



2<sup>nd</sup> draft version edited 8-Sep-10:  
for comments/peer review


---

# Philippine Emergency Sanitation Reference Toolkit (*Excreta Disposal*)

---



July 2010



# Philippine Emergency Sanitation Reference Toolkit

## TABLE OF CONTENTS

<b>Foreword</b>	<b>5</b>
<b>Acknowledgements</b>	<b>6</b>
<b>Acronyms and Abbreviations</b>	<b>8</b>
<b>1 Introduction</b>	<b>9</b>
Background	9
Purpose, Scope and Limitation of the Material	10
Using this toolkit	11
<b>2 Ensuring Health and Survival through Proper Excreta Disposal in Emergency Situations</b>	<b>12</b>
2.1 Ensuring public health in emergency situations	12
2.2 Standards, Indicators and Guidance Notes for Excreta Management	13
2.2.1 Standard 1: Performance Standard	13
2.2.2 Standard 2: Access to and Adequate Number of Toilets	14
2.2.3 Standard 3: Design, Construction and Use of Toilets.	16
2.2.4 Planning Guidelines for Minimum Numbers of Toilets at Public Places and Institutions in Disaster Situations	19
2.2.5 Planning Guidelines for WHO	19
<b>3 Before the Emergency happens</b>	<b>20</b>
3.1 Needs Assessment	20
3.2 Setting up the WASH Clusters and WASH Teams	20
3.3 Mapping of Evacuation Centers and Resource Assessments	21
3.4 Community Participation	21
3.5 Camp Management	22
3.6 Integration of Excreta Disposal in DRR plans	22
<b>4 Sanitation Protocols during Emergency Situations</b>	<b>23</b>
Over-all Goal:	23
Specific Objective:	23

<b>4.1 Needs Assessment during Emergency Situations</b>	<b>23</b>
<b>4.2 Strategies and Plan of Action</b>	<b>25</b>
<b>Deciding what sanitation solution is appropriate</b>	<b>25</b>
<b>4.3 Sanitation Techniques and Technology Options for First Phase Acute Emergency Phase</b>	<b>27</b>
4.3.1 Existing/Available Toilet Facilities	27
4.3.2 WRAP, CONTAIN AND COLLECT (also known as the Flying Saucer Technique)	27
4.3.3 Use of chamber pots with lids	28
4.3.4 Managed Open defecation	28
4.3.5 Shallow Trench Latrines	31
4.3.6 Deep Trench Latrines	32
4.3.7 Shallow Family Latrine	33
4.3.8 Use of PEE POO BAGS	33
<b>4.4 Sanitation Techniques and Technology Options for 2nd Phase Sanitation technical Solutions</b>	<b>34</b>
4.4.1 Simple pit latrines	34
4.4.2 Urine Diverting Toilets	35
4.4.3 Pour flush Latrines	36
4.4.4 Elevated Evacuation Latrine	37
4.4.5 Laguna Floating toilets	37
4.4.6 The Bolinao Floating Sanitary Toilet (FST)	38
4.4.7 Septic Tanks	39
4.4.8 Collection and Transport of Excreta	40
4.4.9 Treatment and Disposal	41
4.4.10 School latrines	41
<b>4.5 Coordinating, Monitoring and Reporting</b>	<b>41</b>
<b>4.6 Assessment and re-Planning</b>	<b>41</b>

<b>5</b>	<b><i>Post Emergency Phase</i></b> _____	<b>43</b>
<b>6</b>	<b><i>Hygiene Promotion as Integral Part of Emergency Sanitation</i></b> _____	<b>44</b>
<b>7</b>	<b><i>Local Policies and Guidelines for Promoting Emergency Sanitation</i></b> _____	<b>45</b>
	<b><i>Bibliography</i></b> _____	<b>46</b>
	<b><i>Useful References from the Web</i></b> _____	<b>47</b>
	<b>Annexes</b>	

Annex A. Resource Assessment Matrix

Annex B. Orientation to the Cluster Approach

Annex C. Draft Executive Order creating the Provincial WASH Team and the Provincial WASH Cluster

Annex D. Twenty Rapid Assessment Questions

Annex E. Excreta Disposal Guidelines

Annex F. Sample Monitoring Matrix from Laguna

## **Table of Figures**

Figure 1 Faecal-Oral Disease Transmission Route .....	12
Figure 2 Decision Tree for Excreta Disposal.....	26
Figure 3 Open Defecation Field .....	30
Figure 4 Shallow Trench Latrine .....	31
Figure 5 Shallow Family Latrines.....	33
Figure 6 Ways on how to use a PEE POO bag.....	34

## Foreword

---

Considered as one of the most hazard prone countries in the world, the Philippines is visited by at least 20 to 25 typhoons every year and incidence of flooding and landslides are higher in the country than in anywhere else. On average 887 earthquakes every year are experienced in the Philippines with some proving to be very damaging.

The most recent natural disasters have significantly raised the importance of providing adequate sanitation facilities and the promotion of hygiene practices in emergency situations. The usual default response of national government is the provision of portable chemical-based toilet systems which require frequent desludging and were inadequate to respond to the scale of demand during recent the emergency created by Tropical Storm Ondoy (internationally called Ketsana).

Different technologies are available to provide options for sanitation in emergencies, particularly if they are considered during the emergency preparedness phase. The Philippine Emergency Sanitation Reference Toolkit is intended to be a compilation of existing relevant sanitation focused emergency response mechanisms, technologies and experiences to support institutions and local government units (LGUs) in disaster response.

The first version of this toolkit will be made available online [\(LINK\)](#) and on CD Roms. A published version will become available when funding allows. The toolkit is intended as a dynamic, interactive document, providing users and partners with easy access to information and opportunities to contribute to the knowledge database on emergency sanitation.

The toolkit was developed by the Philippine Ecosan Network (PEN), a multi-stakeholder network committed to influencing policy and decisions of national and local leaders in both public and private sectors to achieve sustainable sanitation.

---

## Acknowledgements

The Philippine Ecosan Network wishes to express its appreciation to all whose efforts contributed to the completion of this reference toolkit. In particular, PEN gratefully acknowledges the following institutions and organizations who contributed their ideas, knowledge and time to support the preparation and review of this document, including:

A Single Drop for Safe Water

Approtech Asia

Basic Needs Services -Borda

Buklod Tao

Center For Advanced Philippine Studies

Department of Health, through the EOHO and the HEMs

International Organization for Migration

Merlin UK- Philippines

OXFAM UK

Plan International

Provincial Health Office in Laguna

Save the Children Laguna

Streams of Knowledge

World Vision

The development of this reference toolkit was made possible with the support and collaboration of the ECOSANRES 2 Program of the Stockholm Environment Institute through the Center for Advanced Philippine Studies. STREAMS of KNOWLEDGE prepared this study in behalf of PEN.

## Acronyms and Abbreviations

---

AO	Administrative Order
BDC	Barangay Development Council
BDRRMC	Barangay Disaster Risk Reduction and Management Councils
DepEd	Department of Education
DOH	Department of Health
DOH - EOHO	Department of Health Environmental and Occupational Health Office
DOH- HEMS	Department of Health – Health in Emergency Management Staff
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction Management
EC	Evacuation Center
IDP	Internally Displaced Population
IDP	Internally displaced populations
INGO	International Non-government Organizations
IOM	International Organization for Migration
LDRRMC	Local Disaster Risk Reduction and Management Councils
LGU	Local Government Units
NGO	Non-government organization
ODF	Open Defecation Free
PEN	Philippine Ecosan Network
PSSR	Philippine Sustainable Sanitation Roadmap
RA	Republic Act
UDT	Urine Diverting toilets
WASH	Water, sanitation and hygiene
WATSAN	Water and sanitation



### 1.1 Background

The Philippines, being in the so-called “Pacific Ring of Fire” is prone to many kinds of disasters and calamities, including typhoons, flooding, earthquakes, and landslides. In September 2009, Metro Manila and surrounding provinces experienced extreme weather disturbances caused by Tropical Storm Ketsana (locally called Ondoy) which resulted in severe flooding and destruction. Experts predict that the country will have more frequent and more intense floods during the rainy season and longer and more severe drought during the dry period.

This prediction and the impact of the recent floods has lead the national government to pass the Republic Act 10121, also called the [Philippine Disaster Risk Reduction and Management Act of 2010](#). The new legislation was approved by the Senate and Congress on February 1, 2010 and approved by the Philippines’ President on May 27, 2010. The law signals a major policy shift from disaster response to disaster preparedness.

In this Act, the government commits itself to “adhere to and adapt universal norms, principles and standards of humanitarian assistance and the global effort on risk reduction as a concrete expression of the country’s commitment to overcome human sufferings due to recurring disasters.”<sup>1</sup> Furthermore, it also recognized the need to strengthen the capacity of LGUs, communities and vulnerable groups to mitigate, prepare for, respond to and recover from the effects of a disaster. The Act also calls for the establishment of DRRM Training Institutes to support capacity development for DRR. They are tasked to develop books and manuals that assist DRRM workers in planning and implementing DRRM programs and projects.

Although the government has previously developed emergency preparedness and response mechanisms, the sanitation component has remained wanting and adhoc. Tropical Storm Ondoy caused the displacement of thousands of families; many stayed with friends or relatives or were accommodated in temporary evacuation centres, often established in public schools or basket ball courts. The sanitation facilities available often proved inadequate for the sudden influx of people, resulting in poor hygiene practices and cases of diahorrea and other sanitation-related diseases.

While the new Act does not specifically mention sanitation and sanitation standards, it generally recognizes the need to “adhere to universal norms and standards...”. It also mentions that disaster preparedness aims to build the capacity needed to efficiently manage all types of emergencies, including: contingency planning; stockpiling of equipment and supplies;

---

<sup>1</sup> SEC 2. Declaration of Policy Republic Act 10121.

arrangements for coordination, evacuation and public information, and supported by formal institutional, legal and budgetary capacities.<sup>2</sup>

The sanitation preparedness and response to the Ondoy flooding provides a microcosm of the general neglect of sanitation in the country as a whole. The new Act provides an opportunity for improved sanitation-related humanitarian response.

The DOH, through the new Administrative Order 2010-0021 signed by the DOH Secretary on June 25, 2010 declared that sustainable sanitation is part of their National Policy and a National Priority Program. It recognized sustainable sanitation is an important factor for improved public health and, like health, a fundamental human right. Promotion of sanitation during an emergency as recognised as a key strategy for sustainable sanitation; as a result, the DOH will formulate a sanitation program for emergency situations. The program will be integrated with disaster risk reduction and disaster response plans for implementation by the Centers for Health Development in collaboration with the Local Government Units.

### 1.2 Purpose, Scope and Limitation of the Material

Sanitation in the context of this reference toolkit takes its definition from the DoH’s Philippine Sustainable Sanitation Roadmap (PSSR)<sup>3</sup> document and refers to: a wide range of services and arrangements pertaining to the hygienic and proper management of human excreta (urine and feces) and community liquid wastes to safeguard the health of individuals and communities.

The toolkit serves as a reference material to support the development of sanitation policies, plans and programs in an emergency by the Local Government Units, Sanitation Inspectors, Government Agencies, International and Local Non-Government Organizations in the Philippines. In particular, it is targeted at all LGUs mandated by RA 10121 to form their DRRM Councils including the Local Disaster Risk Reduction and Management Council (LDRRMCs) at Barangay level and the municipal level WASH Teams led by the Municipal Health Officer.

The guidelines, standards and technologies compiled in this toolkit are based on a) [the SPHERE project](#)<sup>4</sup>; b) local experiences and c)

BOX 1. SANITATION DEFINITION
Sanitation in this context specifically refers to a wide range of services and arrangements pertaining to the hygienic and proper management of human excreta (urine and feces) and community liquid wastes to safeguard the health of individuals and communities.

---

<sup>2</sup> SEC 3. Definition of Terms Republic Act 10121.

<sup>3</sup> Philippine Sustainable Sanitation Roadmap, April 2010, Department of Health.

<sup>4</sup> <http://www.sphereproject.org/>

international experience that may be looked into for adoption and or adaptation to the Philippine context. The SPHERE Project provides a humanitarian charter and minimum standards and indicators in key sectors during a disaster response. The Sphere Project is the collaborative effort of 800 organizations from 80 countries. The SPHERE project covers all the core areas of humanitarian response, including a section on water, sanitation and hygiene and SPHERE training was given to LGUs affected by Ondoy. However, the standards and indicators are generic guidelines which need further development for the Philippines context. While an official government policy is not yet in place, this reference toolkit will propose standards, guidelines and key indicators on excreta management based on the SPHERE project but with notes on local adaptation. In addition, it will provide some useful assessment tools, monitoring matrices previously utilized in an emergency and a compilation of technology options for consideration in different types of emergency response.

### **1.3 Using this toolkit**

The Sanitation Reference Toolkit is NOT a “how to” manual. Instead it offers a particular set of standards, and key indicators on proper excreta management from initial assessment through technology selection and advocacy and follows the SPHERE structure of minimum standards, key indicators and guidance notes.

Proposed minimum standards are qualitative in nature and specify minimum service levels to be attained to achieve minimum essential environmental health conditions in emergency centers and evacuation camps. The minimum standards are an ideal; in the Philippines, where even without an emergency many sanitation facilities are inadequate, it is important to understand the global minimum standard and adjust them to the local context, considering the limited resources and dynamics of the emergency. Also, to acknowledge that it may take time for agencies to achieve minimum standards.

Key Indicators are “signals” that show whether the standard has been attained. This may be qualitative or quantitative.

Guidance Notes are specific points to consider in applying the standards and indicators. It includes practical advice in tackling issues and concerns.

The Philippines, with recurring natural disasters, has much knowledge and experience in responding effectively, yet examples of good practice from the field are only now being developed. This compilation is a start.

## 2 Ensuring Health and Survival through Proper Excreta Disposal in Emergency Situations

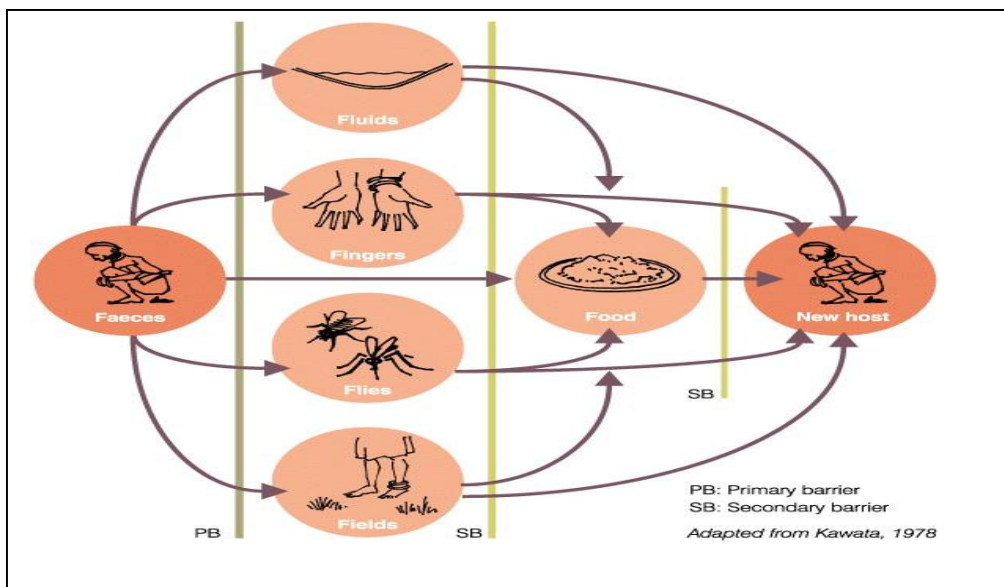
### 2.1 Ensuring public health in emergency situations

Inadequate and unsafe disposal of human feces can lead to transmission of fecal-oral diseases, contaminate ground and water sources and provide breeding sites for flies and mosquitoes which may carry infection. It can also create an unpleasant and foul smelling environment.

While the provision of safe drinking water is essential for public health, the importance of excreta disposal cannot be overstated. Poor sanitary practices and facilities lead to an increase in diarrheal-related diseases and death, especially among children under 5. The likelihood of disease outbreaks increases significantly when a population is displaced or affected by a disaster.

Transmission of excreta-related diseases is largely fecal-oral or through skin penetration. Figure 1 illustrates the potential transmission routes for pathogens found in excreta. Proper hygiene practices, particularly hand washing and safe excreta disposal is essential to avoid transmission of fecal matter that causes intestinal infections and helminthes infestations.

Figure 1 Fecal-Oral Disease Transmission Route



## 2.2 Standards, Indicators and Guidance Notes for Excreta Management

Evacuees seek shelter wherever available, and if not planned, spontaneous resettlement can cause huge sanitation problems. For planning purposes, potential evacuation centers (ECs) are identified by the LGU prior the onset of an emergency. Once a site is identified, the Sanitary Inspectors identify existing operational toilet and washing facilities, facilities in need of repair and toilets and wash facilities required meeting the requirements of the ECs maximum capacity. Other considerations include access and greywater management.

### **Box 2. Objectives of Excreta Management**

The first objective of excreta management is to minimize high-risk practices and reduce fecal disease transmission routes; examples include no flies, no fecal matter and the provision of hand washing facilities. By keeping the toilet and wash facility clean and odor-free it also encourages people to use it.

The second objective is to ensure access. The users should have safe, reliable access to sanitation facilities 24 hours a day including considerations for privacy, personal safety and shelter.

The third objective is grey water management, to avoid stagnant or polluted water (for example, water used for washing) in the user's environment, and eliminating their exposure to pathogens or insects living in the grey water.

According to the SPHERE standards, there are two main parameters in excreta disposal that must be observed:

- a) Design construction and use of toilets
- b) Access to and number of toilets

### 2.2.1 Standard 1: Performance Standard

The toilet facilities' design and location is required to:

- Safely contain excreta to prevent contamination of the water table, flooded area or other water sources
- Be easily maintained, including easy cleaning and access for de sludging
- Have access to water for cleaning and flushing
- Have a life span of 6-8 months
- Be cost effective, preferably using locally available resources
- Be accessible to all people especially vulnerable groups
- Provide privacy, security and be culturally sensitive to all users, especially women
- Prevent the contact between flies and users

### 2.2.2 Standard 2: Access to and Adequate Number of Toilets.

Facilities are planned to provide adequate numbers of toilets, sufficiently close to dwellings, to allow them rapid and safe access at all times of the day and night to the target population.

Schools are often designated as ECs during an emergency. Many public school buildings have inadequate toilet facilities and are not generally designed for the large volumes of human waste generated in an EC. To prepare for any transition of schools into ECs, the 2010 version of DepEd/Plan International Handbook on Educational Facilities recommends the following:

1) *The school shall provide rainwater catchment systems wherever and whenever applicable to supply water for drinking, hygiene and sanitation practices during emergencies. The system tank can also serve as reservoir during normal times*

2) *Standby sewer line and water supply line shall be accessible in the designated evacuation center area of the school premise<sup>5</sup>. Complying this provision will help secure water storage tank and avoid unnecessary expenses on Portalet desludging during emergencies*

The SPHERE **Key indicator suggests a** maximum of 20 people use each toilet (see guidance notes 1-4) arranged either by household(s) and or/segregated by sex (see guidance notes 3-5). However, if at the onset of the emergency it is not immediately possible to have a 1: 20 ratio, aim for a target of 1:75 in the first two weeks reducing to 1:50 and finally 1:20. Ideally, toilets should be one per household.

*Additional indicators include the following:*

- Separate toilets for women and men are available in public places (markets, distribution centers, health centers, etc.) (see guidance note 3).
- Shared or public toilets are cleaned and maintained in such a way that they are used by all intended users (see guidance notes 3-5).
- Toilets are no more than 50 meters from dwellings (see guidance note 5).<sup>6</sup>
- Toilets are used in the most hygienic way and children's feces are disposed of immediately and hygienically (see guidance note 6).

---

<sup>5</sup> 2010 version of DepEd Handbook on Educational Facilities – Integrating DRR in School Construction, pp.119

<sup>6</sup> The Sphere Project – Humanitarian Charter and Minimum Standards in Disaster Response 2004 Edition

## Guidance notes

1. **Safe excreta disposal:** the aim of a safe excreta disposal programme is to ensure that the environment is free from contamination by human feces. The more all groups from the disaster-affected population are involved, the more likely the programme is to succeed. In situations where the population has not traditionally used toilets, it may be necessary to conduct a concerted education/promotion campaign to encourage their use and to create a demand for more toilets to be constructed. Disasters in urban areas where the sewerage system is damaged may require solutions such as isolating parts of the system that still work (and re-routing pipes), installing portable toilets and using septic tanks and containment tanks that can be regularly desludged.
2. **Defecation areas:** in the initial phase of a disaster, before any toilets can be constructed, it may be necessary to mark off an area to be used as a defecation field or for trench latrines. This will only work if the site is correctly managed and maintained.
3. **Public toilets:** in some initial disaster situations and in public places where it is necessary to construct toilets for general use, it is very important to establish systems for the proper regular cleaning and maintenance of these facilities. Disaggregated population data should be used to plan the ratio of women's cubicles to men's (of approximately 3:1). Where possible, urinals should be provided for men.
4. **Communal toilets:** for a displaced population where there are no existing toilets, it is not always possible to provide the SPHERE indicator of one toilet per 20 people immediately. In such cases, a figure of 75 people per toilet can be used within 2 weeks, decreasing to 50 within 10 weeks and then to 20 for more than 10 weeks<sup>7</sup>, and changing the sharing arrangements accordingly. Any communal toilet must have a system in place, developed with the community, to ensure that it is maintained and kept clean. In some circumstances, space limitations make it impossible to meet this figure. In this case, while advocating strongly for extra space to be made available, it should be remembered that the primary aim is to provide and maintain an environment free from human feces.
5. **Shared facilities:** where one toilet is shared by four or five families it is generally better kept, cleaner and therefore regularly used when the families have been consulted about

---

<sup>7</sup>WASH Cluster Contingency Plan. SPHERE minimum standard is really 1:20 toilet to people ratio.

its siting and design. It is important to organize access to shared facilities by working with the intended users to decide who will have access to the toilet and how it will be cleaned and maintained. Efforts should be made to provide people living with HIV/AIDS with easy access to a toilet as they frequently suffer from chronic diarrhea and reduced mobility.

6. **Children's feces:** particular attention should be given to the disposal of children's feces, which is commonly more dangerous than those of adults, as the level of excreta-related infection among children is frequently higher and children lack antibodies. Parents or care givers need to be involved, and facilities should be designed with children in mind. It may be necessary to provide parents or care givers with information about safe disposal of infant feces and nappy (diaper) laundering practices. ***Potties for special needs and children shall be distributed within one month.***<sup>8</sup>

### 2.2.3 Standard 3: 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 (see guidance notes 1-3).
- Toilets are designed, built and located to have the following features:
- Toilets 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 (see guidance note 1);
- Design and siting of toilets consider religious and or cultural sensitivities. For example, for Muslim traditions (toilets are not allowed to face Mecca);
- Toilets are sited in such a way as to minimize threats to users, especially women and girls, throughout the day and night (see guidance note 2);
- Toilet cubicles are easy to keep clean to encourage use and not present a health hazard;
- Toilets provide a degree of privacy in line with the norms of the users;<sup>9</sup>

---

<sup>8</sup> WASH Cluster Draft Response Plan.

<sup>9</sup> DepEd Handbook on Educational Facilities 2010



- Provisions are made for the disposal of women's sanitary protection, or privacy for washing and drying sanitary cloths (see guidance note 4);
- The environment for fly and mosquito breeding is minimized (see guidance note 7).
- All water seal/flush toilets, or where water is the culturally accepted method of anal cleaning, have an adequate and regular supply of water (see guidance notes 1 and 3).
- Pit latrines and soakaways (for most soils) are at least 30 meters from any groundwater source and the bottom of any latrine is at least 1.5 meters above the water table. Drainage or spillage from defecation systems must not run towards any surface water source or shallow groundwater source (see guidance note 5).
- People wash their hands after defecation and before eating and food preparation (see guidance note 6).
- People are provided with tools and materials for constructing, maintaining and cleaning their own toilets if appropriate (see guidance note 7).
- Design feature of a toilet to stress wastewater management to protect water source: Wastewater management: grey water is separated from black water so that standby septic tank will accommodate only sewage or wastewater from flushing sanitary bowls; all other domestic wastewater can be received by a separate soakaway pit to avoid stagnant water and control water table contamination.<sup>10</sup>

## Guidance notes

**1. Acceptable facilities:** successful excreta disposal programs are based on an understanding of people's varied needs as well as on the participation of the users. It may not be possible to make all toilets acceptable to all groups and special toilets may be required for children, the elderly or disabled people e.g. potties, or toilets with lower seats or hand rails. The type of toilet constructed should depend on the preferences and cultural habits of the intended users, the existing infrastructure, the ready availability of water (for flushing and water seals), ground conditions and the availability of construction materials.

**2. Safe facilities:** inappropriate siting of toilets may make women and girls more vulnerable to attack, especially during the night, and ways must be found to ensure that women are, and feel safe using the toilets provided. Where possible, communal toilets should be provided with

---

<sup>10</sup> DepEd Handbook on Educational Facilities 2010

lighting or families provided with flashlights. The input of the community should be sought with regard to ways of enhancing the safety of users.

3. **Anal cleansing:** water should be provided for people who use it. For other people it may be necessary to provide toilet paper or other material for anal cleansing. Users should be consulted on the most culturally appropriate cleansing materials and on their safe disposal.

4. **Menstruation:** menstruating women and girls require access to suitable materials for the absorption and disposal of menstrual blood and a bin made available for used napkins. Women should be consulted on what is culturally appropriate.

5. **Distance of defecation systems from water sources:** the distances given above may be decreased for fissured rocks and limestone, or increased for fine soils. In disasters, groundwater pollution may not be an immediate concern if the groundwater is not consumed. In flooded or high water table environments, it may be necessary to build elevated toilets or septic tanks to contain excreta and prevent it contaminating the environment.

6. **Hand washing:** Hand washing is a leading method of protection against fecal-oral diseases. Users require access to hand washing facilities, including access to water and soap or an alternative (such as ash) after defecation and should be encouraged to do so.

7. **Hygienic toilets:** if toilets are not kept clean they may become a focus for disease transmission and people will prefer not to use them. They are more likely to be kept clean if users have a sense of ownership. This is encouraged by promotional activities, having toilets close to where people sleep and involving users in decisions about their design and construction, rules on proper operation, maintenance, monitoring and use. Flies and mosquitoes are discouraged by keeping the toilet clean, having a water seal, Ventilated Improved Pit (VIP) latrine design or simply by the correct use of a lid on a squat hole.

## 2.2.4 Planning Guidelines for Minimum Numbers of Toilets at 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 Centers	1 toilet to 20 beds or 50 out-patients	1 toilet to 10 beds or 20 out-patients
Feeding Centers	1 toilet to 50 adults 1 toilet to 20 children	1 toilet to 20 adults 1 toilet to 10 children
Reception/Transit Centers	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: adapted from Harvey, Baghri and Reed (2002)

## 2.2.5 Planning Guidelines for WHO<sup>11</sup>

Planning Guidelines for Minimum Numbers of Toilets in Disaster Situation		
Type of Toilet	Short Term	Long Term
Communal Trench Latrine (2.4 x 0.3 x 0.6 meter)	1 per 100 persons	1 per 50 persons
Pour-Flush Water-Sealed Toilet	1 seat per 50 persons	1 seat per 20 persons
Ventilated Improved Pit (VIP) Latrine	1 seat per 50 persons	1 seat per 20 persons
Other type of Sanitary Toilet	1 seat per 50 persons	1 seat per 20 persons

<sup>11</sup> [http://www.wpro.who.int/internet/resources.ashx/EHA/docs/PET\\_3rdEd\\_web.pdf](http://www.wpro.who.int/internet/resources.ashx/EHA/docs/PET_3rdEd_web.pdf)

## 3 Before the Emergency happens

---

Excreta disposal for emergency situations is an integral part of local disaster risk reduction management plans prepared at the Barangay, municipal, provincial and national levels. During the capacity building interventions for disaster preparedness, it is important to establish the framework for excreta disposal that will be best adopted at each location. Community participation is very important to establish rapid community-based response at the onset of the emergency.

### 3.1 Needs Assessment

Many highly vulnerable communities have experiences and lessons learned in coping with emergency situations. They are aware of the potential disasters that could come their way. Building on this, it is important to link the assessment of needs and efforts relating to excreta disposal into the DRR plans that will be developed at various government levels.

The Municipal WASH Team, headed by the Municipal Health Officer, is composed of the sanitary inspectors, municipal engineer and the municipal planning and development officers who need to be aware of the following to give effective input to the DRR:

- Current sanitation behaviors and practices prevalent in the community;
- Planned evacuation camps to be utilized and their capacities to accommodate IDPs;
- Available resources that could be immediately mobilized

To help them do this, a Resource Assessment Matrix has been developed as a tool to capture baseline information. (*Annex A. Resource Assessment Matrix*)

### 3.2 Setting up the WASH Clusters and WASH Teams

The global humanitarian response has instituted the Cluster Approach to Disaster Response (see *Annex B for more information about the Cluster Approach*). In relation to this, there are different clusters responsible for certain areas such as evacuation camp management, health, water supply and sanitation among others. Water supply, sanitation and hygiene is handled by the WASH Cluster, which is globally led by UNICEF, who brings in the coordination of different INGOs, international Organizations and experts working in emergency situations. At the national level, the WASH Cluster is jointly led by the DOH in partnership with UNICEF. The different WASH actors involved in emergency response are invited as members of the WASH Cluster.

Forming a provincial WASH Cluster has been piloted by UNICEF in the provinces of Laguna and in Rizal for the Ondoy response and it is seen as something that should be replicated in all provinces. The provincial WASH Cluster was instrumental in coordinating information sharing (both horizontally to peers, and vertically to the national level), complementation of efforts and coordination of support among the provincial WASH team actors, the Municipal Wash Teams and the INGOs. (*A draft Executive Order forming the WASH Cluster is attached as Annex C.*)

WASH Teams are formed at the provincial and municipal level to facilitate needs assessments, regular water supply, sanitation and hygiene promotion programs during non-emergency period. In some municipalities, they are called the WATSAN Team. These teams are members of the WASH Cluster together with other NGOs and INGOs.

### **3.3 Mapping of Evacuation Centers and Resource Assessments**

Part of the preparation phase prior to any emergency situation is the identification of potential evacuation centers in the area. The WASH Team should be alert in assessing the sanitation conditions in these centers. Given the available number of functioning toilets, how many can be accommodated in the camp? If the plan is to use this center for x number of people, how many toilets should there be in place?

### **3.4 Community Participation**

Consultation with the people who is most likely to be affected by the disaster is an essential aspect of preparation. Whereas they are consumers with regards to water supply, they are producers with regards to excreta disposal and other aspects of sanitation. Sanitary arrangements and sensitivities vary a great deal between cultures, and different groups in the camp, such as men, women, or the elderly, who may have special needs and wishes. The Barangay Development Council, which is mandated, to act as the LDRRMC at the Barangay level is in the position to mobilize community support for disaster preparedness and encourage good sanitation practices to improve the impact of hygiene promotion campaigns during emergencies. One example is to promote open defecation free communities.<sup>12</sup>

---

<sup>12</sup> ODF communities are those with 100% of households having their own sanitary toilet facilities and there is an existing ordinance providing penalties to those found defecating in public areas.

Other community members to consider during the DRR programmed development include women and children, particularly when considering the collective role of men and women for proper use and maintenance of the facilities.

### **3.5 Camp Management**

The role of health personnel ( i.e. the MHO, PHO )is not as camp manager. However, most of the problems arising from the EC are health related and it is important that the MHO or the HEMS coordinator is involved in the pre-disaster/emergency planning for temporary shelters. The camp manager may anyone designated by the local executive. It is however recommended that the appointee has experience in disaster preparedness and management. In the Philippines, since the schools are commonly used as the evacuation centers, the principal is automatically designated as the camp manager. This is primarily because, he/she responsible for the school building/facilities, and often classes continue.<sup>13</sup>

### **3.6 Integration of Excreta Disposal in DRR plans**

The DRR plans developed in the pre-emergency situation phase include preparations to save lives and maintain public health. It includes the identification of prioritized activities, locations, contacts and lines of responsibility. At this stage, the Municipal WASH Team ensures that sanitation is included in any final decision including a budget for rapid toilet construction, desludging, primary treatment, repairs and maintenance of facilities. At the minimum, the BDRRM should identify a WASH focal point person who is regularly linked to the Municipal WASH Team. He/She should be trained in assessing and reporting the status of the water supply and sanitation situation in the community. Before any disaster happens, the WASH focal point is also involved in hygiene promotion, highlighting the introduction of different sanitation techniques to facilitate awareness of different options when disaster strikes.

### **3.7 Integration of Hygiene/Health Promotion in DRR Training**

Proper use and maintenance of toilet facilities, handwashing and other health messages must already be included in the DRR Trainings. Zero open defecation must be promoted and people must be aware of certain possible technology options should an emergency occur. This will help generate community participation in deciding how to manage excreta disposal in emergency situations.

---

<sup>13</sup> Draft Manual for Evacuation Camp Management – A WHO supported Project 2006

## 4 Sanitation Protocols during Emergency Situations

---

This section describes what could be done during an emergency situation. It must be noted that there are many different factors to consider in applying the guiding principles, standards and key indicators in different types of crisis situations without losing sight of the objectives of excreta management. **The final choice of option or technique should be decided only after consultation with the intended users.**

### Over-all Goal:

To minimize transmission of excreta-related diseases in times of emergencies and disasters.

### Specific Objective:

1. To ensure that the different WASH Clusters and WASH Teams collaborate towards a common and predictable framework on excreta disposal within the context of the general WASH plans and programs.
2. To ensure that access to sanitary toilet facilities is relatively safe, easy and socio-culturally acceptable.
3. To ensure that the type of sanitation technique to be utilized is appropriate, affordable, accessible and easily replicable during the rapid onset of emergencies.

During the emergency, the WASH Team is responsible for organizing the following:

1. Needs Assessment
2. Sanitation techniques and technology options
3. Monitoring and Reporting
4. Assessment, Evaluation and Re-planning

### 4.1 Needs Assessment during Emergency Situations

When an emergency happens, the LDRRMC immediately want to establish the extent of the emergency and the immediate next steps to be taken to alleviate the situation.

A simple monitoring form can be used to check the WASH situation. The WASH form should indicate the following information:

1. Location of the emergency camp
2. No. of people displaced by the emergency
3. Water supply situation (piped? Stable? Contaminated? )

4. Toilet situation (no. of toilets disaggregated by sex, functioning or not functioning, no. of people per functioning toilet, what is the problem, how to solve the problem)

More detailed information required to assess the sanitation situation is as follows:

#### **Excreta Disposal Assessment**

1. What is the current defecation practice? If it is open defecation, is there a designated area? Is the area secure?
2. What are current beliefs and practices, including gender-specific practices concerning excreta disposal?
3. Are there any existing facilities? If so, are they used, are they sufficient and are they operating successfully? Can they be extended or adapted?
4. Is the current defecation practice a threat to water supplies (surface of ground water) or living areas?
5. Do people wash their hands after defecation and before food preparation and eating? Are soap or other cleansing materials available?
6. Are people familiar with the construction and use of facilities?
7. What local materials are available for constructing toilets?
8. Are people prepared to use pit latrines, defecation fields, trenches, etc?
9. Is there sufficient space for defecation fields, pit latrines, toilets, etc?
10. What is the slope of the terrain?
11. What is the level of the groundwater table?
12. Are soil conditions suitable for on-site excreta disposal?
13. Do current excreta disposal arrangements encourage vectors?
14. Are there materials or water available for anal cleansing, flushing or maintenance of facilities? How do people normally dispose of these materials?
15. How do women manage issues related to menstruation? Are there appropriate materials or facilities available for this?<sup>14</sup>

---

<sup>14</sup> [http://www.wpro.who.int/internet/resources.ashx/EHA/docs/PET\\_3rdEd\\_web.pdf](http://www.wpro.who.int/internet/resources.ashx/EHA/docs/PET_3rdEd_web.pdf)



A list of rapid assessment questions is attached in *Annex D: 20 Questions for Rapid Assessment*

## **4.2 Strategies and Plan of Action**

The main goal of sanitation is to minimize transmission of excreta-related diseases in times of emergencies and disasters.

An emergency can be divided into two phases:

- a. The 1<sup>st</sup> phase which is the Acute Emergency Phase - where rapid response is required for short-term use.
- b. And the 2<sup>nd</sup> phase which is the Stabilized Emergency Phase - where the situation is relatively stabilized and more sustainable interventions can be implemented.

During the first phase, an immediate response can be implemented while an in-depth assessment and consultation is being organized to determine other appropriate interventions.

There are also three types of possible scenarios to consider when making an assessment:

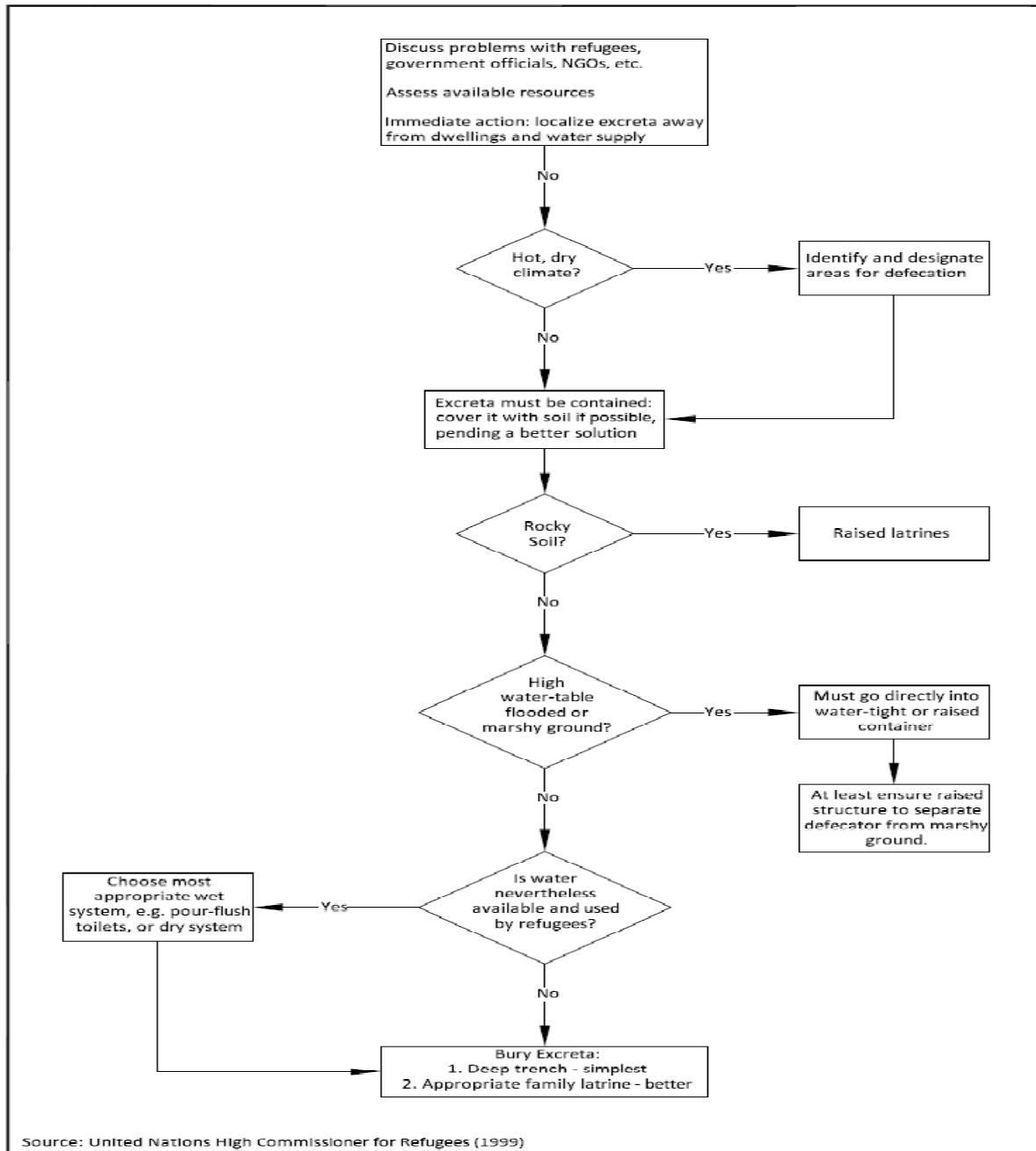
- a) In situ (where people do not leave their homes such as what happened in the flood-stricken areas in Sta. Cruz, Laguna)
- b) When people relocate to an existing facility that is converted to an emergency camp (such as schools, church grounds, gymnasiums, private yards etc)
- c) When the people relocate to semi-permanent relocation areas.

### **Deciding what sanitation solution is appropriate**

The decision on selecting the most appropriate solution must be made in consultation with the users. That is why it is important to discuss with the communities the different options of excreta disposal so that an appropriate informed choice by the users is made. Figure 2 on the following page provides a tool to help planners and users decide on the best course of action when managing excreta disposal.

*Annex E is a summary of Excreta Disposal guidelines taken from the Excreta Disposal in Emergency Situations: A Field Manual.*

Figure 2 Decision Tree for Excreta Disposal



### 4.3 Sanitation Techniques and Technology Options for First Phase Acute Emergency Phase

#### 4.3.1 Existing/Available Toilet Facilities

During an emergency, an assessment of existing toilet facilities will greatly influence emergency sanitation plans and use of other sanitation techniques. If they are not operational, repair may be the best option if it can be completed quickly.

#### 4.3.2 Wrap, Contain and Collect (also known as the Flying Saucer Technique)

People do not want to leave their houses and their properties as long as they can stay safely.



However during floods, it is impossible to use household level comfort rooms which maybe clogged or damaged as septic tanks are submerged under floodwaters. Many resort to wrapping their refuse and excreta in a plastic bag and throwing it outside. This is what residents call “flying saucers”. The farther it gets away from their home the better; however, the bags land in the floodwater and increase contamination. During Ondoy, the contamination of flood

water lead to a serious outbreak of leptospirosis and other water-related diseases. In response to this problem, Medicin Sans Frontier ( MSF) established the WRAP, CONTAIN and COLLECT technique.

#### Wrap, Contain and Collect Technique (MSF’s Flying Saucer Project)

and handle and a

of the bucket. This is

d posters stuck in

cts the contents of

excrement. The

: in the vicinity to

disposed of in a

The materials needed for this technique are as follows: boat, protective equipment, a big water proof container or dustbin with cover, 10 liter buckets with lid and handle for each family, flyers and posters, bell, garbage bags. A waste collector and boatman are required for this project.

**Variations:**

**4.3.3 Use of chamber pots with lids**

Materials needed:

Chamber pots

Biodegradable plastics



Chamber pots are commonly used by Filipinos usually as a bedside latrine where contents are disposed of in the morning. There are different sizes of chamber pots and it is probably the best sanitation option for children. It is advisable to use different chamber pots for defecation and urination. Disposing urine is not as critical compared to feces. For defecation, the families can use chamber pots lined with biodegradable plastics. The plastics with feces are collected in the bucket with cover and given to the waste collector when they come.

**4.3.4 Managed Open defecation<sup>15</sup>**

**Whenever possible, avoid defecation fields and install trench latrines as a first option.**

In displacement emergencies, large numbers of people find themselves in crowded conditions, in transit, or in camps, with inadequate sanitary facilities. Where there is insufficient time to provide facilities, open defecation areas should be used only as an extreme short-term measure before latrines are ready to use.

**As a minimum, defecation should not be allowed where it can contaminate the water supply or food chain.** Defecation should be discouraged along river banks; in the beds of rivers or wades (possible future water sources); within 30 meters of wells or boreholes; within 10 meters of taps; on or above the surfaces prepared for rainwater catchment; within 30 meters uphill of a spring or 10 meters downhill; or within 10 meters of any water-storage tank or treatment plant.

---

<sup>15</sup> <http://www.unicef.org/eapro/unprotected-EDEchapter4.pdf>

Open defecation should also be discouraged along public highways, in the vicinity of hospitals, feeding centers, reception centers, food storage areas, food preparation areas, and in fields containing crops for human consumption. When it is impossible to establish defecation fields, open defecation should be limited to specific, well-defined areas, which should be closed as soon as alternative sites for defecation are available.

Along displacement routes, between transit points, there may be a lot of open defecation by the side of the road. Feces should be picked up, daily if possible, and buried nearby. If open defecation is inevitable and people also stop overnight by the side of the road, people should be encouraged in using one side of the road for defecation and the other side for cooking and resting.

It is usually necessary to set up a more structured system, such as defecation fields, or defecation trenches, that ensure better separation and containment of excreta. These may be followed by longer-term, but intermediate, measures, such as public trench latrines when the transit center or emergency settlement is likely to remain in place for more than a few weeks. However, if emergency settlements are likely to remain for at a period of time, then construction of family toilets, usually simple pit latrines, should begin without delay.

In the initial stages of an emergency, **areas where people can defecate, rather than where they cannot, should be pointed out immediately.** Open areas or fields surrounded by screening may be set up with segregated sites for each sex. People should be encouraged to use one strip of land at a time and used areas must be clearly marked. It is also possible to use internal partitions to provide more privacy and encourage greater use.<sup>16</sup>

It is essential that defecation areas are:

- Far from storage and treatment facilities;
- At least 50m from water sources;
- Downhill of settlements and water sources;
- Far from public buildings or roads;
- Not in field crops grown for human consumption; and
- Far from food storage or preparation areas.

---

<sup>16</sup> <http://www.unicef.org/eapro/unprotected-EDEchapter4.pdf>

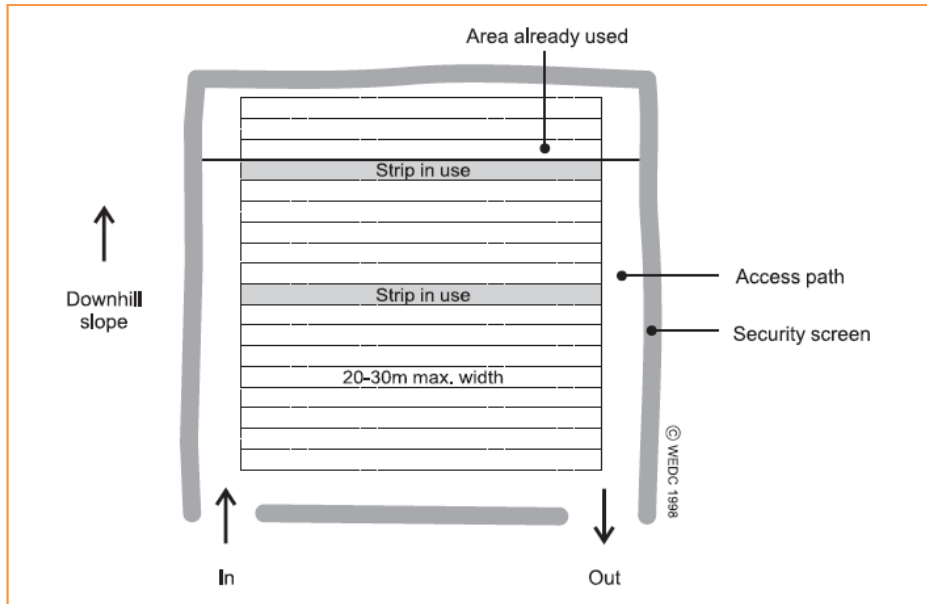


Figure 3 Open Defecation Field

**Advantages:** It is rapid to implement, minimal resources are required; and it minimizes indiscriminate open defecation.

**Constraints:** There is a lack of privacy for users; considerable space is required; it is difficult to manage; there is potential for cross-contamination of users; and it is better suited to hot dry climates.

Operation of Defecation Fields:

- Users need to use the furthest strip away from the entrance
- They need to cover their own excreta with soil.
- Wash hands afterwards.

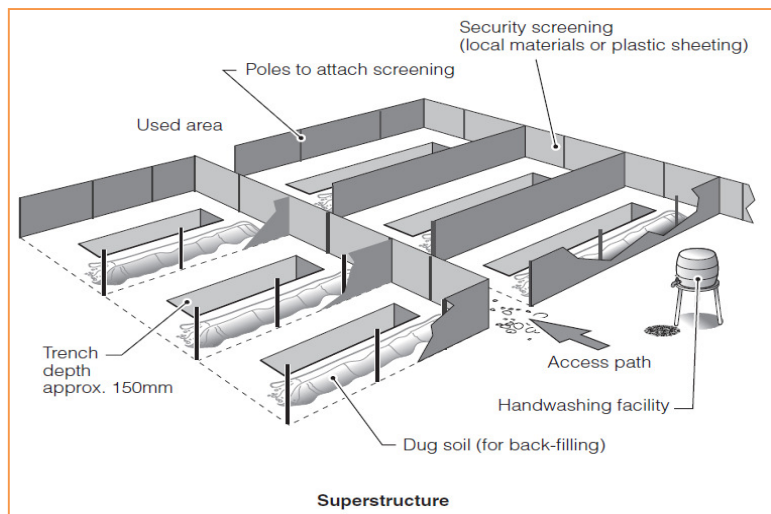
To ensure sanitary use of the fields:

- Provide fulltime supervision preferably in the form of paid attendants
- Provide anal cleansing materials and methods for their safe disposal
- Provide hand washing facilities

*More detailed information can be found in the Excreta Disposal in Emergency Situation Field Manual. (See Annex E)*

### 4.3.5 Shallow Trench Latrines

A simple improvement on open defecation fields is to provide shallow trenches in which people can defecate. This allows users to cover feces and improves the overall hygiene and convenience of an open defecation system. Trenches need only be 20-30cm wide and 15cm deep, and shovels may be provided to allow each user to cover their excreta with soil.



**Advantages:** It is rapid to implement (one worker can dig 50m of trench per day); and feces can be covered easily with soil.

**Constraints:** There is limited privacy; a short life-span; and considerable space is required.<sup>17</sup>

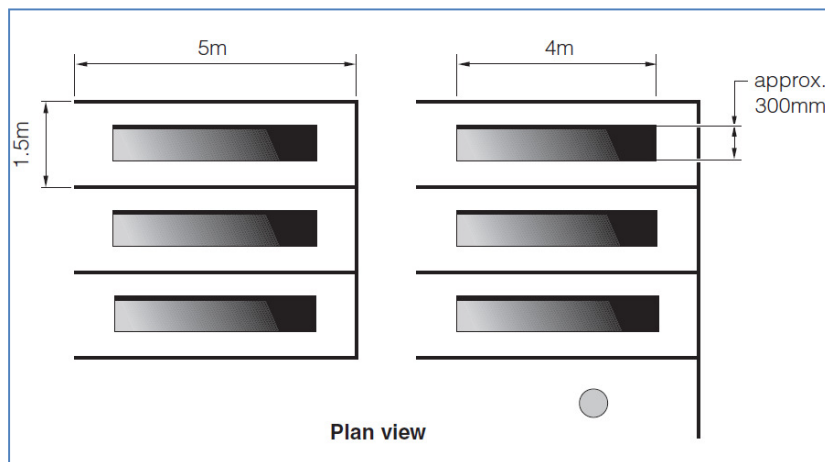
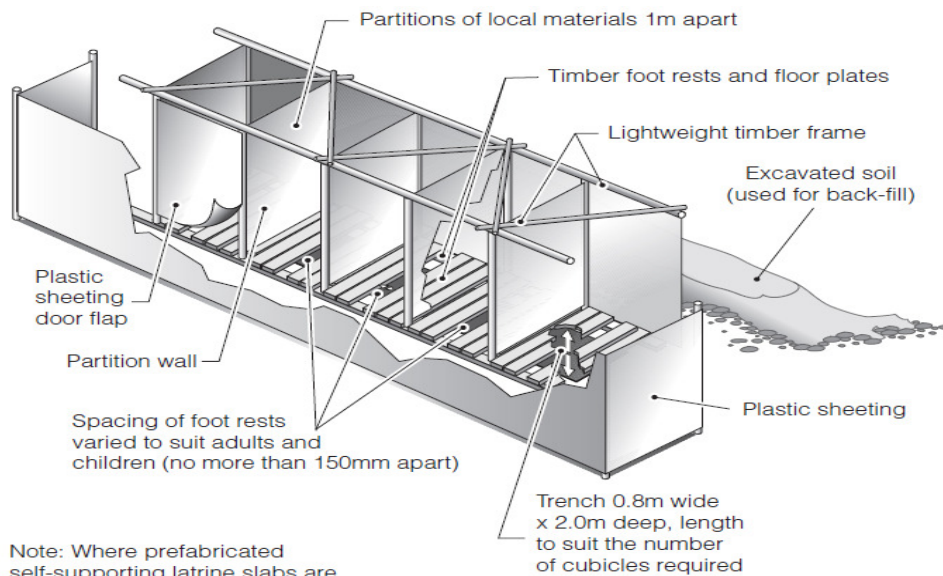


Figure 4 Shallow Trench Latrines

<sup>17</sup> <http://www.unicef.org/eapro/unprotected-EDEchapter4.pdf>

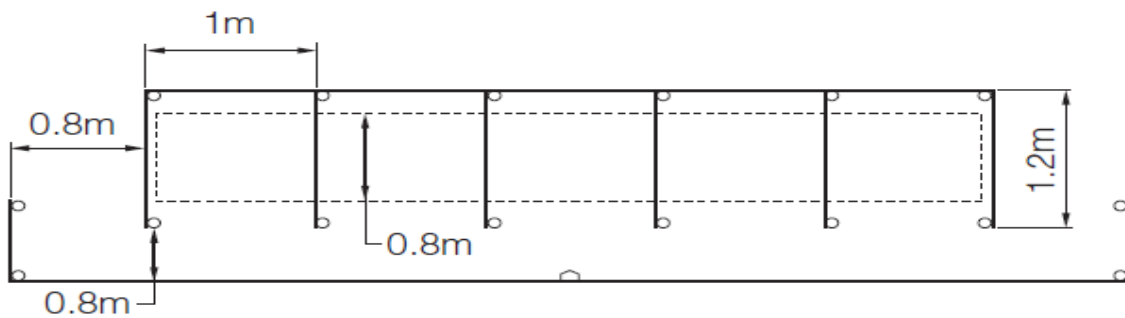
### 4.3.6 Deep Trench Latrines

Deep trench latrines are often constructed in the immediate stage of an emergency and will be appropriate if there are sufficient tools, materials and human resources available. These involve the siting of several cubicles above a single trench<sup>18</sup>



Note: Where prefabricated self-supporting latrine slabs are to be used in place of timber cubicle sizes may need to be adjusted to fit slab width (e.g. 0.8m)

**Superstructure**



**Plan view**

**Figure 8.2.6 Deep Trench Latrines**

<sup>18</sup> <http://www.unicef.org/eapro/unprotected-EDEchapter4.pdf>



### 4.3.7 Shallow Family Latrine

In some situations it may be more appropriate to provide shallow family latrines. This is particularly suitable where people are keen to build their own latrines or have experience of latrine construction. A shallow pit of approximately 0.3m x 0.5m and 1m deep may be excavated. Wooden foot rests or a latrine slab (approximately 0.8m x 0.6m) can be placed over this, overlapping by at least 15cm on each side. This latrine should be an immediate measure only and back-filling should occur when the pit is full to within 0.2m of the slab. A simple superstructure for privacy can be made from local materials.

**Advantages:** There is increased privacy; it is rapid to implement; reduced labor input is required from agency; and it allows people to actively participate in finding an appropriate solution.

**Constraints:** The community must be willing and able to construct family latrines; it can be difficult to manage siting and back filling of pits; and large tools and materials required.<sup>19</sup>

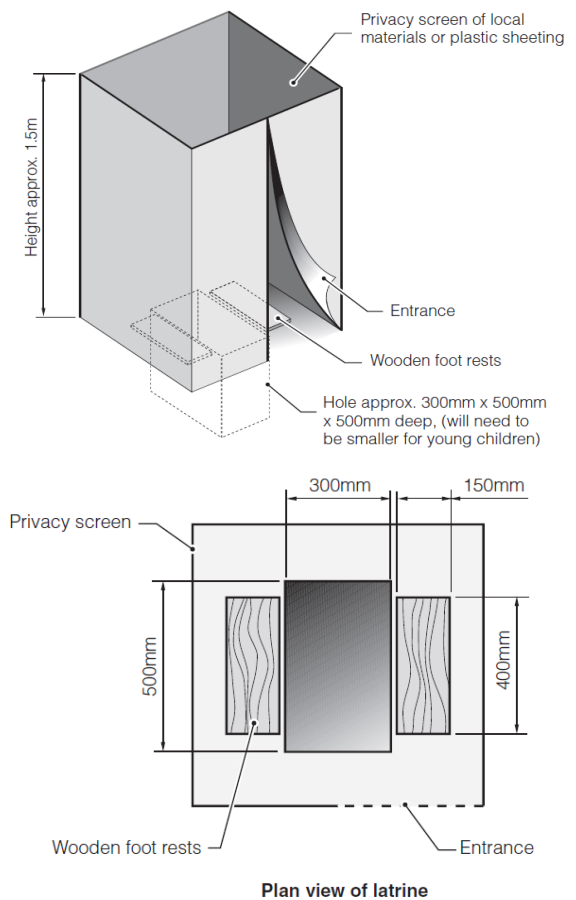


Figure 5 Shallow Family Latrines

### 4.3.8 Use of PEE POO BAGS

The peepoo bag is a personal, single-use toilet that sanitizes human excreta shortly after defecation. All this is done within a high performance degradable bioplastic bag coated with urea. It requires no water, and after use as the bag breaks down and disintegrates, the treated feces become fertilizer with a high market value. Its design is adapted in every way so that it might be manufactured at as low a price as possible and sold to the groups with weakest purchasing power in the world.

The peepoo bag is a toilet which is not fixed to a particular place. It is simple to carry since it is small and weighs less than 10 grams.

Peepoo bags are odor free for at least 24 hours after use and can thus be stored in the immediate environment.

<sup>19</sup> <http://www.unicef.org/eapro/unprotected-EDEchapter4.pdf>

Peepoo bag is one of few sanitation solutions that requires no water. The only water required is to wash the hands after use. This means that the traditional link between water and sanitation has been cut. A used peepoo bag is clean to handle. It has become a waste that neither smells nor is dirty to take care of and collect.

While this is not yet locally available, INGOs or local private companies could consider importing or locally replicating this technology.<sup>20</sup>



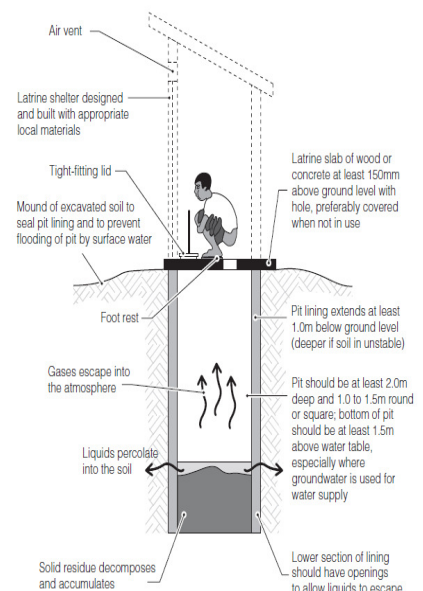
Figure 6 Ways on how to use a PEE POO bag

## 4.4 Sanitation Techniques and Technology Options for 2nd Phase Sanitation technical Solutions

### 4.4.1 Simple pit latrines

Simple pit latrines are by far the most common technology choice adopted in emergency situations. This is because they are simple, quick to construct and generally inexpensive. The **pit should be as deep as possible** (and at least 2m in depth) and covered by a latrine slab. At least the top 1m of the pit should be lined to prevent collapse, and where the soil is suspected to be unstable the entire pit should be lined.

The slab can be made from concrete or wood, or a



<sup>20</sup> <http://www.peepoople.com/>

prefabricated plastic slab can be used. This should be firmly supported on all sides and raised above the surrounding ground level to prevent surface water entering the pit. A squat or drop-hole is provided in the slab that allows excreta to fall directly into the pit – this can be covered with a removable lid to minimize flies and odor. The superstructure can be made from materials available locally, such as wood, mud and grass, or can be a more permanent structure of bricks and mortar.

**Advantages:** Cheap; quick to construct; no water needed for operation; easily understood.

**Constraints:** Unsuitable where water table is high; soil is too unstable to dig or ground is very rocky and often odor problems.<sup>21</sup>

#### 4.4.2 Urine Diverting Toilets<sup>22</sup>

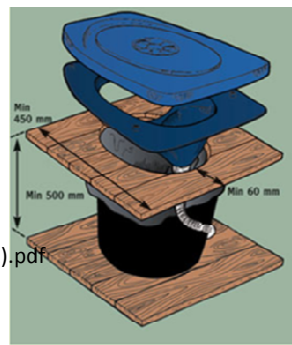
UDTs are not commonly used as a technology option in the Philippines. Many projects that have promoted this are still in a pilot stage and would need to go to scale to generate increased acceptability by potential users. However, it seems to be practical given its very low water requirement (mostly for hand washing only) and space requirement. Further research and study on the use of UDT in emergency situations is required.

The most common options are the:

- **Double-vault urine-diverting latrine** which uses a dry disposal system in which urine and feces are managed separately, and ash, carbon or sawdust is added to the vault contents; and
- **Double-vault non-urine-diverting latrine** in which urine is not separated from feces but soil, ash and organic waste is added to the vault contents.

Both options are designed so that one vault is used initially, and then sealed when full. The second vault is then used until it is full, at which point the first vault can be emptied and the stored waste re-used (for agricultural purposes).

The UD toilets are best managed by households to ensure proper maintenance.



<sup>21</sup> [http://www.unicef.org/eapro/unprotected-EDEchapter5\(2\).pdf](http://www.unicef.org/eapro/unprotected-EDEchapter5(2).pdf)

<sup>22</sup> Center for Advance Philippine Studies (CAPS)

There are two types of UDT bowls. One is a seat type, the other is a bench type.

It is suggested that further pilots be done to consider “wet in use” dry in composting mode.

The major concern in the use of UD toilets is the disposal of raw excreta sludge when pits are emptied which may likely be in a haphazard way, especially in an emergency context.<sup>23</sup>

#### 4.4.3 Pour flush Latrines

This is the most common type of basic latrine in the Philippines. Pour-flush latrines rely on water to act as a hygienic seal and to help remove excreta to a wet or dry disposal system. The most simple pour flush latrines use a latrine pan incorporating a shallow U-bend which retains the water. After defecation, a few liters of water must be poured, or thrown, into the bowl in order to flush the excreta into the pit or sewerage system below. Ideally, adequate water must be made available near to latrines. If this is not possible, people may take their own containers when using toilets.

Pour-flush latrines may be constructed directly above a pit or may be offset whereby the waste travels through a discharge pipe to a pit or septic- tank.

Even where there is limited water available, wherever possible pour-flush latrines should be implemented if the population is already accustomed to using them. Consultation with the community is essential in order to determine the best option.

The amount of water required to flush the system will depend on the type and size of the water-seal construction. A 90mm (3") U-bend normally requires 2-3 liters to flush effectively, while a 120mm (4") U-bend generally requires 4-5 liters to flush. These quantities are significantly less than the amount required to flush most water-closet toilets which may use as much as 15 liters per flush.

Where the waste pipe between the U-bend and the pit or tank is more than 2m in length an inspection chamber or **rodding point** is needed along its length to allow rodding upwards and downwards to prevent blockage.

**Advantages:** Lack of odor; ideal where water is used for anal-cleansing; easy to clean; off-set design does not require a self-supporting latrine slab.

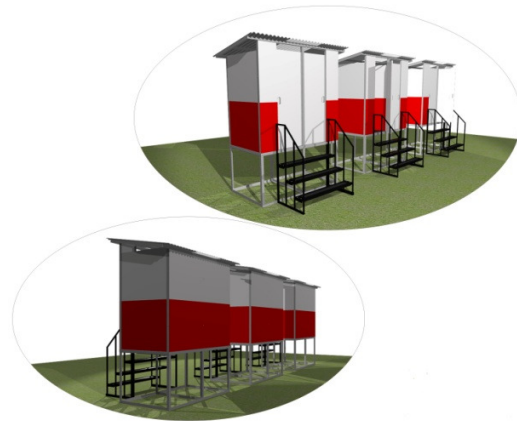
---

<sup>23</sup> [http://www.unicef.org/eapro/unprotected-EDEchapter5\(2\).pdf](http://www.unicef.org/eapro/unprotected-EDEchapter5(2).pdf)

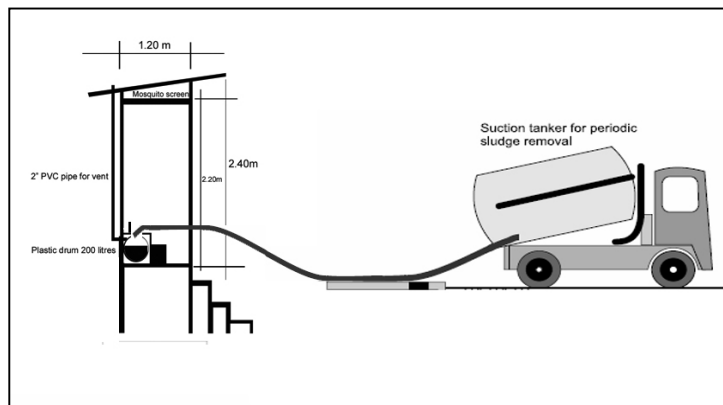
**Constraints:** Increased quantity of water required; solid anal-cleansing materials may cause blockages; more expensive than simple pit latrines.<sup>24</sup>

#### 4.4.4 Elevated Collapsible Evacuation Latrine

This emergency latrine is a squat type toilet bowl equipped with ventilation and durable 200 litre plastic container tanks. The latrine has been developed by Save the Children in order to give a quick and temporary response in evacuation centres. It was designed so it can be connected to the main sewer after the emergency to become a permanent toilet if required (for example, for schools).<sup>25</sup>



The design also provides easy access for desludging tanks for periodic sludge removal.



#### 4.4.5 Laguna Floating toilets

This is a basic locally made toilet innovation constructed at an EC during Ondoy and made from locally sourced materials. It is basically a raft of 200 L drums contained within individual steel pipe frames, these drums are connected to normal ceramic toilets by a sealed coupling. At the

---

<sup>24</sup> [http://www.unicef.org/eapro/unprotected-EDEchapter5\(2\).pdf](http://www.unicef.org/eapro/unprotected-EDEchapter5(2).pdf)

<sup>25</sup> Save the Children WASH Project in Laguna

end of each day the drums are uncoupled leaving the structure standing on its legs and the drums emptied.



The advantage of this toilet system is it is quick and easy to construct, relatively cheap and appears to be robust. It is effective in reducing fly/rat problems and odors, as it is a sealed system (u bend in the toilet and sealed connection). This system can be further improved to allow easier emptying and stability should a floating platform be required.

#### 4.4.6 The Bolinao Floating Sanitary Toilet (FST)<sup>26</sup>

The FST was developed by the Center for Health Development Ilocos Region in collaboration with the local officials of Bolinao. Its structure and waste treatment materials are made up of locally available indigenous materials such as bamboo, nipa, sawali, used plastic drums, sea corals or river gravel/stones, charcoal and garden soil. The fecal materials go to the digestion chambers where anaerobic decomposition occurs. The effluent then goes to the treatment chamber, which further improves the quality of the wastewater to acceptable levels.



The FST was conceptualized in response to the challenge of preventing the different bodies of water with E.coli, Vibrio cholera, and other microorganisms causing severe diarrheal diseases

---

<sup>26</sup> <http://northernwatchonline.com/2009/09/02/floating-sanitary-toilets-launched-in-bolinao/>

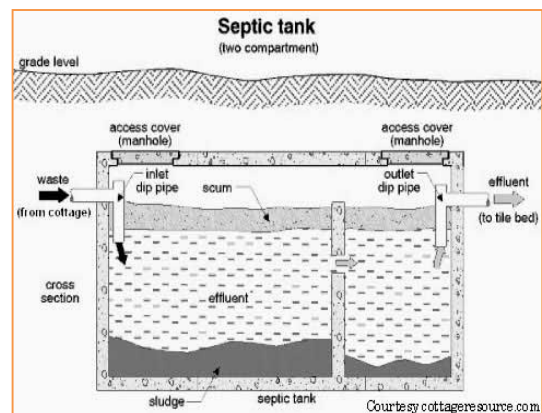
and outbreaks. While the pilot project's primary targets are the fish cage/fishpen watchers and operators, households living along riverbanks or coastal areas and floating villages, it was included here as a possible technology option for flooded areas.

FST is an easy to use and readily accessible means of containing human wastes from being directly disposed to bodies of water, thus preventing contamination.

#### 4.4.7 Septic Tanks

When several pour flush latrines are required, they maybe used in conjunction with a septic tank. A septic tank is designed to collect and treat toilet wastewater and other greywater. It is important to ensure a proper septic tank when the volume of wastewater is too large for disposal in pit latrines, especially when water is used for flushing and anal cleansing.

Septic Tanks can be above ground or underground. It is the most simple wastewater treatment technology but there are also other more advanced treatment technologies that can be used to treat larger volumes of water.

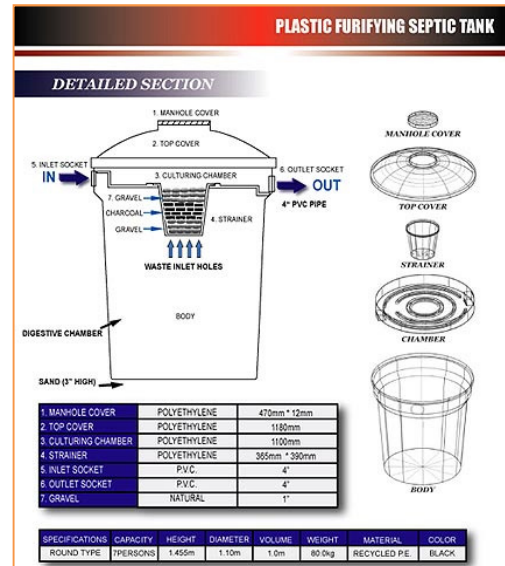


Poor drainage arrangements are hazardous to health and can be a cause of illness and even death.



The IOM have introduced the use of KOTEX 3 chamber plastic purifying septic tanks in their emergency toilets. KOTEX Septic Tanks are new innovations in the market that is cheaper, easier to install, durable and environmentally-friendly plastic purifying septic tank that is better than the concrete type has been offered as a solution to combat water-related diseases. The improved PLASTIC THREE CHAMBER PURIFYING SEPTIC TANK operates under sound chemical and biochemical engineering principles. The system is arranged in a stage-wise configuration; first through the anaerobic digestive chamber, next to the filtering chamber and finally through the aerobic culturing chamber.<sup>27</sup>

The National Housing Authority and Save the Children are also using the KOTEX tanks which is produced locally (in Bocaue, Bulacan) by a Korean entrepreneur.



#### 4.4.8 Collection and Transport of Excreta

Wastewater treatment systems achieve safe excreta disposal by first collecting and transporting the waste from the toilets. Collection and transport can be done in one of the three ways:

- By temporarily storing the excreta in appropriate tanks and frequently emptying these by vacuum trucks
- By settling part of the waste similar to septic tanks and transporting the liquid portion of the waste to a treatment or disposal site by means of a small bore sewerage system by gravity or pumping (reduced the emptying frequency but requires water for operation).
- By transporting the whole waste directly to a treatment or disposal site through a large bore system and with larger amounts of water.

Of the three options, the first option might be the best option as vacuum trucks are available for hire.

<sup>27</sup> <http://www.kotecplastic.com/>



#### 4.4.9 Treatment and Disposal

Simple disposal is not highly recommended due to the high pathogen content of the waste. However in emergency situations, this might be the only option in the early stages. The risk maybe mitigated by the use of lime added to pits, addition of enzymes and happy soil or even the use of vermin worms to hasten the process of decomposition.



#### 4.4.10 Child-friendly latrines <sup>28</sup>

Child-friendly latrines can be incorporated into the plans by adding some design features:

- Smaller toilets with “child size holes”
- Open toilets (with no walls separating them) for young children frightened of going into a dark cubicle.
- Ensuring cubicles are well-lit
- Bright colored walls

#### 4.5 Coordinating, Monitoring and Reporting

A simple monitoring format has been prepared to help guide the Municipal and Provincial LDRRMC’s WASH Team in monitoring the changing situation in each of the EC. See *Annex F: Monitoring Tool* for the sample-monitoring tool utilized in Laguna during the Ondoy response.

The Municipal WASH Coordinator prepares regular situation reports for submission to the Provincial Wash Coordinator. The situation is the basis of monitoring progress and identifying problem areas for action. Based on experience, monitoring of ECs was done initially on a daily basis, moving to weekly and monthly depending on the situation in the area. The reports are useful in identifying priority areas that need further assistance. This is also the basis of the collaboration efforts between the municipal, provincial LGUs and the INGOs.

#### 4.6 Assessment and re-Planning

Situations in the ECs change on a daily basis and it is important to report when major changes happen ( i.e. increase or decrease of IDPs in the ECs, health conditions deteriorating and other issues). The plans are coordinated at the municipal and provincial levels so that they are kept

---

<sup>28</sup> [http://www.unicef.org/eapro/unprotected-EDEchapter5\(2\).pdf](http://www.unicef.org/eapro/unprotected-EDEchapter5(2).pdf)

informed and engaged in responding to the needs of the IDPs in a particular area. The assessment and planning exercise must be done with representatives of the different stakeholders in the area, especially the user's groups who are directly affected by any decision made.

## 5 Post Emergency Phase

---

Once emergency needs have been met and the initial disaster is over, support of affected communities continues to enable recovery. After the situation has stabilized the WASH Team conducts a post disaster assessment. This is an opportunity to a) thank the team for the voluntary efforts that they have exerted to ensure the safety and well being of the evacuees and b) identify the challenges, risks and threats encountered how they were resolved.

The assessment of what went well and the main challenges feed into the disaster preparedness and management plan for the next emergency situation. What went wrong and why did it go wrong is are questions to be asked and answered without anyone feeling they are losing face but contributing to policy changes or research into a better sanitation response. The report is prepared and submitted to the Provincial DRRMC with proper endorsements and recommendations to make excreta disposal in future emergency situations more efficient and effective.

Develop an exit strategy and coordinate with the National and Provincial or Local Authorities and other agencies that may have a long term, early recovery programs for the continuity of response and proper turnover of activities, facilities and resources on sanitation. The exit strategy also includes the handing over of any equipment or the dismantling and cleaning of temporary structures for storage and re-use.

## 6 Hygiene Promotion as Integral Part of Emergency Sanitation

---

Hygiene promotion is often neglected during the emergency response. When people are motivated to practice good hygiene – especially hand washing with soap – health benefits are significantly increased. The disturbance to communities' familiar and safe practices or the relocation to new environments during an emergency can result in a change to normal hygiene practices. Because the evidence on the importance of hand washing with soap is clear, UNICEF, as the global WASH Cluster coordinator for Emergency situations has made it a programmed priority and should be integrated in the Emergency Sanitation Guidelines.

Organizations implementing sanitation programs promote good hygiene practices, including hand washing by:

- Advocating for increased funding for hygiene promotion and the inclusion of hygiene in sectoral policies and strategies;
- Including strong hygiene components within its own WASH programs in the field
- Ensuring that hand-washing and hygiene promotion are components of emergency response programs;
- developing strategies and tools to encourage hand-washing promotion by community health and outreach workers;
- Encouraging hygiene promotion in schools and the empowerment of children as agents of change within their families and communities.
- Advocating that hygiene promotion is integrated into projects for solid waste management and drainage.

Education and communication are important components of a hygiene promotion programmed. All people have a right to know about the relationship between water, sanitation, hygiene and the health of themselves and their families. However, education alone does not necessarily result in improved practices. Knowing about the causes of disease may help, but new hygiene practices may be too unfamiliar, too difficult, or take too much time. Promoting behavioral change is a gradual process that involves working closely with communities, studying existing beliefs, defining motivation strategies, designing appropriate communication tools and finally encouraging practical steps towards positive practices. When designing a hygiene promotion project, attention should be given to building on local knowledge and promoting existing traditional practices.

## **7 Local Policies and Guidelines for Promoting Emergency Sanitation**

---

Under the Philippine Disaster Risk Reduction and Management Act of 2010, the Office of Civil Defense (OCD), being the head of National Council, oversees the preparation and implementation of the National Disaster Risk Reduction and Management Plan. Their role is for the identification of hazards, vulnerabilities and risks to be managed at the national level; disaster risk reduction and management approaches and strategies to be applied in managing said hazards and risks; designate the agency roles, responsibilities and line of authority at all government levels, and implement vertical and horizontal coordination of disaster risk reduction and management in the pre-disaster and post-disaster phases.

With this, the OCD has issued a memorandum to the Local Disaster Risk Reduction Management Council (LDRRMC) for the submission of a Disaster and Emergency Plan by the Barangay Disaster Risk Reduction and Management Council (see annex). The BDRRMP provides different operating teams for disaster response, including a Warning Team, Rescue, Evacuation, Relief, Medical, Fire Brigade and Damage Control. A representative of the Municipal WASH Team will work closely with the BDRRMC to provide input on sanitation issues during the disaster preparedness stage.

The Municipal WASH Team is expected to provide oversight for the Water and Sanitation requirements of the community and therefore responsible for the promotion and implementation of the WASH Guidelines for Emergency Sanitation at the Local/Barangay Level.

Once the DOH policy on standard sanitation protocols in emergency situations is issued, it is also hoped that a local executive order and local ordinances will follow, with budgetary allocations, for supporting emergency sanitation in the DRR plans.

“Pocket Emergency Tool – 3<sup>rd</sup> Edition” – Department of Health – Health and Emergency Management Staff (DOH-HEMS), with support from the World Health Organization – Regional Office for the Western Pacific Region (WHO-WPRO)

“The Sphere Project” – Humanitarian Charter and Minimum Standards in Disaster Response 2004 Edition, Geneva Switzerland, The Sphere Project 2004

Adelwisa R. Ortega, MD, MS; Arlene G. Bertuso, PhD; Jonathan Guevarra, RN, MAN; Troy Gepte, MD; Florinda Panlilio; Aida Barcelona “Draft Manual for Evacuation Camp Management” - A WHO Supported Project 2006

Cardinoza, Gabriel – “Floating toilet buoyed by planned launch - Floating Sanitary Toilet” Philippine Daily Inquirer, 08/26/2009

Davis and Lambert, 2002 – “Excreta Disposals in Emergencies” – [www.unicef.org/eapro/EDE](http://www.unicef.org/eapro/EDE) (Excreta Disposals in Emergency) Chapter 4

Harvey Peter, Sohrab Baghri, and Bob Reed – “Emergency Sanitation Assessment and Programmed Design” ©WEDC Loughborough University UK, 2002

Harvey, P.A. “Excreta Disposal in Emergencies: A field Manual”, ©WEDC Loughborough University UK, 2007

Reyes, Ma. Cecilia L. De Los, Marieta Lupig Alcid, Floreen Simon and Celso B. Dulce Jr. - “Paqsasanay sa Disaster Preparedness at Contingency Planning” – Corporate Network for Disaster Response (CNDR) and CARE, 2009

Ruiz, Karin “Peepoo Bag”, Sweden, [www.peepoople.com](http://www.peepoople.com), email - [info@peepoople.com](mailto:info@peepoople.com)  
Wisner B., J. Adams – “Environmental health in emergencies and disasters” - © World Health Organization, Geneva Switzerland, 2002

## Useful References from the Web

---

1. *The Sphere Project – Humanitarian Charter and Minimum Standards in Disaster Response 2004 Edition* – <http://www.sphereproject.org/>
2. *Open Defecation Field* - <http://www.cepis.opsms.org/bvsade/cd/i/publications/EmSanitation/06.pdf>
3. *Temporary Toilet Provisions, Emergency Sewage Storage* – <http://www.nationalterroralert.com/sanitationhygiene/>
4. [http://www.who.int/water\\_sanitation\\_health/hygiene/emergencies/em2002chap8.pdf](http://www.who.int/water_sanitation_health/hygiene/emergencies/em2002chap8.pdf)
5. *Decision tree for excreta disposal in refugee camps* – [http://www.who.int/water\\_sanitation\\_health/hygiene/emergencies/em2002chap8.pdf](http://www.who.int/water_sanitation_health/hygiene/emergencies/em2002chap8.pdf)
6. *Communal Latrine Scenarios, Excreta Disposal in high water table and flooding environments* – <http://www.cepis.ops-oms.org/bvsade/cd/i/publications/EmSanitation/06.pdf>
7. *Floating Sanitary Toilet (FST)* - <http://northernwatchonline.com/2009/09/02/floating-sanitary-toilets-launched-in-bolinao/>
8. *Peepoo Bag* [http://www.peepoople.com/showpage.php?page=3\\_8](http://www.peepoople.com/showpage.php?page=3_8)
9. *On-Site Excreta Collection and Storage*, - <http://www.unhcr.org/49db137f2.html>
10. *Eco-San* <http://www.unhcr.org/49db137f2.html>
11. *Kotek – 3 Chamber Plastic Purifying Septic Tanks* <http://www.kotecplastic.com/>
12. *Latrine desludging, Emergency Sewage Disposal* - <http://www.unicef.org/eapro/unprotected-EDEprelims.pdf>
13. *Draft Manual for Evacuation Camp Management* - [http://www.wpro.who.int/internet/files/eha/toolkit\\_health\\_cluster/Manual%20on%20Evacuation%20Camp%20Management%20%28Draft%29.pdf](http://www.wpro.who.int/internet/files/eha/toolkit_health_cluster/Manual%20on%20Evacuation%20Camp%20Management%20%28Draft%29.pdf)
14. *Training on Low Cost sustainable Sanitation Technologies – Urine Diversion Dehydration Toilets (UDDT)*- [http://www.caps.ph/index.php?option=com\\_content&task=view&id=67&Itemid=84](http://www.caps.ph/index.php?option=com_content&task=view&id=67&Itemid=84)