A Sustainable Environment: Our Obligation to Protect God's Gift

by
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Climate Change Calls for More Resiliency

There is no question that climate change has had a major influence on the frequency and magnitude of storms and hurricanes that have developed over the past year. Here in the U.S. we had two Category 5 hurricanes, Irma and Maria, and a Category 4 hurricane, Jose, all during the month of September, 2017. Based on a parameter called ACE (Accumulated Cyclone Energy), September 2017 was the most active month ever for Atlantic hurricanes. And this followed a Category 4 hurricane, Harvey, which hit Houston, Texas in August.

All of these hurricanes resulted in considerable damage. In particular, hurricane Maria did some devastating damage in Puerto Rico where many homes and businesses were severely damaged and/or flooded. Three weeks later about 85% of the residents still lack electricity and 40% are without running water, and neither are expected to be fully restored for months.

More than ever adaptation and resiliency must be implemented as soon as possible worldwide, but in particular in areas subject to the possible impacts of climate change. A perfect example of what can be done in this area is to look at The Netherlands. Almost the entire country is located below sea level. Many years ago, I was Managing Director of a company in Nijmegen in the eastern part of The Netherlands. I recall driving through the western part of the country where the highway was going under viaducts. Normally you would expect cars or trains traveling above you. But these viaducts were for boats. I would drive my car under a viaduct that held water for boats or ships. This country has adapted for high water levels for centuries, and consequently Dutch engineers are capable of assisting other countries that could be subject to high levels of water.

Here in the U.S. a city that is very vulnerable for rising water levels is Miami, Florida. The average elevation of Miami at the mouth of the Miami River is only six feet above sea level. It is expected to be only four feet above sea level by 2060 and possibly under sea level by 2100. Miami Beach is already adopting technologies found in The Netherlands to become a more resilient city to climate change.

But what should cities do that are vulnerable to these hurricanes that flood the towns, destroy many of the buildings, and tear down electrical power lines? Wouldn't it be nice if each of these cities had a technology available to them that could be activated on short notice? Just imagine if the technology were on a flatbed trailer, and as soon as an area of a town were hit by the storm and power is lost, the technology could be on its way. To produce the necessary power, all that would be needed is a fuel such as wood. But one of the results of these storms is the destruction of buildings which create waste wood – the necessary fuel.

What is needed is a combustor that can handle, say, five tons per hour of wood waste that would be burned in a multiphase combustion chamber with minimal emissions. The heat of combustion would then be used to generate steam that would, in-turn, be used to generate electricity. The only other equipment needed would be a grinder to reduce the size of the waste wood to minus three inches. This portable system could provide over one megawatt of electricity. If the city had multiple systems available sitting on flatbeds, they could each be mobilized where electrical power is needed as an emergency. After the city's power system is restored, this portable system could be returned to its warehouse for storage – awaiting the next hurricane.

With climate change being real and these storms becoming stronger and occurring more often, it is imperative that these vulnerable cities in the U.S. and other parts of world become more resilient by adopting such technologies. The investment in one or more of these systems is probably in the $3-4 million range which is considerably less than the potential losses resulting from the loss of electricity.