

Twin killer quakes trigger sustainability drive

How two deadly earthquakes drove a first time gardener to create an innovative sustainability-focused lifestyle in Japan's largest metropolis

When the magnitude 9 tremor shook northern Japan at 2.46pm on March 11, 2011, Tokyo-based Kiwi editor Jonathon Walsh could tell from the fear on his workmates' faces that this was no ordinary quake. Twenty minutes later another huge tremor hit and Walsh's usual blasé about Japan's regular tectonic shakes vaporized – *this was a big one*.

During and after Walsh's 5-hour walk home from work to the outskirts of west Tokyo in the wake of the most powerful known earthquake ever to hit Japan, he saw and read of panic buying and hoarding, especially of bottled water, food and diapers.

Meanwhile, news gradually filtered in of the nearly 25,000 dead, injured or missing in northern Japan and the more than 340,000 Japanese refugees – a concept previously unheard of – who were living in shelters and totally dependent on food and water supplied by the government and aid groups.

The impact of this mega quake, barely three weeks after the killer quake that rocked Christchurch in Walsh's native New Zealand was impossible to ignore – it was time to build a more sustainable and independent lifestyle. And there was no time to waste.

First moves

Walsh's first focus was water, the bottled variety of which had rapidly sold out in many parts of Tokyo after the quake. He built a rain collector by draping a large sheet of plastic over the verandah of his family's house, and before long had captured and stored 200 L of water for gardening and emergency use.



Rain collector on verandah



Walsh's second focus was to increase food security. In this area, he spent the next few months converting the small 6x1 meter strip of previously unused land behind the family's house into a garden that became home to vegetables, potted flowers and herbs, many of which ended up on dinner plates. However, Walsh had bigger ambitions – the local community garden – and after his wife applied to rent a 3x5 meter allotment and their application was accepted (annual fee: ¥5,000), it was time to take sustainability to the next level.

The garden opened exactly a year after the big quake and urban farmers quickly began preparing soil and planting. Bare earth rapidly turned green as seeds and young seedlings sprouted, the most common being eggplants, potatoes, cucumbers and tomatoes. The community garden is a hive of activity during weekends as urban farmers tend to their growing plants, and a centre of tranquility in the early mornings, typically when Walsh visits to water his crops. "People are friendly and readily share food and growing advice, much of which is very helpful considering this is my first year of serious gardening," Walsh says.

Resources	More Ideas
<ul style="list-style-type: none">> How to Set Up a Rain Collector> How to Grow Plants in Pots> Feeding the Future> Starting a Community Garden> Square meter gardening> Rooftop gardens	For a range of great ideas for how gardening can enrich your community, see p7.

"You don't need a garden or land to produce food."

Walsh's allotment is thriving and bursting at the seams with food – he picks bags of delicious mixed green leaves every few days as well as fresh radishes, cucumbers, basil and shiso, mint, and piles of succulent tomatoes. As of early August, the patch had yielded 475 servings of vegetables including 1,200 cherry tomatoes, 34 lettuces, 45 cucumbers and piles of greens. "Vegetable growth took off in May," he says. "Pint-sized tomato seedlings I planted in mid April are now bushes 5 feet high and loaded with tomatoes, and some lettuces are half a meter across."



Walsh and his wife have given away a quarter of the produce their

family could not eat to in-laws, friends, neighbors and workmates, and juice the rest. "It's a real bonus to be able to contribute to the local food supply, especially if it is good for peoples' health," he says.

Besides the taste bud tempting attraction of eating healthier, tastier produce, growing food has also taken a bite out of weekly food bills. Walsh's family went offline from buying green leafy vegetables eight weeks after he started growing in his allotment, and stopped buying tomatoes in early July. "The only green vegetables we buy are broccoli – everything else is homegrown."

Walsh admits he had no idea it was so simple – or quick – to grow healthy food. He has seen seed sowing-to-salad time frames of just over three weeks for some micro greens. "It's interesting that you can grow just about anything – even lettuces and potatoes – in pots and planter boxes. You don't need a garden or land to produce food at all." Do Tokyo's typically tight space restrictions put the squeeze on growing options? "Not necessarily," Walsh explains. "The small spaces force you to get creative, which injects more fun into the entire experience. With a bit of creativity, it's possible to grow in pots and containers placed on roofs and sheds, hung off walls, suspended from ceilings, even a bare verandah can be converted into a garden."



Lettuces hanging off 2FI verandah

Growing systems to boost food supply

Based on the gardening know-how he has gained from books and experience, Walsh created a food growing system called **GroBricks** – a scalable, unpack-and-grow kit containing a planter box, soil, seeds, instructions and video guidance – that enables people to start growing vegetables and herbs straight away at the home or office.



A GroBrick kit

Walsh points out that the key objectives of the kits are to help people become more independent of commercial supply chains, and, of course, to grow tastier, healthier food. With a focus on larger yields and further boosting food security,

Walsh installed a **GroRack** (right) – a larger growing system incorporating a simple shelving unit that can hold between 4–30 GroBricks and other size containers. He says the vertical structure of a GroRack takes maximum advantage of vertical space and can expose more plants to all important sunlight.



A GroRack loaded with GroBricks containing fresh ready-to-eat vegetables and herbs

Growing Organic

Providing farmers use toxin/chemical-free soil, growing organic food can be very easy, not to mention cheap.

“Steps taken to boost sustainability now will save pain later, and the more people who take these steps, the better for all.”

“Making healthy home-grown salads is just a case of stepping outside the kitchen door and picking whatever we want to eat from the GroRack,” Walsh adds.

“They have many benefits: salad food miles plummet to a few meters, chemical use can be completely eliminated, family food self sufficiency goes up, grocery bills go down, and it’s great for teaching kids that – in fact – not all food comes out of packets.”

Back at his allotment, Walsh embarked on a **1-square-meter growing challenge** in late April to expand the range of food he produced. The aim of this concept is to grow as many different fast-growing vegetables from seed in a 1 sq m area of soil divided into 25x25 cm boxes, do multiple plantings in each box, and maximize overall yield. The results proved dramatic: in just four short weeks, the patch changed from bare soil to a thriving mass of vegetables including spinach, lettuce, mizuna, radishes, carrots, shiso, and more, providing a regular supply of fresh greens over the summer. This growing strategy would be ideal if installed in a raised garden on a rooftop or verandah, Walsh says.



What motivates the New Zealander to grow food? “Within a matter of minutes, one large earthquake can turn a stable lifestyle upside down and cut off or restrict access to food and water. I want my family to be prepared. **Another key reason is that I have become acutely aware of how climate change is affecting weather patterns, and I want my family to become as self-sufficient as possible as a contingency strategy against possible food and water shortages. Sustainability addresses both issues.**” Walsh adds that urban farming hits a number of male ‘bases.’ “It’s more than simply bringing home the bacon,” he says, “this is growing it.” In the area of sustainability, Walsh believes it is important for people to identify what they will need immediately after a disaster, and then work out how to gain access to those resources. **“Food and water will be critical,” he emphasizes. “Everything else is secondary. Steps taken to boost sustainability now will save pain later, and the more people who take these steps, the better for all.”**

Bringing food production to the cities

Is there a strategy that produces healthier food in a way that boosts family sustainability and food security, and minimizes impact on the environment? Walsh believes there is, and that it should be right above our heads. As populations in many cities continue to grow and arable land is increasingly converted for urban use, Walsh believes growing food on building rooftops could well be a game-changing strategy to boost local food supplies and meet growing demand for sustenance.

Development of the 1-square-meter growing challenge over a 4-week period



“The taste of home-grown tomatoes, cucumbers, shiso and herbs – that haven't been doused in chemicals – is incredible.”



As a case in point he mentions **Eagle Street Rooftop Farm**, a 6,000 square foot green roof organic vegetable farm located three stories up on a warehouse rooftop in Brooklyn, New York. Created as a model for the urban farming movement and a showcase of how green roofs can be utilized, Eagle Street Rooftop Farms operates a small community supported agriculture program, an on-site farm market, and provides fresh produce to local restaurants. Closer to home and smaller in scale, **Omoteshando Farm** in Tokyo is a similar although not as comprehensive rooftop farming operation. Walsh believes that with appropriate safety measures, rooftop gardens could be set up on a large scale in every town and city and perhaps for the first time bring major food production out of the countryside and into the cities.

To help ensure future food production keeps pace with demand, Walsh says the solution may well involve reviving practices of the past. “This could involve a combination of strategies comprising home and **community gardens** coupled with large scale utilization of city rooftops, vacant car parks and other unused space to grow food. In other words, going local by moving food production closer to consumers.” **The primary aim, he says, would be to encourage more individuals to move out of the consumer/user sphere and become more active in the producer/contributor sphere.** “To do this, the key question individuals can ask themselves today is, ‘What resources can I contribute to my immediate community?’ Food is a great place to start, and growing on just a few square meters can make a huge difference.”

Every little action makes a difference

As the world's vital resources are steadily being depleted, stripped, cut down and sucked out, Walsh says it is critical that more people and communities consider not just how to cut back on resource use, but how they can give back – by becoming resource producers and contributors. **“The more consumers and the fewer producers there are, the sooner critical resources will be exhausted and the greater the risk that competition for resources will break out into open conflict,”** Walsh says. **“This is already happening and may spread to developed nations sooner than many people think.** People can start by capturing and using rainwater – this will immediately reduce how much water they pull from local supplies and help stem the millions of liters of rainwater that simply pours down drains. Similarly, growing your own food, even if only a little, reduces your dependence just that little bit, and depending on how much food a person buys from out of town, will reduce food miles and pollution. Every little action makes a difference.”

Nature doesn't make things in factories

Despite the challenges of juggling a job, family and urban farming, Walsh says that one of the most enjoyable benefits of the last area is being able to drop in to his allotment after work, fill a bag with freshly picked herbs and vegetables, and then have them on dinner plates within the hour. “That adds a truly satisfying finish to the end of a working day.” On top of that, he adds, the taste of home-grown tomatoes, cucumbers, shiso and herbs – that haven't been doused in chemicals – is incredible. “It brings back a real joy of eating I never had,” he says. “I'm loving this – I had no idea urban farming would be so much fun. The entire growing and eating process fires up every one of the five senses. Really, it's pretty amazing to be growing food like this in the middle of a metropolis, especially one the size of Tokyo.”

Allotment plan

Garden: 130 in (3.4m) x 180 in (4.65m) Each square below is 20x20cm

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X			
1	A1	A2 Mizuna		A3		Spinach		A4		5m Growing Challenge		A5		Chingensai													
2	Spring onions		Carrots																								
3																											
4																											
5																											
6	<- Walking path ->																										
7	B1	Basil	B2	Cherry tomatoes		B3	Row of lettuces		B4	Row of lettuces		B5															
8																											
9																											
10																											
11	<- Walking path ->																										
12																											
13	<- Walking path ->																										
14	C1	C2		C3		C4																					
15	Cherry tomatoes		Tomatoes		Cherry tomatoes		Lettuces																				
16																											
17																											



Young tomato and cucumber plants growing at Walsh's allotment

“Nature doesn't make things in factories. In terms of growing healthy food and desiring optimum health, neither should we.”

Food grown without chemicals also does wonders for one's health, largely by helping to reduce the toxic load imposed on our bodies by diets made up of commercially produced food. "Food is supposed to nurture, sustain and heal us," Walsh says. "And yet due to the chemicals used in and on today's processed food, it is making us sicker and actually killing us via cancers and other diet-related diseases, not to mention fertilizer runoff from farmland creating oxygen-free **dead zones** in lakes and rivers around the world."

Diet-related disease is a huge problem, he adds, and while it is now extremely difficult to avoid exposure to chemicals, **it is possible on a personal level to minimize intake of chemicals in food, and growing your own is possibly the most effective solution.** "Our responsible choices should start with the food we decide to put on our plates. We need to go back to basics. Nature doesn't make things in factories. In terms of growing healthy food and desiring optimum health, neither should we."

Food production should not simply be the domain of corporations, Walsh argues, it's important for individuals to get involved and play a role.

"Almost everyone – regardless of culture or status – works for money that is exchanged for food. By growing your own food, you reduce the imperative nature of your work and put yourself in a position of greater power because you have greater independence and control over your supply of food, which, let's face it, besides air and water, is the most vital ingredient for life. You can also save money and eat healthier. It's a complete win-win strategy. Besides that, of course, **in the aftermath of a major disaster or drought, the ability to grow food could well mean the difference between life and death.**"

And what are Walsh's goals from here? To continue urban farming and encourage others to grow food.

"It would be fantastic to see every empty rooftop converted into urban gardens that feed the people in those buildings. Then, providing chemical use is minimized or eliminated and good soil management principles are used, **we could see a new green revolution, vastly increased food independence, a lower environmental impact, and significantly improved health for millions.**"



DIGGING THE DIRT

What is involved in managing a community garden allotment?

Primarily, time and commitment.

The following is a list of basic steps:

PLANNING

This involves checking the approximate hours of direct sunshine the allotment receives (shade from nearby buildings will affect this), and then deciding what to grow where depending on sunshine hours, climate, soil condition, etc.

SOIL PREPARATION

This step typically involves digging up the soil and mixing in lime, fertilizer or other type of suitable material to replenish minerals and other nutrients.

PLANTING

Sowing seeds, planting seedlings, or both.

NURTURING

As the seeds sprout and seedlings grow, the urban farmer will need to regularly water them and exercise care not to step on them (all too easy!)

MAINTENANCE

As spring progresses and moves into summer, growth will typically explode. This is where significantly more time will be required to weed, water, prune, tie up branches, sow/plant more if necessary, and the highlight – harvest. During the warmer months, this will likely require daily visits to the allotment.

TIPS

1. Keep it simple – don't try to grow everything at once.
2. Research – Get a rough idea of what you need to do first by reading up on basic gardening techniques.
3. Planting seedlings will put food on plates faster than if planting from seeds. Seedlings usually appear in garden shops in Japan around April. Seeds can be purchased year round.
4. Consider germinating seeds indoors in early spring to get a head start.
5. To maximize yield, harvest, clear the ground and re-sow, and plant more crops in season.

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Evolution of a community allotment



Harvest time



More Growing Ideas

More ideas for how gardening and urban farming can benefit communities

Eliminate community hunger

There is no reason anyone should be hungry in a community in a developed country.

Large-scale gardens and urban farms can be set up relatively quickly in virtually any space that receives sunshine and used to grow food for poor and homeless people in a community. Doing so would benefit the community in two ways simultaneously – by beautifying unused spaces and feeding citizens in need.

Locations that would be ideal sites for community gardens include unused car parks, empty building sites, lawns or fields – even unused swimming pools.

Setting up a garden can be done relatively cheaply, quickly and easily, and the rewards are able to be shared by everyone. Streets could have community gardens with a roster showing who will work in it and what food will be available. Awards could be given out for the best kept garden and experienced gardeners could run hands-on educational classes for children – and potentially set them up with a life-long ability to grow food.



Corporate garden companies

Turning crops grown on business premises into a revenue stream

Eco entrepreneurs could launch corporate garden companies and encourage businesses to pay them to set up garden plots on the rooftops of their offices. The corporate garden company would obtain agreement from the landlord, set up corporate gardens (each interested company in the building could have their own corporate garden in different areas on the roof) and charge each company for the service. An ongoing fee for garden maintenance could also be charged as necessary. Interested staff would pay a joining fee, garden in their spare time/lunch breaks and take home – or sell – any produce they grow.

Similar to the previous idea, groups of gardening-oriented office workers could approach their building landlords and ask to create a rooftop garden. A small rental fee could be offered to encourage agreement. Workers would then set up gardens and grow food for office or personal consumption. Doing so would transform unused space into a food production center, and potentially, an income stream. Alternatively, building owners could set up rooftop gardens and rent space to workers in their buildings.



For 14 more food production ideas:
>> Feeding the Future