



PERMACULTURE: DESIGN FRAMEWORK FOR ORGANIC AGRICULTURE IN THE ENERGY DESCENT ERA

*This paper was published in the digital proceedings of the 15th International Federation of Organic Agriculture Movements conference held in Adelaide South Australia in September 2005. The paper and the **pdf of the Powerpoint presentation** introduced the implications of the energy descent future as an threat and opportunity for organic agriculture in the process of explaining the relationship and relevance of permaculture to organic agriculture. The invitation to present (as one of several keynote speakers) reflected the actions of several activists wanting to see permaculture as a more effective agent of positive influence within the Organic agriculture movement. The importance of garden agriculture mentioned in the paper and presentation reflects an recurring theme in my work (see Article 8 - **Gardening as Agriculture** 1991).*



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ABSTRACT

Permaculture as a design system for sustainable living and landuse (rather than an alternative production system) has the potential to reinvigorate and strengthen the role of organic agriculture in the transition to an ecological society based on stewardship of the renewable resources of soil, water, plants and animals.

Permaculture emerged out of the Tasmanian organic movement during the 1970's but its spread and influence around the world in both rich and poor countries over the last 25 years has been as much through community development, ecological building and alternative economics, as it has been through agriculture.

The peaking and permanent decline of global oil and gas extraction over the next decade and onset of climate change already affecting agriculture provide a new context in which organic agriculture may thrive or expire.

If the organic movement is to grasp the nettle presented by global energy peak as an opportunity to implement a more fundamental change agenda, then it will have to recognise that its flirtation with input substitution farming and globalised luxury markets reflect a necessary but short lived phase (little more than a decade) in the history of organics. But a retreat to some comfortable past conception of organics is equally unrealistic.

Instead, organic agriculture needs a reinvigorated conceptual and design framework that is

- founded on the provision of human needs through working relationships with nature,
- has a track record of bottom up personal and community based change, and
- can accelerate the mutual reinforcement of the diverse range of concepts, strategies and techniques in the natural, technological and human domains, necessary for organic agriculture to achieve its true potential.

Permaculture has the potential to make a substantial contribution to that reinvigoration if it is understood as an open ended design system rather than a prescriptive set of land use techniques.

HISTORICAL CONTEXT

Ecological agriculture arose in Britain, USA, Germany and Japan in the 1930's as a response to the early signs of unsustainability of conventional "industrial agriculture".

Permaculture was part of the second great wave of sustainable landuse and living concepts in the 1970's, when the limits to industrial agriculture became more evident.

At its origin¹ permaculture can be seen as a branch from the "tree" of ecological agriculture. Its phenomenal spread around the world has been facilitated by charismatic

1 Mollison, B. & Holmgren, D. *Permaculture One* Corgi 1978

leadership by Bill Mollison, an intensive training course, typically taught in a 2 week residential format, and more recently, the internet. In the process it has evolved both as a concept and as a world wide movement in all continents². Inevitably this rapid spread has been characterised by lots of steady ground work, some brilliant successes, as well its share of failures. At times the over promotion of Permaculture has seen it lose credibility as eco-fashion. In other situations, it has been a refuge for the severely alienated. Within a larger historical perspective, rising affluence and falling food and commodity prices for the global middle class, have seen many permaculture strategies fail to realise their potential. This also explains why some of the most effective permaculture activism and projects have been in poorer countries.

ORGANICS: THREATS AND OPPORTUNITIES AT THE ENERGY PEAK

Organic agriculture has a well established position in the public mind and increasingly in land use and health policy circles as ecologically and socially benign landuse. It has the potential to revolutionise modern food production and consumption systems.

However this potential is under continuous challenge, most especially by corporate interests that supply industrial agriculture inputs. Because organic agriculture relies more on developing the non monetary, internal and natural economy of the farm it may also yield less measurable economic activity and tax for governments.

These same powerful interests have set up systems of environmental accreditation which threaten to undermine the status of organic certification. These systems rely on a suite of environmental management strategies, including minimum tillage, genetic engineering, indigenous revegetation, quality assurance management and other systems that do not challenge the basic structure of conventional agriculture or society.

The extension of organics beyond the ideologically committed producers has (somewhat inevitably) seen certified purchased nutrients and other inputs used instead of internal farm resources.

Similarly certification has seen organic food follow market premiums to centralised and globalised markets dominated by corporate logistics.

These shifts and compromises in mainstreaming organic production have seen organic agriculture criticised from a deep green perspective, as not taking adequate account of biodiversity and animal welfare, over dependence on annual crops, cultivation, as well as long distance transport, high energy processing, and over marketing.

The stark choice which is typically debated in the organic movement is one between sticking to organic traditions and in the process, risking a luddite fundamentalism which

2 **Permaculture: A Designers Manual** by Bill Mollison 1988 provided the scope and foundation for permaculture teaching and inspiration of innovative permaculture strategies and methods.

Permaculture: Principles and Pathways beyond Sustainability by David Holmgren 2002 provides an evolved explanation of the universal permaculture design principles.

is irrelevant to the modern world, and the alternative of progressive and continuous co-option by government and corporate systems away from the ethical and ecological heritage of organics.

While this debate has been framed by a context of economic globalisation and falling commodity prices, the peaking and permanent decline of global oil and gas extraction over the next decade, and onset of climate change already affecting agriculture, provide a new context in which organic agriculture may thrive or expire.

The historically momentous global peak in the extraction of conventional oil and the peak of natural gas supply in North America is already causing shock waves throughout the world economy and reshaping geopolitics³. The peak of global extraction of all high quality fossil fuels within a decade will precipitate far greater changes. Barely recognised by the public, policy makers or even environmental activists, this event will precipitate a cascade of environmental, economic, political and cultural changes for which society is totally unprepared.

While these changes will be seen as a threat, global energy peak has the potential to quickly eclipse climate change as the driving force behind the sustainability imperative. For organic agriculture these changes present enormous challenges and opportunities. The implications for the debate about global production for global markets vs local food for local people are fundamental.

For over 25 years permaculture has provided a coherent design framework for a broad range of empowering strategies for landuse and livelihood with less and less energy. While the understanding and adoption of these strategies has been slow in an era of expanding energy, the emerging energy descent era will make many radical permaculture solutions natural and obvious.

THE CONTRIBUTION OF PERMACULTURE

Although permaculture is at its heart a design system not a production system, it is best known for experimentation, and demonstrating and advocating a range of strategies and techniques for more ecological production.

Some examples which illustrate the scope directly relevant to organic agriculture include;

- Economic botanical research, culture of new tree and other perennial crops, “bush tucker”, fungi, native and alternative livestock to reduce our dietary and land use dependence on the dominant annual field crops and livestock.
- Soil improvement techniques such as mulching, worm farms, zero tillage natural farming of grains.

³ The most authoritative source is The Association for Study of Peak Oil & Gas, www.peakoil.net.

One of the best of many books on the subject is *The Party's Over: Oil, War and the Fate of Industrial Societies* by Richard Heinberg New Society Publishers 2003

- Animal management systems such as chicken and pig tractors for low input market gardening.
- Edible landscaping, forest gardens, alley farming and agroforestry to better integrate tree crops in agricultural landscapes.
- Complementary ecological landuses such as mixed species nature-based forestry and aquatic polyculture.
- Rainfall and water runoff harvesting methods including keyline, swales etc.
- Whole farm planning and biodiversity management strategies which are more compatible with organic philosophy and practice, than concepts and approaches promoted by governments.

Permaculture is often recognised as being relevant at the domestic and garden scale but failing to make much impact in commercial agriculture. What is less commonly understood is that some of the permaculture inspired experimentation at the domestic and garden scale has functioned as low cost organically evolving research and development, to create new agricultural enterprises⁴.

Sometimes production for household and exchange, acts as a stepping stone to becoming a commercial producer. In other cases, radical production methods or new crops are experimented with at a small scale (by existing farmers) before refinement and scaling up to commercial production. This refinement and change of scale often makes the commercially successful system unrecognisable as permaculture. Sometimes the innovator will see their own permaculture idealism discarded as they evolved more commercially viable systems.

In perhaps more cases, people inspired by permaculture to grow their own food have found the process difficult and, in a society where food has been cheap relative to wages, have given up gardening, let alone becoming farmers. But in the process most have become willing and ideal clients of commercial organic producers especially through CSAs.

The importance of these processes in past and future development of organic agriculture is poorly understood or documented. The self reliant culture and invisible economies of households and farms have been seen as remnants of past “subsistence” societies.

I believe that a robust culture of self reliance include widespread “garden agriculture” providing for household needs is one of the necessary preconditions to the societal respect and support for farmers as the providers of our “staff of life” as well as the stewards of the natural inheritance of future generations.

While permaculture can continue to pioneer innovative ecological farming strategies and techniques, I believe its greatest contribution is beyond the farm gate in developing ecologically designed household and community systems which complement and support organic agriculture.

4 See Article 8 - *Gardening As Agriculture*

Some of the strategies which reflect design to retain and reinvigorate household and farm self reliance and practical connection to our sources of sustenance include.

- Integration of ecological building, water harvesting, treatment and nutrient (including human) recycling in both garden and commercial agriculture.
- Marketing strategies and community involvement, focused on local food for local people, such as CSAs, farmers markets, WWOOFing, environmental education and skills training, and city farms.
- Local and regional currencies to prevent leakage of economic benefits out of rural communities.
- Successional land use development such as eco-villages (including the associated ethical investment) which allow more people to live on the farm and fund the infrastructure and capital investment needed to diversify land use, support value added enterprises, and provide an expanded internal market.
- Development projects in the 'two-thirds' world which foster innovative and integrated systems of ecological agriculture, water management and harvesting using empowering education and community development processes as well as building more direct and fair trade links to consumers of high value export crops.

Several papers and some of the site visits at this conference reflect the direct influence of permaculture concepts and teaching in developing some of the most progressive examples of organic agriculture. Most notably the Food Forest permaculture demonstration farm⁵ has received an award as one of the best organic farms in Australia.

If the organic movement is to grasp the nettle presented by global energy peak as an opportunity to implement a more fundamental change agenda then it will have to recognise its flirtation with input substitution farming, "clean food", and globalised luxury markets, reflects a necessary but short lived phase (little more than a decade) in the history of organics. But a retreat to some comfortable past conception of organics is equally unrealistic.

Instead organic farming needs a conceptual and design framework which is

- founded on the provision of human needs through working relationships to nature,
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- can accelerate the mutual reinforcement of the diverse range of concepts strategies and techniques in the natural, technological and human domains necessary for organic farming to achieve its true potential.

⁵ The Food Forest Gawler South Australia, permaculture demonstration and teaching centre and NASAA certified producers of pistachios and other crops run by Graham and Annemarie Brookman. See website <http://www.foodforest.com.au/>

IFOAM and its member organisations should support the adoption of permaculture education as a fundamental part of academic and technical training in organic agriculture. The place of permaculture should not be as an “alternative production system” but as an open ended “design framework”.

One of the reasons permaculture strategies will be particularly adaptive in the energy descent future is that it is informed by systems ecology concepts and Emergy accounting developed by Howard Odum⁶ and colleges as a language for understanding complex natural and human systems, especially agriculture. While Emergy accounting is still not well recognised or understood in sustainability research and policy circles, it has great potential to provide a holistic and quantitative evaluation of organic food production consumption systems that can;

- Predict likely long term economic success including of different organic production systems
- Inform the development of minimum and best practise standards
- Promote organic agriculture at a sustainability policy level.

Better understood and more easily applied environmental evaluation tools such as Ecological Footprint and Natural Step have also influenced the development of permaculture strategies but the more fundamental nature of Emergy accounting suggests it could contribute more to the future development and success of organic agriculture and its recognition as ecologically and socially benign landuse which should be supported by public policies.

IFOAM should support the allocation of research funding for Emergy evaluations of innovative and traditional organic systems of production as well as the wider food supply chain.

VISION

The critical first few decades of energy descent could precipitate such fundamental changes that organic agriculture serving revived localised markets and nurtured by a culture of self reliance, becomes **the** conventional agriculture. But this process will not happen without the adoption of the best of ecological thinking tools and strategies. If we are successful, the terms Organic and Permaculture could both become redundant like colourful orange skins returned to the earth by our grandchildren enjoying the fruits of our endeavours.

⁶ Odum, H.T. *Environmental Accounting: Emergy and Environmental Decision Making*, Wiley 1996