

News

OPINION

Converting waste for a healthy economy

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“Europe has set out its plans to foster a ‘green economy’ by 2020 focused around recycling,” wrote Nicky Gregson and others in 2014. They argued that a recycling economy would generate triple virtues: stopping waste being “disposed” of in poor countries, decoupling economic prosperity and creating a new employment wave in recycling industries.

According to the European Environment Agency recycling-related activities are no longer wasteful if they turn waste into valuable commodities in the form of public or private goods. Population size and economic progress can have a positive correlation to waste disposal. The fact is, developing countries dump more than 50 percent of their organic waste into the environment.

The huge and increasing magnitude of organic waste dumped into the environment has a special meaning for Indonesia because the country lies in the equatorial tropical climate area, comprises thousands of islands, is home to the world’s fourth-largest population that will reach 400 million people in 2050 and will emerge as a developed nation probably in 2030.

We are living in a wet, hot and humid environment. Our country is rich in decaying materials of plants and animals and the most hazardous dump sites.

The degraded environment near landfills is exacerbated by their potential to kill people, as in the landslide in Leuwigajah, West Java, which claimed 143 lives on Feb. 21, 2005.

In Jakarta alone, solid waste amounted to 29,624 square meters per day or 10.8 million square meters annually in 2010, thanks in part to the population of 10.9 million that year. With Jakarta’s size of 65,000 hectares, the annual density of solid waste dumped in Jakarta in a year was about 166 square meters per hectare a year. Within 10 years we will increase solid waste to 1,660 square meters per hectare. Landfill is no longer an appropriate technology.

Can we follow the European path of development? Yes; we have already passed Law No. 18/2008 and

Government Regulation No. 81/2012 — the legal foundations for solving solid-waste disposal in our environment. So, we must prioritize solid waste before it buries us.

We have tried to separate our solid waste into organic and inorganic matter. We have tested the capability of the black soldier fly (*Hermetia illucens*) in the bioconversion of organic waste such as vegetables, fruit, chicken manure and slaughterhouse waste.

We chose the black soldier fly (BSF) mainly because Indonesian annual per capita consumption of animal protein in 2010 was only 13.5 grams, far below Europe's, of almost 70 grams in 1999.

The low animal protein consumption maybe answers why the IQ of Indonesians averages only 89. Flies are biological agents and their natural environment is decomposing organic waste and we have a significant abundance of organic waste.

So, do we care about a better humanity, ecology and welfare for the next generations?

Like other researchers, we discovered the BSF was one of the best biological engineers in the bioconversion of organic waste into protein, fats and other chemical substances; high quality compost or bio-stimulants and liquid fertilizers. We want to have a source of protein for poultry or fish farming that reduces our dependency on imported, costly fishmeal. The BSF is found locally and is not dangerous to humans, animals or plants. In fact, researchers also discovered that the BSF could minimize the existence of *E. coli* and salmonella in waste.

In addition, BSF bioconversion of organic waste will reduce the need for land for landfills. With a daily input of 10 kilograms of organic waste per square meter in a period of 30 days, the period of eating for BSF larvae before they enter the prepupae stage, we will reduce the amount of organic waste by 300 kilograms.

Therefore, one hectare of bioconversion facility will be able to process 3 tons per month or 36,000 tons per year. With a multi-story organic waste design and structure, the land-saving impact will greatly increase.

By using nature's energy with the BSF as our biological engineer we can transform the damage that disposing of organic waste has done to the environment in the past into a humane, ecological, healthy and wealthy economy for the next generations.

The writer, who holds a PhD in natural resource economics, is a bio-conversion specialist.

- See more at: <http://m.thejakartapost.com/news/2015/03/07/converting-waste-a-healthy-economy.html#sthash.5Mt2mbuK.dpuf>

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