

Title: Use Debris Created by Hurricanes/Natural Disasters to Manufacture Biofuels.
FEMA Should Have Mobile Units for Disaster Cleanup.

For weeks after hurricanes Katrina and Rita we saw TV news of the destruction and the debris that covered the coastal region from Texas, Louisiana, Mississippi and into parts of Alabama.

The clean-up of these areas started sometime later and continues to this day. At the current rate, cleanup will take years and cost billions of dollars. This clean-up cost will be paid for by the entire American public.

We have a few questions and a few recommendations for not only FEMA, but any disaster relief agency country wide.

A large portion of debris created by a disaster is from downed vegetation and destroyed homes or buildings that have been contaminated so that they are unusable for human habitat. Where is all this debris going? Are we putting it in landfills that are already overused? Are we dumping it in the oceans off our coasts? Are we burning it? Why aren't we putting it to use?

One potential use that could be considered is an environmentally friendly technology that converts biomass to biofuels, e.g. methanol. Using the biomass conversion process that is being developed may handle about 100 Tons of dry biomass weight per day or 200 Tons of wet weight per day. Using today's technology, this amount of material converted to an alcohol would produce approximately 15,700 gallons of methanol. This methanol could be used to produce bio-diesel fuel or used in alternative fuel vehicles that run on 85% alcohol. (Currently, retrofitting cars to utilize alcohols costs less than \$150.) Assuming that each car had a 15 gallon gas tank capacity, processing 100 Tons of biomass debris into methanol would fill the tanks of approximately 1,047 alternative fuel cars.

This process uses a small scale, mobile system that could be placed on the back of flatbed trucks. This mobility would eliminate the additional cost associated with the handling and transportation of the debris wastes to some centralized location or dump. Other costs also defrayed are the dumping fees which can be expensive. For example, wastes transported from a forest to a landfill can cost over \$2500/acre due to high transportation costs and tipping fees.

This conversion of this debris to methanol would not only eliminate a large portion of the mess created by these natural disasters, but it would do several other things at the same time;

- clean the area in an environmentally friendly manner
- provide an environmentally friendly automotive fuel that will not only lower our fuel cost but will also lessen our dependence on foreign fuel
- it will also create immediate economic opportunities (e.g., jobs) in the devastated areas

- fast cleanup could not only prevent illnesses associated with these disasters, but if handled correctly, could even pay some portion of the cleanup cost.

Currently our cleanup procedures after a natural disaster are from the “horse and buggy days”. Since the technology we are discussing exists, why aren’t we using it? Part of the problem is our “throw away” society and the lack of investing in the development of technologies to take advantage of “Waste”. As energy sources become more expensive and scarcer, our society must develop ways to use its “waste”. There are technologies being developed today that could generate revenue from waste that previously would have been only consigned to landfills. One example is our mobile “waste” conversion bioenergy system that only needs a nudge to become readily available.

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