COMMUNITY-LEVEL

Waste Management Guidebook After an Earthquake

This guidebook provides essential guidelines for managing waste at the community level after an earthquake, focusing on rapid response.

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1. Emergency Phase

Debris Removal

Objective: Focus on removing debris that poses immediate hazards or blocks access to essential services.

Actions: Identify and prioritise areas with the highest need for clearance.

Step-by-Step:

1. Conduct a risk assessment to identify hazardous debris.
2. Create a priority list based on the severity of hazards and access needs.
3. Allocate resources to high-priority areas.
4. Continuously update the priority list as conditions change.

Prioritisation

Objective: Focus on removing debris that poses immediate hazards or blocks access to essential services.

Targeted Waste: Dead Bodies

Actions: Find and remove dead bodies (human or animal) to reduce health risks.

Step-by-Step:

1. Find cadavers (contact relatives if human bodies can be identified)
2. For animals: If possible dig a hole and dispose bodies there (especially, if you cannot dig, gather cadavers and cover them with at least one feet of soil.

Guidelines for Temporary Waste Storage and Management

Objective: Establish temporary storage areas for waste to reduce risks of disease spread.

Targeted Waste: Plastic, Food Waste

Actions: Designate safe and accessible locations for temporary debris storage.

STEP BY STEP:

01 **Identify Potential Temporary Storage Sites**

02 **Select Temporary Dumpsites**

03 **Clean up and Management of Communal Dumps**

04 **Set Up Barriers and Signage**

05 **Mobilise Waste Pickers**

Don'ts

Dispose Plastic and Food Waste into ANY Water Source
(increase of disease outbreaks).

Dispose in Backyards or Hidden Places
Very difficult to remove later.

Add Construction Debris to the Waste
You increase the problem of managing plastic and food waste. Construction Waste can be removed at a later stage.

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1 Identify potential temporary storage sites:

- Consult communities to determine where they are currently dumping waste.
- Evaluate whether these existing locations meet the criteria below. If they do, maintain them, as they are already familiar to the community.
- If necessary, designate additional sites to ensure accessibility.

2 Criteria for Selecting Temporary Dumpsites:

- **Proximity:** Each site should be within **300 meters** of all community members.
- **Community Usage:** If there is a current or previous communal dump, consider reviving it, as it is already commonly used.
- **Accessibility:** Sites should be on main roads or at intersections for easy access by municipal vehicles when regular services resume.
- **Drainage:** Avoid placing dumps near drains to prevent blockages.

3 Clean up and Management of communal dumps:

- **Coordination:** Inform Sibin or the relevant local administration about the dumpsite so they can plan for waste collection.
- **Alternative Transport:** If Sibin is unavailable, engage private truck owners to support waste removal.
- **No Final Dumpsite?:** Create a large temporary storage location outside the settlement, preferably a large pit near the main road.

No Storage Option?
Consider controlled open burning of waste outside the community area:

- Spread the waste in layers not higher than 2 feet.
- Allow it to dry thoroughly, ideally before the rainy season.
- Burn the waste once fully dried.

4 Set Up Barriers and Signage

- Designate the dump site with visible signs.
- Place a few waste bags at the site so the community can recognised it purpose.
- If possible, create fencing on three sides using bamboo or debris to define the area.

5 Mobilise Waste Pickers

If possible, mobilise existing waste pickers to conduct cleaning efforts as they are the most effective cleaning group in the community (they might require payment). They are also well trained to extract any recycleble materials.

2. Recovery Phase

Handling Hazard

Objective: Identify and manage hazardous materials (e.g., medical waste, chemicals) according to best practices.

Actions: Train volunteers to handle hazardous materials and provide protective equipment.

Step-by-Step:

1. **Make a list:** (ideally with pictures) of common hazardous materials in your community**.**
2. **Distribute the list:** Share the list to local volunteers and community leaders but also specifically to those groups creating hazardous waste (clinics). Make sure they are aware of the the bins you set up.
3. **Set Up Separate Dumpsites:** Establish clearly separated communal dumps specifically for hazardous waste, located next to plastic and food waste dumpsites.
4. **Use Proper Containers for Storage:** Store hazardous waste in sealed containers such as broken water tanks, large waste bins, or any other container that minimizes leakage.
5. **Label Clearly:** Clearly mark each container as “Hazardous Waste” to avoid misuse and ensure proper handling.

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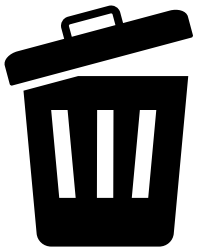
The information on the following pages will be refreshed after we complete the field assessment and implement the waste management system in the area. The current details are provided for general reference only.

Disposal



Objective: Dispose of non-recyclable waste in designated landfills or through incineration, ensuring environmental protection.

Actions: Coordinate with local waste management authorities for proper disposal.

Step-by-Step:

1. Identify designated landfills or incineration facilities.
2. Transport non-recyclable waste to these facilities.
3. Ensure compliance with environmental regulations.
4. Document disposal activities for accountability.

Environmental Monitoring

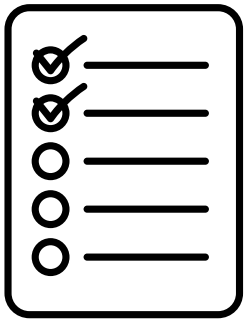
Objective: Monitor water and air quality to assess the environmental impact of debris management and take necessary corrective actions.

Actions: Conduct regular environmental assessments and report findings to related organisations.

Step-by-Step:

1. Set up monitoring stations for water and air quality.
2. Conduct regular sampling and testing.
3. Analyse data and identify any environmental concerns.
4. Report findings and take corrective actions as needed.

Long-Term Planning



Objective: Develop a long-term debris management plan that includes strategies for debris collection, temporary storage, repurposing, disposal, and hazardous waste handling.

Actions: Engage community leaders and experts to create a comprehensive plan.

Step-by-Step:

1. Form a planning committee with community leaders and experts.
2. Assess current debris management practices and identify gaps.
3. Develop a comprehensive long-term plan.
4. Implement and regularly review the plan.

3. Coordination and Logistics

Volunteer Coordination

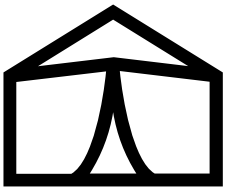
Objective: Effectively allocate supplies and aid through coordinated efforts.

Actions: Establish communication channels and regular meetings between volunteer groups to ensure efficient distribution of resources.

Step-by-Step:

1. Create a communication network for volunteer groups.
2. Schedule regular coordination meetings.
3. Share resource allocation plans and updates.
4. Monitor and adjust distribution efforts as needed.

Shelter Construction



Objective: Build shelters at a safe distance from the affected area to facilitate easier access to food distribution and medical needs.

Actions: Ensure shelters are built to withstand local weather conditions and provide adequate protection as well as repurposable meaning the material used for shelter can be repurpose for in other places.

Step-by-Step:

1. Identify safe and accessible locations for shelters.
2. Mobilise volunteers and resources for construction.
3. Construct shelters with necessary facilities.
4. Ensure shelters are equipped for food distribution and medical needs.

Sustainable Aid

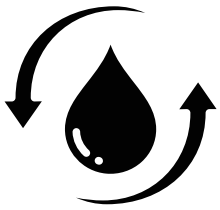
Objective: Provide aid while minimising plastic usage to reduce waste.

Actions: Use reusable containers and materials and educate volunteers and recipients on sustainable practices.

Step-by-Step:

1. Source reusable containers and materials.
2. Educate volunteers and recipients on sustainable practices.
3. Distribute aid using reusable containers.
4. Monitor and promote sustainable practices.

Water Purification



Objective: Rely on water purification methods rather than single-use water bottles.

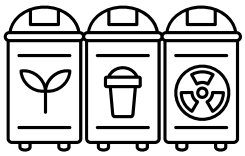
Actions: Distribute water purification tablets and set up purification stations.

Step-by-Step:

1. Source and distribute water purification tablets.
2. Set up water purification stations.
3. Educate the community on using purification methods.
4. Monitor water quality and ensure continuous supply.

4. Preventing Infectious Diseases

Waste Segregation



Objective: Separate waste into categories to prevent the spread of diseases.

Actions: Establish safe and clearly labeled waste segregation points in the community immediately after the earthquake, with volunteer support for separating hazardous, organic, recyclable, and general waste to ensure health and safety during recovery.

Step-by-Step:

1. Build a temporary collection area for day-to-day waste (preferably three sections for segregation).
2. Sanitise affected areas using proper disinfectant spray or limestone powder.
3. Properly clean utensils and kitchen appliances.
4. Reset and clean water purification systems.
5. Construct toilets at least 15 meters from shelters.
6. Separate livestock from the living areas with secure fencing.
7. Bury or incinerate waste using proper appliances.
8. Avoid excess packaging in aid distributions.

5. Self-Solving Waste System After Earthquake

5.1 Instruction:

After an earthquake, a self-solving waste management system should be established within the community to reduce dependency on external dumping sites. This includes setting up waste segregation zones and using repurposed materials from collapsed structures to build essential waste processing units.

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5.2 Waste Segregation Points:

Set up clearly labeled zones:
Plastic waste (to be incinerated)
Organic waste (to be composted)
Hazardous/sharp waste
General non-recyclables

Engage local volunteers such as:
Students, teachers, or youth groups to monitor usage and educate others.

Ensure segregation points are far from children's areas and shelters.

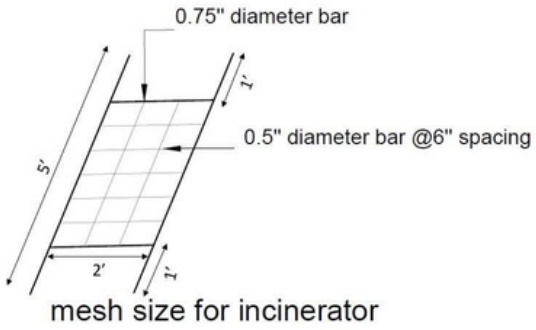
5.3 Composting for Organic Waste

Use low-cost compost baskets made from iron filters, sticks, wire, and PVC pipe.

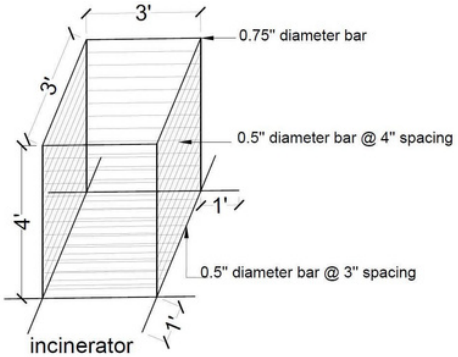
Time to build: 1.5 hours
Decomposable wet waste (vegetable scraps, leaves, food waste) can be placed inside. Compost takes 3–6 months to mature.

Precautions:
Clearly label the compost basket to avoid accidental use as a trash bin. Never place plastic or non-degradable waste into the compost basket

5.4 Incinerator Construction Using Repurposed Metal



mesh size for incinerator



incinerator

- Collect reusable iron rods from collapsed buildings (½ inch = 12mm and ¾ inch = 20mm).
- Build a simple incinerator for plastic waste disposal at a safe, open location away from shelters.
- Time to build: 2–3 days with support from volunteers or local welders.
- Only plastic waste should be incinerated.

Precautions:
Do not burn near flammable areas. Avoid burning glass or aerosol cans (may burst). Not suitable for rainy seasons due to open space constraints. Keep away from children and communal areas.

THIS GUIDEBOOK SERVES AS A PRACTICAL TOOL FOR COMMUNITIES TO EFFICIENTLY MANAGE WASTE POST-EARTHQUAKE, ENSURING SUSTAINABILITY AND PUBLIC HEALTH PROTECTION.

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