

# Hazardous Waste Management in Tsunami-Affected Areas Emergency Phase

## Objective

The recent tsunami has undoubtedly resulted in a number of uncontrolled localized releases of toxic and hazardous materials to terrestrial and marine environments. Emergency response activities (e.g., fogging for vector control, medical care in ad hoc facilities, excess of plastic wrapping materials) and disruption of normal routines may exacerbate problems of medical waste disposal. The objective of this brief is to provide guidance on short- and medium-term measures to mitigate both risks to health and long-term environmental damage. This guidance supplements and does not replace longstanding recommendations for hazardous waste management. That said, to the extent that waste management was inadequate before the tsunami, these recommendations may suggest procedures that improve long-term strategies.

## Immediate institutional arrangements

Strengthen national the organizational capacity of authorities and pledge for the designation of an adequately resourced "National Hazardous Waste Co-ordination Task Force"— supported by international experts when necessary.

Establish links with national, regional and international technical agencies and experts who can be quickly reached to offer advice to the field teams.

Establish an electronic network among Focal Points in tsunami-affected countries, including the Basel Convention Regional Centre in Indonesia, to exchange information, share experience, and pool expertise as necessary.

Develop a computer database to store information on hazardous waste sites, arranging for data entry at appropriate levels. To feed collect standardised information about hazardous waste sites develop a simple survey instrument (form). Arrange for transmission of such forms to central location(s), e.g., regional or provincial centres. Publish this information on a specific website with links to FAO, UNEP and WHO.

Together with the national and regional authorities, the national Task Force should have the capacity to assess the capacity of local governments to take recommended interim measures such as:

- inventorying local risks;
- containing and securing sites;
- storing known or potentially toxic substances pending evaluation and disposition;
- transporting toxic substances as indicated to a secured area;
- assessing availability of personal protective equipment, etc.

## Systematic surveys in affected areas

Refer to existing national practice recommendations for conducting surveys, supplementing as needed with guidelines from WHO on health-related issues, FAO on pesticides, and Basel Convention on biomedical, hazardous, and other wastes.

Review existing data on hazardous waste sites and types of wastes likely to be encountered.

Review preliminary survey results with local authorities to identify sites that may have been overlooked.

Define the geographical area(s) to be surveyed, giving priority to densely populated areas, industrial sites, more heavily affected areas, and environmentally sensitive areas where hazardous material (e.g. pesticides) may exist.

Identify subdivisions of the defined area(s) and a lead agency for each sector

Assess the capacities of municipalities and other local government structures to assist in the survey through their in-depth knowledge of the local specificities, concentrating on hot spots (e.g. industrial plants; dump sites of wastes and hazardous waste; waste and hazardous waste disposal sites; stockpiles and pesticides; storage facilities for chemicals and pharmaceuticals).

Organise the collected information to prepare action plans and proposals within the framework of the Flash Appeal and submit for consideration.

## Information/awareness/training

- Warn all teams working in affected areas of the possibility of encountering hazardous materials. Persons without technical expertise may need some minimal training in order to recognize potential problem areas. Provide examples, including pictures, names of products etc., as well as information about how to contact experts for immediate advice.
- Advise all teams working in the treatment and disposal of hazardous wastes for the need to ensure adequate personal protection, including immunization
- Working with local authorities, secure potentially hazardous sites with barrier marking and warning signs; Log locations (with GPS coordinates, if possible) with the national or regional coordination office for further action.
- Provide general information to local residents via appropriate media (pamphlets, posters, radio, etc.) with messages including:
  - Use caution when re-using construction debris that may contain asbestos.
  - Do not handle or re-use empty drums; they may have contained pesticides or other toxic chemicals.
  - Do not use waste oils, including oil from broken transformers, for cooking (such oils could be contaminated with PCBs!)
  - Do not reuse any medical waste—including but not limited to sharps
  - Take preliminary measures if contaminated sites are identified:
  - Immediately inform relevant authorities of initial discovery;

**Warning: Only qualified accredited experts can inspect suspected sites of hazardous wastes identified to determine status and recommend solutions.**

**Warning: Consider any suspected chemicals or substances as hazardous until proven otherwise through analytical means**

## Management of waste and hazardous wastes arising from aid and temporary settlements areas

The management of hazardous waste should be performed exclusively by specialized professionals. Use existing protocols<sup>[1]</sup> to properly manage hazardous wastes (e.g., leftover insecticides for vector control; empty pesticide containers, chlorine for treatment of water, spent cooking oils, medical wastes).

### Procurement/contractors

Tenders, contracts, and similar instruments offered concerning hazardous and medical waste disposal should specify the necessity of conformance to relevant local, national, and international standards regarding emissions to air, releases to water and soil as well as regarding the safe disposal or destruction of residues arising from incineration or other disposal operations.

### Risk assessment analysis

As soon as possible, governments should conduct environmental risk assessments, including procedures for clean-up activities.

High-risk situations (e.g., highly toxic chemicals, proximity to population concentrations) should be identified for priority consideration.

Evaluate risks of impact of toxic chemicals and hazardous wastes on ecologically-sensitive systems or critical habitats, such as wetlands, shallow waters, reefs, mangroves, dunes, etc.

### Other key measures

- Decide on preliminary measures that can be taken regarding containment of hazardous wastes or decontamination before people return to the affected areas.
- Rank identified contaminated sites according to the risk they present and define remediation techniques to be applied.
- Rank contaminated sites according to the overall risks for human health and the environment. Consider potential impacts on health or the environment, toxicity, where chemical contamination is persistent, and its mobility.

For example: Soil contaminated with acute toxic pesticide requires immediate protective measures; Spreading of highly mobile contaminants should be monitored and reduced. N.B. Prior and during the re-

construction phase a set of guidelines could be developed based, regarding training; prevention measures; hazardous waste management; safe working

**Source :** WHO/ Secretariat of the Basel Convention – UNEP / FAO