKQ>
- ✓ **USAID.** Integrating water, sanitation, and hygiene into nutrition programming. The WASHplus project supports communities by creating and delivering WASH interventions. <http://www.susana.org/resources/documents/default/3-2149-7-1422027201.pdf>
- ✓ **World Health Organization (WHO).** Practical solutions for policies and programmes. Primarily for nutrition programme managers and implementers.
<https://apps.who.int/iris/handle/10665/193991>

WASH AND FOOD SECURITY

COOPI Resources

- ✓ **COOPI Food Security Policy (2014).** Available on the COOPI.net platform in Italian, English, Spanish and French.
- ✓ **COOPI Standard Operating Procedures (SOP) on food security (2018).** Available on the COOPI.net platform in English and French.

WASH AND CLIMATE CHANGE

COOPI Resources

- ✓ **Guidelines on sustainable energy technologies for the use of food in humanitarian contexts and informal settlements (2015).** Available on the COOPI.net platform in English.
- ✓ **COOPI standard operating procedures (SOP) for disaster risk reduction (2016).** Available on the COOPI.net platform in English and French.
- ✓ **COOPI Guidelines on Environment and Disaster Risk Reduction (2013).**

Other Resources

- ✓ **UN-Water.** This page has a section devoted exclusively to the relationship between climate change and water where material on the subject is provided.
<https://www.unwater.org/water-facts/climate-change/>
- ✓ **UNESCO.** The United Nations World Water Development Report 2020. Water and Climate Change. <https://en.unesco.org/>

ANNEX 3. ROADMAP FOR THE REALISATION OF A WATER SUPPLY PROJECT³⁹

STEP 1.

Identify the water source and/or scheme to be developed/expanded/rehabilitated. The identification of water resources is important not only to elaborate project proposals, but also to "build" a geo-referenced database to have the situation in the work area "under control". Identification also involves social considerations/surveys that are not addressed here.

Once identified, proceed to step 2.

STEP 2.

Check the water quality of the identified source. Bring a water sample to the nearest laboratory for analysis. Obtain the laboratory test results report (to be attached to the final activity report). Does the water comply with the water quality standards of the country/region or, if there are none, with WHO standards?

- No: go back to step 1
- Si: proceed to step 3

STEP 3.

Identify the hydraulic characteristics and optimal performance of the water source selected to be extended/rehabilitated.

Drilling (Borehole, BH): carry out pumping and recovery tests.

Hand-dug well (HDW): perform pumping and recovery tests.

If the BH or HDW aquifers are unconfined and shallow/limited/small, they are/will be directly affected by the seasons. Rainy seasons: the static water level is shallower; dry seasons: the static water level is deeper. For this reason, it is best to check the minimum yield during the dry seasons. Depending on the local geological environment, the situation may be different.

Springs: perform flow measurement.

In the event that the hydrogeological basins are not wide and/or deep enough, the springs are influenced by the seasons. In this case the flow measurement must be done during the dry season. If the hydrogeological basin is large and/or deep enough, the springs are less influenced by the seasons. In this case the flow measurement can be done in any season.

³⁹ Adapted from the COOPI WASH guidelines in Ethiopia (Gaggi, F., 2020).

Specific geological investigations can identify the above cases. For all the above cases, perform a pumping/recovery test (BHs and HDWs) or a yield test (springs) and produce a report (to be attached to the final activity report).

Is the measured yield sufficient to meet user needs?

- No: Go back to step 1 or provide justifications as to why, despite the performance being below what is needed, the activity can continue.
- Sì: proceed to step 4

STEP 4.

Is the water source to be developed an HDW?

- No: go to step 6
- Sì: proceed to step 5

STEP 5.

The development of an HDW implies a hydrogeological knowledge of the surrounding area which helps to identify groundwater potentials and locate the specific site for excavation; this can be supported by the knowledge of the local community.

Since the geological contexts are different from one place to another, and affect the presence of groundwater, it would be almost impossible to describe all possible scenarios here.

Note that an HDW can only be considered fully developed when the entire aquifer is crossed and the impermeable layer is reached.

It is worth mentioning that, under certain geological conditions, HDWs can produce a good amount of water, solving the community's water shortage problems.

At the end of the excavation, pumping and recharging tests will have to be carried out.

STEP 6.

Is the water source to be developed a spring?

- No: go to step 8
- Sì: proceed to step 7

STEP 7.

There are many types of sources for which different types of development solutions can be envisaged. At the end of the excavation, a flow measurement should be made. Produce a report (to be attached to the final activity report).

STEP 8.

Does the activity involve the extension of the supply network work?

- No: go to step 10

- Si: proceed to step 9

STEP 9.

Carry out the topographic survey with standard tools (topographic level, clinometer, other tools as appropriate). Based on the topographic survey data, size the pipes using the standard formula (Hazen-Williams).

Produce a report that includes: topographic data, hydraulic data, hydraulic diagrams, BoQ (Bill of Quantities), for pipes, fittings, accessories (to be attached to the final report of the activity).

STEP 10.

Carry out the topographic survey with standard tools (topographic level, clinometer, other tools as appropriate). Based on the topographic survey data, size the pipes using the standard formula (Hazen-Williams). Produce a report that includes: topographic data, hydraulic data, hydraulic diagrams, BoQ for pipes, fittings, accessories (to be attached to the final report of the activity).

STEP 11.

Size the pump. Produce a report indicating the choice of pump (to be attached to the final activity report).

STEP 12.

Is there a need to purchase energy production equipment?

- No: go to step 14
- Si: proceed to step 13

STEP 13.

Size the power generation equipment. Produce a report indicating the choice of power generation equipment (to be attached to the final activity report).

STEP 14.

Is it necessary to undertake new civil works/construction?

- No: go to step 16
- Si: proceed to step 15

STEP 15.

Carry out the civil works.

NB: sizing the tank(s): generally, the capacity of a tank is equal to 1/3 of the total daily water requirement. Sizing of the water points/total number of taps: The yield of 1 tap must be 0.22l/s. 1 tap cannot serve more than 200 people ($0.22\text{l/s} \times 5\text{hr} \times 3600\text{sec} / 20\text{l/d/p}$).

Produce a report indicating the choice and construction of the civil works (to be attached to the final activity report).

STEP 16.

Is it necessary to undertake the rehabilitation of civil works/construction?

- No: go to step 18
- Si: proceed to step 17

STEP 17.

Produce the technical report of the necessary rehabilitation with the relative justifications and the detailed BoQ (to be attached to the final report of the activity).

STEP 18.

Consolidate all the above BoQs for quantities and costs.

STEP 19.

Consolidate the BoQs for each scheme to obtain the procurement plan for civil works services and the supply of materials/equipment for the project's water supply sector. Once this is done, start the procurement process according to the organisation's financial rules.

STEP 20.

Produce a financial and economic sustainability report (to be attached to the final activity report). Simulating the financial and economic sustainability of a water supply scheme is an important step towards its management.

STEP 21.

Before starting the physical implementation of the activity, it is important to discuss with the stakeholders/site community and, consequently, to stipulate a MoU (which highlights the purpose of the activity, the type of work, the roles and responsibilities of the subjects involved) with the subjects interested in the activity.

STEP 22.

Test the scheme. After the scheme has been created in all its parts and before its delivery to local stakeholders, it is necessary to carry out a test.

STEP 23.

Transfer the management of the water infrastructures to the local actors.

STEP 24.

The activity ends with the compilation of the report on the implementation of the activity (or activities).

ANNEX 4: WATER QUALITY MODEL

Parameters with no Health Concern at levels found in drinking water. May cause		Date of water quality analysis	Update with National guidelines if relevant	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5					
		WHO Guidelines											
1	Color	Acceptable											
2	Odor	Acceptable to Users											
3	Taste	Unobjectionable											
4	Turbidity (NTU)	<5											
5	pH	6.5-8											
#	Iron (mg/L)	0,3											
6	TDS (mg/L) (alternatively: Conductivity (<2000 µS/cm2))	<1000											
7	Free Residual Chlorine (mg/L)	.2-.5											
8	Total Chlorine (mg/L)	.5-1.5											
9	Nitrate (mg/L)	<50											
#	Nitrite (mg/L)	<3											
#	Arsenic (mg/L)	0,01											
#	Fluoride (mg/L)	1,5											
	(Other contaminants may be added if known issue in the area)												
	Thermotolerant Coliform (CFU/100ml)	0											
	Thermotolerant Coliform Risk (No risk 0 CFU/100ml, Low Risk 1<10, High risk >10)	/											
Water quality fit for human consumption:		Potable											
		Requires treatment											
		Not potable											
Recommendations / comments:		Analysis done by:											
		Name: _____			Position / Title: _____			Signature: _____					
		Analysis validated by [Administration in charge of Drinking Water]:											
		Name: _____			Position / Title: _____			Signature: _____					
		Name: _____			Position / Title: _____			Signature: _____					
		Community representatives acknowledging the results:											
		Name: _____			Position / Title: _____			Signature: _____					
		Name: _____			Position / Title: _____			Signature: _____					
Recommendation of date and frequency for next Water Quality		_____											
Contact of Authority / Laboratory / Organization for future Water Quality Analysis:		_____											

ANNEX 5. HYGIENE KIT MODELS

FAMILY HYGIENE KIT FOR PEOPLE IN TRANSIT

The kit can also be used with populations settled in tents and/or temporary shelters for which it may be necessary to add elements (for example drums/containers with lids) for the collection of water.

No.	Product	Unit of measure	Amount	mandatory / optional
1	RAZOR	Item	2	obligatory
2	TOOTHBRUSH FOR ADULTS	Item	2	obligatory
3	TOOTHBRUSH FOR CHILDREN	Item	1	obligatory
4	TOOTHPASTE (75ml)	Item	1	obligatory
5	NAIL CLIPPERS	Item	1	obligatory
6	CONDOMS (minimum pack of 3 units)	Package	1	obligatory
7	UNISEX DEODORANT IN BOTTLE or CREAM (BAG)	Sachet	4	obligatory
8	HAND SANITISING GEL / COVID 19	Item	1	obligatory
9	LAUNDRY SOAP/DETERGENT	Item	1	optional
10	MINI KIT / FIRST AID KIT (includes alcohol, hydrogen peroxide, gauze, care, among others)	Item	1	optional
11	BAG	Item	1	optional
12	HAIR COMB	Item	1	obligatory
13	SUN PROTECTION IN 200 ML BOTTLE	Item	1	obligatory
14	DOUBLE SHEET TOILET PAPER ROLL 20mt	Item	1	obligatory
15	SACHETS OF REHYDRATING SALTS	Item	1	optional
16	DETERGENT WIPES (PACKAGE * 25 units)	Package	1	optional
17	SANITARY TOWELS (PACKAGE * 10 units)	Package	1	obligatory
18	NAPPIES (50 UNITS PER BAG)	bag	15	optional
19	BOTTLE OF WATER	Item	4	obligatory
20	DISPOSABLE MASKS X 20 Units / COVID 19	Item	19	obligatory
21	SURGICAL GLOVES (SIZE ML) / COVID 19	Item	6	obligatory
22	VISOR / COVID 19	Item	2	obligatory
23	ANTIBACTERIAL LIQUID SOAP 300 ml / COVID 19	Item	1	optional

ANNEX 6. DIGNITY KIT

Dignity kits contain sanitary items, as well as other items specifically designed for the local needs of women and girls of reproductive age in particular communities. Assessments should be the main source of information for defining the content of the kits. While there is no standard content, the five items most commonly included in dignity kits are:

- ✓ Sanitary pads
- ✓ Underwear
- ✓ Hand soap
- ✓ Toothbrush
- ✓ Toothpaste

A number of other hygiene items are often included in kits. Appropriate items should be identified in consultation with the beneficiary women and girls. Specific items may be included to address cultural needs or security concerns. Helpful articles might include:

- ✓ Abaya
- ✓ Scarf
- ✓ Prayer clothes
- ✓ Sandals or flip flops
- ✓ Hair brush / comb
- ✓ Gel-Shampoo
- ✓ Hand cream / lotion
- ✓ Nail clippers
- ✓ Tweezers
- ✓ Towel
- ✓ Cotton socks
- ✓ Fleece blanket
- ✓ Laundry detergent/soap
- ✓ Flashlight (torch)
- ✓ Whistle

To identify the relevant and appropriate content of dignity kits, organisations should consider the following **basic parameters**: article relevance, cultural sensitivity, context, environment, quantity, frequency of distribution and price.

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