



Recovering from disaster

by Roger Guttentag

ties. The following resources are therefore recommended for anyone who wants to understand how the competing objectives of effective disaster debris management (DDM) can be reconciled with disposal reduction.

Columbia University, Graduate School of Architecture (CUGSA)

In what appears to be very prescient timing, the Urban Planning Studio, a program within the CUGSA, published a report on DDM research that was conducted by the students during spring 2012 and submitted to the New York City Office of Emergency Management. The report's findings and recommendations are, not surprisingly, oriented to the specific characteristics of New York City, but I would think they would be of interest to anyone living in densely populated urban centers. The two chapters that I suggest reviewing would be those that discuss the results of a literature survey on debris management practices connected with previous disaster events such as the 2010 Japan tsunami and how various landfill alternatives can be integrated into DDM planning such as composting of vegetative debris typically generated by hurricanes, ice storms or tornados.

Congressional Research Service (CRS)

The CRS published "Managing Disaster Debris: Overview of Regulatory Requirements, Agency Roles and Selected Challenges" in 2011, which provides a short but thorough overview of the DDM process.

Three main topics are covered: The type of debris that is created; the roles of Federal, State and local governments; and the main priorities of DDM implementation. The specific authority and responsibilities of the Federal Emergency Management Agency, the Army Corps of Engineers and the U.S. Environmental Protection Agency are outlined.

Federal Emergency Management Agency

FEMA is the principal source of federal information on the regulatory, policy and technical aspects of emergency management. With regard to DDM, the following documents should be consulted:

FEMA – Debris Management Guide (2007)

This is a very comprehensive DDM reference that is divided into three main parts. Part 1 lists what activities are eligible for federal public assistance in debris management and cleanup. Part 2 is a detailed review of various critical DDM components such as planning, collection, public information and contract monitoring. Chapter 9 of this part outlines various disposal and recovery options for disaster debris such as incineration, vegetative grinding and chipping and recycling. Part 3 goes over the roles and responsibilities of FEMA and other federal agencies based on delegation of work by FEMA or separate legislated authority.

FEMA – Public Assistance Pilot Program Guidance (2007)

Legislation enacted in 2007 directed the establishment of a public assistance pilot program to test various methods for reducing debris management costs to the federal government while improving the delivery of key services to state and local governments. One of the approaches to be tried was to provide incentives to maximize the landfill diversion of debris through composting, recycling or other beneficial applications. The federal government would pay its share of the cost of debris management, but would permit the recipient of grant

It was only about three weeks ago (at the time I'm writing this column) that Superstorm Sandy hit the northeastern U.S. mainland. For many, Sandy was a news headline, but since I live in southeastern Pennsylvania it was a two day ordeal that included power outages. Fortunately for me, the only damage my home suffered was a few roof shingles. While Pennsylvania was more on the periphery of the storm system, I, like the rest of you, saw the damage it caused in the form of fallen utility poles, shattered trees and broken structures. Even more devastating harm, as documented by many news services, was done to the coastal communities of New Jersey, New York and New England.

The disaster debris cleanup after catastrophic geologic or weather events like Sandy can take months or, in cases like Hurricane Katrina, years. This situation represents the most stringent challenge for recycling professionals since the goal of landfill diversion is constrained by the need for timely debris removal in order to protect the community's health and safety, as well as to quickly restart necessary economic activi-

Web Address Directory

FEMA – Public Assistance Pilot Program Guidance	http://tinyurl.com/FEMAGuidance
FEMA – Public Assistance Pilot Program – Fiscal Year 2009 Report to Congress	http://tinyurl.com/FEMAPilot
FEMA – Debris Estimating Field Guide	http://tinyurl.com/FEMADebris
Florida Department of Environmental Protection – Innovative Recycling Grant Reports – Debris Management	http://tinyurl.com/FDEPGrant
Northeast Recycling Council – Disaster Debris Management	http://tinyurl.com/NERCDebris
Managing Disaster Debris – Congressional Research Service	http://tinyurl.com/CRS-Debris
Planning for Debris Management in NYC – Columbia University School of Architecture	http://tinyurl.com/CUSA-Debris

assistance to retain any revenues achieved through material recovery.

FEMA - Public Assistance Pilot Program – Fiscal Year 2009 Report to Congress –

This report discusses the effectiveness of the various strategies that were tried during the PAPP period starting June 2007 and running through the end of December 2008. While some examples of how communities obtained financial benefits from debris recycling are given, it was concluded that, in general, the overall level of recycling did not increase because the additional complexity of developing a recycling alternative to disposal was constrained by severe time limitations. In other words, communities were not prepared to recycle and didn't have the time to deal with it in the post-disaster period.

FEMA – Debris Estimating Field Guide (2010) –

This document discusses the various reasons for estimating the amount of disaster debris that may have been generated and the general procedures to be used for making these estimates. In addition, formulas and conversion factors are provided to assist in estimating debris originating from residential sources.

Florida Department of Environmental Protection (FLDEP)

The FLDEP Innovative Recycling Grants Program provided funding for three projects that examined how to increase the recovery of hurricane debris, primarily vegetative materials, based on local DDM experience with previous storms and research into best practices and potential markets for these materials. Each of these projects, listed below, has a final report that summarizes their findings and recommendations that can be downloaded as PDF documents from the FLDEP website:

- Shelter from the Storm: Preparing and Enhancing Markets for Future Disaster Debris Diversion – Sumter County
- The Calm Before the Storm: End Markets for Storm Debris – Okaloosa County
- Promoting Enhanced Recovery of Hurricane Debris in Polk County

Northeast Recycling Council (NERC)

In April 2009, NERC published "After the Disaster: A Guide for Residents and Small Businesses about Managing Debris Waste," which focuses on how to handle household debris resulting from disaster events and is

organized into specific categories such as electronics, furniture, propane tanks and vehicles. Within each category, recommendations are laid out for pre-disaster actions and post-disaster options, where applicable, with respect to recovery (typically salvage or repair), recycling or disposal.

Final thoughts

In reviewing these resources on DDM, it has become quite clear to me that the principal obstacle to maximizing landfill diversion are time constraints imposed by the health and welfare needs of each affected community. These constraints cannot be avoided but only

minimized by accepting the fact that disasters will happen and to develop DDM plans that maximize landfill diversion as soon as possible. The big question, of course, is projecting how bad the disasters will be. Judging by the record of the last decade, I think we all need to think big.

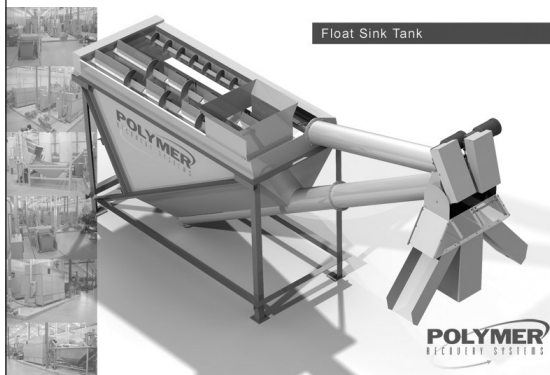
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