

Protecting and Assisting People in Emergencies



**Guidelines on
Best Public Health Practices
in Emergencies
for District Health Workers**

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His Majesty's Government
Ministry of Health
Department of Health Services
Epidemiology & Disease Control Division

Teku, Kathmandu, Nepal

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Cover Photo: Families affected by floods in Chitwan, August 2003,
by Trine Ladegaard

Preface

The *Guidelines on Public Health in Emergencies for District Health Workers* have been developed by the Department of Health Services (DHS) / Epidemiology and Disease Control Division (EDCD) in collaboration with the World Health Organisation (WHO) / Emergency & Humanitarian Action (EHA) to supplement and strengthen the emergency preparedness and disaster response capacity of the health sector in Nepal. The overall responsibility for disaster response lies within the Ministry of Home Affairs but within the health sector, the recently institutionalised Disaster Health Working Group is the responsible body for coordination of emergency preparedness and disaster response. At the district level, the District Natural Disaster Relief Committee (DDRC) will coordinate and manage any disaster that happens in the respective district. Any health related disaster response taking place should therefore always be coordinated with the DDRC. However, as health is not their primary focus, it was felt that a handy guideline outlining the most common features of public health concerns in disasters would be useful at the district level.

The main target group of these guidelines is the district Rapid Response Teams. Because they are already present in the district they are likely to be the first responders concerned with public health issues in emergencies. Furthermore, the guidelines can be of value to health sector emergency planners when establishing disaster response mechanisms.

The overall objective of the guidelines is to enhance the emergency response capacity of the district Rapid Response Teams thereby minimising the effects of an emergency, especially on the lives of the vulnerable groups. More specifically, the aim is to give the District Rapid

Response Teams clear directions for effective emergency preparedness, response and prevention. As the directions are broad and general in nature, they do not give specific operational procedures for different types of specified natural hazards such as floods, landslides or earthquakes. Rather, the issues raised in these guidelines must be tailored in each individual response activity to match the needs of the affected population depending on magnitude and severity of the occurrence.

The guideline consists of three chapters. The first chapter deals with the background and the experienced disasters in Nepal before briefly outlining core issues that influence the public health following disasters and concludes by presenting disaster related terms.

The second chapter focuses on the disaster management responsibilities of the District Rapid Response Teams outlined in three phases; emergency preparedness, disaster response and rehabilitation activities.

The third chapter provides minimum standards and key indicators adapted from *The Sphere Project*. The minimum standards and key indicators cover basic public health related areas such as water and sanitation. The third chapter can hopefully serve as a handy guideline providing the essential information in disaster response for the district RRTs.

It is the first operational guideline for district Rapid Response Teams offering practical recommendations on how to prepare for and respond to natural disasters affecting the public health. Although the focus of this publication is on large-scale disasters with the potential to cause large displacement of the affected population, most of the recommendations are also relevant for preparing for and responding to small-scale and recurring disasters with little or no population displacement. I therefore strongly urge all district Rapid Response Teams to pay serious attention to this publication and take the necessary actions in order to enhance the emergency preparedness of the health services. Once the guidelines have been field tested, they will be translated into

Nepali in order to facilitate their use at all levels of the health services system. In order to improve the guidelines, comments and suggestions on their usefulness and appropriateness would be highly appreciated, not least from the members of the Rapid Response Teams throughout the country whose experiences in disaster response should form the basis for any future revisions.

Finally, I would like to acknowledge the fact that in the course of preparing these guidelines, a number of people have contributed significant efforts and time, not least Mr. Umesh K. Kattel, National Operations Officer, Ms. Martha Topperzer (former intern), Mr. Erik Kjaergaard (former Technical Officer), and Ms. Trine Ladegaard, Technical Officer, all from Emergency & Humanitarian Action (EHA)/WHO. In addition, Dr. Ashok Sharma, National Operations Officer, Communicable Disease Surveillance Programme / WHO as well as staff from the Epidemiology & Disease Control Division have provided valuable input to the technical content.



Dr. M. B. Bista

Director

Epidemiology & Disease Control Division / DHS / MOH

LIST OF ABBREVIATIONS

CHW:	Community Health Worker
DDRC:	District Disaster Relief Committees
DHO:	District Health Officer
DHS:	Department of Health Services
DHWG:	Disaster Health Working Group
EDCD:	Epidemiology and Disease Control Division
EHA:	Emergency & Humanitarian Action
EPI:	Expanded Programme on Immunisation
EWAR:	Early Warning Reporting System
HMIS:	Health Management Information System
MISP:	Minimum Initial Service Package
MOH:	Ministry of Health
NGO:	Non Governmental Organisation
NRCS:	Nepal Red Cross Society
RNA:	Royal Nepalese Army
RRT:	Rapid Response Teams
WHO:	World Health Organisation



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INTRODUCTION

Background

Commonly faced natural hazards in Nepal include floods and landslides, earthquakes and fires which in addition to killing and injuring people can cause extensive environmental, social and economic damage. Sudden-impact natural disasters often disrupt vital services such as water, sanitation and health facilities and this may have a serious impact on the health of the disaster affected population. Especially the lives and health conditions of vulnerable groups are prone to become more affected by the damage done as they lack the resources to cope effectively with the devastation caused by natural disasters. Such vulnerable groups are children, pregnant and lactating women, elderly and poor people whose health is at high risk of deteriorating by the often slow recovery of health services following disasters. In addition, sick, injured and disabled persons deserve special attention regarding public health concerns after disasters.

Sudden Impact Disasters

Sudden events caused by natural phenomena such as earthquakes, flash floods, landslides and glacial lake outbursts. They strike with little or no warning and have an immediate adverse impact on human populations, activities, and economic systems.

Slow Onset Disasters

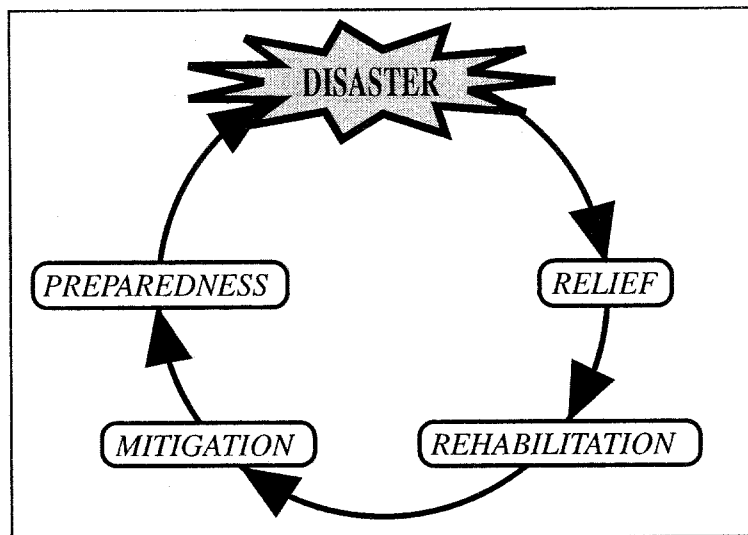
Situations where conditions slowly become worse until the affected population's ability to cope and survive is threatened. Typically prolonged crises such as drought, crop failure, pest-related diseases, or slow

Disaster Definitions

So far, words like disaster and hazard have been used to describe extraordinary circumstances affecting people's lives and well-being negatively. In this connection, **hazard** is used about the event that may lead to a disaster. You could say that the hazard is the potential for something happening that threatens people, material, and the environment and, as such, may trigger a disaster. When something is referred to as a **disaster** it is because the effects of the impact are so severe that the affected community has to respond by taking exceptional measures. In many cases, it will be necessary with outside help to cope with the need for response.

When working in disaster management it is useful to distinguish between emergency preparedness and disaster response. **Emergency preparedness** focuses on various measures that must be taken before a

Figure 1: Disaster Management Cycle



Source: *Health Sector Emergency Preparedness & Disaster Response Plan, 2003, p. 4*

disaster happens. **Disaster response** focuses on the response operation itself during and immediately after the occurrence of a disaster. The third phase in disaster management is concerned with **rehabilitation** and takes place when the acute phase of the disaster is over. The focus of this phase should be on long-term issues such as reintegration of emergency health services within the existing health infrastructure. The linkage between emergency preparedness and disaster response (relief) is illustrated by the Disaster Management Cycle in Figure 1. A more detailed explanation of the activities that should be considered in the different phases is given in Chapter 2, p. 10-13.

In order to minimise the health effects of disasters it is essential that first responders such as district Rapid Response Teams have basic knowledge of potential risks following a disaster and have considered relevant response actions before the disaster occurs.

Health Effects of Various Hazards

In general, disasters do not import diseases not already present in the affected community. In Nepal, the most common diseases with high morbidity and case fatality are measles, diarrhoea, ARI, malaria and kalazar. The spread and severity of these diseases may increase following a disaster.

Experiences from various disasters in different parts of the world reveal that a number of public health issues are common to most disasters. The following table summarises the predictable health effects and their possible severity due to six common hazards in Nepal.

Summary of Health Effects

Health Effects	Earthquake	Flood	Landslide	Epidemic	Complex Emergency	Fire
Deaths	Many	Few	Many	Many	Many	Few
Severe injuries requiring extensive treatment	Many	Few	Few		Many	Many
Increased risk of epidemics	Yes	Yes	Yes		Yes	
Damage to water systems	Severe	Light	Severe (but localized)	None	Limited (depends on the factions fighting)	None
Damage to health facilities	Severe (structure and equipment)	Severe (equipment only)	Severe (but localized)	None	Limited (depends on the factions fighting)	Depends on Location
Demand of health services	High	High	Low	Moderate	High	Moderate
Food shortage	Possible (due to distribution)	Common	Common (but localized)	None	Common (in prolonged conflicts)	Possible (if crops destroyed)
Major population movement	Common (generally limited)	Common	Common (generally limited)	Common (generally limited)	Common (generally limited)	Unlikely

Source: adapted from PAHO, 1999, p. 16-17 and *The Health Sector Emergency Preparedness & Disaster Response Plan*, 2003, p. 5

The health effects differ not only according to the type of disaster but also to the economic and political situation of a disaster affected area prior to and following a disaster. Emergency preparedness and disaster response must therefore consider the existing health services in the

disaster affected area in order to determine the anticipated health impact of an emergency. In addition, public health is influenced by a number of other aspects that contribute to the well-being and health of the affected population. In order to understand what aspects should be considered in emergency preparedness, the following is an overview of the major components. They will all be dealt with in more details in chapters two and three.

- **Control of Communicable Diseases** is vital to reduce mortality and morbidity. In order to detect possible disease outbreaks in time, the early warning systems must be strengthened prior to a disaster (see Chapter 3, control of communicable diseases standard 1-6, p. 26-30).
- **Water** is essential for ensuring public health and survival. Inadequate water supply and water of poor quality can significantly increase the mortality and morbidity rate in a disaster affected population. In addition to palatable water for consumption adequate quantities are needed for personal hygiene (see Chapter 3, water supply standard 1-3, p. 15-17).
- **Sanitation** facilities must be hygienic and adequate as communicable diseases have been known to increase if sanitation facilities are insufficient following disasters. Proper disposal of excreta creates the first barrier to excreta-related diseases, helping to reduce disease transmission through direct as well as indirect routes (see Chapter 3, excreta disposal standard 1-2, solid waste management standard 1 and drainage standard 1, p. 17-18 + 22-23).
- **Vector Control** is an essential part of disaster management as vector-borne diseases are a major cause of illness and death in many post-disaster situations (see Chapter 3, vector control standard 1-3, p. 20-22).

- **Hygiene Promotion** is essential as poor hygiene is a crucial factor in the transmission of water and sanitation related diseases. Information and education on the proper use of, care and maintenance of water and sanitation facilities must be made available to the disaster affected population. Hygienic considerations and practices must be included in all aspects related to the health of the affected population (see Chapter 3, hygiene promotion standard 1, p. 19-20).
- **Health Facilities** and systems must be strengthened before a disaster occurs by developing individual preparedness and response plans in all health institutions and testing them on a regular basis (see Chapter 2, Emergency Preparedness and Response Plan, p. 10 and Chapter 3, health systems and infrastructure standard 1-3, p. 24-26).

As mentioned, each of these six public health related components will be treated in-depth in Chapter 2 and 3 when outlining the different roles and responsibilities of the district RRTs and when listing the individual indicators and standards from the *Sphere Project*.

Chapter 2

DISASTER MANAGEMENT

Rapid Response Mechanism

Currently, the RRT function as a rapid response mechanism primarily concerned with the management of disease outbreaks. By including emergency preparedness activities concerned with ensuring public health after disasters as part of the responsibility of the RRT, the capacity at local level to deal with and respond to public health threats from disasters can be greatly enhanced.

In 2000, the Ministry of Health (MOH), DHS and EDCD established a mechanism for managing epidemics. This mechanism consists of Rapid Response Teams (RRT) at three levels, i.e. one central team, five regional teams and 75 district teams.

The objective of the Rapid Response Teams at all levels is to establish an early warning and reporting mechanism for potential epidemics. This includes information gathering, investigation, verification and appropriate response. Managing disease outbreaks is one important aspect of disaster response and by heightening the preparedness level of the RRT they will be in a position to deal with all potential public health threats following disasters.

If emergency preparedness plans and procedures for disaster response are developed and institutionalised at district level, the RRTs can function as efficient first responders and the public health effects of any disaster can be significantly reduced. In order for the rapid response mechanism to function properly, it is important that the system of three levels of

RRTs is properly institutionalised as this will ensure timely and appropriate help whenever needed.

Line of Communication and Coordination for Disaster Response

1. Focal Point for district RRT: District Health Officer / District Public Health Officer
2. Focal Point for regional RRT: Regional Health Director
3. Focal Point for central RRT: Director, EDCD

District Rapid Response Team

Whenever there is a need for health related disaster response, the district level RRT could be the first responder. The responsibilities include carrying out an initial assessment (see appendix 1) as well as a more elaborate health assessment (see appendix 2), collecting and distributing information and coordinating the disaster response. The composition of a district RRT is outlined below. The line of communication and coordination in case of a disaster is from focal point to focal point.

	Member	Designation
1	Focal Point	District Health Officer / District Public Health Officer
2	Member Secretary	District Public Health Officer
3	Member	Medical Officer (Hospital)
4	Member	Health Assistant / Senior Auxiliary Health Worker
5	Member	Public Health Nurse / Staff Nurse / Assistant Nurse Midwife
6	Member	Vector Control Assistant / Malaria Inspector
7	Member	EPI Supervisor
8	Member	Auxiliary Health Worker
9	Member	Lab Technician / Lab Assistant
10	Member	Health Education Technician
11	Member	Statistical Assistant

Regional Rapid Response Teams

The regional RRT will be mobilised if the impact of a disaster is beyond the response capacities of the district level. The responsibility of the regional RRT should primarily be to establish effective coordination between the central and district levels, NGOs, WHO and relevant donors. Furthermore, the regional RRT's responsibility is to enhance the emergency preparedness and disaster response capacities through the training of district level RRTs.

The Central Rapid Response Team

The central RRT should be mobilised if the impact of a disaster is beyond the response capacities of the district and regional level RRTs. The central level RRT should be responsible for providing policy guidelines on emergency preparedness and disaster response to the regional and district levels. In addition, the central RRT will be in charge of coordinating and mobilising necessary resources and additional assistance with EDCD / MOH / DHS, WHO, donors and other institutions at central level.

For further clarification and questions on the role and responsibilities of the central, regional and district RRTs contact EDCD,

phone no.

01-4255796/

01-4262268

Fax No:

01-4262268

All RRTs must undergo the necessary training in carrying out rapid health assessments, multiple hazard and vulnerability mapping, disaster related health consequences and best public health practices in emergency preparedness and disaster response.

The following section outlines specific tasks of the three different phases related to disaster management.

Emergency Preparedness

➔ Emergency Preparedness Plan

The district RRT should develop a district level emergency preparedness and disaster response plan in coordination with the District Disaster Relief Committees, Nepal Red Cross Society (NRCS), Armed Police, Nepal Police, Royal Nepal Army (RNA) and other relevant institutions. The preparedness plan should include a disaster management plan for hospitals and procedures for field based medical services, lines of communication and coordination among the key actors in the district. The emergency preparedness plan should furthermore include a detailed assessment format and a prioritisation of the existing health facilities, local resources and capacities. The existing health services should be assessed not only in terms of how they manage a short-term disaster response but also in terms of how a continuation of the health services is secured.

➔ EWARS and Information

The mechanism for early warning and reporting of potential disasters should be strengthened in coordination with government line agencies, NRCS, Nepal Scouts, Nepal Police, RNA and other institutions in the district. An information centre receiving information from the field and distributing it to the relevant RRTs should be established. An ideal centre remains open 24 hours / 7 days a week (e.g. the Emergency Room in a district hospital).

➔ Training

The regional Rapid Response Teams should facilitate the training of district RRT members and other health workers. The training should aim at enhancing the level of emergency preparedness and the capacity for disaster response including correct and prompt reporting systems from the field to the relevant health authorities.

➔ **Buffer Stock**

A minimum stock of medical supplies and equipment to be used after the declaration of an emergency must be prepared. District hospitals' medical and equipment supply should function as a buffer stock of essential supplies for the district RRT.

➔ **Water and Sanitation**

Environmental health aspects such as safe water supply and sanitation facilities should be considered in the preparedness plan. Safe water sources must be located before an emergency in order to ensure the health and the survival of the disaster-affected population. At the same time, a sanitation programme that outlines the district's needs during emergencies should be prepared.

Disaster Response

➔ **Initial Rapid Health Assessment**

The RRTs must be activated as soon as possible after the occurrence of a disaster. An assessment team from the district RRT should be sent to the disaster site to conduct an **initial rapid health assessment** within the first 24-48 hours of the disaster using the Health Assessment Format provided in appendix 1. A more **elaborate disaster assessment** (see Appendix 2) should be completed and reported to the health authorities within the first 5 days following the disaster.

Both the initial rapid health assessment and the elaborate disaster assessment must be submitted to the national health authorities, i.e. the focal point of the central RRT, Director of EDCD through telephone and fax (Tel: 01-4255796 / 01-4262268, Fax: 01-4262268)

➔ **Health Services**

The RRT must coordinate the emergency relief health services in collaboration with the local health facilities, NRCS, police, army, private medical institutions, local NGOs and the local community. The main relief health services during an emergency response are concerned with mass casualty management services and management of public health issues.

Field-based mass casualty management includes prioritisation of casualties (medical triage), first aid, stabilisation and evacuation of victims for further health care services and hospital based health services to the disaster-affected population.

➔ **Water and Sanitation**

The state of water and sanitation facilities must be assessed as soon as possible. If necessary, safe palatable water and a sufficient number of hygienically safe toilets must be made available to the disaster-affected population in order to reduce the risk of communicable disease outbreaks. Potential outbreaks in the disaster area are to be identified and notified with the help of the existing disease surveillance and Early Warning Reporting System (EWARS).

➔ **Disease Surveillance**

Disease surveillance includes collecting, compiling and interpreting data and investigating all reported diseases with the assistance of an epidemiologist. All vaccination programmes should be carried out in consultation with the national health authorities and EDCCD, but generally vaccination against measles should be given a high priority. However, no vaccination should be carried out until a reliable cold chain has been established.

Rehabilitation Activities

In general, the inter-agency coordination should be strengthened to reconstruct, rehabilitate and restore the local health services as soon as possible after the initial phase of the disaster. Effective rehabilitation of health systems is dependent on an efficient coordination between national and local services as well as multi-sectoral coordination and collaboration.

➔ Health Services

Public health services should be strengthened including implementation of measures to control communicable and vector-borne diseases (i.e. education on hygiene, water, sanitation campaigns) to prevent or lessen the influence of future disasters on public health. Emergency health service interventions (e.g. measures for communicable disease control, disease surveillance and health service monitoring processes) should be integrated with the existing health service systems to ensure stability during times of disaster.

➔ Mental Health

Not only the physical well-being of the disaster affected population should be considered but mental well being as well. Counselling and active listening to reduce post-disaster mental health consequences including psychological traumas should be offered to the disaster affected population as a whole (see Chapter 3, control of non-communicable diseases Standard 3). Utilisation of local resources and involving the disaster affected population in rehabilitation activities should be encouraged, as this can help the mental well being of the local community.

Chapter 3

MINIMUM STANDARDS AND INDICATORS

The Sphere Project, Humanitarian Charter and Minimum Standards in Disaster Response is developed by humanitarian agency experts and represents core principles regarding humanitarian assistance in disasters. The Sphere Project aims to enhance the effectiveness and quality of humanitarian assistance in emergencies and thus make a significant difference to the lives of people affected by disaster. The minimum standards relate to five major areas of emergency response, i.e. water supply and sanitation, nutrition, food aid, shelter and site planning and health services. The minimum standards define the qualitative minimum requirements for a life with dignity, while the indicators provide both quantitative and qualitative 'signals' to the respective standards to measure whether the standards have been attained or not.

The *Guidelines on Best Public Health Practices in Emergencies for District Health Workers* include the aspects of the minimum standards, which are considered relevant for and of practical use in the field in Nepal. In situations where there is a gap between the actual situation and the indicators, the minimum standards as described in the Sphere Project may not always be attainable. However, disaster response operations should always aim to reduce the gap between the minimum standards and the actual situation.

Not all of the standards regarding health services have been considered relevant for the scope of these guidelines.¹ Therefore a selection has taken place which excludes all standards and indicators concerned with shelter and settlements, as this area lies beyond the scope of the District Rapid Response Teams. In case of an emergency where the disaster-affected population needs relocation, the Chief District Officer and District Disaster Relief Committee should be in charge of the planning and coordination of appropriate safe, healthy and secure shelters. For further reading, *The Sphere Project, Minimum Standards and Humanitarian Charter* is recommended.

Water Supply and Sanitation

Water supply standard 1: access and water quantity

All people have safe access to a sufficient quantity of water for drinking, cooking and personal and domestic hygiene. Public water points are sufficiently close to households to allow use of the minimum water requirement.

Key indicators

- Average water use for drinking, cooking and personal hygiene in any household is at least 15 litres per person per day.
- The maximum distance from any household to the nearest water point is 500 metres.
- Queuing time at the water source is no more than 15 minutes.
- It takes no more than three minutes to fill a 20 litre container.
- At least 1 water point per 250 people based on a flow of 7.5 litres / minute.

¹ Compared with the original text of the *Sphere Project* some modifications have also been made to the text, the order of standards and the numbers of certain standards. These modifications have been made not to confuse the readers of this guideline.

- Water sources and systems are maintained such that appropriate quantities of water are available consistently or on a regular basis.

Water supply standard 2: water quality

Water is palatable, and of sufficient quality to be drunk and used for personal and domestic hygiene without causing significant risk to health.

Key indicators

- A sanitary survey indicates a low risk of faecal contamination.
- There are no faecal coliforms per 100 ml at the point of delivery²
- People drink water from a protected or treated source in preference to other readily available water sources.
- Steps are taken to minimise post-delivery contamination.
- For piped water supplies or for all water supplies at times of risk or presence of diarrhoea epidemic, water is treated with a disinfectant so there is a free chlorine residual at the tap of 0.5 mg. per litre and turbidity is below 5 NTU.
- No negative health effect is detected due to short-term use of water contaminated by chemical (including carry-over of treatment chemicals) or radiological sources, and assessment shows no significant probability of such an effect.

² If any faecal coliform are present in portable water it should be treated. However, to achieve zero faecal coliform can be very difficult and in the initial phases of disaster response, providing a sufficient amount of drinking water is more important than the quality.

Water supply standard 3: water use facilities and goods

People have adequate facilities and supplies to collect, store and use sufficient quantities of water for drinking, cooking, personal hygiene and to ensure that drinking water remains safe until it is consumed.

Key indicators

- Each household has at least two clean water collection containers of 10-20 litres, plus enough clean water storage containers to ensure there is always water in the household.
- Water collection and storage containers have narrow neck and / or covers.
- There is at least 250 g of soap available for personal hygiene per person per month.
- Where communal bathing facilities are necessary, there are sufficient bathing cubicles available, with separate cubicles for males and female, and they are used appropriately and equitable.
- Where communal laundry facilities are necessary, there is at least one washing basin per 100 people, and private laundering areas are available for women to wash and dry undergarments and sanitary cloths.
- The participation of all vulnerable groups is actively encouraged in the siting and construction of bathing facilities and/or the production and distribution of soap, and / or the use and promotion of suitable alternatives.

Excreta disposal standard 1: access to, and numbers of, toilets

People have adequate numbers of toilets, sufficiently close to their dwellings, to allow them rapid, safe and acceptable access at all times of the day and night.

Key indicators

- A maximum of 20 people use each toilet.
- Use of toilets is arranged by household(s) and / or segregated by sex.
- Toilets are no more than 50 meters or one minute's walk from dwellings.
- Separate toilets for women and men are available in public places (markets, distribution centres, health centres etc.).
- Shared or public toilets are cleaned and maintained in such a way that they are used by all intended users.
- Toilets are used in the most hygienic way and children faeces are disposed of immediately and hygienically.

Excreta disposal standard 2: design, construction and use of toilets

Toilets are sited, designed, constructed and maintained in such a way as to be comfortable, hygienic and safe to use.

Key indicators

- Users (especially women) have been consulted and approve of the siting and design of the toilet.
- Toilets are designed, built and located to have the following features:
 - ✓ they are designed in such a way that they can be used by all sections of the population, including children, older people, pregnant women and physically and mentally disabled people.
 - ✓ they are sited in such a way as to minimise threats to users, especially women and girls, throughout the day and night.
 - ✓ they are sufficiently easy to keep clean to invite use and do not present a health hazard.

- ✓ they provide a degree of privacy in line with the norms of the users.
 - ✓ they allow for the disposal of women's sanitary protection, or provide women with the necessary privacy for washing and drying sanitary protection cloths.
 - ✓ they minimise fly and mosquito breeding.
- All toilets constructed that use water for flushing and / or a hygienic seal have an adequate and regular supply of water.
 - Pit latrines and soakaways (for most soils) are at least 30 metres from any groundwater source and the bottom of any latrine is at least 1.5 metres above the water table. Drainage or spillage from defecation systems must not run towards any surface water source or shallow ground water source.
 - People wash their hands after defecation and before eating and food preparation.
 - People are provided with tools and materials for constructing, maintaining and cleaning their own toilets if appropriate.

Hygiene Promotion Standard: programme design and implementation

All facilities and resources provided reflect the vulnerabilities, needs and preferences of the affected population. Users are involved in the management and maintenance of hygiene facilities where appropriate.

Key indicators

- Key hygiene risks to public health are identified.
- Programmes include an effective mechanism for representative and participatory input from all users, including the initial design of facilities.

- All groups within the population have equitable access to the resources or facilities needed to continue or achieve the hygiene practices that are promoted.
- Hygiene promotion messages and activities address key behaviours and misconceptions and are targeted to all user groups. Representatives from these groups participate in planning, training, implementation, monitoring and evaluation.
- Users take responsibility for the management and maintenance of facilities as appropriate, and different groups contribute equitably.

Vector Control and Solid Waste Management

Vector control standard 1: individual and family protection

All disaster-affected people have the knowledge and the means to protect themselves from disease and nuisance vectors that are likely to represent a significant risk to health or well-being.

Key indicators

- All populations at risk from vector-borne diseases understand the modes of transmission and possible methods of prevention.
- All populations have access to shelters that do not harbour or encourage the growth of vector populations and are protected by appropriate vector control measures.
- People avoid exposure to mosquitoes during peak biting times by using all non-harmful means available to them. Special attention is paid to protection of high-risk groups such as pregnant and feeding mothers, babies, infants, older people and the sick.
- People with treated mosquito nets use them effectively.

- Control of human body lice is carried out where louse-borne typhus or relapsing fever is a threat.
- Bedding and clothing are aired and washed regularly.
- Food is protected at all times from contamination by vectors such as flies, insects and rodents.

Vector control standard 2: physical, environmental and chemical protection measures

The number of disease vectors that pose a risk to people's health and nuisance vectors that pose a risk to people's well-being are kept to an acceptable level.

Key indicators

- Displaced populations are settled in locations that minimise their exposure to mosquitoes.
- Vector breeding and resting sites are modified where practicable.
- Intensive fly control is carried out in high-density settlements when there is a risk or the presence of a diarrhoea epidemic.
- The population density of mosquitoes is kept low enough to avoid the risk of excessive transmission levels and infection.
- People infected with malaria are diagnosed early and receive treatment.

Vector control standard 3: chemical control safety

Chemical vector control measures are carried out in a manner that ensures that staff, the people affected by the disaster and the local environment are adequately protected, and avoids creating resistance to substances used.

Key indicators

- Personnel are protected by the provision of training, protective clothing, use of bathing facilities, supervision and a restriction on the number of hours spent handling chemicals.
- The choice, quality, transport and storage of chemicals used for vector control, the application equipment and the disposal of the substances follow international norms and can be accounted for at all times.
- Communities are informed about the potential risks of the substances used in the chemical vector control and about the schedule for application. They are protected during and after the application of poison or pesticides according to internationally agreed procedures.

Solid waste management standard 1: collection and disposal

People have an environment that is acceptably uncontaminated by solid waste, including medical waste, and have the means to dispose of their domestic waste conveniently and effectively.

Key indicators

- People from the affected population are involved in the design and implementation of the solid waste programme.
- All households have access to a refuse container and / or are no more than 100 metres from a communal refuse pit.
- Household waste is put in containers daily for regular collection, to be burnt or buried in a specified refuse pit.
- At least one 100 litre refuse container is available per 10 families, where domestic refuse is not burnt on-site.
- Refuse is removed from the settlement before it becomes a nuisance or a health risk.

- Medical waste is separated and disposed of separately and there is a correctly designed, constructed and operated pit or incinerator with a deep ash pit within the boundaries of each health facility.
- There are no contaminated or dangerous medical wastes (needles, glass, dressings, drugs, etc) at any time in living areas or public spaces.
- There are clearly marked and appropriately fenced refuse pits, bins or specified areas at public places, such as markets and slaughtering areas, with a regular collecting system in place.
- Final disposal of solid waste is carried out in such a place and in such a way as to avoid creating health and environmental problems for the local and affected population.

Drainage standard 1: drainage works

People have an environment in which the health and other risks posed by water erosion and standing water, including storm water, floodwater, domestic wastewater and wastewater from medical facilities, are minimised.

Key indicators

- Areas around dwellings and water points are kept free of standing wastewater, and stormwater drains are kept clear.
- Shelters, paths and water and sanitation facilities are not flooded or eroded by water.
- Water point drainage is well planned, built, and maintained. This includes drainage from washing and bathing areas as well as from water collection points.
- Drainage waters do not pollute existing surface or groundwater sources or cause erosion.
- Sufficient numbers of appropriate tools are provided for small drainage works and maintenance when necessary.

Health Systems

Health systems and infrastructure standard 1: prioritising health services

All people have access to health services that are prioritised to address the main cause of excess mortality and morbidity.

Key indicators

- The major causes of mortality and morbidity are identified, documented and monitored.
- Priority health services include the most appropriate and effective interventions to reduce excess morbidity and mortality.
- All members of the community, including vulnerable groups, have access to priority health interventions.
- Local health authorities and community members participate in the design and implementation of priority health interventions.
- There is collaboration with other sectors in the design and implementation of priority health interventions, including water and sanitation, food security, nutrition, shelter and protection.
- The crude mortality rate (CMR) is maintained at, or reduced to, less than twice the baseline rate documented for the population prior to the disaster.
- The under-5 mortality rate (U5MR) is maintained at, or reduced to, less than twice the baseline rate documented for the population prior to the disaster.

Health systems and infrastructure standard 2: primary health care
Health services are based on relevant primary health care principles.

Key indicators

- All people have access to health information that allows them to protect and promote their own health and well-being.
- Health services are provided at the appropriate level of the health system: household / community, peripheral health facilities, central health facilities, referral hospital.
- A standardised referral system is established by the lead health authority and utilised by health agencies. Suitable transportation is organised for patients to reach the referral facilities.
- Health services and interventions are based on scientifically sound methods and are evidence-based, whenever possible.
- Health services and interventions utilise appropriate technology and are socially and culturally acceptable.

Health systems and infrastructure standard 3: clinical services

People have access to clinical services that are standardised and follow accepted protocols and guidelines.

Key indicators

- The number, level and location of health facilities are appropriate to meet the needs of the population.
- The number, skills and gender/ethnic balance of staff at each health facility are appropriate to meet the needs of the population.
- Adequate staffing levels are achieved so that clinicians are not required to consistently consult on more than 50 patients per day. If this threshold is regularly exceeded, additional clinical staff is recruited.
- Utilisation rates at health facilities are monitored and corrective measures taken if there is over- or under-utilisation.

- Standardised case management protocols are established by the lead health authority, and adhered to by health agencies.
- A standardised essential drug list is established by the lead health authority, and adhered to by health agencies.
- Clinical staff are trained and supervised in the use of the protocols and the essential drug list.
- People have access to a consistent supply of essential drugs through a standardised drug management system that follows accepted guidelines.
- Drug donations are accepted only if they follow internationally recognised guidelines. Donations that do not follow these guidelines are not used and are disposed of safely.
- Bodies of the deceased are disposed of in a manner that is dignified, culturally appropriate and is based on good public health practice.

Control of Communicable Diseases

Control of communicable diseases standard 1: prevention

People have access to information and services that are designed to prevent the communicable diseases that contribute most significantly to excess morbidity and mortality.

Key indicators

- General prevention measures are developed and implemented in coordination with other relevant sectors, including
 - ✓ Water and sanitation; sufficient water quantity and quality; sufficient sanitation; hygiene promotion; vector control, etc.

- ✓ Food security, nutrition and food aid: access to adequate food and management of malnutrition.
- ✓ Shelter: sufficient and adequate shelter.
- Community health education messages provide individuals with information on how to prevent common communicable diseases and how to access relevant services.
- Specific prevention measures, such as a mass vaccination campaign and Expanded Programme on Immunisation (EPI), are implemented as necessary.

Control of communicable diseases standard 2: measles prevention
 All children aged 6 months to 15 years have immunity against measles.

Key indicators

- An estimation of measles vaccination coverage of children aged 9 months to 15 years is made at the outset of the emergency response to determine the prevalence of susceptibility to measles.
- If vaccination coverage is estimated to be less than 90%, a mass measles vaccination campaign for children aged 6 months to 15 years (including administration of vitamin A to children aged 6-59 months) is carried out. The vaccination campaign is coordinated with national and local health authorities, including EPI.
- Upon completion of the campaign:
 - ✓ At least 95% of children aged 6 months to 15 years have received measles vaccination;
 - ✓ At least 95% of children aged 6 months-5 years have received an appropriate dose of vitamin A.
- All infants vaccinated between 6-9 months of age receive another dose of measles vaccine upon reaching 9 months.

- Routine ongoing vaccination of 9-month-old children is established to ensure the maintenance of the minimum 95% coverage. This system is linked to the EPI.
- For mobile or displaced populations, an ongoing system is established to ensure that at least 95% of newcomers aged between 6 months and 15 years receive vaccination against measles.

Control of communicable diseases standard 3: diagnosis and case management

People have access to effective diagnosis and treatment for those infectious diseases that contribute most significantly to preventable excess morbidity and mortality.

Key indicators

- Standardised case management protocols for diagnosis and treatment of the most common infectious diseases are consistently used.
- Public health education messages encourage people to seek early care for fever, cough, diarrhoea, etc., especially children, pregnant women and older people.
- In malaria –endemic regions, a protocol is established to ensure early (<24 hours) diagnosis of fever cases and treatment with highly effective first-line drugs.
- Laboratory services are available and utilised when indicated.
- A tuberculosis control programme is introduced only after consideration of recognised criteria.

Control of communicable diseases standard 4: outbreak preparedness

Measures are taken to prepare for and respond to outbreaks of infectious diseases.

Key indicators

- An outbreak investigation and control plan is prepared.
- Protocols for the investigation and control of common outbreaks are available and distributed to relevant staff.
- Staff receive training in the principles of outbreak investigation and control, including relevant treatment protocols.
- Reserve stocks of essential drugs, medical supplies, vaccines and basic protection material are available and can be procured rapidly.
- Sources of vaccines for relevant outbreaks (e.g. measles) are identified for rapid procurement and use. Mechanisms for rapid procurement are established.
- Sites for the isolation and treatment of infectious patients are identified in advance, e.g. cholera treatment centres.
- A laboratory is identified, whether locally, regionally, nationally or in another country, that can provide confirmation of diagnosis.
- Sampling materials and transport media for the infectious agents most likely to cause a sudden outbreak are available on-site to permit transfer of specimens to an appropriate laboratory. In addition, several rapid tests may be stored on-site.

Control of communicable diseases standard 5: outbreak detection, investigation and response

Outbreaks of communicable diseases are detected, investigated and controlled in a timely and effective manner.

Key indicators

- The health management information system (HMIS) includes an early warning component.
- Initiation of outbreak investigation occurs within 24 hours of notification.

- The outbreak is described according to time, place and person, leading to the identification of high-risk groups. Adequate precautions are taken to protect the safety of both individuals and data.
- Appropriate control measures that are specific to the disease and context are implemented as soon as possible.
- Case fatality rates are maintained at acceptable levels:
 - ✓ Cholera: 1 % or lower;
 - ✓ Shigella dysentery: 1 % or lower;
 - ✓ Typhoid: 1 % or lower.

Control of communicable diseases standard 6: HIV/AIDS
 People have access to the minimum package of services to prevent transmission of HIV/AIDS.

Key indicators

- People have access to the following essential package of services during the disaster phase:
 - ✓ Relevant information and education so that individuals can take steps to protect themselves against HIV transmission.
 - ✓ Free male condoms and promotion of proper condom use.
 - ✓ Universal precautions to prevent iatrogenic/ nosocomial transmission in emergency and health-care settings.
 - ✓ Safe blood supply.
 - ✓ Syndromic case management of sexually transmitted infections (STIs).
 - ✓ Prevention and management of the consequences of sexual violence.
 - ✓ Basic health care for people living with HIV/AIDS.

- Plans are initiated to broaden the range of HIV control services in the post-disaster phase.

Control of Non-Communicable diseases

Control of non-communicable diseases standard 1: injury

People have access to appropriate services for the management of injuries.

Key indicators

- In situations with a large number of injured patients, a standardised system of triage is established to guide health care providers on assessment, prioritisation, basic resuscitation and referral.
- Standardised guidelines for the provision of first aid and basic resuscitation are established.
- Standardised protocols for the referral of injured patients for advanced care, including surgery, are established. Suitable transportation is organised for patients to reach the referral facilities.
- Definitive trauma and surgical services are established only by agencies with appropriate expertise and resources.
- In situations with a potentially large number of injured patients, contingency plans for the management of multiple casualties are developed for relevant health care facilities. These plans are related to district and regional plans.

Control of non-communicable diseases standard 2: reproductive health

People have access to the Minimum Initial Service Package (MISP) to respond to their reproductive health needs.

Key indicators

- An organisation(s) and individual(s) are identified to facilitate the coordination and implementation of the MISP in consultation with the lead health authority.
- Steps are taken by health agencies to prevent and manage the consequences of gender-based violence (GBV), in coordination with other relevant sectors, especially protection and community services.
- The number of cases of sexual and other forms of GBV reported to health services, protection and security officers is monitored and reported to a designated lead GBV agency (or agencies). Rules of confidentiality are applied to data collection and review.
- Adequate numbers of clean delivery kits, based on the estimated number of births in a given time period, are available and distributed to visibly pregnant women and skilled/traditional birth attendants to promote clean home deliveries.
- Adequate numbers of midwife delivery kits (UNICEF or equivalent) are distributed to health facilities to ensure clean and safe deliveries.
- A standardised referral system is established and promoted within the community, incorporating midwives and skilled/traditional birth attendants, to manage obstetric emergencies. Suitable transportation is organised for patients to reach the referral facilities.
- Plans are initiated to implement a comprehensive range of reproductive health services that are to be integrated into primary health care as soon as possible.

Control of non-communicable diseases standard 3: mental and social aspects of health

People have access to social and mental health services to reduce mental health morbidity, disability and social problems.

Key indicators (social intervention)

- People have access to an ongoing, reliable flow of credible information on the disaster and associated relief efforts.
- Normal cultural and religious events are maintained or re-established (including grieving rituals conducted by relevant spiritual and religious practitioners). People are able to conduct funeral ceremonies.
- As soon as resources permit, children and adolescents have access to formal or informal schooling and to normal recreational activities.
- Adults and adolescents are able to participate in concrete, purposeful, common interest activities, such as emergency relief activities.
- Isolated persons, such as separated or orphaned children, child combatants, widows and widowers, older people or others without their families, have access to activities that facilitate their inclusion in social networks.
- When necessary, a tracing service is established to reunite people and families.
- Where people are displaced, shelter is organised with the aim of keeping family members and communities together.
- The community is consulted regarding decisions on where to locate religious places, schools, water points and sanitation facilities. The design of settlements for displaced people includes recreational and cultural space.

Key indicators (psychological and psychiatric intervention)

- Individuals experiencing acute mental distress after exposure to traumatic stressors have access to psychological first aid at health service facilities and in the community.
- Care for urgent psychiatric complaints is available through the primary health care system. Essential psychiatric medications,

consistent with the essential drug list, are available at primary care facilities.

- Individuals with pre-existing psychiatric disorders continue to receive relevant treatment, and harmful, sudden discontinuation of medications is avoided. Basic needs of patients in custodial psychiatric hospitals are addressed.
- If the disaster becomes protracted, plans are initiated to provide a more comprehensive range of community-based psychological interventions for the post disaster phase.

Control of non-communicable diseases standard 4: chronic diseases

For populations in which chronic diseases are responsible for a large proportion of mortality, people have access to essential therapies to prevent death.

Key indicators

- A specific agency (or agencies) is designed to coordinate programmes for individuals with chronic diseases for which an acute cessation of therapy is likely to result in death.
- Individuals with such chronic diseases are actively identified and registered.
- Medications for the routine, ongoing management of chronic diseases are available through the primary health care system, provided that these medications are specified on the essential drug list.

LIST OF REFERENCES

Emergency Preparedness and Disaster Response Plan for Health Sector in Nepal, EDCD / DHS / MOH & WHO, Kathmandu, 2003

Essentials for Emergencies, yellow booklet, EHA / WHO, Geneva

Disaster Management in Nepal – A Profile, MOH / HMG, Kathmandu, 1994.

Disaster Preparedness Network (DPNET) Charter, DP-Net, Kathmandu, 1998.

Establishing a Mass Casualty Management System, WHO / PAHO, Washington, 1995.

Health in Emergencies, WHO Newsletter, 3, 1998.

Health Working Group Disaster Relief Implementation Manual (draft), UNDP, Kathmandu, 1999.

Humanitarian Assistance in Disaster Situations – A Guide for Effective Aid, PAHO, Washington D.C., 1999.

Landslides (draft), WHO EHA Technical Hazard Sheet, Geneva, 2000.

National Action Plan on Disaster Management in Nepal, MOH / HMG, Kathmandu, 1996.

Nepal Earthquake Assessment Team 18-29 May, 1998, NSET-Nepal and American Evaluation Team, Kathmandu, 1998.

The Kathmandu Valley Earthquake Risk Management Action Plan, NSET-Nepal - GeoHazards International, Kathmandu, 1999.

The New Emergency Health Kit 98, WHO, Geneva, 1998.

The Sphere Project – Humanitarian Charter and Minimum Standards in Disaster Response, Sphere Project, Geneva, 2000 / updated version 2003, www.sphereproject.org

UN Nepal Disaster Response Preparedness Plan – Part I Hazard Analysis and Response Guideline, UNDMT Nepal, Kathmandu, 2001.

APPENDICES

Appendix 1: Rapid Health Assessment Format

DISTRICT REPORTING DATE FORMAT NO.

NO.	DISASTER INFORMATION			NUMBER OF DEATHS				NUMBER OF INJURED				NUMBER OF MISSING PERSONS		NO. of DIS-PLACED FAMIL- LIES
	Date and time of Disaster	Affected VDC Name	Type of Disaster	Male		Female		Male		Female		Male	Female	
				0 < 5	5 - 14	14 >	0 < 5	5 - 14	14 >	0 < 5	5 - 14			
1														
2														
3														

NO.	SOURCES of INFORMATION			FUNCTIONALITY OF HEALTH FACILITIES			TYPE OF HEALTH RESPONSE PROVIDED (Keywords only such as : First Aid, Curative Care, Referral of Casualties, Water Quality Testing, Water Treatment, Sanitary Measures etc.)	PRIORITY NEEDS (Medical Supplies, Equipment, Personnel)		
	Police	Health Fa.	Locals	Others	Fully				Item	Quantity
					Partial	Non				
1										
2										
3										

PREPARED BY : _____

SIGNATURE : _____

DATE : _____

NAME OF DHO : _____

SIGNATURE : _____

DATE : _____

Appendix 1 - Introduction to Rapid Health Assessment Format



**Ministry of Health
Department of Health Services
Epidemiology and Disease Control Division**



Every year Nepal falls prey to disasters, which affect the lives of innumerable people, causing thousands of casualties and hundreds of deaths. Epidemics, floods, landslides, fires, earthquakes, droughts, conflicts and road traffic accidents are common hazards confronting the population and posing challenges to the health sector.

In order to generate timely and reliable epidemiological data, the Epidemiology and Disease Control Division (EDCD) of the Department of Health Services and the World Health Organisation (WHO) has developed the attached rapid health assessment format and the guidelines on how to fill it. The format has been reviewed and approved by the Disaster Health Working Group Secretariat, Director of EDCD and the Disaster Focal Point in MoH. The rapid health assessment format is integrated into the regular reporting system and supplements data collected by police authorities and the Ministry of Home Affairs.

The format should be used for collecting and reporting standardised information by any RRT member, and should be returned to EDCD immediately after any kind of disaster. The information is required to decide on response procedures and resource mobilisation as well as facilitating rehabilitation and disaster preparedness.

DISASTER DEFINITION

A disaster is an event, could be natural or man-made, sudden or progressive, which impacts with such severity that the affected community has to respond to by taking exceptional measures as quickly as possible, to minimise human loss and / or to prevent further damage and destructions. EDCD and WHO's working definition of a

disaster implies any unusual incident causing any number of deaths or injured.

INFORMATION REQUIRED

The rapid disaster assessment format includes information about the time, location and specificity of the disaster, its impact in terms of number of dead, injured, missing and displaced people, sources of data, functionality of health facilities, health response provided and priority needs.

Instructions in how to fill the format is given in the attached guidelines, and at a later stage, the RRT members will receive further training in disaster response.

ASSESSMENT AND SUBMISSION PROCEDURES

- Rapid Response Teams at the district level is the key body to initiate rapid health assessments.
- Rapid health assessments should be conducted immediately after the disaster in all impacted areas. Special attention should be paid to the most vulnerable groups.
- The information collection should be based on the attached format.
- The format should be filled in within 12 hours of any disaster and submitted to EDCCD through fax no. 977-1-4262268 (attention: the Director of EDCCD).
- In case clarification is required, please contact the Director of EDCCD on telephone no. 977-1-4255796 or 4262268 or – if the telephone system is non-functional - by any other possible means.

Appendix 1 - Guidelines to fill in Rapid Health Assessment Format



**Ministry of Health
Department of Health Services
Epidemiology and Disease Control Division**



District name, reporting period and format number must be written on top of first page. The first format submitted to EDCD should be numbered 1, the second no. 2 etc.

In case more than three incidents occur continue the reporting on a new format and number it 1b, 2b etc.

Column Contents:

1. Write disaster information: date and time of disaster, name of affected VDC, affected ward number and what type of disaster (e.g. flood, landslide, earthquake, fire). If multiple hazards affect a given locality use several lines.
2. Write what type of disaster (e.g. flood, landslide, earthquake, fire). If multiple hazards affect a given locality use several lines.
3. Write number of deaths segregated in terms of gender and age (below 5, between 5 and 14 and above 14 years of age)
4. Write number of injured segregated in terms of gender and age (below 5, between 5 and 14 and above 14 years of age).
5. Write number of missing persons segregated in terms of gender.
6. Write number of displaced families.
7. Specify the source of information by tick-marking if it came from police, health facilities, locals or others. It is possible to make more than one tick mark.
8. Inform what is the functionality the health facilities by putting one tick mark only:
 - a. FULLY – if there is no damage to buildings and / or equipment.

- b. PARTIAL - If there is some damage to buildings and / or equipment but it can still be used
 - c. NON - If the buildings and / or the equipment is so damaged, that it can no longer be used
9. Write down keywords regarding the health response provided. The keywords should describe ongoing or completed activities in terms of damage and needs assessment, provision of medical supplies and curative services, mobilisation of staff and resources, public health response, disease surveillance, coordination and reporting to higher authorities.
10. Write keywords regarding priority needs in terms of medical supplies, equipment and personnel. Please only mention immediate priorities and write quantities as well as specific details.

At the bottom of the page, the person filling out the format must write his / her name, the date and sign it. In addition, the name of the DHO should be there with his / her signature and the date.

Appendix 2: Disaster Assessment

Within the first 5 days following the disaster, the first elaborate assessment in the district is to be carried out. The assessment must be made by a joint team including professionals of different sectors (i.e. health, logistics, infrastructure, water supply and sanitation). The joint team effort provides an opportunity for effective implementation of rapid and systematic response actions. The assessment should be carried out in a way that allows transparent consistent decision-making and implementing response actions.

The suggested assessment checklist below facilitates the gathering of essential, basic and context relevant information.

A. General Information

- Type, date, time, place and geographic area of a disaster.
- Demographics compositions of the affected population.
- - Extent of affected population and groups at risk.
 - Gender and age breakdown (i.e. < 5 and > 5 years), or detailed age breakdown (<1, 1- 4, 5-14, 15 - 44,> 45).
 - Average family size, female headed households, pregnant and lactating women.
- Chances of continuation of hazards, further damage and destruction.
- Condition of transportation system and communication facilities.
- Presence of agencies and types of relief services.

B. Information on Health and Diseases

- Number of injuries and deaths.
- Outbreaks of communicable diseases.

- Crude mortality rate (CMR) - (total deaths / total population / 10, 000 / a day).
- Under five mortality rate (U-5MR) - (U-5 deaths / U-5 population / 10,000 / a day).
- Age and sex specific incidence rates of major communicable diseases.

C. Basic Health Services

- Extent of damage - existing health facilities (hospitals, health centres, health posts).
- Availability of emergency health services – affected victims (casualties).
- Situation of emergency medical supplies – availability and adequacy.
- Local resource availability and capacity to provide emergency response.
- Priorities and need for assistance from higher levels for emergency health services.

D. Water Supply

- Conditions of water supply system – functional or damaged.
- Quantity of water supply for daily personal and domestic use – adequacy.
- Quality of water – monitored and tested or not; and frequency of quality monitoring.
- Responsible institution taking care of water supply – inter agency coordination.

E. Hygiene and Sanitation

- Arrangement of settlement of affected population – location, space and facilities.

- Situation of disposal of human excreta, solid waste and drainage.
- Provision of education to public – on personal, domestic hygiene and sanitation.
- Any report regarding communicable disease outbreaks – due to water, hygiene and sanitation.

F. Food Availability

- Status of food supply – sufficiency of basic food items.
- Provision of emergency food supply – locally or externally.
- Reported nutrition related - problems (if any).

G. Shelter and Blankets

- Conditions of residences and temporary locations - house, temporary shelters, open space, risk of reoccurring hazards.
- Provision of clothing – temporary arrangements, regularity of supplies, no provision at all.

H. Availability of Resources

- Staff, supplies and equipment for emergency health services – local resources (adequacy).
- Possibilities of mobilising local resources in coordination with other sectors.
- Gaps, needs and priorities needed to be fulfilled from higher level or external support (if any).

Source: Adapted from *Essentials for Emergencies, WHO & The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response*, 2000

Appendix 3: Indicators relating to the calculation of mortality rates

Indicators for Warning during Emergency Situations	Cut Off Values
Daily Crude Mortality Rate Definition: Total number of deaths in one day divided by total population multiplied by 10,000 (see CMR formula below)	1 or more deaths per 10,000 per day
Daily Under Five Mortality Rate Definition: Total number of deaths of under five years old in one day divided by total under five population multiplied by 10,000	>2 deaths per 10,000 per day
Acute Malnutrition (Weight for Height or MUAC)	10 % or more children (age >5 years) with malnutrition
Growth Faltering Rate in Under 5 year olds	30 % or more of monitored children with growth faltering
Low Birth Weight (<2.5 kg)	7 % or more live births with low birth weight

Adapted from: *The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response, 2003*

Crude Mortality Rate (CMR) Formula

$$\frac{\text{Total number of deaths in one week}}{\text{Total population}} \times \frac{10,000 \text{ persons}}{7 \text{ days}} = \text{deaths}/10,000 \text{ persons}/ \text{day}$$

Example: 37 deaths in one week among a population of 30,000 persons:

$$\frac{37 \text{ deaths}}{30,000 \text{ persons}} \times \frac{10,000 \text{ persons}}{7 \text{ days}} = 1.8 \text{ deaths}/10,000 / \text{day}$$

When the baseline rate is unknown, health agencies should aim to maintain the CMR at below 1.0/10,000/day. In the acute phase daily death rates should be calculated.

Adapted from: *The Sphere Project
Humanitarian Charter and Minimum Standards in Disaster Response, 2003*

Under-5 Mortality Rate

Definition: The number of deaths of children less than 5 years old per 10,000 children less than 5 years old per day (age-specific mortality rate for children less than 5 years)

$$\frac{\text{Total number of deaths in children < 5 years in one week}}{\text{Total number of children < 5 years}} \times \frac{10,000 \text{ persons}}{7 \text{ days}} = \text{deaths}/10,000/ \text{day}$$

When the baseline U5MR is unknown, health agencies should aim to maintain the U5MR at below 2.0/10,000/day.

Adapted from: *The Sphere Project
Humanitarian Charter and Minimum Standards in Disaster Response, 2003*

Baseline Reference Mortality Data By Region				
Region	CMR (deaths/ 10,000/day)	CMR emergency threshold	U5MR (deaths/ 10,000 U5s/day)	U5MR Emergency threshold
Sub-Saharan Africa	0.4	0.9	1.14	2.3
Middle East and North Africa	0.16	0.3	0.36	0.7
South Asia	0.25	0.5	0.59	1.2
East Asia and Pacific	0.19	0.4	0.24	0.5
Latin America and Caribbean	0.16	0.3	0.19	0.4
Central and Eastern European Region/CIS and Baltic States	0.30	0.6	0.20	0.4
Industrialised countries	0.25	0.5	0.04	0.1
Developing countries	0.25	0.5	0.53	1.1
Least developed countries	0.38	0.8	1.03	2.1
World	0.25	0.5	0.48	1.0

Adapted from: *The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response*, 2003, p. 261

Appendix 4: Water Related Technical Guidelines

Planning Guidelines for Minimum Water Quantities for Institutions and Other Uses	
Health centres and hospitals	5 litres / outpatient 40-60 litres / inpatient / 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)
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 large animal / day 5 litres / small animal / day

Adapted from: *The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response*, 2003, p. 93

Planning Guideline for Minimum Numbers of Toilets in Public Places and Institutions in Disaster Situations

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 children	1 toilet to 20 adults 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

Adapted from: *The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response*, 2003, p. 94

Instructions for Chemical Sterilization of Wells, Reservoirs and Tankers with Strong Chlorine Solutions

1 Stop supplying the public with water from the source (well, reservoir, etc.) that is to be disinfected. For reservoirs and tankers, clean the inside thoroughly by brushing and flushing.

2 Use one of the chemicals listed in the table. The amount of chemical should correspond to the maximum capacity of the reservoir (tanker).

3 First dissolve the chemicals in a bucket (not more than about 100 g of calcium hypochlorite or bleaching powder in one bucket of water.

4 For wells, pour the solution (one or more bucketsful one after another) into the well. If possible, agitate the water to ensure good mixing. For reservoirs and tankers, pour the solution into the tank when it is half full of water and top it up completely afterwards.

5 Leave the strongly chlorinated water for at least 12 hours in the well or tank. This water should not be used for drinking purposes.

6 For wells, pump the strongly chlorinated water from the well and reject until the residual chlorine level is below 0.7 mg per litre of water. For tanks, empty the tank completely and let the water run to waste. Then restart normal operations and supply the public.

Source: *Guide to Simple Sanitary Measures for the Control of Enteric Diseases*,
by S. Rajagopalan and M.S. Shiffman WHO, Geneva, 1974

Potential Sources of Chlorine	
Sodium Hypochlorite	Liquid form, e.g. typical household disinfectant (5 to 15 % available chlorine), laundry bleach (5%) or antiseptic 'baby care' products (1 to 2 %). Avoid using scented disinfectants as this will taint the water.
Calcium Hypochlorite	Available in granules (known as <i>High Test Hypochlorite</i> or HTH with 60 to 70 % available chlorine).
Bleaching Powder or Chlorinated Lime (20 to 35 % available chlorine)	Bleaching powder needs to be carefully mixed with a little water to make a cream paste, stirring with a wood rod. Then add more water to achieve a one per cent solution.
Water Purification Tablets	These usually contain 1 mg of chlorine or typically 2 mg of iodine. They are designed to treat 1 l of clear water, but leave a taste. Most tablets have shelf lives and need to be stored in a cool dark room with dry conditions.

Adapted from: *Emergency Water Treatment Following an Outbreak of Diarrhoea: Guidance Notes*, p.4 WHO, Sri Lanka

Water (cu.m.)	Bleaching Powder (25- 35 %) grams	Hi strength calcium hypo- chlorite, 70% (grams)	Liquid bleach (5% sodium hypochlorite) (millilitres)
0.1	10	4.3	60
0.5	50	22	300
1.0	100	43	600
5.0	500	220	3000
10	1000	430	6000
50	5000	2200	30.000
100	10.000	4300	
500	50.000	22.000	

Source: *Guide to Simple Sanitary Measures for the Control of Enteric Diseases*, by S. Rajagopalan and M.S. Shiffman WHO, Geneva, 1974

Example: Using Bleaching Powder or Chlorinated Lime with nominal 30% available chlorine	
Volume of water in a well	3000 litres
Volume of one percent chlorine solution	9 litres
Amount of chlorine in 9 litres of one percent solution	90 grams
1000 grams of bleaching powder contains	300 grams chlorine (30% available chlorine)
The amount of bleaching powder required is	$90 / 300 \times 1000$ g or 300 grams

Source: *Emergency Water Treatment Following an Outbreak of Diarrhoea: Guidance Notes*, p.4 WHO, Sri Lanka

