

Sustainable Utilization of Ice Storm Debris Recommended

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The concept of “sustainability” within our daily lives evokes a sense of a spiritual calling for us all to be good stewards of this life in every opportunity. So, how do we adhere to *sustainability* and the ideals of *stewardship* in the aftermath of a disaster like the “Great Ice Storm of 2007”? As in all things, we consider how we can make the best of what happens to us. What opportunities can be found...or at least how can we try to mitigate the problems at hand?

Let’s consider how to address the recent disaster that befell so many trees, of all species and sizes, throughout our community. Our urban forest took quite a hit, but what is done with the broken tree material can actually be an example of what *sustainability* (...good stewardship) is all about.

So, how should state, county and local Oklahoma governments address this problem - and similar problems sure to arise in the future, in this land of severe wind and ice storms? The first logistical issue to be considered is what equipment and manpower must be made available to put to the task - and how to effectively pursue good emergency management planning that should include the following:

1. How much of the public workforce is available?
2. How much labor will need to be contracted out?
3. What available equipment (or machinery) is in the public inventory? How much equipment and of what kinds should be purchased and maintained by government entities to immediately deal with such a great amount of broken tree material? (Remember, this equipment can have multiple uses within routine operations, as well as for various special projects.) For example:
 - Different types/sizes of tractor-loaders, equipped with grapple attachments, or loading buckets with additional top-mounted grapples.
 - Large capacity wood chippers, plus trucks to transport the chipped material.
4. Designated locations for stockpiling the chip product for immediate use and future processing.

Ideally, emergency management plans should be in place for governments to be able to deal with the aftermath of these disasters, which would include the prior purchase or stand-by contracting of specialized equipment. Log-loader (or “clam” loader) trucks such as Oklahoma City already operates within its Solid Waste Disposal Services, are utilized on a monthly basis throughout City neighborhoods for loading curbside trash. These specialized trucks, along with the grapple-tractors and dump trucks, would go throughout the city collecting piles of broken tree material after any disaster. They would then transport their loads to a central location where this debris would be processed into a usable (i.e. beneficial) product for its residents, and for beneficial use throughout the state...and even for shipping throughout the country!

This initial processing could be done with either an industrial “whole tree chipper” that can take in tree material up to 18” in diameter, or large “tub grinder”. The latter item can accept all sizes of tree parts, including stumps and roots...and even relatively clean construction wood and old pallets. The end product from each type of machine is small, high quality chipped and shredded wood. The City of Minneapolis even uses these machines to dispose of the large quantity of trees that are dead or dying each year, and are marked for removal in that city’s effective tree disease control program. (The chipping process renders these diseases harmless.) Even towns half the size of local cities (...such as Detroit Lakes, MN) have utilized such machines to process destroyed tree material resulting from tornadoes and other severe windstorm events. In these examples, the need for a prior established emergency management program that will effectively dispose of, and yet provide for sustainable utilization of such destroyed tree material, was given a societal priority. This means that they do not just pile and burn, landfill or dump this stuff out in the country somewhere...like is currently being done throughout the present ice storm affected areas.

So what type of “sustainable utilization” can be considered?

- a) Stock-piling and use as organic material in the composting of **municipal waste treatment** “sludge”. (Some cities already do this.)
- b) Stock-piling for effective use throughout city and state parks for **spreading on “soft” walking trails**, and in heavy **mulching** of newly planted trees and shrub beds in public parks, center medians, and street boulevards). This type of mulching is used throughout other upper Midwest communities **to conserve moisture and to cool and encourage rapid root growth**. Instead, some area cities (like Edmond) spend our tax dollars on pre-packaged wood-chips for these uses! (Incredible!!)

c) Similar stockpiling of this material for use by **private property owners** (like in Norman) placed around their own-planted trees, shrub beds and in gardens...for effective weed control and moisture conservation in our hot and often drought-stricken climate.

d) So you see, this type of sustainable disposal and use also has an equally important stewardship effect of **water conservation!!**

e) This wood-chip material could also be made available and removed by surrounding communities and park facilities.

f) Damaged trees that have suitable large stems and limbs can be **used as timber in local sawmills**.

g) Communities could also arrange for the processing of the larger pieces **as firewood** - either for sale to distributors, or for use by private homeowners.

h) Various agricultural operations can utilize these chips to incorporate **organic matter** into fields, groves and pastures. After a follow-up application of nitrogen, this material will break down into organic matter to enrich the soil. Moisture conservation and soil cooling will again result.

i) Additional processing and drying of wood chips can be used as **livestock bedding**, and to absorb animal-waste for later composting and similar use as previously described.

j) Further processing can also result in **fuel pellets** for use in pellet-fired stoves. This could then even be sold as "raw material" prior to end processing.

k) Other areas of the country even utilize green woodchip material directly as **fuel** for steam production in municipal and factory operations, as heating and in power generation.

l) Coal-fired power plants in many parts of the country also utilize raw wood chips as a **fuel supplement**, to mix into their coal stream.

Government entities should have prior arrangements with such end-users to help dispose of this valuable (and *sustainable*) raw material. I would also think that our State Departments such as Agriculture and Forestry; and Commerce -- as well as industry groups such as the Farm Bureau would be promoting these end-uses in the proverbial "economic development" opportunities.

In the end, after a serious storm event (or for tree disease control), this unfortunate tree destruction can actually have a **positive** and truly sustainable end result!!