



Holmgren Design
permaculture vision and innovation

Permaculture for food security and sovereignty

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The current industrialised food production/consumption chain is the greatest contributor to environmental impact including greenhouse gas emissions, while food security remains the most critical issue in human wellbeing and social stability. Food security is a condition that "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."¹

Through the 20th century the industrialised food system increased world food production and capacity for processing, preservation and distribution, by accelerating direct and indirect use of depleting fossil fuels and precious phosphate rock reserves. In the process it has degraded soil and polluted waters including the seas. Toxic pesticides increase cancer rates, accumulate in ocean fish stocks and degrade ecological services, including pollination by bees and other insects. Apart from residual toxins, the health downsides of the industrialised food system have been manifold. Losses of vitamins from long storage and transport, and declining mineral density from monoculture annual crops, fed by unbalanced applications of fertilisers on degraded soils, have reduced the nutritional value of food. Over-processing of food and novel additives such as high fructose cornstarch have resulted in an obesity epidemic in many countries and the rise of diet related diseases. Widespread use of antibiotics necessary to sustain intensive animal production has contributed to antibiotic resistance bacteria turning up everywhere from the human gut to wild animals. The loss of effective antibiotics may be one of the great tragedies for humanity in the 21st century. Attempts to improve the gross inefficiency of feeding grains and other concentrated foods to cows have resulted in the recycling of abattoir wastes back to livestock resulting in mad cow disease and other threats to human health, ethics and common sense. Recent introductions of novel genetics into food crops threaten a new wave of unintended nutritional consequences alongside already established ecological ones.

¹ FAO (Food and Agriculture Organisation) definition.

<http://www.fao.org/docrep/013/al936e/al936e00.pdf>



Unintended consequences have now become the proven pathway for agribusiness corporations to continue to develop new markets with products that address the problems they have already created. This form of disaster capitalism is well illustrated by Monsanto's response to predicted rapid spread of Roundup resistant weeds. The first farmers to produce these resistant weeds became the unwitting source of Monsanto's Roundup Ready genetically engineered crops that have allowed herbicides to be directly sprayed over food crops. ²

Despite all these adverse consequences the capacity of industrial agriculture to produce great surpluses has been real and food costs are a small proportion of income for the global middle class. However this has not translated into food abundance for all because of market failures to feed people first. Feeding and fattening livestock to maintain and boost overconsumption of meat, dairy and fish by the burgeoning global middleclass has gobbled up much of the production of grain, legumes and oilseeds; one of the most obscene and inhumane aspects of the global food system. The rise of biofuel, especially from corn has added insult to injury with studies suggesting the potential biofuel demands of the cars of the global middle class could outbid the 5 billion or so without access to cars, for their total food supply. Export crops (to service national debts) have taken much of the better agricultural land in densely populated poor countries growing luxury crops to supply rich countries and people with more food and drugs than they should consume along with enough clothes for 10 lifetimes. Land degradation, Climate Change, war and insecurity have all massively reduced the capacity of people to reliably feed themselves. I remember a story of someone travelling in the Sudan 20 years ago noting that anyone who could afford to would buy powdered egg imported from the EU. Asked why they didn't keep chickens they replied that someone with an M16 would come along and say, "those are my lost chickens."

Most universally the move from the countryside to the city by hundreds of millions of people attracted to better economic opportunities (and

² Having already pushed the concept of intellectual property rights in the courts to absurd limits, Monsanto effectively stole these farmer created genes without compensation to those who provides the free farm laboratories for the corporation's next strategic leap.



driven by the consequences of land degradation, enclosure of common land and conflict) has massively increased dependence on monetary income and government subsidies to buy food. In these and other ways the global economic system has failed to provide food security.

Food insecurity also shows up in affluent countries in many surprising ways. In Australia declining backyard food production since the 1960s and the loss of community, reduced the opportunities for barter and social insurance from non-monetary exchange. In the decades since, increasing apartment living and smaller backyards has reduced the capacity for household food production. Multiple generations of wage, and even welfare dependence, has left many Australians without even the “skills of poverty”, including food gardening and home preserving. In recent decades high debt levels have seen all household members commuting to work or school, leaving little time for food gardening, animal rearing and preserving. The decline in home cooking and storage of food at home have increased dependence on 24/7 commercial food outlets which themselves have become monopolised and transport dependent. The constant drive for greater efficiency and profits by food corporations has seen “Just In Time” logistics replace warehousing and storage in shops. Interruptions to supply chains from natural or economic disasters set up instant dependence of large populations on emergency relief on an unprecedented scale. Even without Peak Oil and Climate Change, the prospects of large numbers of people being food insecure in Australia increases inexorably due to the dysfunctions of multi-generational affluence. I wonder why people feel so comfortable relying on Coles as their personal food cupboard.

Applying permaculture principles to food production not only changes the way we produce food but the ways and degrees to which we store, preserve, transport, distribute, prepare and consume it. Beyond the dinner table, permaculture design reorganises the food supply chain to ensure all wastes, including human waste, are recycled to food producing land. These closed loop cycles are much easier and more energy efficient when organised at the household and local scale. By prioritising food production in the household economy, permaculture reintroduces this frequently ignored aspect of the food security debate. Growing food at home increases food security in many overlapping and self-reinforcing ways.



Firstly it is relatively easy to produce perishable vegetables, fruit, and small livestock products using organic methods that recycle household and local wastes. These foods might not be staples but they reduce the food bill, diversify the diet and improve everyone's health, both in the production and the consumption. They also require more fertility and water than staple crops. Surplus fertility is a natural by-product of human settlement while the large areas of roof and hard surface in modern settlements allows water harvesting to support high productivity garden agriculture. Home grown food gives a sense of pride and sufficiency, builds skills and confidence to scale up if necessary, generates surplus for preserving that increase household food storages, while gifting and barter further increase your credit with others. All these processes help reboot the household and community economies that were once the, largely taken for granted, background to the monetary economy. History shows us that whenever the monetary economy takes a dive, the household and community economics grow rapidly. In long affluent countries like Australia, the challenge has been how to build the skills and infrastructure before dire economic conditions require a painful rebuild of the household and community economies from a very low base.

Over the last thirty years permaculture has been a major factor in rebuilding this capacity, against the dominant trends of declining household production and resilience. While the retrofit of suburban back and front yards for food production has been a major theme of permaculture practice, design, and activism, these activities have not been confined to the private domain. Permaculture has been a major agent of positive influence in the growth of community and school gardens and city farms, public plantings of food trees and the reintroduction of small and even larger livestock into urban environments to reconnect us to nature, while providing alternatives to machines and herbicide in managing vegetation. Permaculture practitioners pioneered many of these projects in the late 1970s environmental wave but after the "greed is good" culture of the early 80s, the second wave of the early 90s was more focused on energy efficient building and renewable energy technology. Biology was in the background with the exception of indigenous revegetation. This period laid the pattern for mainstream sustainability that largely ignored



agriculture, food and the potential contribution of urban agriculture. A two-paragraph mention of food in the Adelaide urban sustainability plan in the late 1990s³ was a sign that the long drought in mainstream consideration of food might be coming to an end.

Meanwhile in rural Australia, the pioneering generation of organic farmers was finally getting recognition and premium prices through the mechanism of organic certification that gave security of quality for those who valued the difference and could afford the premium. While organic marketing initially stimulated a new type of health food outlet, the supermarkets soon got in on the act, contracting to large organic growers, enforcing the same specialised (monoculture) production and logistics on them as they have for conventional producers.

Small scale producers and organic consumers responded with farmers markets, box schemes and their evolution into community support agriculture, that improved the returns to farmers, reduced the prices to consumers, and built connections that improved the food security of everyone including the farmers who bartered left over produce with other producers at the end of the day.

In the last ten years the concern of the obesity epidemic has seen a strong focus on food growing, preparation and eating in schools. Most of those employed to design, organise and manage these gardens have been influenced by permaculture design and many have done Permaculture Design Courses. The PDC is gradually becoming a recognised qualification in this field of work.

At the same time the planning profession has caught up with the public interest and community gardens and urban agriculture are back in fashion. The sustainability policy 'nerds' now realise that the food supply chain from paddock to plate and finally on to landfill and sewerage farm is by far the greatest contributor to society's greenhouse gas emissions, water use and ecological footprint. Earlier policy priorities that ignored the food supply system were formed by looking at economic sectors such as transport, electricity production,

³ Work of a "permaculture activist" in the South Australian planning department.



manufacturing, agriculture, etc. without asking the question, what was all this economic activity and infrastructure producing.

The last bastion of gross ignorance about the critical contributions of both fuel and food to shaping the nature and vulnerabilities of the whole economy is mainstream economics, largely because these most critical inputs to the economy have been so cheap.

Meanwhile public reaction to adverse consequences of the industrial food system has further stimulated grass roots interest in organic farming, farmers markets, fair trade, urban and garden agriculture, WWOOFing⁴ and wild harvesting and gleaning the wastes of the industrial food system. For many people permaculture is the design system and lifestyle that brings all these interests together in an integrated approach that goes beyond the concept of food security to one of "food sovereignty" where communities have control over their food production and consumption for mutual benefit to both producers and consumers. Rebuilding the food system at the household level is the kernel that naturally generates this wider concept because the producers and the consumers are united by the intimate bonds and reciprocity of kin and household.

Food sovereignty refers to the right to produce food on one's own territory. It originated from La Via Campesina⁵ in the 2/3rds world in 1996 in response to colonisation of the food security concept by corporate controlled industrial agriculture delivering its publicly subsidised surpluses to hungry people in regions afflicted by humanitarian crises, and through globalised free trade destroying localised food supply systems. Food sovereignty was later taken up by

⁴ Willing Workers On Organic Farms.

⁵ La Via Campesina or International Peasant's Movement with about 150 organisations, "coordinates peasant organizations of small and middle-scale producers, agricultural workers, rural women, and indigenous communities from Asia, Africa, America and Europe".

<http://viacampesina.org/en/>



Australian permaculturists and “fair food activists”⁶ reflecting the past application of the food security concept in the Australian context.

The permaculture vision of food security and sovereignty is one of communities full of food gardens, larders full of preserves and seed ready to go into garden beds irrigated by harvested rain and storm water and fertilised by the recycled wastes of the dysfunctional industrial food system often through egg laying birds turning over deep litter and food forest jungles (akin to those of the chook’s ancestors, the SE Asian jungle fowl). It extends to the public land with community gardens, fruit and nut tree orchards, avenues and food forests, grazing goat herds managing weed scapes and converting the surplus biomass of our leafy suburbs to dairy products, and rotational poultry and pig systems cultivating the arable fields of urban and peri-urban agriculture.

Permaculture colonises the higher density urban spaces with wicking beds and roof top gardens, aquaponics systems using an abundance of salvaged tanks, pipes and pumps, and occupies the dark cool space of basement car parks with repurposed shipping containers producing fungal delights growing on wood wastes from the leafy suburbs. This permaculture vision easily incorporates the need to harvest the exuberance of past plantings of large fast-growing evergreen trees, to allow sunlight to sustain more productive food plants, attached greenhouses, north facing glazing and solar panels. The wood abundance becomes the structural materials, fuel and fodder, and fungal substrates that sustain the retrofitting of our suburbs and peri-urban super suburbs to achieve their potential to become our most productive and beautiful agricultural landscapes.

While a large part of the action will continue to be with intensively cultivated ecologies of garden and farm, the permaculture vision has always involved the harvesting of the wild plants and animals from both

⁶ See afsa web site. People’s food plan <http://www.australianfoodsovereigntyalliance.org/peoples-food-plan/> in response to the federal government’s [National Food Plan Green Paper](#).



the margins of our cultivated spaces and the wider commons that once were the source of sustenance for indigenous and traditional peoples. Especially in times of hardship marginal species, spaces and commons have been a resilient backstop that fed and healed people when crops failed, natural disasters struck, or political power plays and conflict disenfranchised and displaced people. There has been a revival of interest in wild foods, from the bush tucker of aboriginal people to the culinary secrets of common weeds and feral animals brought by our European forebears as well as those known and used by more recent migrants from Asia, Latin America and Africa. In Australia many migrants continued to harvest wild foods not only to supplement the food budget but also to maintain cultural connections, long before fennel and horta (Greek green) were available in the supermarkets. Today permaculturists are at the forefront of an explosion of interest in harvesting and cooking common edible weeds.⁷

Permaculture strategies to increase food security and sovereignty focus as much on changing our food consumption habits towards what is easily grown locally, abundant and especially undervalued or even despised. Weeds and feral animals often have such a bad reputation not just because we are the proverbial affluent spoiled brats who can pick and choose from the world's food larder, but because traditional people survived by eating common and wild foods in times of hardship, and many who experienced that hardship were left with bad memories generalised to the food that sustained them. The middle-class children who's protein source was mostly rabbit during the Great Depression, resulted in rabbit meat being considered inferior food; a legacy that has only faded in recent decades as that generation passed on.

In 1994 on the Amalfi coast in southern Italy my son Oliver was eagerly climbing the old carob trees to retrieve delicious carob pods that nobody used, because we were told, during the hard times of World War Two, people were sustained by carob, but the arrival of American troops marked the start of the good times with distribution (by the invading troops) of chocolate and cigarettes. In the Gulag Archipelago, the

⁷ See for example, *The weed forager's handbook: A guide to edible and medicinal weeds in Australia*, by Adam Grubb and Annie Raser-Rowland, and Eat that weed website. <http://www.eatthatweed.com/>



Russian dissident author Alexander Solzhenitsyn illustrated the hardship of the Gulag by noting that they had to eat nettles to survive. I am sure Solzhenitsyn was having a rotten experience at the time but nettles in soup are a delicious source of concentrated mineral and vitamin nutrition and is a worthy weed to harvest. I regard an abundance of healthy nettles as a good sign of fertile soil, and the stings from harvesting as part of the gastronomic experience and a reminder of balances between pain and pleasure, and balances between land and people.

In Japan the respect for wild sources of sustenance is mirrored in the garden where people make use of parts of plants that westerners always discard, such as carrot tops. Hard times in Japan contributed to rather than detracted from the status of weeds in affluent times. The retention and now resurgence of interest in traditional harvests of both the farms and forests of rural Japan, is one of the positives in an energy descent future.

Harvesting from the wild is a close relative of another food security strategy, that of gleaning; harvesting the leftovers of commercial production that a farmer cannot use or sell. Gleaning rights are part of a long tradition in Europe that contributed to the informal social welfare system by which the most destitute had access to food, food that the better off did not use.⁸ For nearly three decades in Australia, permaculturists have been food foragers, collecting fallen fruit that affluent suburbanites did not value. Some of this harvesting was with permission and encouragement, sometime without. In the process we built a confident culture of surviving and thriving without much money while most people continued to give away theirs to the big supermarkets. Occasionally we found ourselves on the receiving end of such action such as permaculturist friend of mine with a highly productive garden in Coburg during the early 1980s found an older woman of Mediterranean origin picking all his lemons from the front garden. When he suggested, she should only take a few, the woman said “you Anglos don’t value or use them.” No doubt that was her general

⁸ For a fantastic exploration of the historic and modern expressions of the tradition see *The Gleaners and I* (*Les glaneurs et la glaneuse*).
http://en.wikipedia.org/wiki/The_Gleaners_and_I



experience. Today, the protocols on harvesting the suburban surpluses have become more sophisticated and cooperative, with groups like Growing Abundance in Castlemaine managing to distribute surplus production from backyard fruit trees through the community to an increasing number of people who do value and are able to process, preserve, and ferment the surplus. Permaculture teacher and networker, Ian Lillington says Growing Abundance is combining the community development aspects of Community Gardens, with the horticultural skills of commercial organic producers and fair food concerns of groups like Australian Food Sovereignty Association to increase both utilisation and valuing of existing household and community food production as a pathway to improved food security and sovereignty.

But the more feral end of permaculture gleaning continues with the explosion of skipping (or dumpster diving) where the waste stream of perfectly good food thrown away by the industrial food system is intercepted, mostly without permission, by young activists committed to doing good by getting something free. In many cases skipping involves a cat and mouse game with security guards and expresses a radical protest against the corporate dominated food system that is trashing the planet. In the same way that many permaculturists in 1970s expressed their radical distain of the consumer culture by buying their clothes from opportunity shops, and over a lifetime saving tens of thousands of dollars, young permaculturists today have extended the boycott of the consumer madness by a combination of skipping, food growing and fermentation, along with selected purchases from Farmers markets and organic producers. Rather than eating free junk food, most skippers I know restrict their takings to organically certified produce.

The shocking aspect of these actions is empowered and capable middle class people choosing to act in ways associated with the most destitute. An anecdote from a very capable American friend who lives on \$500 a year highlights the difference. One day while working the bins for food, he got chatting with a black man similarly searching the bins. What are you looking for? Cans, replies the man. What do you do with the cans? Sell them replies the man. What do you do with the money? Buy food replies the man, as my friend harvests perfectly good food in sealed packages from the bins. The tragic need of the destitute to maintain



dignity by participating in the monetary economy contrasts with the radical empowerment of change agents who have condensed action against the system, and personal wellbeing and livelihood into a single act.

Increasingly the scandal of food waste in the industrial system is being somewhat ameliorated by diversion of this waste through mainstream welfare that has eased the decline in the reputation of the food retail corporations. These schemes appear to have more substance and ethics than campaigns by food corporations to show how farmer friendly they are, as they continue to push down returns to producers and preference large corporate producers with stringent supply contracts. However the big difference between skipping and welfare redistribution is that the former creates a culture of empowered personal responsibility while the later simply reinforces the culture of dependence on authority, that when push comes to shove will fail to provide the goods let alone maintain human dignity in the face of serious threats to the food supply system.

The question that occurs to many when they consider this fringe explosion of food growing in the household and grey economy, let alone wild harvesting and skipping, is, does this undermine the market for serious commercial growers, mostly organic trying to earn a living from supplying those in society who don't trust the industrial food system dominated by corporations? To some extent these informal networks do compete with the best of smaller commercial outlets, farmers markets and community supported agriculture (CSA) but in other ways they are complimentary and mutually supporting.

For example people who have some experience at growing their own food understand that while food does come out the soil and off trees, its requires considerable planning, effort and good timing to be an effective and consistent producer. Such people are often the best customers for small organic producers selling at farmers markets and especially those using seasonal boxes to lure customers away from the limitless choice of the central market system to seasonal eating that accepts the ups and downs of abundance, diversity and quality as part of the reality of a resilient localised food system. Back in 1991, I argued that a nation of gardeners are more likely to be prepared to pay a fair price to farmers



and support policies that favour those who produce food for a livelihood. I believe it is the disconnection from the realities of working with nature that have allowed policies supporting reliable year round supply of standardised, cheap junk food controlled by corporations.

In our own experience over the last ten years creating and managing an informal hybrid between CSA box scheme, dry goods food share and household surplus redistribution, we have seen a turnover in customers for boxes as some become more competent home producers and are replaced by others wanting to move beyond selected purchase at the locally owned grocers and farmers market. At the same time we understand the numbers coming to the farmers market and locally owned grocers are still increasing presumably from customers weaning themselves off the Coles or Woolworths habit.

It is the diversity of producers, outlets and exchanges that ensures the greatest resilience in the building of a parallel food supply system that can survive the rigors of the energy descent future, including the possibility that viral replication of the most successful strategies and systems could one day replace an increasingly dysfunctional centralised industrial food system. Permaculture offers powerful organising principles and strategies that we can apply in our efforts to survive and thrive, growing our own, exchanging surplus, foraging the wild and the waste, and supporting growers at the edges of the formal economy. We should not hold back in taking advantage of the wastes of the corporate controlled centralised systems and the abundance of nature's surpluses while we focus on the important task of building the skills of household and local market producers.