

The living culture whose time has come

While permaculture has had a low profile in the West, it has been the key to self-sufficiency for many people in the developing world. Given that climate change and sustainable development are dominating world headlines, the concept is finally beginning to get mainstream recognition in Australia – the home of permaculture. Rachel Sullivan spoke to co-originator David Holmgren.

Essentially a design toolkit aimed at teaching people how to feed themselves and live as energy-efficiently as possible, permaculture borrows techniques from organic agriculture, sustainable forestry, horticulture, agroforestry and indigenous land management systems from around the world. Its key design principles, modelled on interactions seen in natural ecosystems, are as applicable to suburban backyards and ecovillages as they are to rural properties.

The lives of Kalahari Bushmen, Zimbabwean schoolchildren, indigenous Brazilians and tsunami-affected Acehnese have all changed for the better thanks to permaculture. In Australia, where the concept was first articulated, its principles have distantly influenced a range of government and private ventures, from the movement to defend your home during a bushfire, to Landcare, holistic farm design, award-winning rangeland cattle properties and more directly, Gawler's inspirational Food Forest.

Yet the permaculture movement has experienced a patchy relationship with mainstream environmentalism and the subsequent sustainability movement.

Permaculture's roots

Permaculture One was first published in 1978 by then University of Tasmania Professor Bill Mollison and 20-year-old student David Holmgren. The concept grew out of a deep concern about the widespread use of destructive industrial and agricultural methods that poisoned land and water, reduced biodiversity and removed billions of tons of soil from previously fertile landscapes.

While the book attracted acclaim in some quarters, it was seen as controversial,



Permaculture's principles, based on interactions seen in natural ecosystems, provide an efficient way for people to live in towns and cities, where food production can be organised cooperatively and produce sold through farmers' markets. Food Forest

to say the least, in others. According to Mollison – permaculture's often-outspoken public face – the professional community was outraged because the concept combined architecture with biology, agriculture with forestry, and forestry with animal husbandry, 'so that almost everybody who considered themselves a specialist felt a bit offended'.

Holmgren goes further, saying in his most recent book, *Permaculture Principles and Pathways Beyond Sustainability*, that 'because the concept was conceived in academia, those involved in large-scale agriculture and land use saw it as theoretical, utopian and impractical because it was difficult to apply within the prevailing social, market and policy environment'.

'It was frustrating because it has good science at its heart,' says the quietly spoken Holmgren who, with his partner Su Dennet, runs a permaculture-based design business from their Central Victorian property Melliodora – once a degraded wasteland, but today a highly productive, resource-efficient property feeding up to 10 people each year.

Even now, in the midst of unprecedented interest in sustainability, Holmgren believes the movement still attracts criticism in Australia, because of his – and Mollison's – outspoken belief that sustainability measures being enacted by government just don't go far enough, or are completely misguided.

'Real sustainability requires a funda-

mental rethink about how we design and manage the land and plan our towns and cities,' says Holmgren. 'Greater emphasis needs to be placed on using resources efficiently to create a productive and stable living environment.

'Permaculture is in fact a design system for sustainability. Its popularised spread as an alternative lifestyle choice or system of organic gardening has been a notable phenomenon in the Australian social landscape over the last 30 years, but this very success has limited its acceptance as a design system for sustainability.

'To view permaculture purely as a means of achieving household self-sufficiency by sustainable means is to grossly underestimate its scope and objectives,' Holmgren emphasises.

He is the first to admit that permaculture designs have, in some cases, turned out to be naive, misguided or counterproductive, and believes this was partly due to the concept being catapulted too quickly into the public domain before the concept could be fully developed – similar to the more recent sustainable development movement which, Holmgren believes, was also 'muddled and discredited by its rapid projection into the world of intergovernmental policy and corporate spin doctors'.

'Whatever path they follow, ideas have to get dirty in the real world outside academia if they are to have life and utility,' he adds.

The weeds issue

Recently, there has been an upsurge of public interest in permaculture, the third such in the past 30 years. This growing interest – linked to concerns about oil, political and economic uncertainty, long-



Clockwise from top left: Worm farms are central to permaculture, which is enabling communities in the developing world to be self-sufficient; properly sited dams stabilised by plants are another central element of permaculture; swales follow the contour of the land, slowing down runoff and allowing it to form an underground 'water lens' of moist soil that can support plant growth; geese feed on weeds, fallen fruit and crop waste to provide protein for human consumption. Geoff Lawton, Food Forest

term drought and climate change – is coming from an increasingly mainstream audience.

'These are people who see the folly of expending more energy to produce something (from energy to food crops) than it is inherently worth, and are seeking to cut energy consumption all round, in the process becoming more self-sufficient,' says internationally recognised permaculture

teacher and sustainability consultant, Geoff Lawton, from the Permaculture Research Institute.

Permaculture's detractors include those who argue that the central food forest concept's productivity (see accompanying box) varies widely, depending on climate and the garden's maturity. One of their biggest concerns is permaculture's advocacy of non-native species and

What is permaculture?

Permaculture's design principles are modelled on interactions seen in natural ecosystems, and on achieving maximum gain for minimal energy expenditure. Each design element – orchard, dam, vegetable garden etc – has its needs, outputs and properties analysed. These design elements are then assembled in relation to one another so that the products of one element feed the needs of adjacent elements, reducing energy consumption all round. Housing chooks next to a greenhouse, for instance, keeps the chooks sheltered and productive, keeps the greenhouse frost-free, and provides abundant fertiliser and pest management services to the crops.

These design elements can also interact via a multi-storey 'food forest' that supplies everything from animal fodder to rich habitat for native animals and abundant food for the table. Geese, for example, will eat specific weeds and convert crop wastes such as fallen



Graham and Annemarie Brookman have set up 'the best permaculture site in Australia' at Gawler, SA. Food Forest

apples and grain into goose meat.

In Gawler, South Australia, the Brookman family has taken the permaculture design concept to the next level, turning 15 hectares of hardscrabble barley paddocks and remnant river red gums into an inspirational permaculture farm and food

forest. It produces more than 150 organically grown varieties of fruit and nuts, wheat and vegetables, free-range eggs, honey, carob beans, Australian native foods, nursery plants and timber. Along the way, they have improved soil fertility enormously and save water by watering crops only at essential times.

Described by David Holmgren as the best permaculture demonstration site in Australia, the Food Forest is now a complex ecosystem that provides abundant food for humans both onsite and through local farmers' markets, as well as for the endangered wildlife that abounds on the property. But even the bettongs that have found a haven in the predator-free Food Forest 'pay' for their privilege by efficiently weeding out many of the more noxious garden invaders – something many frustrated gardeners would love to have in their arsenal (see www.foodforest.com.au).

weeds such as Tagasaste (tree lucerne) – a highly productive perennial grown for animal fodder and for its ability to fix soil nitrogen.

‘From a permaculture point of view, these [species] are a source of abundance that we should be using,’ said Holmgren during the ABC’s *Landline* program in 2004.

‘Take carp, for example. We have shifted our attitude from how do you destroy this to how do you use this as a resource (it’s now widely used as a liquid fertiliser). Similarly with willow: a lot of the so-called adverse effects of willows can be managed quite well by treating them as a fodder tree.’

Mollison agrees, saying that weeds are simply vegetating damaged country. ‘They actually stabilise the situation, then once you can shut out the thing causing the damage, the forest can be re-established and the weeds removed.’

Urban context

Intriguingly, permaculture principles suggest that the most efficient way for most people to live in the modern world is in towns and villages, where travel can be minimised and food production organised cooperatively.

Geoff Lawton has been working as a consultant for the WWF and the government of oil-producing Abu Dhabi to design ‘the world’s greenest city’ – Masdar City, a new, six-square-kilometre urban development that will eventually house 50 000 people and will be accredited as zero-carbon, zero-waste and car-free.



The world’s first carbon-neutral, car-free city, Masdar in Abu Dhabi, will house 50 000 people and is being designed along permaculture advice from an Australian expert. Design features include solar and wind power, recycling waste for compost, and irrigation by treated wastewater. Abu Dhabi Future Energy Company

The city’s electricity will be generated by photovoltaic panels, while cooling will be provided via solar powered evaporative cooling. Water will be provided through a solar-powered desalination plant.

Lawton’s involvement focuses on utilising waste streams, and advising on urban design to ensure minimal energy demands from the buildings and inhabitants. Design features include efficient positioning of solar and wind power collectors, and directing waste

streams for recycling or reuse – to the point of ensuring that systems for organic and vermiculture (worm-driven) compost are part of the central plan. Landscaped areas in the city and crops in outer areas will be irrigated with greywater and treated wastewater.

CEO of the Masdar Initiative, Dr Sultan al Jaber, says that Masdar City ‘will question conventional patterns of urban development, and set new benchmarks for sustainability and environmentally friendly design.’

Holmgren believes that visionary developments like Masdar show that permaculture’s influence is affecting every level of the global economy.

‘Whatever they’re called, I believe permaculture’s principles will inevitably become mainstream as world oil supplies peak, there is a reduction in the amount of energy available, and we are forced to redesign our society to consume less energy.’

In the meantime, he says, people can make small-scale adaptive changes that will help them focus on doing something positive.

‘In the midst of so much bad news, this is good for the psyche.’

More information:

Holmgren Design Services,
www.holmgren.com.au

The Permaculture Research Institute,
www.permaculture.org.au

The Food Forest Permaculture Farm and Learning Centre,
www.foodforest.com.au

Permaculture Principles,
www.permacultureprinciples.com

Broadacre permaculture?

Some years ago, the owners of ‘Billabong’, a 2500-acre property near Inverell, NSW, decided to farm cattle organically. They looked into biodynamics, the soil-food web, rangeland management, keyline property design and other organic farming concepts, but found they needed permaculture expert Geoff Lawton to bring the systems together in a practical way.

Although many small-scale farmers are applying permaculture principles to the design of their organic farms, this is one of few Australian examples of permaculture being applied to broadacre agricultural production.

Lawton says this is partly because ‘it doesn’t necessarily establish – or indeed advocate – systems for global trade based on unsustainable fuel consumption and pollution’. That said, Billabong is doing very well, according to Lawton, as are other organic rangeland properties spread around the country.

While no projects are currently being



‘Billabong’, a 2500-acre cattle farm near Inverell, NSW, is one of few Australian examples of permaculture being successfully applied to broadacre agricultural production. Geoff Lawton

funded as ‘permaculture’ projects per se, the Australian Government, through the Rural Industries Research and Development Corporation, is funding research into permaculture elements such as organic farming practices; minimum tillage; environmental farm management; water, soil and biodiversity conservation; and sustainable natural resource management (see www.rirdc.gov.au).