

Key messages

Solid Waste Management

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. (Sphere Standard)

- Camp populations should participate in the design and implementation of a solid waste disposal plan.
- Families should have access to a refuse container within 100m of their shelter.
- Hazardous wastes should be disposed of separately, e.g. medical wastes should be disposed of in a correctly designed incinerator.
- Refuse pits / garbage disposal areas should be appropriately demarcated and fenced.
- Recycling of solid waste should be encouraged, providing doing so does not pose a threat to health.
- The distribution of goods with minimum packaging should be encouraged.
- Health protection measures for workers separating waste should be in place.
- Large-scale solid waste disposal should be done off-site, at designated sites and in a manner that does not pose a threat to health or the environment.

Drainage

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

- The whole camp area should be kept free of standing water and drains kept clear.
- Shelter, paths and sanitation facilities should not be affected by floodwater nor dwellings eroded by floodwater.
- Drainage waters do not pollute groundwater sources.
- Tools are provided for small-scale drainage maintenance.

SOLID WASTE MANAGEMENT AND DRAINAGE

INTRODUCTION

The poor disposal of solid organic waste material (i.e. all non-liquid waste produced by households, market places, medical facilities and so forth) can pose threats to health by providing breeding sites for vectors of disease and causing surface water contamination.

There are three main options for the disposal of solid waste. These are:

1. Burial of waste – while being relatively simple, care must be taken to ensure that the burial pits have suitable drainage to prevent contamination of groundwater sources or become breeding sites for vectors of disease.
2. Burning or incineration – may be an option where space for burial pits is limited. Smoke or particulate pollution is a potential human and environmental hazard. Medical waste, or other hazardous wastes, must be incinerated separately at technically appropriate incineration facilities.
3. Composting biodegradable materials can provide a useful supplement for gardening and agricultural activities, as well as a resource for sale. Care may need to be taken with the separation of waste materials.

The establishment and management of an effective drainage management system is integral to solid waste management systems and to promoting the health and hygiene of a camp population. Water from water points, latrines and washing areas, as well as rainwater and flood water must be effectively managed in order to prevent water contamination, damage to infrastructure and providing vector breeding sites.

KEY ENVIRONMENTAL CONSIDERATIONS

The aims and objectives of creating effective disposal management systems for solid waste management and drainage indirectly incorporate key environmental considerations.

The key environmental considerations are the prevention of contamination of surface and groundwater sources, the general environment and erosion control.

Where possible, recycling and reuse should be encouraged. Goods and non-food items should have minimum packaging.

CHECKLIST

Solid waste management

- ✓ Has a solid waste survey been carried out?
- ✓ Have all camp agencies participated in the development of the waste management plan?
- ✓ Has a system of disposal been identified?
- ✓ Have systems for the disposal of hazardous waste materials been identified?
- ✓ Has the community participated in the surveys and the development of a solid waste management plan?
- ✓ Is the community involved in the implementation of the plan?
- ✓ Has personal protective equipment and safety awareness-raising been provided?
- ✓ Have waste disposal areas been adequately fenced off?
- ✓ Are waste disposal areas free from flies / rodents / odours?
- ✓ Is groundwater quality being monitored for potential contamination?
- ✓ Have waste management issues been included in sanitation education programmes?
- ✓ Have steps been taken to reduce the amount of packaging on goods / non-food items?
- ✓ Has a recycling programme been initiated?
- ✓ Have potential income generating activities related to recycling been considered?
- ✓ Have measures been put in place for the disposal of hazardous waste (e.g. pesticide containers, chlorine containers)?
- ✓ Have monitoring indicators been identified?
- ✓ Have the environmental consequences of additional waste disposal sites been considered?
- ✓ Have temporary storage facilities for hazardous waste been provided until such time as appropriate long-term disposal options have been identified.

Drainage

- ✓ Has the slope, soil type and rates of infiltration been considered in the drainage plan?
- ✓ Do any of the waste streams pose an immediate threat to people or the environment, such as asbestos and toxic materials?
- ✓ Has particular attention been paid to drainage around sanitary facilities?
- ✓ Do all camp infrastructures provide for adequate drainage?
- ✓ Are drainage channels monitored / cleared regularly?

Further reading and resources

Humanitarian Charter and Minimum Standards in Disaster Response (Sphere Project, 2004).

www.sphereproject.org/component/option,com_docman/task,cat_view/gid,17/Itemid,203/lang,English/

Camp Management Toolkit (NRC, 2008).

<http://www.humanitarianreform.org/humanitarianreform/Portals/1/cluster%20approach%20page/cluster%20pages/CCm/CampMgmtToolKit.pdf>

Environmental Health in Emergencies (WHO).

http://www.who.int/environmental_health_emergencies/publications/en/

Solid Waste Management in Emergencies (WHO, 2005).

http://www.searo.who.int/LinkFiles/List_of_Guidelines_for_Health_Emergency_Solid_waste_management_in_emergencies.pdf

Low Cost Drainage in Emergencies (Oxfam).

http://www.oxfam.org.uk/resources/downloads/emerg_manuals/draft_oxfam_tech_brief_drainage.pdf

Essential Environmental Health Standards in Health Care (WHO, 2008).

http://whqlibdoc.who.int/publications/2008/9789241547239_eng.pdf

Technical briefs on waste management in emergencies (Oxfam GB):

- **Domestic and refugee camp waste**
- **Composting and recycling in emergencies**
- **Large-scale environmental clean-up campaigns**
- **Hazardous waste**

http://www.oxfam.org.uk/resources/learning/humanitarian/sanitation_in_emerg.html#

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