

COVER STORY

Reducing Food Waste

As Singaporeans toss away more and more food each year - 703,200 tonnes in 2012 alone - nearly a billion people in the rest of the world are going hungry. What can we do to reduce food waste in our society?



Every night around 8pm, some bakeries in Singapore will slash the prices of their unsold bread to entice customers to bring some home. If the customers don't bite, the remaining baked goods are donated to food redistributors, who send them to aged and halfway homes, or charity groups.

Over in the laboratories of the Agri-Food & Veterinary Authority of Singapore (AVA), scientists are experimenting with food by products, such as spent grains from beer brewing, to see what new food products can be created.

At an organic farm in Lim Chu Kang, a farmer has invited over a group of pre-schoolers and is explaining to them the farming process, so they can appreciate what goes onto their plates at meal times.

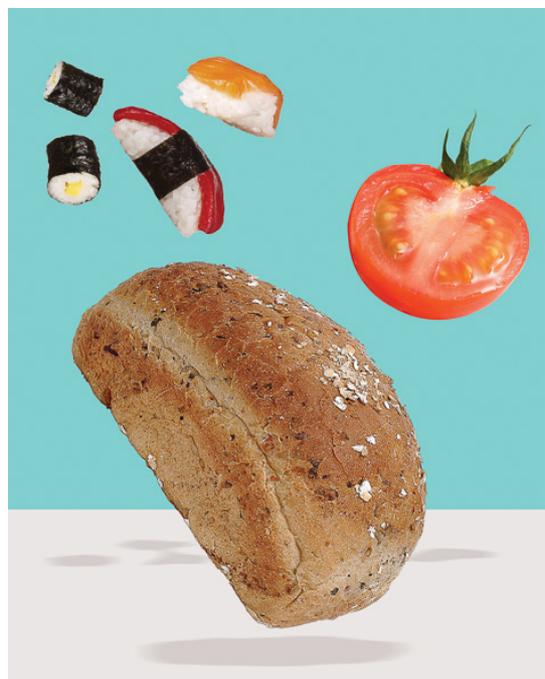
What do these instances have in common?

The quest to reduce food waste in Singapore. In 2012, we threw away some 703,200 tonnes of food – up 4.1% from 2011.

Food waste bad

The rest of the world isn't doing any better. According to the United Nations' (UN) Food and Agriculture Organization (FAO), around 1.3 billion tonnes, or 32%, of what is produced for human consumption is "lost or wasted" every year.

This prompted the United Nations Environment Programme (UNEP) to launch a global food wastage reduction campaign on World Environment Day on June 5, 2013. That very day, Pope Francis deplored the culture of waste, saying: "Throwing away food is like stealing from the table of the poor and hungry." Indeed, one in eight people in the world went hungry in 2011-2013, said the UN.



Reducing food waste isn't just a moral thing to do. There are environmental reasons for doing so too.

The UN projects that the world's population will grow from its current 7 billion to 9 billion by 2050. Feeding this larger, more urban and increasingly affluent population will require agricultural production to grow by 70%, says the FAO. This will put more pressure on water resources and increase the amount of greenhouse emissions. A global reduction of food waste hence delays the progression of global warming.

Food wastage occurs in both low- and high-income countries. While the majority of the wastage takes place on and near the farm in the former, much of the food wastage in high-income countries such as Singapore occurs beyond the farmgate, with consumers being the biggest culprits.

Their demand for perfect-looking food, and the abundance and relative affordability of food, all contribute towards food waste, said local think tank, the S. Rajaratnam School of International Studies (RSIS) in the report “Expert Working Group Meeting on Food Wastage in Southeast Asia (23-24 August 2012)”.

In Singapore

These factors bear out clearly in Singapore where households spend only about 8.1% of their annual income on food – the second lowest global food expenditure by percentage – according to Washington State University. This means that food is highly affordable to Singapore residents compared to our neighbours in Indonesia (44%) and in Thailand (24.9%).

Supermarkets often stock their shelves with unblemished fruits and vegetables but throw away edible, if slightly imperfect-looking, fresh produce as consumers regard them as poorer in quality and unsuitable for consumption. Caterers and hotels tend to serve a surfeit of food when catering for special occasions, in order to keep the food receptacles full to give the appearance of an abundant supply of food.

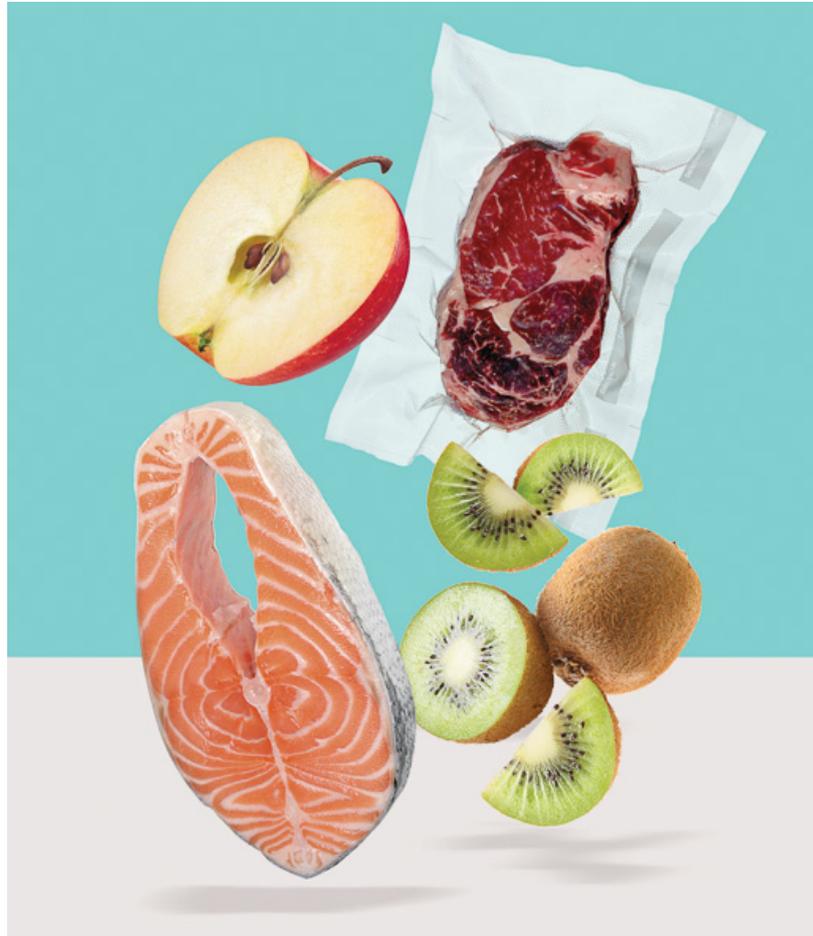
Unchecked food wastage is worrying – not just for moral or environmental reasons. For Singapore, it has an impact on food security too.

According to AVA, the global food crisis of 2007-2008, followed by the financial and economic crisis of 2009, highlighted the importance of food security to imports-dependent Singapore.

As a result, an Inter-Ministry Committee on Food Security [IMC(FS)] was formed to review and formulate strategies to address the country’s food security risks and vulnerabilities. The food security roadmap later released identified food waste reduction as a key strategy.

“The IMC(FS) has engaged stakeholders such as food manufacturers, hawkers, hotel operators, retailers and NGOs [non-governmental organisations] to better understand the issue on food waste [and] redistribution of excess food, and to look into initiatives to reduce food wastage,” an AVA spokesperson told *Challenge*.

The Committee confirmed that food wastage occurs mainly from consumers ordering and buying too much food, and storing food improperly. Retailers too admitted to over-ordering seasonal fruits and discarding imperfect-looking food. The IMC(FS) said it planned to highlight the importance of reducing food waste with an outreach programme targeting retailers and consumers.



Redistribute excess food

One way to reduce waste is to redistribute edible but soon-to-expire food via food redistributors.

Food Bank Singapore is one such channel. It checks the physical appearance and date labels of donated food items, and reminds recipients to check the items again before consumption. Donors are protected from legal action with indemnity forms.

“From the donors to the beneficiaries, people donate and accept donations with the best of intentions. There is a common understanding that no one is deliberately out to donate bad food,” Ms Nichol Ng, co-founder of Food Bank Singapore, said.

There are no statistics on food redistribution here but AVA’s CEO Tan Poh Hong acknowledges that the lack of a Good Samaritan Law – which protects do-gooders from legal action when beneficiaries suffer unintended harm – hinders the potential of food redistribution.

“A lot of people don’t want to donate ... in case someone gets food poisoning and sues you,” she said. “I’m not saying we are going to have this [Good Samaritan] law, but we are learning from other countries.”

The IM(FS) told Challenge that the Singapore Manufacturing Federation’s Standards Development Organisation is working with several government agencies, including AVA, to develop standards and guidelines that would include food safety checks for donations of processed/canned foods or baked goods.

“With these guidelines, food manufacturers and retailers may be more receptive to donating unsold processed/canned food items or bakery goods,” said its spokesperson.

Recycle, recycle

Of the 703,200 tonnes of food waste generated in 2012, only 12%, or 85,100 tonnes, were recycled, most of which was converted into animal feed.

According to the IMC(FS), food manufacturers say that the amount of food waste generated is not enough for on-site recycling to be cost-effective. Other deterring factors include the comparatively lower cost of food waste disposal, space constraints and unpleasant smells.

Ms Renee Mison, CEO of Eco- Wiz Group, which provides food waste treatment facilities, says her clients have converted food waste into non-potable water and incurred lower waste disposal fees. But incentives are required for higher adoption rates as potential customers face impediments, such as segregation problems and the cost of investment.

To promote the adoption of on-site food waste treatment facilities, there should be co-funding or full funding of food recycling technologies or tax incentives, and the implementation of mandatory waste separation at source, suggested Mr Jose Raymond, Executive Director of the Singapore Environment Council.

Currently, organisations can tap the National Environment Agency’s 3R Fund. It subsidises up to 80%, with a cap of \$1 million, of an organisation’s recycling project, with priority given to food, plastic and glass recycling. The redesign of manufacturing processes, the installation of waste recycling infrastructure or waste sorting equipment, and the upgrading of operations or systems to reduce waste or increase recycling, are considered suitable projects for subsidy.

The IMC(FS) said it is “looking into the promotion of R&D of innovation solutions for food waste reduction and recycling”. These include the co-digestion of food waste with used water sludge or chicken waste to produce biogas, which can be used to generate electricity.

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Rethink trash

There is also now a promising trend of turning food waste into edible food. Last year, Singapore’s own scientists at AVA successfully created okara, its version of mock meat recycled from the by-product of soy milk production.

Okara has since been developed into spring rolls, okara floss, meat balls with cheese, sausages, popcorn chicken and ngoh hiang (deep fried meat rolls). You wouldn’t guess you were eating “rubbish” (in the strictest sense) if you weren’t told.

Okara certainly adds new meaning to “trash eating” but it isn’t AVA’s first product. In 2010, the agency and Nanyang Polytechnic successfully developed bottled mussel sauce from mussel broth, a by-product from the production of frozen half-shelled cooked mussels.

Renew relationship with food

While governments can introduce punitive measures to change behaviour, for example, by taxing food waste, it is clear that the key to reducing food waste is to fundamentally change the wasteful behaviour of consumers.

For example, the UNEP campaign encourages consumers to buy “funny-looking” fruit instead of being overly choosy, while local advocacy website “Save Food, Cut Waste” urges consumers to cook or order the right portions to minimise waste.

Remember that organic farmer from Lim Chu Kang, whom we described at the start of this article? What she does with the pre-schoolers may not reap immediate effect, but she is sowing the seeds for a deeper appreciation of food.

“When we learn about where our food comes from and understand how farmers toil to produce our food, we would better appreciate the food we eat and thus waste less food,” said Mr Eugene Tay, founder of the “Save Food, Cut Waste” website.

It’s good news then that there are now more than 600 community gardens, supported by the National Parks Board, across Singapore. Community gardens allow residents to grow a small amount of plants, which can be edible greens or aesthetically pleasing flowers, in their neighbourhood. Such urban farming opportunities can help urbanites develop a deeper appreciation of the “farm to fork” process. The trend of urban farming has spurred consultants such as Edible Gardens to help companies and individuals set up food farms on rooftops, backyards and sidewalks.

“Such understanding inevitably leads to improved appreciation of the value of food and better treatment of it as a valued item not to be wasted,” Dr Paul Teng, Advisor to the Food Security Programme at RSIS, told Challenge.

Perhaps then will urbanites stop “stealing from the table of the poor”.

