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Making the Connection



Biomax Technologies

A fertiliser factory in your backyard?

The world of business is replete with stories of very unlikely beginnings leading to fame and fortune but few can match the tale of Mr Sim Eng Tong, his bacteria and his digester.

He had invited me to meet him and his associates, since he speaks little English, for breakfast at the Shangri-La Hotel, downtown Singapore. I was introduced to a slim, middle-aged man in a plain white shirt, slicked back-hair and a solemn, almost reverential manner.

Sim Eng Tong “had grown up working”, he said, and could not afford formal education. He turned his hand to anything that earned him income before settling for exporting fresh foods, including fruit and vegetables, to chefs running Chinese restaurants in Europe.

A good deal of the produce went bad before it could be shipped out. This was normal and the spoiled food was simply thrown away. But it irked Sim Eng Tong, who was brought up to not waste anything at all. He kept wondering if the waste produce could be turned into something useful.

By coincidence, one of his friends, Dr Puah Chum Mok, was a scientist working in microbiology trying to develop a cure for HIV/Aids. Sim Eng Tong wondered if an enzyme could be produced that would rapidly decompose the waste and turn it into organic waste. The doctor initially said it could



not. But Sim Eng Tong became obsessed with the idea. He kept on at it, urging the doctor to continue experimenting and five long years later, the magic enzyme appeared. But to work, it needed a ‘digester’ into which organic waste would be fed, combined with the enzyme and heated to produce the fertiliser.

But again Sim Eng Tong ran into a wall of rejections. His designs would not work, the whole thing was a joke, etc. But by now, there was no turning back for him. Eventually he found a fabricator in South Korea who made the digester.

Now was the moment of truth. He placed 15 tons of organic waste in the metal digester and kept it at a constant 80 degrees Celsius. Twenty-four hours later, the waste had turned into rich, organic fertiliser free of harmful bacteria and with not an ounce of chemicals.

Turning waste into fertiliser is, of course, as old as agriculture itself but it is a

Above: Sim Eng Tong in front of a Biomax digester.

slow, smelly process and the various components have to be separated out as the rates of decomposition vary. With Sim Eng Tong’s system, you can load all sorts of organic waste, including livestock, add the secret enzyme, fire up the digester and one day later, you have tons of quality fertiliser ready for the market. The yield is around 70% of fertiliser; the rest is lost as water vapour. There is no smell, no pollutants and very little that is wasted. The equipment (which comes in two sizes, 15 tonnes and 50 tonnes) takes up little room on a field and needs only two workers to make it function.

Profound implications

The implications of the system are profound. It not only eliminates organic waste without harming the environment but turns it very rapidly into high-quality

fertiliser for which there is a very ready market.

Since 2011, Biomax Technologies has sold 30 units, in Australia, Malaysia, Turkey, Thailand and South Africa among other destinations. But these are very early days and word is still spreading. In 2013, the thermophilic digester (to give it its proper title) won the Frost and Sullivan Best Practice Award for achieving a major technological breakthrough.

The potential for this system in Africa is vast. The continent needs enormous quantities of fertiliser if it is to achieve anywhere near its Green Revolution targets. Fertiliser, even chemical fertiliser, is expensive and governments often have to subsidise the cost of these inputs. Here is a system that cuts through all that. Stand it up in a plantation or cluster of fields and you will be guaranteed a supply of raw material, the organic waste, and guaranteed a market for the fertiliser that will result. And as a bonus, everything is very eco-friendly and will not contribute to global warming.

The cost of each unit, which comes flat-packed to be assembled by the company’s engineers, at around \$1m seems prohibitive until you realise the earning potential of both waste disposal as well as fertiliser production – on a daily basis.

Somehow, I feel Mr Sim Eng Tong will be asked to make frequent trips to various African countries in the near future. ■