

Turning garbage to electricity

DEMAND AND SUPPLY By Boo Chanco (The Philippine Star) | Updated September 26, 2014
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I can understand the frustration of MMDA chairman Francis Tolentino when he advocated amending the Clean Air Act to allow some garbage incineration. Every rainy season it is the same story about garbage clogging our metro area's drainage system and he, among other government officials, gets blamed.

DPWH is delayed in delivering flood control projects to ease or solve Metro Manila's flood problem. Even then, it seems anything they do will be quickly overwhelmed by the volume of garbage that will clog those big drain tunnels. Walking by the Roxas Boulevard seaside is no longer fun because somehow, we have made Manila Bay our convenient garbage dump.

Chairman Tolentino is right. **We should consider burning some of the garbage we produce, after allowing for recycling of the recyclable stuff. Congress was wrong to impose a total ban on garbage incineration supposedly because of air pollution.**

I think those high-temperature incinerators are friendlier to air quality than what we are actually doing now. As it happens, many of our people burn garbage anyway in the crudest way possible with absolutely no regard for air pollution.

Whether at the garbage dumps or in our backyards, we practice this "raw garbage burning" method to dispose of garbage, producing more toxic fumes than state-of-the-art incinerators will ever produce. Because of this reckless burning of garbage in open fires, there are multiple sources of more lethal toxic fumes nearer our living and working areas. Decaying garbage also produces methane gas which is a more problematic greenhouse gas.

The Clean Air Act has resulted in floods due to garbage clogging our waterways and flood control systems. Yet, it has not reduced the level of air pollution because ordinary citizens overwhelmed by all that garbage resort to indiscriminately burning garbage in our neighborhoods.

Recent advances in technology, on the other hand, make it possible to burn our garbage in a controlled environment that does not release toxic gases, with the pleasant bonus of producing electricity in the process. Over 10 years ago, I visited one such garbage incinerator in Mannheim, Germany and it seems to work quite well.

The incinerator complies with Germany's stringent clean air law. It burns garbage as well as produces a few megawatts of power. From the observation deck, I could see garbage being delivered to the plant and fed to the furnace. I remember seeing a red sofa in the trash pile.

The information material describing the plant claims that the system has been expanded through the years and now incinerates waste for more than one million inhabitants in the Rhine/Neckar region.

It is a closed-loop cogeneration plant that meets the highest technological standards. The Mannheim plant uses household waste and material from commercial and industrial customers.

They claim it has been proven to give exceptional performance with high availability levels meeting all legal pollution requirements. Here is how the information material described how it works:

Once trial samples have been inspected, the waste is mixed in the waste bunker to ensure uniform calorific value. It is then fed into the boilers using the crane. By adding air, the waste then automatically burns on the combustion grate at temperatures of up to 1,300 degrees C.

The high temperature ensures the dioxins and other toxic pollutants are safely destroyed. The energy released from the waste is used to generate steam. The cogeneration process then makes efficient use of the steam to generate electricity.

Also, around 15 industrial customers are supplied with an average of 65 tons of process steam an hour. A boiler powered by natural gas is available to safeguard the volume of steam output.

The residues resulting from combustion are used in line with their material properties. Slag is used as a material in road construction and landscaping. Ferrous metals are used in the iron and steel industries. Filter dusts are put to use as backfill in the mining industry, while extracted gypsum is used by the construction industry.

Apparently, chairman Tolentino is right about garbage incineration being a perfected art in Sweden. I googled for information and it seems Sweden view garbage incineration as one of the country's great green achievements.

The article on Swedish garbage incineration pointed out that while waste-to-energy incinerators remain a controversial topic among US environmentalists, there's been little such debate in Sweden as the country increased its waste burning capacity over the past decade.

Sweden now imports about 700,000 tons of garbage per year to help produce electricity and heating for cities such as Helsingborg, a historic coastal hub of about 100,000 people in southwestern Sweden.

Sweden also has fewer wide open spaces for stashing garbage in landfills. The country also recognized that landfills have a major climate impact. When materials break down in landfills, they emit methane — a greenhouse gas 20 times more potent than carbon.

Today, only one percent of Sweden's waste winds up in landfills. Half of it is recycled and 49 percent is burned in waste-to-energy facilities, up from 39 percent in 1999.

In Helsingborg, about 50 trucks per day pay to dump their trash at the Filborna plant, which is permitted to receive up to 160,000 tons of trash per year. The trash is burned to create steam, which turns a steam turbine to produce up to 18 megawatts of electricity.

The waste heat from that process is captured and funneled into the city's district heating system, supplying about 40 percent of the city's heating needs. Air emissions are cleaned through a series of scrubbers and filters to more than meet pollution limits.

I agree with chairman Tolentino that what we need is smoke-free incineration similar to what is being used in Germany, Japan and Sweden. No pollution. No toxic by-products. And generates power too.

The two in one system will also produce electricity that can be used by the city to reduce its power bill or sell to the utility grid. Eventually, this solution might prove cheaper than maintaining a landfill and even turn a profit.

And speaking of landfills, we are already having problems convincing communities to host such garbage dumps. For that reason, we can't get to close such dumps as the one in Payatas even if landslides and other accidents happen there with regularity.

The further from the city center the dumps are, the more expensive the garbage hauling costs. And even if we call such dumps sanitary landfills, it is in reality anything but that. Diseases and epidemics in the host communities, as well as contamination of their drinking water source are ever present dangers.

We really ought to reconsider the total ban on garbage incineration in our Clean Air Act. At the time our Clean Air Act was being discussed in Congress, there was a lot of controversy over competing proposals to put up such incinerators.

I don't remember any real state of the art system being proposed. What I recall was a lot of politicians trying to peddle overpriced systems that will likely foul up the air we breathe. The potential for corruption was probably one other reason why the total ban was imposed.

But we should ask the more reputable and experienced engineering companies in Europe for a garbage-to-electricity system that does not pollute the air. I am sure the reputable companies also follow the strict anti corruption laws of their countries.

Given the desperate situation we have with floods and garbage, it seems to me that we ought to go for high-temperature incinerators. Not only will that solve the garbage problem (including looking for landfill/dumpsites), but can also produce alternative energy.

Congress should amend the Clean Air Act to allow limited incineration of garbage, but impose the most stringent requirements adopted by leading European countries to protect air quality. The total ban has proven to be counterproductive and it is time to reconsider it. Metro Manila congressmen should lead the move.

pAbaya

DOTC Sec. Jun Abaya who is Liberal Party president was asked by reporters about the 2016 plans of the administration party. He said he did not know when is the right time to announce LP election bets. But added it could be “when I fixed up the airports, fixed up the rails, fixed up the ports.”

Reporters asked a follow up question: what if he is unable to deliver any of those rail lines, airports and ports in time for the elections?

Abaya said: “Divine intervention *na lang, pagdarasal natin.*”

If Sec. Jun comes true to form, nothing will happen. The Liberal Party is history!

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