

GOING GREEN

WHY go green? The two businesses that we spoke to gave reasons as varied as their industries. For the chief executive officer of one of the companies, it was a response to what he saw as needless wastage in the food and beverage industry. He went on to challenge someone – today the chief technology officer at the firm – to develop an enzyme that could convert organic waste into fertiliser in 24 hours. Biomax, which deals in organic waste treatment, was born after five years research & development.

Another company took root after a friend of the director suggested that they “do something” with LED lights. Today, Clear is one of the leading system integrators in Singapore, specialising in solar energy solutions, induction lamps and LED lightings. Regardless of the spark, these companies are today green champions that have based their entire business models around this rallying cry. The writing is on the wall, agree these SMEs, and going green is the most sustainable way forward.



WASTE NOT, WANT NOT
Biomax Technologies's technology allows it to offer an environmentally friendly way to convert organic waste to fertiliser



Awards. Biomax was also one of the companies awarded the Singapore Sustainability Awards Achievement of Excellence in the Green Technology Award, SME Category in the same year.

The idea to embark on a sustainable waste management business came about in 2004, while he was in the food trading business in China, says Mr Sim. Faced with large amounts of organic waste generated from food factories, he realised that he was looking at an opportunity.

In 2004, he was introduced to Pua Chum Mok – now the chief technology officer at Biomax – and challenged Dr Pua to develop an enzyme that could convert organic waste into fertiliser in 24 hours.

Five years of rigorous and intensive research later, Biomax was born. The firm was officially founded in 2009 by Mr Sim, Dr Pua and Fion Chua, the firm's deputy chief executive officer.

“We decided to produce fertiliser as the end point because a good quality organic fertiliser can significantly reduce the usage of chemical fertiliser. By recycling organic waste into organic fertiliser, we are closing the waste loop by putting what belongs to nature back to nature,” says Mr Sim.

“Lately, farmers have realised the side effects of excessive usage of chemical fertiliser on their farming soil and started to see the benefits of using organic fertiliser. Thus, our technology provides a two-way solution to both the waste management industry and the agricultural industry.”

The secret behind Biomax's success is its patented BM1 enzymes. Combined with organic waste in a specially designed digester which operates at a temperature of 80 degrees Celsius, Biomax is able to churn out premium, organic fertiliser within 24 hours. This turnaround time for the conversion is the shortest in the organic waste treatment industry, says Mr Sim.

Today, Biomax's clients include poultry farmers, palm oil millers, food-processing factories, slaughterhouses, as well as biogas and wastewater treatment plants where it treats the biogas and wastewater sludge.

Biomax is both an asset provider and a service provider in that it sells its digester machines to clients, as well as provides the enzyme technology that converts the waste to fertiliser on a recurring basis.

Mr Sim concludes: “Organic waste is an imminent global challenge. With a growing population, the amount of waste can only get bigger and we cannot keep using up landfills as it creates a lot of pollution problems including carbon emissions and leaches into the ground water.

“Apart from food waste from households and food and beverage sectors, there is also a great deal of organic waste produced from the agricultural sector during manufacturing and processing stages.” ■



URGENT BUSINESS
Mr Sim believes that the proper treatment of organic waste in cities is a pressing matter



SEE THE LIGHT
Clear specialises in solar energy solutions, induction lamps and LED lighting

CHASING THE SUN

JOSEPH Chua, director at Clear Pte Ltd, says that he would not have been able to tell you what a light-emitting diode (LED) was, when Clear – today one of the leading system integrators which specialises in solar energy solutions, induction lamps and LED lighting – was first incorporated in 2008.

To be fair, few people could have foreseen that LED would come this far.

“When we set up in 2008, LED was not so popular. Talk about LED, and most people wouldn't know. Those who know, they don't buy because of the price,” says Mr Chua.

“For example, a 140 watt LED in those days, we were selling at S\$600 to S\$700.

At this point in time, the price has eroded down to over S\$100. Now, in 2014, the acceptance level is very high. In Singapore, the Housing Development Board flats, town council (areas), there's bound to be LED lighting. In 2008, none.”

Mr Chua had just returned to Singapore after being stationed in Dubai, in end-2007, when a friend approached him with an idea to “do something” with LED products.

“We went to China, found a LED floodlight, and started selling it,” says Mr Chua. “Of course, over the years, we found that it wasn't a good product. I went to China many times, found different factories, different brands, and eventually we narrowed it down to a few factories.”

By 2011, Clear had partnered two factories in China to produce the Clear brand of lights. They had, by this time, also started to sell induction lights.

“In 2011, people started to accept LED.

But competitors were coming in already. And we can't compete with the big boys. This is part and parcel of life – that's why we must keep on bringing in new products. And that's why I bring in induction, bring in solar.”

While induction lamp technology has matured in the last few years, it is still often overlooked, notes Mr Chua. Some of the benefits of induction lighting include a longer lifespan and less glare. Such lighting is ideally suited for high-ceiling applications where lamps are difficult, costly, or hazardous to access such as warehouses, industrial buildings, bridges, roadways, outdoor areas, parking garages and public spaces.

“LED are directional lights, so they don't spread (unlike induction lamps). And, they are very glaring,” says Mr Chua. “When you talk about low voltage LED lights – LED tubes or downlight for example – it's suitable for indoors but outdoors, roads for example, the lamp pole can be around six metres or eight metres tall. To brighten the road, you need super high-powered LEDs. It's very glaring on the eyes.”

According to Mr Chua, using induction lamps on secondary roads versus the more traditional form of lighting can easily result in 50 per cent energy savings.

“Secondary roads use 250 watts high pressure sodium (HPS). If you use LED or induction, it's 120 watts. For primary roads (highways), they use 400 watts HPS or metal halides. LED uses around 150-200 watts.”

Separately, the company is also one of a handful of experienced solar energy integrators. This means that it imports the

COMING UP ROSES

FROM a three-person team with a paid-up capital of S\$50,000, Biomax Technology has grown in four years to a 33-strong local outfit with operations in Australia and the United States. It has a foothold in 15 international markets, and it is now turning its attention back to Singapore.

Biomax Technologies is technically in the waste management business. What sets it apart is its technology, which allows it to offer an environmentally friendly way to convert organic waste to fertiliser that is odourless and without harmful pathogens. And the best part is that all this is done in a day.

While most of its customers are currently in agriculture and livestock industries overseas, Sim Eng Tong, Biomax's chief executive officer, says that the company is looking closer to home for opportunities.

“Landfills are fast depleting in Singapore, and incineration is not an environmentally friendly method of waste disposal. Singapore has to

move towards greener and more sustainable ways to manage waste. One of the benefits of our technology is that it can be applied to all types of organic waste in rural and urban areas.”

He adds: “We believe that the proper treatment of organic waste in cities is a pressing matter. So we are also reaching out to certain industries in Singapore including hotels, restaurants, food courts and markets to see how we can help them manage their organic waste more efficiently.”

Indeed, green solutions are gaining wide recognition and acceptance in Asia, says Mr Sim. While the initial high cost of investment compared with low wages may have contributed to a slower adoption in Asia, governments and large companies are now taking the lead in adopting green solutions.

“I see SMEs following suit in a matter of time,” says Mr Sim who, in 2013, was one of the winners of the Emerging Enterprise

various parts required and design and install for clients, says Mr Chua.

Solar energy has been back in the spotlight recently. In March 2014, the government said that it wanted to raise adoption of solar energy to 350 megawatts-peak (MWp) by 2020, or about 5 per cent of annual electricity demand.

In November, Prime Minister Lee Hsien Loong announced that Singapore will commit S\$1.5 billion over the next five years to lead the country towards a greener and more sustainable future. Part of the vision includes “eco-smart” neighbourhoods, which use solar panels to power common facilities, for instance. By 2020, HDB will contribute 220 MWp of solar power with panels at 5,500 blocks of flats. There are also plans to install solar panels in army camps and in schools.

“We’re lucky that we started doing this early. I started doing solar in 2011, 2012. So I can catch the wave because when the government launches this type of job, you need to have the relevant experience or they don’t award the project to you.”

Mr Chua is already looking at other forms of sustainable energy, such as wind and hydro power. “In Singapore, we don’t have wind and we don’t have hydro, but our neighbouring countries do. I’m quite interested to go to China and source for a few more factories (to bring in products that can leverage this).”

In fact, Mr Chua set up two mini wind turbines for National Parks back in 2008. Located at the end



PHOTO: YEN MENG JIN

of Bedok Jetty at East Coast Park, the wind turbines are able to generate about 400 watts.

“For a mini wind turbine to work, you need an initial startup of 2.5 metres per second of wind speed. To capture power, you need at least four metres per second of wind speed. In Singapore, we don’t have that, maybe only the coastal areas. So after I did this two testbeds, I dropped it. But this is one thing I’m looking to do more of,” he says.

Going forward, Mr Chua shares that he has plans to link up with Thailand and Myanmar. The company has already established PT Clear Energy in Indonesia.

◀ DAY IN THE SUN

Mr Chua is already looking at other forms of sustainable energy, such as wind and hydro power

“Singapore, for me, is like a showcase. I want to use our brand, our quality, and export out . . . I believe South-east Asia is booming now. I was in South Korea recently for an energy conference, and countries in South-east Asia all have good plans for the next five years, for either solar or LED. I think LED is more or less there already. It’s solar (where the opportunities are). All of them have aggressive plans for solar energy. So I don’t want to miss the boat.” ■

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