

**RAPID NEEDS ASSESMENT
for
WATER, SANITATION AND HYGIENE**



WORLD HEALTH ORGANIZATION
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RAPID NEEDS ASSESMENTS – WATER SANITATION AND HYGIENE

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RAPID NEEDS ASSESMENTS – WATER SANITATION AND HYGIENE

1. Introduction

The WHO Regional Office for South-East Asia, through its Water, Sanitation and Health (WSH) and Emergency and Humanitarian Action (EHA) Units, has conducted a regional situational analysis on water and sanitation in emergencies in 2003. Covering six Member countries, a Regional Strategy on Water and Sanitation in Emergencies was a product of this exercise. As part of the recommendations in that initiative, developing these assessment tools is one of the main products in strengthening the preparedness and response capacity of WHO regional and country offices to address water and sanitation needs in an emergency.

The initial drafts were then brought to Bangladesh through the auspices of the WHO EHA and WSH focal points in the country office for pilot testing. This was done through a workshop, which involved representatives from concerned national and international institutions who are responsible for addressing water and sanitation needs in emergency situations. After incorporating several suggestions, the final product is composed of the following:

1. **The Needs Assessment Tool:** A comprehensive and easy to use tool to be able to obtain a complete an overview with the essential details for water and sanitation needs in an emergency
2. **Guidance Notes:** Summarized information to enhance use of the needs assessment tool which includes methods that can be used to collect and process information. This also includes the possible issues that one may face when conducting a needs assessment exercise and how to avoid or deal with them
3. **Reporting Form:** A format to summarize the findings from the needs assessment is provided
4. **Flash Proposal Format:** As part of every emergency situation flash appeals are necessary to find the resources to address the needs that have been ascertained.

Together, these documents form a package which will be used in the WHO Country Offices in the South-East Asia Region. It is hoped that the tools in this compilation will assist not only WHO, but also UN Agencies, NGOs, and Ministries involved in water, sanitation and health to better address this primary issue in emergencies. In the future, it is envisioned that these tools will continue to evolve particularly for the various contexts in which they will be used in the Member States and emergency situations.

2. Disaster Needs Assessments & Emergency Response

2.1 Purpose of disaster needs assessments

A good assessment is the key to a successful emergency response. A disaster needs assessment serves two primary purposes. First, it will inform the response priorities and plans. Second, it can support the flash appeal for outside assistance should the disaster be of such a magnitude that the humanitarian obligations cannot be met within the limits of budgeted resources. The proposal format given in chapter 7 can be used to form the basis of a flash appeal for assistance. Even when an appeal is not required, the disaster needs assessment will help WHO SEARO emergency response decision makers determine and implement appropriate emergency response measures.

To plan effective response efforts, decision makers need to know:

- Whether or not an emergency exists
- The demographics of the affected population and the number of people affected
- The details of the emergency (cause, location, magnitude of disaster, etc.)
- The condition of the affected population (mortality and morbidity rates)
- The local response capacities and available resources, including organizational and logistical capabilities
- The extent and type of life-saving needs and priorities
- The likelihood of additional future problems or needs

Any rapid assessment is as good as its reporting – the output from a rapid assessment is a report on the disaster situation and a set of recommendations on whether and how best to respond in the first phase. It is therefore important to identify the eventual users of the information and their particular information needs. Data, which include perceptions, numbers and facts, only become useful information when they are meaningful, relevant and understandable at particular times and places, for specific purposes.

2.2 Emergency response priorities

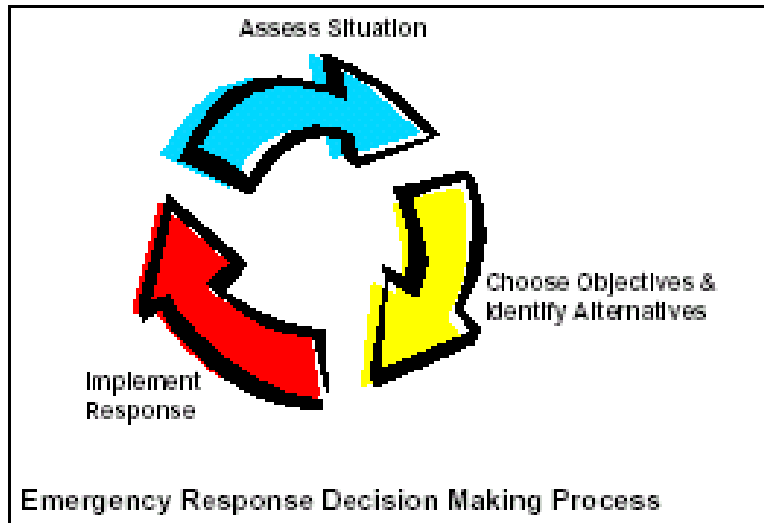
Disaster emergency response is aimed at addressing the critical and priority needs resulting from a disaster. Generally, the common priority emergency needs following a disaster will include the following, and the disaster assessment will need to determine the existence of these needs as well as their scope.

1. First priority should be to save the lives of people who are affected due to the disaster.
2. Provide basic life support needs: drinking water and sanitation, adequate food, appropriate medical assistance, shelter (through housing and clothing) and fuel (for cooking and heating)
3. Protect disaster victims from physical violence and aggression, particularly in disasters involving refugees and internally displaced persons.
4. Address the psychological and social stress caused by the disaster, providing the victims with psychological and social support.

2.3 Emergency response based on emergency assessments

The emergency situation needs to be assessed properly and objectives formulated before any emergency response is launched. A disaster response program implemented without first assessing the disaster impact, the resulting needs, and the local response capacities will most likely offer assistance that is unnecessary and

inappropriate and which supplants local efforts. Ideally, an emergency response should consist of the following three stages: assessing the situation, choosing objectives and identifying intervention alternatives, and implementing response based on the objectives and alternatives.¹



As the diagram implies, disaster assessment should be an ongoing and repetitive process. This reflects that accuracy and nature of data availability as well as needs vary as the post disaster situation unfolds. There will be need to carry out subsequent assessments following a first rapid assessment. The frequency and extent of these assessments will vary with situations and type of disaster, availability of resources or any critical developments like a secondary disaster, new population movements or an epidemic outbreak.

The objectives of the assessment and the data-gathering techniques will change as the response evolves. Initial rapid assessments can be quick and unrefined, but should improve as more time and data become available.

It is also important to understand that effective interventions are time-critical and rely greatly on resources already present in the affected area. For earthquakes, in particular, search and rescue and early emergency medical care must rely substantially on local resources. Accurate and credible information telling decision-makers what is not needed can help reduce the overall complexity of the logistical response.

2.4 Assessing the situation

At the outset of any emergency, the rapid assessments should be timely and inform emergency responders about critical and immediate life-saving needs. In disasters—especially rapid onset disasters or sudden population influxes—there will be great uncertainty about the actual problems. Therefore, decision makers should use a systematic assessment approach to develop a picture of where people are, what condition they are in, what they are doing, what their needs and resources are, and what services are still available to them. After an initial assessment, more in-depth emergency needs assessments need to be conducted to collect information related to critical sectors and technical areas of concern.

¹ Source : IFRC training module on assessments.

2.5 Choosing objectives and identifying alternatives

Initially, this stage requires **analysis and interpretation** of the data with a focus on identifying the risks to various populations. It is important to have a detailed understanding of the general risks associated with a particular type of emergency and how these may change. Some general risks frequently present in the emergency phase are:

- Continuing presence of hazard agents—secondary flooding, fire, landslides, extreme cold, chemical pollution, etc.
- Loss of “lifeline services”—clean water, waste disposal, medical treatment
- Inadequate supply of emergency clinical services
- Inadequate supply of essential foods
- Effects of severe climatic conditions exacerbated by lack of shelter, warm clothing or heating fuel

A second important element in this stage is forecasting— this is an attempt to study the existing situation and develop a set of predictions based on various likely scenarios. In particular it is important for an assessor to judge whether resources, sometimes essential for particular problems can actually be made available before their importance fades. For example, decisions on emergency medical care and search and rescue during earthquakes are so time-sensitive that even a few hours delay can lead to an almost total waste of resources. These factors are hence very critical especially in first phase emergency. There will also be a need to identify major secondary threats to survivors, such as secondary flooding or landslides, damage to chemical plants or fuel storage fires, etc.

3. Tools of Assessment

3.1 Sources of information

Existing information

Existing information may be available from many sources, including the following: Satellite data, geographical information, rainfall, soil, and geological maps and aerial photographs can provide a lot of background information on land use, terrain, vegetation, soil, water resources etc., but this kind of information is not always easy to get hold of and may not be available at the time it is needed. Other agencies, government departments, universities etc. may have reports relevant to the situation, from field assessments, projects or desk studies. Background information from these sources can be vital in helping plan and implement any possible response, and may be sufficient for preparing an outline plan of action, but there is no substitute for a field visit for up to date and verifiable information.

3.2 Relying on secondary sources

The situations sometime may force the assessor to depend on government agencies, non-governmental organizations or community groups for their information. When relying on information provided by another organization, it is important to carefully consider its accuracy and whether information from one source contradicts information from another. Especially, when using secondary data, check for consistency between multiple sources of similar data if possible. Following questions may be useful when evaluating assessment information:

- Who did the assessment? What experience/expertise do they have in this area?

- How much time did the assessment team spend on-site? Did they visit the site?
- Whom did the assessment team interview? What important beneficiary groups did they fail to consider?
- If the assessment report contains statistical data, are they primary or secondary data? If they are secondary data, what is the original source? Does the team have the expertise to judge the validity of statistical information? If not, which experts should they consult?
- What is the possibility of a segment of the population (e.g. an ethnic, class, national, geographic, religious, or vulnerable group) being inadequately assessed?
- Considering the source of information, what biases may be reflected in the assessment findings?
- Does the organization, whose data is being used, have an interest in presenting biased information?

3.3. Field assessments

However experienced the field assessors are and however well developed their intuitive understanding of emergency situations, it is helpful to use checklists for assessments, to ensure that all the relevant questions are asked and that information is gathered in a way to allow it to be reported and communicated in a structured form, and analyzed in way which facilitates decision making. Information should be collected on the following areas for planning public health interventions:

* Demography * Environment * Logistics * Shelter * Water Supply and Sanitation * Food and Nutrition * Health Status and Medical Care * Psycho-Social Issues * Security

For assessing water supply sanitation and hygiene needs in particular, use the checklist in Chapter 4 to decide what action, if any, is needed.

3.4 Field assessment techniques

Below are some examples of techniques, which are presented in an order which reflects an increasing level of participation of the affected community. They range from techniques such as aerial observation and site inspection which involve the community only as the subject of observation or counting through surveys, to techniques borrowed from Participatory Rural Appraisal (PRA) and Rapid Rural Appraisal (RRA) practice, such as ranking and discussing, which involve the affected people as active participants in the assessment and analysis of problems and possible solutions. The degree to which different types of techniques are appropriate depends on the sort of information required, the time available and the extent to which it is considered necessary to involve people in analysis and decision-making. It is generally appropriate to use less participatory and more rapid techniques for initial assessments to gather basic data on the size and nature of the emergency and to make estimates of the scale and type of response needed, if at all. But as soon as conditions allow, more participatory techniques should be used to ensure that solutions considered are acceptable to and appropriate for the mix of people in the population concerned, and that they are suitable for the longer term.

As with any technique, the value of the information they produce depends very much on the skill and organization of the assessment team, and on its interpretation.

3.5 Remote / technical

This includes fly-overs in aircraft, views from high points (hills, vehicle roofs, high buildings), and photographs taken from all these vantage points. This is a very rapid method to assess the scale of a disaster, to prospect for possible sites for emergency settlements and to assess the movements of displaced populations. It does not however give any detailed information on specific needs of the affected population, which can only be carried out by actual field assessments.

3.6 On-site visual assessment

This can be combined with mapping and photography for documenting conditions and providing information for analysis and planning. An on-site visual assessment is usually done on foot or in a vehicle. This may be a structured and focused process, such as a health walk or structured observation, in which a number of particular issues are observed during progress around the site, such as the number and location of water sources, their condition and intensity of use, what parents do when their children defecate on the ground etc. It may also include a sanitary survey to assess the likely risk of contamination of a water source and measures needed to reduce that risk. This is perhaps the most useful in carrying out first phase assessments, they should always be used with checklists in order to cover all the relevant issues.

3.7 Expert measurements and testing

This includes processes such as water sampling and analysis, inspection of sewers or pumps, or identifying disease vectors, which require specialist knowledge and experience. This is commonly combined with advice from key informants and may be backed up by previous records. These techniques are useful in generating more specific information once broad areas requiring further information are identified. They are also useful in monitoring data.

3.8 Surveys

Surveys are used to gather statistically valid information from a representative sample of the population or of a sector of the population. Three stages are involved:

1. Establishing the survey technique

This involves establishing the population from which the sample is to be randomly selected (e.g. the total population, the population in one part of the settlement, the population of mothers of children under 5 years old etc.); and establishing the sampling method and number of individuals in the sample. The number in the sample is typically between 100 and 200 people, but the number chosen will depend on the degree of accuracy and reliability that is sought, the time and resources available and the sampling technique chosen. The sample size does not depend on the size of the total population. There are a number of sampling techniques, suitable for different types of survey.

2. Carrying out the survey

This involves selecting individuals or households according to the sampling technique chosen, conducting interviews, measurements or observations of the sample, recording and collating information. This can be a major undertaking, involving training and mobilizing significant numbers of staff. On the other hand, it could be relatively simple, for instance interviewing patients leaving a clinic to find out what disease they are suffering from and what water supply and sanitation problems they face.

3. Processing and interpreting the results:

This involves processing the information recorded using standard statistical techniques, depending on the survey technique chosen, in order to assign figures to the results. The key figures are a percentage or proportion, the likely range of the true figure - a

measure of accuracy - (usually the range which corresponds within which it is 95% probable that the real figure is found) and a measure of statistical significance or reliability.

Surveys have been used in assessments for water supply and sanitation programmes in a number of situations, and can provide rapid information on things like water consumption (including the variation in consumption between households and sections of a settlement), access to water containers, access to toilets, hygiene knowledge, attitude and practice and prevalence of water and sanitation-related disease. This statistical information is a powerful tool for advocacy, planning and measuring impact later on. For more information on survey techniques and applications, see Simmonds, Vaughan and Gunn (1983), chapter 4.

3.9 Interviews

Interviews are used to collect detailed information about specific issues, which cannot be gathered by simple observation. For instance, many practices to do with hygiene are not easy to observe, as they are carried out in private when possible. Interviews may be more or less structured, depending on the sort of information to be collected and how it is to be interpreted and presented. Interviews may be held with:

- **key informants** - to gather information rapidly on a particular topic, such as the location of wells, seasonal variations in surface water levels or common practices regarding defecation. There is always a risk that the information is unreliable because of the possible personal interests or perspective of the informant, and their information should be verified. Key informants are often people who speak the language of the field worker or who are easy to approach for other reasons, and they may be very unrepresentative of the general population.
- **formal leadership structures:** - to gather information about community structures and to encourage participation in programme implementation. Formal leaders may or may not be representative of the general population and may or may not have the population's interests at heart. Again, verification is necessary.
- **general groups:** - to gather general information about how the disaster has affected people and what their intentions and ideas are
- **focus groups:** - these are groups of people with a particular interest in the topic on which information is sought, or whose views might otherwise not be noticed in the collection of information on a more general level. For instance they may be a group of people collecting water, or a group of children, or a group of women at an ante-natal clinic, who may have particular needs or preoccupations.
- **households and individuals:** - to ask about access to water supply and sanitation services and resources and hygiene issues at the household and individual level. Household interviews may be used to gather detailed information with in-depth discussions, or may be the basis of household surveys, where a large number of households are visited. Household visits are also an opportunity for visual inspection of toilets, water storage and use, food hygiene etc.

Most of these techniques can be combined in one way or another. For instance, a visual assessment on site is usually combined with key informant interviews or focus group discussions (for instance talking with a local technician during the visual assessment, stopping along the way to talk with people collecting water etc.). Many of the techniques are ones that field workers may already use informally. The purpose of giving names and structures to the techniques is to enable them to be used in a consistent and comparable way and for results to be recorded and communicated clearly and effectively. However, it is important that survey design, implementation and

interpretation techniques are sound, or there is a risk that unreliable information will be given false respectability simply because it is presented in a quantified form.

3.10 PRA and RRA techniques

These are typically highly interactive techniques, which demand time and patience from assessors, but which allow people from the affected community to express their own opinions on their situation and contribute to analysis and decision making. For agencies with a commitment to working in a participatory way these assessment techniques are a means to build this approach into the programme from the beginning. As with all assessment techniques based on information gathering from a sample of the population, care should be taken to ensure that a range of views are noted and that general conclusions are not drawn from an unrepresentative group of informants. These techniques are particularly useful for getting an understanding of how resources and activities are shared within the community, how different sections of the community are affected by the disaster and what the likely impact of the proposed water supply and sanitation activities will be in detail. Some examples of PRA and RRA techniques are:

- **Ranking** - in which participants are asked to rank various elements of their situation, such as the need for washing facilities, the need for taps closer to shelters or the need for more water storage vessels, symbolising them with long or short sticks, for instance. This can help field staff understand what people feel their priorities are and also give an opportunity for them to discuss programme options and possible constraints, and explain what the agency views as the major priorities.
- **Diagramming** - using maps, charts or other visual means of portraying relationships in time (calendars of activities), space (maps and transects), resources (relationship diagrams) and others. These are very useful for collecting information - for instance on the location of local water sources, seasonal variations in disease incidence or availability of labour - and for gaining an understanding of how people in the affected community view their situation. It can also be a means of understanding how the agency itself is perceived.
- **Discussing** - the various forms of discussion described above can be used as part of a participatory assessment, and are a good way to cover general issues and find out what to explore in more detail.

3.11 Checklists

Checklists are perhaps the easiest and most complete tools for a rapid initial assessment. A checklist is an abbreviated list that prompts assessors to remember key points and ask certain questions; they can also be useful for documenting responses.

Rapid assessment checklists for water sanitation and hygiene assessments have been developed and are given in chapter 4. Tips and guidance notes on the checklists have been detailed in chapter 5.

3.12 Minimizing assessment bias

All data collection methods are subject to the problem of bias. Bias leads to misinterpretation of answers or mistaken analysis that draws conclusions from information which is not representative of the affected population. Bias can result from leading questions (those which propose an answer), poorly worded or poorly

understood questions, poor sampling techniques, or the particular bias of the assessors or reviewers. Specific forms of bias include:

Spatial bias

Issues of comfort and ease for the assessors determine the assessment site. Rather than travel into an area, the assessors conduct a "windshield" survey, never leaving the comfort or straying far from their truck.

Project bias

The assessor is drawn toward sites where contacts and information are readily available and may have been assessed before by many others.

Person bias

Key informants tend to be those who are in a high position and have the ability to communicate in a language known to the assessor. They may or may not be conscientious, insightful or respected by those they are purporting to represent.

Season bias

Assessments are conducted during periods of pleasant weather or areas cut off by bad

weather go unassessed. Thus, many typical problems go unnoticed.

Mandate or specialty bias

The specialty or mandate of the assessor blinds them to needs outside of his/her specialty.

For example, a shelter specialist may primarily only assess shelter needs, neglecting nutrition and water needs.

Political bias

Informants present information that is skewed toward their political agenda. Assessors look for information that fits their political or personal agenda.

Cultural bias

Incorrect assumptions are made based on one's own cultural norms. Assessors do not

understand the cultural practices of the affected populations.

Class/ethnic bias

Needs and resources of different classes of people or different ethnic groups are not included in the assessment. Local assessors may have this ethnic bias, or the key informants may only represent one social class or ethnic group.

Interviewer or investigator

Assessors may have a tendency to concentrate on information that confirms preconceived

notions and hypotheses, causing them to seek consistency too early and overlook evidence inconsistent with earlier findings. Assessors may also exhibit partiality to the opinions of elite key informants.

Key informant bias

Biases of key informants are carried into assessment results.

Gender bias

Assessors only speak to men or male interviewers survey women, or vice versa.

Time of day or schedule

The assessment is conducted at a time of day when certain segments of the population may be over- or under-represented.

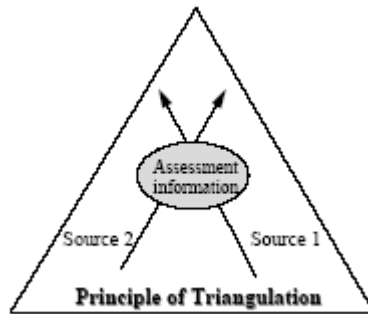
Sampling bias

Respondents are not representative of the population. Being aware of different types of bias is the first step in minimising its impact on your assessment.

3.13 Triangulation

Triangulation is one method for minimising bias that requires the assessors to seek out, compare and correlate several sources of information. Triangulation is based on the principle that data must be obtained from at least two other known points. Information for emergency assessments must come from different sources to provide a relatively accurate assessment of the situation.

Principle of Triangulation



Triangulation may be achieved through the use of different assessment techniques or approaches or by using different indicators of the same phenomenon and consulting different sources. The different approaches or indicators may be compared to the two arrows in the diagram above. The key to using different approaches is to find dissimilar methods or techniques that will not be subject to the same type of bias. Do not rely on a single method or a single measure of a problem. Triangulation can be applied to almost all aspects of the preparation and implementation of an emergency assessment.

3.13 Team and joint assessments

Using a team assessment approach, and paying attention to the composition of the assessment team is another way to minimise bias. By including a variety of specialists and generalists on the team and by striking a gender balance, many types of biases can be avoided. The following list provides an overview of roles and competencies that might be considered when composing assessment teams.

Assessment Teams

- Team coordinator/liaison
- Logistics specialists
- Public health—epidemiologist
- Food and nutrition specialists
- Shelter specialists
- Environmental health/water supply specialists.

To add additional perspective and diversity to the team, the team may also include a mix of local and external team members. Local people may know the local situation and customs but may also bring certain types of local biases and preconceptions damaging to the accuracy of the assessment. The external "outsider," on the other hand, while less familiar with the situation, may be able to provide the expertise and perspective of distance that is also needed in making useful assessments.

Tips for field assessments²

- Use all the senses. Environmental health problems can usually be seen, touched, heard, smelled and even tasted.
- Get several opinions on the situation from different points of view. Ask the same questions in different ways. In complex situations, try to get beneath the obvious responses.
- Be aware of who you represent. This has a great effect on the quality of information you are likely to receive.
- Try to get figures. Reliable quantitative data is essential for describing the problem, for assessing its severity and the measures to take, and for establishing baseline information for monitoring and evaluation.
- However, be aware of the limitations of the data you may collect and the extent of its inaccuracy and/or reliability.
- The assessment is only as good as the reporting of it. The report from a field assessment has to present the information needed to persuade other people that there really is an emergency, to start programme design, to set objectives, to write budgets and to present proposals to donors.
- Good communications systems are important to get reports and information to decision makers fast and to keep people up to date as the situation changes. Ensure that you can feed back the results of the assessment quickly to allow speedy and informed decision making within your organisation.
- Use up to date maps. Make them if necessary.
- Make and use up to date lists of key contacts to meet
- Try to get an overview before going into the detail on site
- Talk to people and explain what you are doing and the possibilities *and constraints* of a possible response by your agency
- Share your findings with others
- Only collect the information you think you will need. Don't waste time on unnecessary surveys, and concentrate on priority areas
- Present your findings with arguments to show how you reached your conclusions. You may not be present to provide the details at meetings where programme decisions are taken.

² Source: Oxfam assessment guidelines

4.0 Checklist for Rapid Assessments

4.1 Water:

General Description:

Write full description of the facilities available before disaster and the practices. Include the facilities constructed, operation and maintained with general comment on quantity, quality and current factors.

General:

- How many people are affected? Where are they? How are they distributed? Settled or mobile?
- What are the current or likely water and sanitation related diseases?

Quantity:

- 1 How much water is available per person per day, and do all groups (e.g. men, women, localities, castes, etc.) have equitable access to it?
- 2 How much water available at the sources. Is it enough for short term and long term needs?
- 3 Is the current water supply reliable? What may affect this (Seasonality)? How long will it last?
- 4 Is livestock population considerable? If yes, what is the provision for drinking water for the livestock?

Quality:

- 1 What are the water sources?
- 2 Is the water source contaminated or at risk of contamination (microbiological and chemical/radiological)? If so, what is the contaminate?
- 3 Is treatment required? Is treatment possible? What type of treatment is necessary?
- 4 Is disinfection necessary, even if supply is not contaminated? Is water contaminated while storage and transportation? If so, why?
- 5 What are the key hygiene issues related to water supply?
- 6 What means do people have to use water hygienically in this situation?

Accessibility:

1. How far are water collection points from where people live? (Minimum Standard, Shelter to water point 500m.
2. Are there any problems of accessibility for vulnerable segments of the population like elderly, disabled, women etc?
3. What and where are possible alternative sources?
4. Are there any legal or other obstacles to using available supplies, If yes, list and describe briefly.
5. Is it possible for the population to move if water sources are inadequate? Who makes this decision?
6. Is it possible to tanker if water sources are inadequate? From where?

Storage:

1. What are people using to transport water? Do people have enough water containers of the right size and type?
2. Is there a possibility of contamination during storage and transport due to the containers currently in use?

4.2 Sanitation:

Excreta disposal

General Description:

- Write a full description of the current facilities and practices(include anal cleansing). Include how facilities were constructed ,operation and maintained with general comment on quantities, qualities and current factors.
- What is the estimated population and how are people distributed across the area? (Minimum Standard - Max 20 people per toilet).

Facilities:

1. Are there any existing facilities? If so are they used, are they sufficient and are they operating successfully? can they be extended or adapted? Do all groups have equitable access to these facilities? (Minimum Standard – toilets no more than 50m from dwellings or no more than 1 minutes work).
2. Do vulnerable groups like elderly, disabled, women, children have easy access to the facilities?
3. Are the current defecation practices a threat to health? If so, how?
4. What is the current level of awareness of public health risks? Are their hand washing facilities?
5. Is there sufficient space for defecation fields, pit latrines etc?

Practices:

1. What are the current beliefs and traditions concerning excreta disposal especially regarding women’s habits and attitude towards child excreta? What material/water is used for anal cleansing? Is it available?
2. Are both men and women prepared to use defecation fields, communal latrines or family latrines?
3. Are there any people familiar with the construction of latrines?
4. How do women deal with menstruation? Are there materials or facilities they need for this?

Technical Aspects:

1. How does the land slope and what are the drainage patterns?
2. What is the depth and permeability of the soil, and can it be dug easily by hand
3. What is the level of the groundwater table? (Minimum Standard – bottom of any latrine pit is > 1.5m above water table).
4. What local materials are available for constructing toilets?
5. When does the seasonal rainfall occur?

Solid waste disposal

1. Is solid waste a problem?
2. How do people dispose of their waste?

3. What type and quantity of solid waste is produced?
4. Can solid waste be disposed of on site, or does it need to be collected and disposed of off site? (*Minimum standard - 1 100L refuse container is available per 10 families 5m from dwelling where refuse must be taken off-site*).
5. Are there medical facilities and activities producing waste? How is this being disposed of? Who is responsible?

Wastewater disposal:

Drainage

1. Is there a drainage problem? (Flooding shelters and latrines, vector breeding sites, polluted water contaminating living areas or water supplies)
2. Note the current waste water disposal of water from –
Water Points, Domestic waste water from washing utensils, bathrooms, laundry etc, Livestock.
3. Are there any stagnant pools of standing water
4. Do people have the means to protect their shelters and latrines from local flooding?
5. Is there enough slope/drainage for disposal of storm water.

4.3 Public Health Promotion

1. What health related behaviors are contributing to the public health risks faced by the affected population?
2. What are the common health related practices among the affected population and how have these been affected by the emergency?
3. What are the current practices on the key hygiene behaviors like
 - a. Washing hands after defecation.
 - b. Method of disposal of children's feces.
 - c. Practices for storage and handling of water.
 - d. Practices of storage and handling of food.
4. How community dispose their solid waste?
5. What are the breast feeding practices?
6. Is there an understanding of the relationship between water/sanitation/shelter /vectors and disease?
7. Does the community have access to lidded water containers/ cooking utensils / mosquito nets / soap / sanitary protection / blankets / bathing facilities?
8. Are they linked with water and sanitation and /or health services?
9. Are the users involved in the management and maintenance of water sources and latrines?
10. What health promotion media are available / accessible to the affected population? (Radio, posters / leaflets, local folk media and other)

5. Guidance Notes

5.1 WATER

A. Quantity

The quantities of water needed for domestic use may vary according to the climate, people personal habits, the sanitation facilities available, the cultural and religious practises. The food they cook the clothes they wear. Water consumption generally depends on the location and the distances of water source. As mention above adequate quantity of water should be provide it should be taken in to consideration that people suffering with HIV/AIDS need extra water for drinking and personal hygiene. Attention should be given to ensure that the water requirement of livestock and water for irrigation where livelihood depends on these.

Following table shows quantity of water required for survival

<i>Simplified table of basic survival water needs</i>		
Survival needs: water intake (drinking and food)	2.5-3 litres per day	Depends on: the climate and individual physiology
Basic hygiene practices	2-6 litres per day	Depends on: social and cultural norms
Basic cooking needs	3-6 litres per day	Depends on: food type, social as well as cultural norms
Total basic water needs	7.5-15 litres per day	

Source: Sphere standard

Minimum water quantities needed for institutions and other uses

Health centres and hospitals	5 litres/out-patient 40-60 litres/in-patient/day Additional quantities may be needed for laundry equipment, flushing toilets, etc.
Cholera centres	60 litres/patient/day 15 litres/carer/day
Therapeutic feeding centres	30 litres/in-patient/day 15 litres/carer/day
Schools	3 litres/pupil/day for drinking and hand washing (use for toilets not included: see below)
Mosques	2-5 litres/person/day for washing and drinking
Public toilets	1-2 litres/user/day for hand washing 2-8 litres/cubicle/day for toilet cleaning
All flushing toilets	20-40 litres/user/day for conventional flushing toilets connected to a sewer 3-5 litres/user/day for pour-flush toilets

Anal washing	1-2 litres/person/day
Livestock	20-30 litres/large or medium animal/day 5 litres/small animal/day
Small-scale irrigation	3-6mm/m ² /day, but can vary considerably

Source: Sphere Standard

Some important tips

1. **Water Source-** Generally the affected population, displaced or otherwise will have an existing source of water. It is essential that this is looked at and assessed carefully. Generally, the traditional water sources are either under extra pressure or become polluted / destroyed, and people are exposed to an increased risk. The source can be of any type – from a complex piped water supply system to a more basic stagnant pool of water, in any case the status of the existing source needs to be studied and reported in the assessment.
2. **Availability of water-** This may be easy to assess if a well developed water supply system exists. The volume of supply can be easily monitored. It becomes a more challenging task to assess the quantity of available water if the current source (s) are more dispersed like dug wells, hand pumps etc. One way to estimate the adequacy of available water in case of point source (well, hand pump, tap etc) is to find out how many sources are available for the population. Accepted norm for a pipe tap or hand pump is 250 people per source.
3. **How much water per source** – the easiest way to determine this is to see if the source is crowded or has long waiting queues. Flow measurement and counting the number of sources for the affected population gives more accurate data for basing future decisions. The standard flow rate of 0.125 lps is based on the consideration that it should take less than 3 min to fill up a 20l water container.
4. **Distance of the source** Studies have shown that the amount of water used goes down as the distance of the source from the dwelling increases, a maximum distance recommended is 500m.
5. **Reliability of source** – This is a very important question to be asked during assessments. The assessments are generally for a short period of time after the disaster and the status of the water source at that time is the situation in the particular season. The situation may vary a great deal with change in season, and detailed information on this should be documented by the assessor – a dug well may become dry in the summer or a pond may be at increased risk of pollution from an upstream town in rainy season.

B. Quality

A sanitary survey is an assessment of conditions and practices that may constitute a public health risk. The assessment should cover possible sources of contamination to water at the source, in transport, at the point of delivery and in the household level. It is also important to know defecation practices of the affected community. The quality of drinking water is determined by physical, chemical and microbiological characteristics. In most emergencies the microbiological quality is the most important characteristic of water.

1. Micro biological contamination:

It indicates the level (amount) of human and animal waste contamination in the water. Human and animal waste contains harmful pathogens, which affect the

human health. Sphere standard recommends no faecal coliform bacteria per 100ml. If there are any faecal coliform present in the water it should be treated before delivering.

2. Physical, Chemical and radiological contamination:

The chemical and physical quality of water have direct health impact and also the acceptability of water by affected community. Industrial or military activity may suggest the possible contamination of chemical and radiological contamination those risk should be assessed rapidly by carrying out chemical analysis of water. Water can be supplied only for short term and for immediate supply after emergencies even if physical and chemical quality of water is not up to the standard.

In special cases like arsenic contamination, the assessor should make specific enquiries about water quality of an existing source and should try to get reliable data from authorities during assessments.

3. Post Delivery contamination:

Water, which is free from any contamination at the sources, may contaminate due to improper handling and transportation of water. Possibility of unsafe storage facility at the community or at household level contaminates the water. Over crowding condition at the delivery point is common in the initial phase of emergencies and there is always a high risk of contamination at time of collection.

4. Water Containers:

Many times in emergencies, water is available only at specified times (tankers, rationed supply etc). The affected people should therefore have enough storage capacity within their dwellings. These should be safe storages – i.e; they should be such that they do not allow pollution of water while in transport or during storages. The containers should have a cover and preferably a tap. The size of the container is also important, a size of about 15- 20 l is considered optimal.

5. Look and taste:

Taste is not in itself a direct health problem (e.g. slightly saline water), if water supply does not taste good, users may drink water from unsafe source and put their health at risk. This may also be a risk when chlorinated water is supplied. Higher turbidities also need to be checked carefully. The recommended maximum turbidity value is 5 NTU. If the turbidity is higher, it may also influence user preference. The effect of disinfectants like chlorine is also hampered due to high turbidity.

6. Contamination of Source:

As a general rule all surface sources should be considered as contaminated in the first phase emergency and provisions should be made for the disinfection (eg. chlorination). Ground water sources, are generally safe if there is no obvious source of pollution. A proper sanitary survey of any water source should be carried out to ascertain the likelihood of contamination of the source.

C. Accessibility

In the initial phase of the response the first priority is to reach to survival of affected population. People affected by any disasters are vulnerable to disease so in such situation it is recommended that the agencies should plan to raise the level of water and sanitation facilities to avoid any epidemic.

The number of people per water source depends on the type of water source and yield of that particular source. Yield of source depends on the availability of water for example ground water source depends on the recharge capacity of sources and tap stand may supply water constantly depending on the availability of water.

Sphere standard gave some guideline for no of people per tap stand assuming that water point is accessible for approximately 8 hrs a day.

250 people per tap	Based on a flow of 7.5 lites/minute
500 people per handpump	Based on a flow of 16.6 l/m
400 people per single-user open well	Based on a flow 12.5 l/m

Sources: Sphere Standard

Excessive queuing time indicates the insufficient water source or adequate water in the source. This may leads to reduction in per capita consumption of water, or ann increase in consumption of water from unsafe water sources.

Care should be taken while locating water sources it should be located such way that equitable access to all community regardless of cast, religion, sex etc. should be planned with discussion of user community. Time should be set such that it is safe and convenient for the women and those who collect the water. Consideration should be given to the needs of people with HIV/AIDS, older and disable while constructing and locating water sources.

Availability

Availability and sustainability of safe drinking water supply for the affected community is the most important parameter while selecting any source. The assessor should consider that a rapid assessment is carried out for a specific period in a particular season, the seasonal variations in yield from the water source should be explored and documented.

D. Other Important Issues

1. Alternative Sources –

Generally, different sources are used for different purposes. An assessor should identify and document the different alternative sources and note down the potentials/ problems involved in developing each of the sources.

2. Use of the sources –

The assessor should explore any problems related to use / further development of the sources. Relevant water authorities may have to be referred to in this regard. Individual ownership/ water rights will have to be explored. Land ownership in case of new sources will have to be checked.

3. Tankering –

Tankering should be the last option for water supply. It is expensive and difficult to maintain and requires very close monitoring. However sometimes this may be the only option available in emergency situations. The exploration for a source of tankering should also consider the routes, accessibility, time of travel etc.

4. Key hygiene issues related to water supply-

For piped water supply the distribution point should be kept clean and hygienic. There should not be any stagnant water and dirt surrounding the tap stands. If water is distributed from an open storage tank, measures should be taken that people don't contaminate the water while fetching. If there is any risk of diarrhoeal disease outbreak special care should be taken to monitor that people don't contaminate water by dipping hands and contaminated vessels. Water for livestock consumption should be supplied at a different place. Users should take maximum responsibility for maintenance and management of water supply facilities. Promotional activities need to be carried out to minimize water getting contaminated at the stage of post delivery or household storage.

What means do people have to use water hygienically-

Flow of information should be maintained so that the population is able to use water hygienically. Availability of sufficient water is essential to meet the basic needs of people. People need vessels to collect water, to store and to use it for washing, cooking and bathing. These vessels should be clean, hygienic and easy to carry and be appropriate to local needs and habits, in terms of size, shape and design. Distribution of clean and appropriate storage containers with a tap on it or a ladle or other safe means, a residual disinfectant to treat the water at the point of use could minimize the risk of water contamination at the household level. The storage container should be placed above the ground level to minimize contamination. There should be soap available to wash hand after defecation and before handling food and water. A system should be maintained to collect water from the common distribution point and proper drainage system to avoid stagnant water.

Water supply situation and damage in different Emergencies situation

➤ **Earth quake**

- Total or partial destruction of intake, transmission, treatment, storage and distribution system.
- Rupture of transmission and distribution pipe and damage to joints between pipes or tanks, with consequent loss of water.
- Interruption of electric power may stop water supply.
- Contamination of water due to damages to sewage line and due to debris of houses.
- Introduction of salt water in to the pipe line.
- Damages or change of flow of ground water aquifer.
- In case of pipe material like Asbestos Cement, the pipes may develop hairline cracks which expand once the water pressure increases.
- Heavy earthmoving equipment, generally deployed after an earthquake, also damage the distribution network.

➤ **Flood**

- Total or partial destruction of river water intakes.
- Damage to pumping stations close to flooding water-way.
- Blockage of pipeline component due to excessive sedimentation.
- Loss of intake due to change in the watercourse of river.
- Rupture or wash out of pipe, which is along and across the river and stream.
- Contamination of water sources.
- Power cut road blockages, and disruption of communications.
- Back filling of ground water sources.

➤ **Drought**

- Loss or reduction of surface and groundwater sources and deterioration of water quality.
- A decline in water levels at intake points and in storage facilities.
- The need to distribute water with water trucks, affecting quality and increasing costs.
- Damage to the system due to lack of use.
- Excessive stress on existing water sources, making them prone to pollution.

➤ **Conflict**

- Damage to the water distribution system
- Damage to the treatment plant , tanks
- Problems with access to source.
- Power cut road blockages, and disruption of communications.
- Chemical and radiological contamination

5.2 Guidance Notes –Sanitation

1. **Population Distribution** – The situation of sanitation is exasperated in areas with higher population densities, especially after a disaster. The assessor must identify different areas having different population densities and study the facilities in these areas. This is especially true in case of urban areas as different zones will certainly have different population densities, the problems on sanitation can be prioritized to specific areas and a more effective response can be planned.
2. **Beliefs and Customs** – This is the most important factor in designing a response for sanitation and needs to be explored as much in detail as possible. An assessor may use as many assessment methods as possible (interviews, visual observation, questionnaires, focus groups etc) to get as much information as possible, and also try to triangulate similar information with different sources. Designs of toilets, types of hygiene messages depend on people's practices with regard to anal cleansing, gender issues, their perceptions of hygienic behavior etc. Children's feces although more dangerous (as children's immune system is not as fully developed as adults'), is considered 'harmless' due to lack of knowledge in this regard.
3. **Existing Facilities** – After disasters, the existing facilities, if available come under extra pressure and need to be upgraded as soon as possible. Also decisions on the amount of new facilities to be provided will depend upon the status and number of existing facilities. Studying existing infrastructure can also give the assessor important information on the prevailing practices and will be helpful in designing new facilities.
4. **Threats to health** – These can be from potential pollution of ground water source and/or from insects/ flies if the disposal of excreta is not safe. Generally the excreta disposal pits should be atleast 30m from a GW source. However, this depends largely on the type of soil/rock prevalent in the area. In case of fine grained soil like clays the risk is minimal while in case of fissured rock, the risk is greater as the pollutant can travel greater distances without effective 'filtration'. In case of open defecation, risks to water source should be quickly ascertained and acted upon.
5. **Preference of the population** - It is important for the assessor to understand the cultural and traditional practices of the population to arrive at an appropriate option. If the affected population was used to using flushed family toilets before the disaster, it will be very difficult for them to use an open defecation field.
6. **Selection of appropriate Site** – The assessor should carefully survey the affected area in order to ascertain the space availability, for construction of facilities. Any factors like availability of area, drainage patterns so as not to pollute any existing sources, distance from dwellings, ground conditions (eg ground sandy will require lining of pits while rocky areas will be too expensive to dig). Guidance manuals on planning emergency sanitation may be referred.
7. **Availability of Local Material** – Proper choice of material determines the speed of construction, sustainability of the facilities and the costs. A quick market survey to ascertain which material are easily available and the corresponding costs help a great deal in designing the program. Potentials to use local material to help generate work for host communities should also be explored.

8. **Special needs of Women** – This area should be carefully assessed through interacting with women, if required with the help of local key informants. Special needs like material and facilities for during menstruation, safety and security for women while using sanitation facilities should be understood and factored in the design.

1. Safe excreta disposal:

Various options for excreta disposal in Emergencies Situation.

Latrine Type	Technological choice	Responsibility of construction ,O&M
Family Latrine	Pore-Flush latrine Simple pit latrine Borehole latrine Composting latrine	Family members Contractors (for borehole latrine only) Hygiene promotion team to promote and advise on family latrine
Community latrine	Pore-Flush latrine Water closet Overhung latrine Trench latrine Simple pit latrine(Include raised pit and twin pit) VIP latrine	Community volunteers Agency staff Contractor Hygiene promotion to promote cleanliness an maintenance
Disabled latrine	Pore-Flush latrine Simple pit latrine VIP latrine	Family members Community volunteers Contractor Hygiene promotion team to identify vulnerable peoples and mobilise community.

Source: WEDC

While designing any sanitation facility take in to consideration the population of displaced community; segregate the data in how many men and women will serve by this facility. Construct different toilets units for men and women (Approximately 1:3). Also take in to consideration of no of disable ,elderly people ,and people suffer from HIV/AIDS.

Where ever possible provides separate urinal for men. After any emergency it is not possible to provide one latrine per 20 people in first phase, the initial planning should target for one latrine per 50 people to be upgraded as soon as possible to provide for one latrine per 20 people.

After construction of any public latrine it is very important to take into consideration of its regular cleaning and maintenance.

Institution	Short term	Long term
Market areas	1 toilet to 50 stalls	1 toilet to 20 stalls
Hospitals/medical centres	1 toilet to 20 beds or 50 out-patients	1 toilet to 10 beds or 20 out-patients
Feeding centres	1 toilet to 50 adults	1 toilet to 20 adults

	1 toilet to 20 children	1 toilet to 10 children
Reception/transit centres	1 toilet per 50 people 3:1 female to male	
Schools	1 toilet to 30 girls 1 toilet to 60 boys	1 toilet to 30 girls 1 toilet to 60 boys
Offices		1 toilet to 20 staff

Source: Sphere Standard

Human faeces may contain a range of disease causing organisms including viruses, bacteria and eggs or larvae of parasites. The microorganisms contained in human faeces may enter the body through contamination food, water, eating and cooking utensils and by contact with contaminated objects. The importance of hand washing after defecation and before eating and preparing food. Also important keep separate pots for cleaning ,to prevent the spread of diseases. Users should wash their hand with soap or ash. It is also important to provide a water source out side the latrine.

Latrine should be located at least 30 m from any water sources. If the water point (abstraction) point is upstream of the latrine, the distance can be reduced provided that the groundwater extraction rate not such that its flow direction is turned towards the water source. In heavily fissure/sandy/lime stone rock this distance may have to be increased substantially. Because pollution tends to flow down slope from its source, latrine should be located downhill from any ground water source, particularly if bottom of the latrines is less then 2m above the ground water table. Latrine should be sited not more than 50m from users shelter to enrage their uses, but should be sufficiently far at least 6 meters to reduce problems from odours and pests.

It is also important to consult with the community at the stages of design and implementation. Locate toilet at least 50 meters from living area and it should be safe for women and girl to access in the night, as they are more vulnerable to attack. Lighting should be provided in the toilets.

5.3 Guidance Note- Hygiene Promotion

Hygiene behavior has a critical influence on the transmission of disease at various stages. This is particularly important in emergency situations where disease risks are acute due to overcrowding, poor water and sanitation, exposure to new pathogens, low resistance to disease and disturbance of familiar and safe habits. The most obvious effects can be observed for the faecal oral or diarrhoeal diseases.

Need Assessment: An assessment is needed to identify the key hygiene behaviors of affected community . It is important know while designing the hygiene promotion in emergency situation the community traditional practices and the facilities available and damage in the emergency. It should pay special attention to the needs of vulnerable groups(e.g. Sick and wounded, children , the elderly , pregnant , women and people who lack immunity).

The main hygiene areas of concern for the emergency hygiene promotion programs are the appropriate use and maintenance facilities; the safe disposal of faeces; hand washing after defecation and prior to food preparation; clean water use and storage; and the control of flies and other insect vectors.

Key principles of hygiene promotion

1. Target small no of risk practices
2. Target specific audiences
3. Identify the motives for changed behavior
4. Hygiene message need to be positive
5. Identify appropriate channels of communication
6. Decide on a cost effective mix of channels
7. Hygiene promotion needs to be carefully planned, executed, monitored and evaluated.

The final responsibility of hygiene promotion lies with affected community. All actors responding to the disaster should work to enable hygiene practice by ensuring that both knowledge and facilities are accessible. As a part of this process, vulnerable groups from the affected population should participate in identifying risky practices and conditions and take responsibility to measurably reduce these risks. This can be achieved through promotional activities, training and facilitation of behavioural change, based on activities that are culturally acceptable and do not overburden the beneficiaries.

Reaching all sections of the population:

Hygiene promotion programmes need to be carried out with all groups of the population by facilitators who can access, and have the skills to work with, different groups (for example, in some cultures it is not acceptable for women to speak to unknown men). Materials should be designed so that message reach members of the population who are illiterate. Participatory materials and methods that are culturally appropriate offer useful opportunities for groups to plan and monitor their own hygiene improvements. As a rough guide, in a camp scenario there should be two hygiene promoters/community mobilisers per 1,000 members of the target population.

Focus should be

- Reducing high risk hygiene practices
- Promoting appropriate use and maintains of facilities
- Promote participation in program

6. Format for a Public Health Assessment Report

Executive Summary (*not >1 page*)

Irrespective of sector, what are the most critical obstacles to people?

- a) surviving
 - b) stabilising their overall physical/health status
 - c) improving their overall physical/health status
- Why have you focused on these? Summarise your main line of argument
 - What are the major contributions required to overcome or reduce these obstacles?
 - What roles could WHO play in overcoming/reducing these?
 - In which of these roles can WHO supply added value compared to the other players?

Introduction

Objectives for the assessment

Summary itinerary

Summary of assessment methodology

Background to the present situation

Terrain and demography: only specifics relevant to the area assessed

Political and social overview: determinants of the situation assessed

Social aspects relevant to any targeting and distribution or future work with communities.

Security situation

Sectoral information (ordered according to your view of their importance)

Water and Sanitation

- Summarize here the salient points from answers to the questions on the WATER AND SANITATION checklist (see 4.1 to 4.3) focusing on identifying serious public health risks.
- Is there sufficient water (sphere min standard 15L/p/d) for the affected population?
- Are there sufficient sanitary facilities (sphere standard – max 20 people/toilet)?
- What are the serious public health risks?
- Analyse whether the coping strategies of the population will be sufficient to sufficiently reduce the public health risks.
- What are the interventions planned by other organisations.



**Project Proposal Format
Post Disaster Appeal for Water Sanitation
and Hygiene
World Health Organization - Regional Office
for South-East Asia**

7. Project Proposal Format

Programme/Project:
Country
Type of Disaster:
Target Beneficiaries
Amount Requested:

Background and Rationale:

To contain

- Short description of the event
- Mention relevant WHO projects/involvement in the affected area/country prior to event
- Highlights of Needs Assessment Results
 - Affected population
 - Area Affected
 - Water, Sanitation, and Hygiene Status and Issues
 - Health Status
 - Coping mechanism
 - Cultural and Socio-political Issues
 - Current Humanitarian Action in the Water and Sanitation/Health Sector

Objectives and expected outcomes

Objectives:

- **General Objective:**
- **Specific Objectives:**

Expected Outcomes:

Duration of the Project

Description of the Interventions of the Project

Management Arrangements of the Project

- Roles and Responsibilities of the WHO, Government and Development Partners
- Monitoring and Evaluation Framework

Risks

Activities and Budgetary Requirements

Objective 1	Estimated Cost
Activity 1	
Activity 2	
Activity 3	
Objective 2	
Activity 1	
Activity 2	
Activity 3	
Miscellaneous	
TOTAL	