

## 8. Management of WASH Programmes

WASH programmes in refugee settings often require large numbers of staff, vehicles, equipment and materials – especially in the first few months of an emergency. It is essential that these resources are management efficiently and that WASH staff are able to carry out their tasks with the correct equipment, training, and in safety. Once WASH services are established it is essential that these facilities are kept in good operational condition.

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## Introduction

### The importance of WASH programme management in refugee settings

1. During refugee emergencies it is essential that water supply, excreta management, solid waste management, hygiene items, and basic disease vector control interventions are well managed and WASH facilities remain in good operational condition. WASH facilities can quickly deteriorate if they are not carefully managed and maintained. Large numbers of WASH staff, vehicles, equipment, resources, materials, and stocks often need to be mobilized in short periods of time. It is essential that these resources are management carefully and efficiently.

### The importance of seeking expert professional advice

2. The efficient management of large WASH programmes in refugee settings is not an easy task and can be complicated by additional constraints that include:
  - i). A lack of qualified or experienced WASH staff.
  - ii). Difficult access.
  - iii). A lack of back-up capacity or spare parts.
  - iv). Shortage of time to adequately train staff or build capacity.
  - v). A lack of willingness from the refugee population to take responsibility for WASH infrastructure.
3. In many refugee emergencies, the initial establishment of WASH services will require significant inputs during the initial few months and it will be essential to engage

expert professionals who are familiar with starting large WASH programmes, recruiting and training WASH staff, drafting public works contracts, working with contractors, managing large workforces, and generally managing the scaling up of large WASH programmes in complex environments.

## Priority actions

### Immediate recruitment and training of WASH personnel

4. The establishment and management of water supply, excreta management, solid waste management, disease vector control and hygiene promotion programmes often requires a substantial labour force in a short period of time. In many scenarios it may be possible to recruit many of the positions, including managerial positions, from among the refugee population. In most cases refugees may be willing to help since it gives people something to do, prestige, and possibly a small source of income.
5. Even if there is limited available time, UNHCR and WASH actors should ensure that all WASH staff, volunteers, or daily labour have received sufficient basic training for the tasks they are performing. Small investments in training WASH staff at the start of a refugee emergency can yield large benefits in productivity, prestige, and motivation over time. It is mandatory that WASH staff, volunteers, or daily labour undertaking WASH tasks with associated public health risks associated receive a basic training in health and safety and the



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infection control standard  
precautions (see [section 8.12](#))

### **Procurement and management of WASH equipment and supplies**

6. It is typical that large quantities of WASH supplies (for example soap, jerry cans, household hygiene items, pumps, water reservoirs, pipes, water treatment chemicals, latrine slabs, materials for toilet and shower superstructures, vector control equipment and supplies, and refuse containers, etc.) will need to be procured, warehoused, and managed at the start of any refugee emergency. It is essential that the stock levels and logistical pipelines of these supplies are closely monitored by as ruptures of water treatment chemicals, fuel, or WASH supplies can have large implications on the public health of the refugee population.

### **Use of public works contracts for construction of WASH infrastructure**

7. In most refugee settings there is typically a peak in the workload required to initially establish WASH services at the start of the refugee emergency. Generally, the construction of WASH infrastructure including water points, toilets, showers, laundering points, and solid waste collection systems requires a large amount of resources to establish services in a very short period of time. Options for quickly scaling up the provision of WASH services include:

- i). Working with local WASH service providers to expand existing WASH services to the refugee population.
- ii). Launching a series of small performance based public

works contracts to the local private sector to install WASH infrastructure.

- iii). Undertaking WASH construction in-house by engaging directly large amounts of daily labour.
8. Once target levels of WASH infrastructure have been established the level of human resources required to operate and maintain the WASH infrastructure is likely to be much lower. WASH programme staff are likely to be recruited for longer periods of time on a more permanent basis.

### **Assessment of WASH related health and safety risks**

9. WASH staff, contractors, volunteers, or daily labour involved in the establishment or day to day running of WASH programmes - for example the collection and management of excreta, solid waste, or disease vector control activities all have elevated work related health and safety risks. UNHCR and WASH actors should ensure that an assessment of WASH related health and safety risks has been carried out and a plan is in place to mitigate and monitor priority risks. All WASH staff must have adequate personal protective equipment for the tasks they are performing and must have received a basic health and safety training for the tasks they are performing. WASH staff undertaking the following activities should be prioritised:
- ◆ Anyone cleaning toilets or other WASH facilities.
  - ◆ Anyone involved in desludging toilets.



- ◆ Anyone involved in collection, movement, recycling, reuse or disposal of solid wastes.
- ◆ Anyone involved in collection and movement of excreta, infectious or hazardous wastes.
- ◆ Anyone involved in disease vector programmes.
- ◆ Anyone operating mechanical WASH related equipment.
- ◆ Anyone who may potentially come into contact with water treatment chemicals, vector control chemicals, excreta, sewage, wastewater, solid waste, medical waste or any other sources of potential infection.
- ◆ Anyone involved in the excavation of latrine pits, wells, or trenches deeper than 80cm.
- ◆ Anyone involved in the maintenance of excreta or solid waste related WASH infrastructure or equipment.

10. The best way to undertake a public health and safety risk assessment of WASH activities is to analyse risks at each step of the water, excreta, solid waste, and disease vector chains from source to final use / disposal (see [sections 4.23 and 5.40](#)). At each step, risks should be analysed in terms of probability (rated from high to low) and likely impact (rated from high to low).

### **Mitigation of WASH related health and safety risks**

11. Once the WASH related health and safety risk assessment has been completed a plan should be established to prioritise these risks and put in place a series of mitigative actions. Any risks that are rated either ‘high’ or ‘medium’

likelihood in addition to either ‘high’ or ‘medium’ health or safety impact must be mitigated immediately.

### **Provision of personal protective equipment**

12. UNHCR and WASH actors must ensure that staff, contractors, volunteers, or daily labour working for the WASH programme have adequate personal protective equipment for the tasks they are performing. A summary of the UNHCR health and safety precautions for WASH related activities can be found in [Annex](#). These safety precautions include.

- ◆ Assessment of common health and safety risks for each type of WASH activity
- ◆ Standards for different types of personal protective equipment depending upon the level of risk
- ◆ How personal protective should be worn
- ◆ How to remove soiled personal protective equipment
- ◆ How to disinfect soiled personal protective equipment
- ◆ When and why hand washing should be carried out
- ◆ Management, cleanliness, sterilization and storage of excreta management, solid waste and vector control equipment
- ◆ Actions in the event of injury or occupational exposure
- ◆ Incident reporting and follow up procedures

### **Provision of health, safety and infection control training**

13. UNHCR and WASH actors must ensure that all WASH staff, contractors, volunteers, or daily labour undertaking activities with



potential health and safety risks receive a health and safety briefing related to the tasks they are performing on their first day of employment. All workers who may potentially come into contact with excreta, medical wastes, or solid wastes should receive a briefing on the infection control standard precautions (see Annex).

### **Ensuring water treatment chemical and vector control chemical safety**

14. Many chemicals used in water treatment and disease vector control activities are potentially harmful to workers or the environment. Chlorine for example is highly corrosive and can cause burning or a toxic gas and must not come into contact with skin or clothing. Other chemicals used for disease vector control for example insecticides, rodenticides, or larvacides are toxic and poisonous in concentrated amounts. UNHCR and WASH actors must ensure that all staff working with chemicals have the correct protective clothing for the tasks they are performing (e.g. gloves, goggles, apron, boots). All chemicals used in water treatment or disease vector control activities must be stored under dry, cool dark and ventilated conditions.
15. UNHCR and WASH actors should ensure that any chemicals being used in WASH activities have been approved for under international for the tasks they are being used for and they are applied following internationally approved protocols. Care must be taken during the transportation, storage, application to ensure there are no risks to refugees, staff, or the environment. UNHCR and WASH

actors must ensure that all staff involved in handling water treatment and vector control chemicals have adequate personal protective equipment and safety training for the tasks they are carrying out.

### **Health and safety incident reporting and follow-up**

16. Any incident where WASH staff contractors, volunteers, or daily labour have been involved in a work related physical accident, or they have come into direct contact with excreta, solid waste, sewerage, medical waste, hazardous waste, water treatment chemicals, or disease vector control chemicals must be reported to senior management and documented in a health and safety log book so that a review and policy change can take place. Any near misses (a physical, biological, or chemical work-related accident that was narrowly missed) should also be reported and logged.
17. The WASH related health and safety risk assessment, action plan, and the ongoing policy changes resulting from health and safety incident reporting should be fully documented as part of the site WASH strategy/plan.

## **WASH programme management in refugee settings**

### **Models for WASH service provision in refugee settings**

18. The model used to deliver WASH services in a refugee setting depends upon the phase, the context and the capacity of local actors. In settings where there are strong municipal or private sector





WASH actors the best model is to work with these existing WASH service providers to extend existing WASH services to the refugees. However, in contexts where local service providers or local authorities are weak or non-existent, UNHCR and WASH actors may consider direct implementation of WASH services with a medium-term plan of transitioning WASH service provision to national water, sanitation and public health authorities, or a community based organisation (CBO) made up of members of the refugee community.

### **The importance of phasing into the construction of household WASH facilities as soon as possible**

19. The burden of maintenance and upkeep of WASH facilities in refugee settings can take considerable amounts of time, effort and resources. Therefore, all WASH programmes should start or transition as quickly as possible into the construction of shared and household WASH facilities (in particular toilets and bathing facilities) if it is clear that the time-frame of the humanitarian situation will be longer than six months. While this is a good approach in theory it is not possible for all WASH infrastructure and in every refugee setting it is likely that a significant amount of public infrastructure (for example water collection points, public toilets in institutions and public waste collection services) will need consistent WASH service provision – ideally through the refugees themselves.

### **Beneficiary participation in cleaning and maintenance activities**

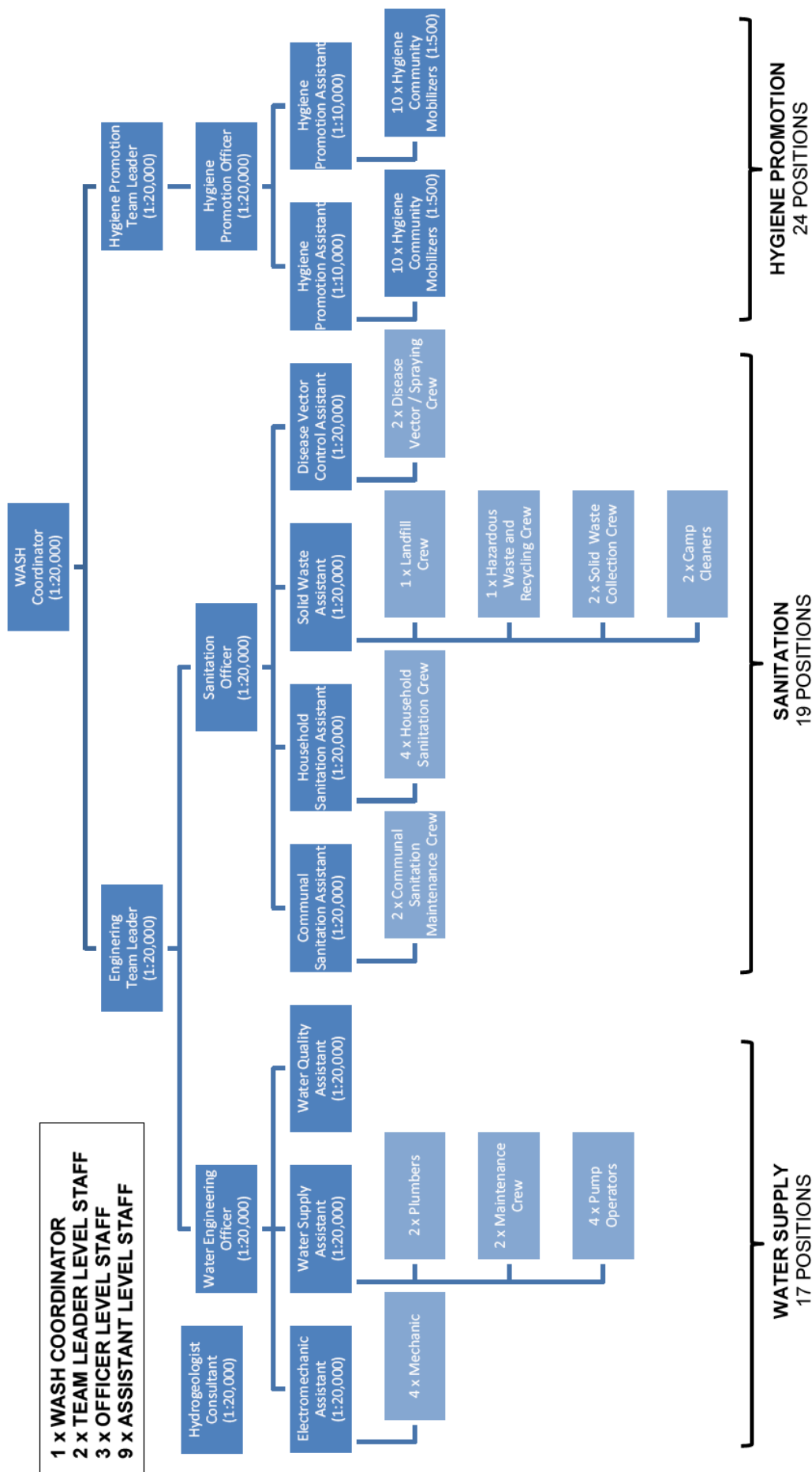
20. It may be possible for small communities to be more involved in cleaning and maintaining WASH infrastructure in settings where facilities have been established for their exclusive use (rather than public infrastructure that is open to all – see [section 1.31](#)). In these settings UNHCR and WASH actors may work with each group of users to prepare a WASH operation and maintenance plan defining the responsibilities of the different stakeholders e.g. cleaning, filling up the hand-washing water containers, keeping the surroundings clean, and providing preventative maintenance. An example agreement can be found in [Annex](#).

### **Organisation of WASH teams**

21. An example organigram for running a typical refugee WASH programme for 20,000 people in a care and maintenance setting can be found on the following page. The organigram gives an indication of how the WASH Team should be structured in addition to the tentative number of Coordinators, Team Leaders, Officer, and Assistant level staff that should be recruited. It should be noted that staffing levels are for planning purposes only and the actual staffing levels should be adapted to the context. In addition, staffing levels are likely to be significantly higher during the emergency phase due to the need to rapidly establish WASH services, Sample job descriptions for each of the staff positions in the organigram can be found on [wash.unhcr.org](http://wash.unhcr.org).



**UNHCR SAMPLE WASH STAFFING STRUCTURE  
CAMP BASED SETTING OF 20,000 PEOPLE – CARE AND MAINTENANCE PHASE**



**1 x WASH COORDINATOR  
2 x TEAM LEADER LEVEL STAFF  
3 x OFFICER LEVEL STAFF  
9 x ASSISTANT LEVEL STAFF**

- Notes**
1. Recommended staffing levels (dark blue) have been provided for guidance purposes (e.g. 1:500 Community Hygiene Mobilizer), however the staffing structure should be adapted to the context (e.g. numbers of Pump Operators, Solid Waste Collection Crew, Camp Cleaners).
  2. Staffing levels are likely to be significantly higher during the emergency phase (i.e. for the construction and installation of WASH infrastructure).
  3. As many positions as possible should be filled with refugees that have sufficient and relevant qualifications and experience.

22. In most cases refugees may be willing to work with the WASH programme since it gives people something to do, prestige, and possibly a small source of income. Salaries for WASH personnel should be in-line with other sectors and should follow the guidance given in the UNHCR Handbook for Emergencies (2007). It should be noted that in most settings, WASH activities such as clean-up campaigns, cleaning toilets, management of solid-waste, digging trenches, or disease vector activities will not be popular jobs and the refugee population cannot be expected to undertake these tasks on a voluntary basis.

### **Recruitment of WASH personnel**

23. Efforts should be made primarily to identify refugee or national staff with pre-existing WASH experience or expertise. In many refugee settings it is surprising to find refugees who have worked in the WASH sector in their place of origin (typically as municipal pump operators, drillers, water officers, handpump repair technicians, municipal sanitary workers, or water quality technicians). Once efforts have been made to identify candidates with prior WASH experience, it is highly likely that additional candidates will be needed who do not necessarily have any prior WASH experiences but are sufficiently educated, motivated, and flexible to learn new skills. Time invested during the recruitment phase identifying the best qualified and most motivated candidates can yield huge savings benefits over the course of the WASH programme.

### **Making use of locally available human resources**

24. UNHCR and WASH actors should try to make full use of locally available human resources. This includes using both skilled and unskilled labour from the refugee population, and national water supply, public health, sanitation, solid waste management, hygiene promotion and disease vector control institutions and regulatory bodies. Programmes should try to avoid relying too much on external expertise. Instead, programmes should aim to train up and build capacity of the refugee population, the surrounding communities, and representatives of national public regulatory bodies from the start.

### **Capacity building of WASH personnel**

25. In many refugee settings, it will be necessary to not only implement a programme of WASH activities but also undertake an extensive programme of on-the-job and off-the-job WASH capacity building training for WASH personnel. All WASH staff should have received sufficient training for the tasks they are performing and should ideally have a good understanding of the importance of their work and their contribution towards ensuring the public health of the refugee population. Staff training initiatives can not only provide an opportunity to increase the skills of the WASH personnel but can provide other additional benefits including team building, a providing an opportunity for motivating staff, recognizing or rewarding their efforts, or providing a change of scene if staff have been working long hours or particularly hard.



## Motivating WASH personnel

26. WASH programmes in refugee settings can be particularly hard work, particularly during the emergency phase, and WASH staff are much more likely to be motivated if UNHCR and WASH actors are able to meet the following:

- ◆ WASH staff are working in a professional and organised way and have the correct equipment, training, and materials to carry out their jobs.
- ◆ WASH staff have clear job descriptions and are working towards clear objectives.
- ◆ WASH staff have regular daily or weekly interaction with other WASH staff. There is a sense that everyone is working for the same WASH Team.
- ◆ WASH staff feel they are listened to and supported by senior management. There are mechanisms and opportunities to influence and improve the way that they work.
- ◆ There is a fair, clear, and transparent system of performance monitoring and rewarding of those staff that work hard.
- ◆ There are sufficient WASH staff to carry out the required activities without overworking.
- ◆ WASH staff have the opportunities for professional development or career advancement
- ◆ WASH staff are able to work in safety and security with the correct personal protective equipment for the tasks they are performing.

## Operation and maintenance considerations

### The importance of establishing a programme of preventative maintenance

27. It is well documented that money spent on preventative maintenance saves money in the long term on repairs and replacement. Preventative maintenance involves maintaining WASH infrastructure, vehicles, or machinery at planned intervals so that breakdown becomes rare. Preventative maintenance also aims to reduce wear and tear, to cut down oil and fuel consumption, to minimise pollution, and extend the service life of the infrastructure or equipment and promote reliability and safety of operation.

28. Two essential parts of any preventative maintenance programme for WASH machinery are cleaning and lubrication. Cleaning of water intakes, water filters, and sediment from water reservoirs and basins can reduce clogging and the risk of overloading, over-heating or erosion of water pumping equipment. If moving parts on waste collection vehicles, water tankers, water pumps, and electrical generators are not adequately oiled or greased then they wear more rapidly, overheat and may fail.

29. Preventative maintenance is often best organised around a system of daily, weekly and monthly maintenance checks, scheduled typically based around the number of kilometres or hours a piece of WASH equipment or infrastructure has been in operation. Poor planning for operation and



maintenance is one of the most common deteriorating factors for WASH infrastructure. UNHCR and WASH actors should ensure sufficient budgeting for preventative operation and maintenance in addition to back-up capacity for surges in new arrivals, and decommissioning and replacement of ageing infrastructure.

### **The importance of responsive maintenance**

30. In addition to preventative maintenance, refugee settings should also have the capacity to quickly and efficiently respond to WASH related problems as they occur. In a refugee setting, this is likely to consider of a mobile WASH team with the means and resources (spare parts, tools, knowledge) to make immediate repairs before the impacts become critical.

### **The importance of redundancy and back-up equipment and systems**

31. In all refugee settings, WASH programmes should be prepared for potential problems with WASH service provision. All WASH systems should be designed with sufficient redundancy systems to that service coverage is not affected by either preventative or responsive maintenance activities. Every piece of critical water supply, water treatment, excreta disposal, or solid waste management equipment, machinery, or vehicle should have at least one backup system.

### **The importance of workshop facilities and a pipeline for spare parts**

32. A well organised workshop managed by trained staff is vital for the proper maintenance of WASH equipment and vehicles. Separate

areas should be established for cleaning, servicing, repairs, tools, storage for essential spare parts, storage for discarded parts, and storage for waste. Staffing of maintenance facilities depends on the size of the programme but typically there are three major functions including administrative (records keeping), storekeeping, and equipment maintenance (mechanics). To avoid delays waiting for spare parts, it is recommended that there is at a two month buffer stock of common spare parts that are re-ordered on use. Standardization is another important aspect of maintenance management. Using only a few types and models of handpump, centrifugal pump, or waste collection vehicle significantly reduces the number and type of spare parts that must be held in the stores and enables the mechanics to be very familiar with the maintenance procedures.

### **Monitoring of WASH personnel and WASH resources**

33. Operation and maintenance activities can present one of the largest costs in WASH programmes and it is essential that budgets are developed with sufficient resources for spare parts, fuel, consumable materials and staff to undertake preventative and responsive maintenance.
34. Labour, vehicle costs and WASH consumables make up a significant part of the expenditure associated with WASH service provision and small optimizations in efficiency of either the workforce, or the resources are used can make big cost saving. For example, the





way that hygiene promoters, waste collectors, public toilet cleaners, or maintenance crews or organised to productively manage their time can significantly improve the productivity of the WASH programme. During the care and maintenance phase it may be helpful to analyse the efficiency of WASH activities to understand how time is allocated during the day and if there are ways of reducing non-productive time (for example time spent moving to or from activities).

35. In addition to looking at efficiencies in time, UNHCR and WASH actors should also consider interventions that bring efficiencies in costs of WASH interventions. The starting point for improving the financial efficiency of WASH interventions is to ensure that the actual costs of each of the WASH interventions (water, excreta management, solid waste, hygiene promotion, disease vector control) is fully documented in the site WASH plan/strategy, including an analysis of any trends over time. This should include at a minimum..

- ◆ The cost of water supply (cost per m<sup>3</sup> for water abstraction, treatment and distribution up to the end user)
- ◆ The cost of excreta management (cost per person per year for excreta management services)
- ◆ The cost of solid waste management services (cost per tonne of managing each waste stream)
- ◆ The cost of hygiene promotion activities (cost per person per year for hygiene promotion interventions)

- ◆ The cost of disease vector control (cost per person per year for each disease vector control intervention)

These metrics WASH actors to track trends in the cost of water supply in addition to comparing the cost of water provision in one setting against another setting. In addition, they allow WASH actors to understand ways in which costs can be economised (i.e. by looking at options to reduce initial capital costs or the annual costs of fuel, electricity, consumables, staffing, logistics, or administration).

### **Documenting the operation and maintenance plan / strategy**

36. A clear description of the operation and maintenance plan should be included in the site WASH plan/strategy. This section should include:

- ◆ A description of the short, medium and long-term operation and maintenance arrangements.
- ◆ A description of the short, medium and long term WASH staff capacity building arrangements.
- ◆ A description of critical WASH backup and spare parts capacity planning.
- ◆ A presentation of the actual costs of operation and maintenance for each of the WASH interventions including an analysis of any trends over time and efforts to reduce operation and maintenance expenditure.