Green Scene: Achieving Zero Waste

by Elaine Golds

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[photograph]
[caption: How apples are created is instructive for people, argues Elaine Golds, since how we make the products we consume is often as dirty as how we dispose of those products once we're done with them.]

[Title in Tri-City News: Learning from apples
Sub-title: Humans' factories not as clean as 'apple factories']

I have always admired the process by which an apple seed produces an apple. Although complex, the recipe requires only two simple and abundant ingredients, water and carbon dioxide, plus a few micronutrients readily available in fertile soil. Using instructions encoded in its DNA plus some solar energy, the seed first creates a factory, i.e., a tree and, finally, the fruit of its labours. Unlike cooking, this process proceeds entirely at ambient temperatures. Oxygen is the only major byproduct; this is released into the air. Each year, the tree discards old leaves that become fertilizer for the next crop. Throughout its life, the apple factory provides valuable wildlife habitat. When it becomes too old to produce fruit, the apple factory will naturally decay into micronutrients that support the next generation of trees. This is a production process that should be much admired and, hopefully, copied by intelligent beings.

The production processes of mankind are primitive in comparison. Our factories belch pollutants into the air and water. Within these factories raw materials, typically extracted from the earth in environmentally-destructive ways, are combined at high temperatures in energy-consumptive processes to create new products and toxic byproducts. The products, once created, must then be transported considerable distances to consumers who will use these products for a few minutes, months or years before discarding them. Strangely, little about our standard production processes is considered unusual or needing improvement with the exception of that final step, the discard.

Metro Vancouver is now consulting the public about improving the manner in which we deal with our garbage. Presently, we manage to recycle only 52% of the waste stream. Other metropolitan areas have already achieved a recycling ratio of 70% or more so there is ample room for improvement. While I am pleased Metro Vancouver is recommending a move towards reaching zero waste through education, transfer of responsibilities to producers and improved recycling initiatives, I am quite alarmed with regard to their proposal to build new waste-to-energy (WTE) facilities throughout the region.

The WTE initiative appears to be based on a new process used at a pilot plant that has been operating in Ottawa for a mere five months on a preliminary test basis. This plant apparently treats garbage with a plasma arc at high temperatures in the absence of incineration. This creates gases that can be burned to generate electricity. Every tonne of garbage so consumed would generate 0.6 tonnes of carbon dioxide. About 15% of the waste material becomes vitrified slag. While the process is advertised as “emission-free”, the company has only committed to meet certain emission limits for several chemicals including highly toxic compounds such as lead, cadmium, mercury, dioxins and furans. The heavy metals are already present in the garbage but the dioxins and furans are new products created by high temperatures. Dioxins and furans are among the most poisonous chemicals on the planet. They do not occur naturally

but are formed by the high temperatures of industrial processes when hydrocarbons and chlorine are present. If we are truly committed to sustainability in Metro Vancouver, does it make sense to be adopting an unproven process that could create such toxic compounds and possibly pollute our airshed?

According to the Sierra Club, the pilot plant in Ottawa, to date, has been able to operate at only 10% of its rated capacity, has yet to run for 24 hours continuously and has produced only 1 hour of power. In addition to the lack of a convincing performance record, there are several other reasons to be concerned about WTE including the strong disincentive it could provide for recycling.

Achieving zero waste cannot be done only by increasing recycling programs; it must also involve the participation of producers. Apart from the benefit of almost eliminating garbage, it has been calculated that recycling up to 90% of the waste stream would result in a 7% reduction in greenhouse gas emissions. While there are many compelling reasons why Metro Vancouver should be working towards achieving zero waste (just like the apple tree), I remain to be convinced that building WTE facilities makes any environmental sense whatsoever.