

## PWD SMART FARMABILITY

# Giving hope in a box

The organic vegetable terrarium, available for adoption, is a self-watering, pesticide-free and entirely self-regenerative mini ecosystem

**BIG** things do come in small packages, and this could not be truer than with PWD Smart Farmability's ingenious creation — the organic vegetable terrarium. "It's your very own vegetable garden in a box," says its inventor, Dr Billy Tang Chee Seng.

Within each 51-litre box (measuring 57cm in width, 43cm in depth and 35cm in height), vegetables are grown on nutrient-dense soil, and regenerated following each harvest over a period of three to 12 months.

There is no daily watering required, no pests to contend with, no weeding, no worry about rain or drought, and no need for fertilisers. Tang believes it is not only a means to address food and nutrition insecurity, soil and planetary health, but will also, on the social and environmental front, provide the disabled with job opportunities, alleviate poverty and bring about carbon neutrality. That is certainly a lot of hope to pin on a 51-litre box. If the initial response, both at home and abroad, to the terrarium is anything to go by, then Tang may well be on to something revolutionary.

An agriculturist by profession and an agro-based researcher for more than two decades, he first toyed with the idea of the organic grow box in 2018 as a means to address food and nutrition insecurity, and provide jobs for the disabled. A few years before that, in December 2015, he was involved in a car accident that left him with six broken ribs and a transected spinal cord, and rendered him unable to walk.

During the first six months of recovery, he battled severe depression. His rehabilitation physician at Hospital Sungai Buloh, Dr Akmal Hafizah Zamli, encouraged him

to channel his energies towards his passion for sustainable farming.

That was how PWD Smart Farmability (PWD stands for People with Disabilities) came about. Tang coined the word "farmability" because he yearned to have "the ability to farm again" despite being wheelchair-bound. The social enterprise, recognised by the Malaysian Global Innovation and Creativity Centre (MaGIC), was initially involved in the operations, management and marketing of an aquaponics farm in Semenyih called Aquahope.

"During my experience with Aquahope, besides discovering new problems with soil-less farming, I also discovered that farming vegetables on a large scale only benefits the middlemen and a certain class of people who can afford to eat nutritious food. But if we're talking about being an inclusive society, then we need to look at the urban poor, the disabled or OKU (orang kurang upaya), those who are illiterate and who don't have government support nor know how to seek assistance," he says.

This led him to work towards decentralising food production to bring it as close as possible to people's homes, and at the same time, provide his disabled peers with nutrition security. "Our aim is to make nutritious food available to people across all economic backgrounds because we believe that nutritious food should not be a luxury, but a basic human right."

Tang was aware that, to stimulate the demand for organic produce, the cost had to be lower than that of conventionally grown vegetables that come with high levels of chemicals and toxic inputs. "Organic farming techniques using bio sprays are

safer alternatives, but have added input costs," he says. Watering and pest management form the bulk of the cost in organic vegetable farming, he points out.

The organic grow box, which was rolled out in 2019, eliminates these costs, as well as labour expenses for watering, weeding and pest management. The box, which has the lid affixed at all times except for a twice-weekly watering, hosts a mini ecosystem. The terrarium is self-watering (hello, condensation!) and, with soil biology in play, it is entirely self-regenerative.

What is unique about PWD Smart Farmability's business model is that the organic grow boxes are not for sale, but are available for adoption at RM150 each. This is aimed at encouraging individuals and corporations to adopt the boxes for their own families as well as those with only a small budget for food. "This way, we make nutritious, fresh, organic vegetables available to the poor," he says.

If you are getting a box for your own consumption, after three months, you can return it to have the soil nutrients replenished and the vegetables regrown for RM150 (basically renewing the subscription, although some consumers have been harvesting from their boxes for more than six months). This subscription goes directly towards the salaries of the social enterprise's PWD employees who run the farm.

So far, about 850 organic vegetable terrariums have been adopted by corporations, organisations and individuals. More than 130 boxes are now feeding people from all economic backgrounds.

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~ Tang (pictured with co-founder and COO Samantha Mok)



Photos by Kerry Yap/The Edge

ilies,” says Tang. The social enterprise is also open to working with organisations directly involved in helping marginalised groups.

It also recently organised a successful adoption programme involving the rearing of tilapia to feed vulnerable communities. Grown by its impact partner in Slim River, the fish benefit from Tang’s specially brewed microbes, allowing larger numbers to be reared per cubic metre.

### **Making a difference to health, society and the environment**

Tang believes the organic grow box is a win-win solution for all. “For consumers, this means having access to fresh, nutritious, live, unrefrigerated vegetables from the comfort of your own home. For society, this means creating meaningful jobs for marginalised communities. We want our society to look at our OKU community with respect and dignity — remembering that they are the ones who grow nutritious food for society at large. To do that, we must jumpstart social entrepreneurship efforts targeted towards OKU in the agriculture sector,” he says.

He is collaborating with Dual Blessing Bhd (a centre that teaches skills to the wheelchair-bound) to set up a pre-commercialisation farm on its property to produce PWD Smart Farmability’s organic grow boxes.

“For earth, we’re innovating to zero carbon in terms of food miles, food waste, refrigeration, plastic use, land use, fertiliser use and water use,” Tang says. He notes that carbon reduction and sequestration per box is 2.34kg a year. “More than a box that grows vegetables, we hope that it raises awareness at the household level on food literacy and teaches children about where plants come from,” he adds.

Tang and his team have ambitious plans for their innovation. The social enterprise hopes to deploy 600 terrariums in the country by June 2021. It also hopes to introduce three more vegetable varieties — expanding on the existing Brazilian spinach, watercress and sayur manis. Having attracted some buzz from Central Luzon State University, its impact partner in the Philippines, plans are also afoot to introduce the organic vegetable terrarium to the Philippines through the Kids Who Farm initiative. ♦ *By Sreerema Banoo*