

Guidelines (Master Plan) for Disaster Waste Management after the Great East Japan Earthquake

May 16, 2011

Ministry of the Environment

1. Introduction

- To manage waste resulting from the Great East Japan Earthquake, the government has already taken such actions as issuing the “Guidelines for the Removal of Damaged Houses and Structures after the Tohoku-Pacific Ocean Earthquake,” the “Guidelines for the Disposal of Damaged Houses and Other Structures (Draft Outline),” and other notifications, while urging Iwate, Miyagi and Fukushima Prefectures to set up their own councils on disaster waste management by bringing together officials of the prefectural government, municipal governments and the central government, as well as representatives of related industries.
- Meanwhile, disaster-related wastes is being gathered at temporary waste storage sites in greater amounts, which means that the government needs to implement measures for the incineration, recycling and final disposal of these wastes on a full scale. With the goal of promoting the appropriate and efficient management of disaster-related wastes, the present Guidelines outline issues such as the roles of each actors, fiscal measures and treatment methods and schedules, with attention mainly to treatment after transportation to temporary storage sites.
- In accordance with the Guidelines, the prefectural governments of the disaster-stricken areas are expected to develop disaster waste management plans that specify concrete treatment methods suited to local conditions and promote appropriate and efficient management of disaster-related waste.

2. Roles of each actors

- The central, prefectural and municipal governments should play the roles described below in principle and cooperate to facilitate appropriate and efficient disaster waste management.

Central government:

The central government should ensure that municipal governments, or prefectural governments where they have been consigned relevant administrative work from municipal governments under the Local Autonomy Act (hereinafter collectively referred to as “prefectures/municipalities”), implement disaster wastes management appropriately and efficiently. To this end, the central government should prepare waste management guidelines (master plan) and provide assistance aimed at fostering cross-jurisdictional and efficient waste management, including implementing fiscal measures, dispatching experts and providing information on treatment facilities operated by municipalities or private businesses outside the prefecture.

Prefectural government:

With regard to the establishment of temporary storage sites and management of disaster-related wastes, the prefectural government should conduct overall coordination with municipal governments through a disaster waste management council or other framework and develop a disaster waste management plan that stipulates specific treatment methods. This plan should reflect ideas and proposals on treatment methods widely solicited from the public. Where the prefectural government has been consigned relevant administrative work from a devastated municipal government under the Local Autonomy Act, the prefectural government should manage disaster-related wastes on behalf of the municipal government.

Municipal government:

The municipal government should treat disaster-related waste in accordance with the disaster wastes management plan developed by the prefectural government.

3. Fiscal measures for waste management

(1) Fiscal measures

Considering the severity and extensiveness of the damage caused by the Great East Japan Earthquake, the central government should, as an exception, raise the rate of national subsidies for disaster waste

management implemented by prefectures/municipalities in a manner that takes into account the rate of national contribution specified in the Disaster Relief Act. Disaster wastes management expenses that are not covered by state subsidies and are therefore to be borne by municipal governments should be fully financed by issuing disaster response bonds if the municipality's estimated disaster waste management costs are excessively high. The full amount of funds to redeem these bonds, including the interest, should be secured by national tax allocation to local governments.

(2) Ensuring efficient execution

Prefectures/municipalities should ensure efficiency in the execution of the budget for disaster waste management by taking into account the following perspectives.

- Ensuring efficient waste management by involving experts in waste treatment methods and technologies in the process of formulating a disaster waste management plan and monitoring its progress.
- Contracting out waste treatment projects in a manner that contributes to local employment as much as possible, while considering speed and efficiency (adopting a contracting method that ensures competitiveness).
- Setting proper bidding prices by referring to market prices before the earthquake, based on commercially available data on prices.
- For ensuring efficiency, promoting cross-jurisdictional waste treatment by forming a joint treatment structure with neighboring municipalities.

The central government should support the promotion of cross-jurisdictional waste treatment by matching extra capacity in treatment facilities operated by municipalities or private businesses outside the prefecture and the demand of devastated municipalities.

4. Treatment methods

(1) Treatment policy

- The amount of unsorted waste should be reduced by having waste roughly sorted to the extent possible (e.g., collecting hazardous waste and recyclable waste separately at the source), before being transported to temporary storage sites. Efforts should be made to

reduce the total treatment costs and the volume of final disposal by separating, with heavy equipment or in shredding and sorting facilities, mixed wastes gathered at temporary storage sites into different categories—such as combustible waste, noncombustible waste, recyclables and hazardous waste—so that they can be treated according to their properties.

- The treatment procedure as shown in Appendix 1 should be followed in principle and recyclable materials should be recycled whenever possible.
- To promote recycling, it is essential to keep track of the types of recyclable wastes and their amounts.
- Waste concrete should be reused as materials for reconstruction in devastated areas. Regarding waste wood, the possibility of cross-jurisdictional reuse should be discussed. These types of wastes also require consideration on long-term treatment that takes account of demand for recycled materials (acceptable amounts).
- Items for which the recycling procedure is established (automobiles, televisions, refrigerators, air conditioners, washing machine, etc.), should be recycled as far as sorting is possible and recycling is technically feasible.
- In selecting temporary storage sites and hauling trucks and formulating collection/transportation plans, consideration should be given to the prevention of traffic congestion.

(2) Necessity of cross-jurisdictional waste treatment

- Massive amounts of disaster-related waste was generated by the Great East Japan Earthquake. Since the devastated areas are short of waste treatment capacity, cross-jurisdictional approaches that make use of facilities outside these areas are needed as well.
- Cross-jurisdictional waste treatment should be promoted because it can be more cost-efficient and creates an additional treatment option.
- The central government should provide information on treatment facilities operated by municipalities or private businesses outside the prefecture. Based on this information, prefectures/municipalities should promote cross-jurisdictional treatment.

- When constructing incinerators and related facilities, municipal governments should consider the establishment of a joint waste treatment structure with neighboring municipalities.

(3) Waste type-specific treatment methods

(i) Combustible waste

- Extensive measures should be taken to prevent fire and manage hygiene at temporary storage sites.
- After being shredded, combustible waste should be effectively used for such purposes as cement calcination and waste power generation to the greatest extent possible.

(ii) Waste wood

- It is expected that waste wood will be mainly used for making wood boards and as fuel for boilers and power generation.
- Prior arrangements should be made with parties accepting waste wood materials with regard to the conditions of acceptable wood, including shape and the level of salt and other impurities contained. (Chipping all the waste wood before its use is determined will make it difficult to find companies that accept the chips.)
- A potential approach is to remove salt by exposing waste wood to rain and use it on demand. In this case, waste wood must be stored without being processed to chips in order to prevent decomposition and fire.
- Another potential approach is to transport waste wood to accepting parties outside the prefecture by boat or by rail so that its salt content and impurities will be removed while being stored there.
- Items that are visually identified as CCA (chromed copper arsenate) treated wood should be incinerated at waste treatment facilities.

(iii) Noncombustible waste

- Noncombustible waste mixed with combustible waste or scrap metal should be subjected to a process to separate it from combustible waste or scrap metal (e.g., screening with a trommel [a cylinder-shape revolving screen] or a vibrating screen, float and sink separation, magnetic separation), before being disposed of in landfills.

(iv) Scrap metal

- Scrap metal should principally be recycled. For ease of recycling, ferrous metals should be separated from non-ferrous metals (e.g. copper) to the extent possible according to the expected uses at accepting parties.

(v) Waste concrete

- Waste concrete should preferably be used as materials for reconstruction in devastated areas. This is also effective in reducing the amount of final disposal.
- Waste concrete materials should be separated into asphalt, concrete, stone and other materials according to the uses after recycling.
- Prior arrangements should be made with parties accepting waste concrete with regard to the conditions of acceptable materials, including shape and accretions, in order to determine necessary shredding and grain-size adjustment processes. (Shredding and grain-size adjustment before the uses are determined will make it difficult to find companies that accept the recycled materials.)
- To foster recycling as construction materials, coordination between environmental departments and civil engineering departments and the effective use of private-sector knowledge is indispensable.

(vi) Home appliances and automobiles

- Home appliances regulated under the Designated Home Appliances Recycling Act (televisions, air conditioners, washing machines/clothes dryers and refrigerators) should be separated to the extent possible. Based on the degree of damage and corrosion, items that can be recycled (items from which useful resources can probably be recovered) should be recycled in accordance with the Act.
- Vehicles should be delivered to collection companies for recycling pursuant to the End-of-Life Vehicle Recycling Law.

(vii) Ships

- Ships should be dismantled after removing fuel and batteries. After dismantling, scrap metal should be recycled. Waste plastic and waste wood should be incinerated in a manner that involves effective use, such as waste power generation, to the extent possible.
- Asbestos-containing parts should be disposed of following the

procedure specified for asbestos-containing wastes.

(viii) Hazardous wastes, PCB wastes, asbestos-containing wastes, etc.

- These should be separated from other wastes, treated as hazardous materials or specially controlled wastes and disposed of according to their properties.

(ix) Tsunami sediments

The following treatment methods should be considered according to the properties of the sediments.

- Materials containing toxic substances (e.g., heavy metals), perishable combustible materials and oil-containing materials
These should be used as raw materials of cement or be subjected to incineration or landfills at final disposal sites.
- Other materials (those similar to water-bottom sands in properties)

After the removal of foreign matter by screening with a trommel (a cylinder-shape revolving screen) or a vibrating screen, these sediments should be used as backfill materials in ground subsidence, recycled into civil engineering materials, or put into the ocean*.

- * Tsunami sediments may be put into the ocean under the Marine Pollution and Disaster Prevention Law by permission of the Minister of the Environment, only if they are, just like water-bottom sands for which ocean dumping is allowed, unable to be disposed of on land, do satisfy the specified criteria and will not exert a significant effect on the marine environment.

(x) Waste at post-fire sites

- At post-fire sites, ash should be gathered separately from scrap metals and waste concrete.
- Ash, along with tsunami sediments mixed with ash, should be molten or be disposed of in landfills at final disposal sites as suitable for their dioxin levels.

5. Schedule

In consideration of regional characteristics of the wastes involved and treatment efficiency, each type of disaster-related wastes should be disposed of as shown in Appendix 2 principally within the time frames defined below. The time frames should be redefined by individual

municipal governments to optimize them to regional conditions, such as restrictions on the collection volume due to the limited space for temporary storage and the possibility to cause traffic congestion.

(1) Relocation of wastes to temporary storage sites

- Disaster-related wastes that can harm the living environment (e.g., waste remaining close to where people are living) should principally be moved to temporary storage sites by around the end of August 2011.

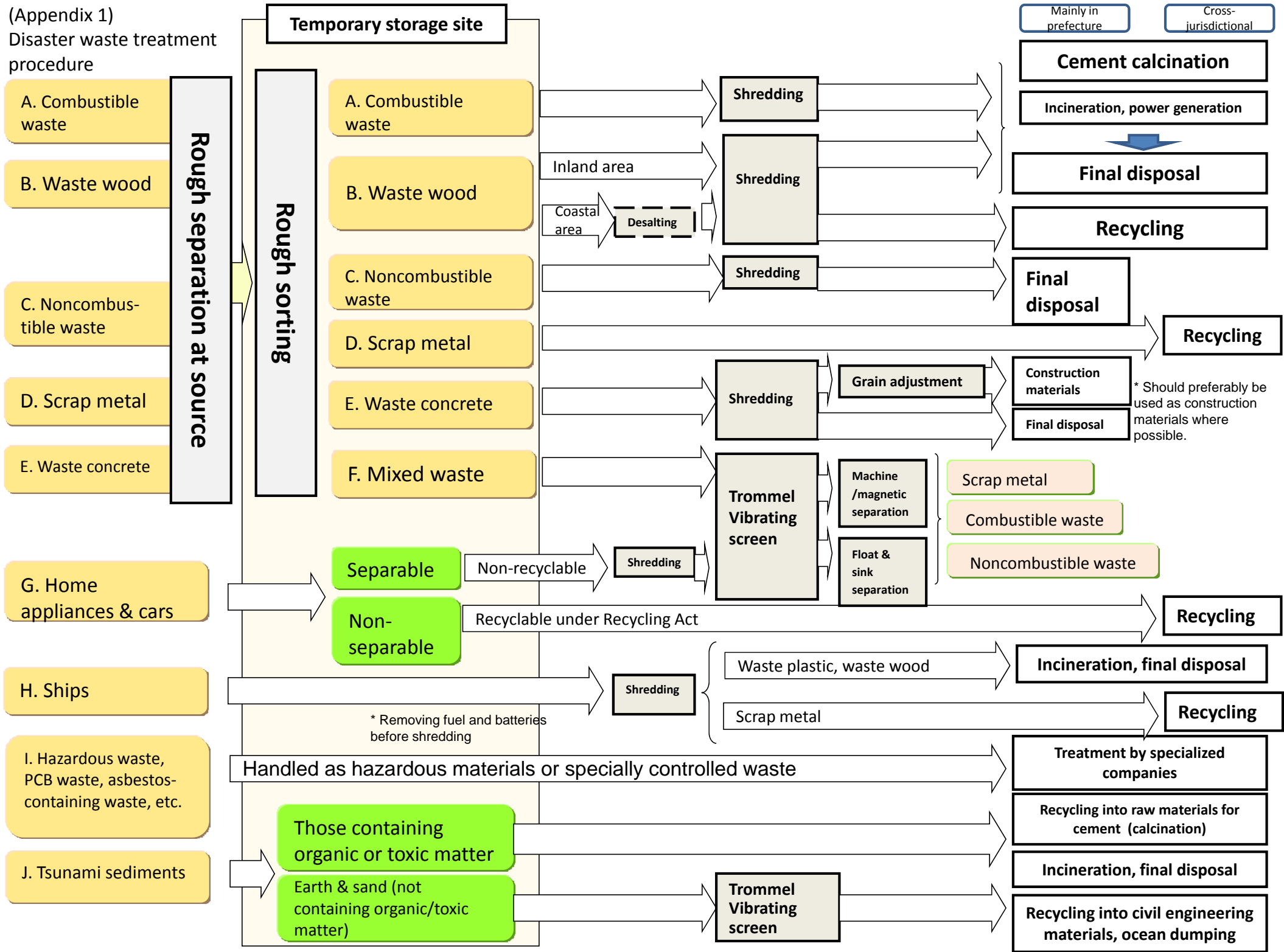
- Other wastes should be moved by around the end of March 2012

(2) Intermediate treatment and final disposal.

- Perishable waste should be disposed of promptly.

- The appropriate time frame should be set for waste wood and waste concrete that will be recycled, in light of demand for recycled materials and within a period that will not cause degradation or decomposition.

- Other waste should be disposed of by the end of March 2014.



Schedule for Disaster Waste Management

