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SEDA

The official magazine of the Scottish Ecological Design Association, 28 Albert Street, Edinburgh, EH7 5LG

What is Permaculture?

by Mary Roslin

SEDA members are, or are becoming, familiar with passive solar design, local materials, healthy building techniques, aware resource use, carbon footprints, recycling and reusing waste, waste prevention, grey water systems, natural sewage, rainwater harvesting - so what's missing?... FOOD... Food? What's that got to do with ecological design? And Permaculture?...say that again? Read on dear SEDA reader and enjoy the feast!

The term Permaculture was coined by its originators, Bill Mollison and David Holmgren in the mid- '70s, from the words Permanent and Agriculture, at a time before the term 'sustainable' was in common usage - now so common and misused that it is almost unusable as a word that carries any real meaning.

Their patient lengthy observations of natural systems at work in a forest location had led them to ask if it was possible for humans to learn to mimic nature in order to construct systems that are sustainable, robust and endlessly productive. Permanent Agriculture was born.

This was one of the first lists of observations:

- Biodiversity gives strength - nature hates monocultures
- No waste - the output of one system is the input for the next, there is no waste in the forest - everything, but everything recycles!
- Multiple functions - everything in a design functions in many ways
- Work with nature rather than against
- The problem is the solution
- Make the least change for the greatest possible effect
- The yield of a system is theoretically unlimited (or only limited by the imagination and information of the designer)
- Everything gardens (or modifies its environment)

From *Permaculture, a Designers' Manual*, by Bill Mollison:

The 'culture' syllable in agriculture means to cultivate, i.e. grow. 'Permanent Agriculture' means a food production system that is sustainable, i.e. permanent, by the way in which the system is designed to interact, co-operate with and respect all the eco-systems that nurture life on earth, however they manifest locally.

It turns out that this designed system is fruitful in ways other than the production of food. It has the capacity to 'yield' building materials, clean water and transform waste, including human sewage and thus, together with the production of food can provide for all basic human physical needs.

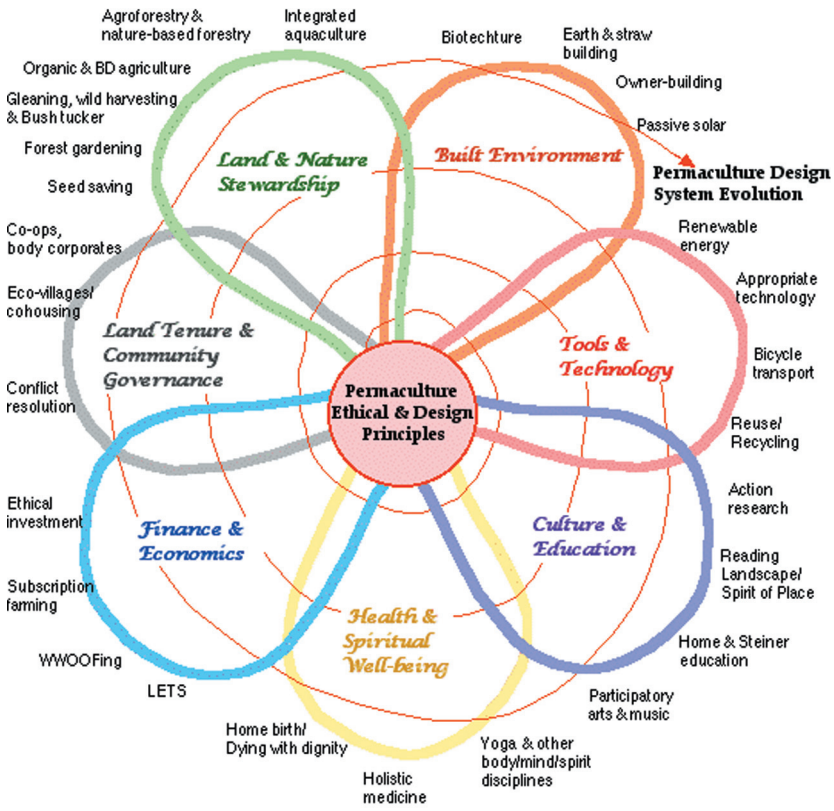
From this work a set of principles emerged that would enable human beings to work in harmony with natural systems to the benefit of both nature and humankind.

'Permanent Agriculture', with its prime focus on the production of food, gradually became known as 'Permanent Culture' because the principles encapsulated a set of values and ethics that have the building of a life enhancing ecologically benign culture at its root.

David Holmgren originally described Permaculture as an 'integrated, evolving system of perennial or self-perpetuating plant and animal species useful to man.' He goes on to say that a more current definition of Permaculture, is 'consciously designed landscapes which mimic the patterns and relationships found in nature,

The Permaculture Flower

Starting with ethics and principles focused in the critical domain of land and nature stewardship, permaculture is evolving by progressive application of principles to the integration of all seven domains necessary to sustain humanity through energy descent.



Above: Permaculture Flower diagram used with kind permission of David Holgrem - www.holgrem.com.au/

Editorial

by Mary Roslin

This issue of the SEDA magazine has the topic of Permaculture at its heart. We have set out a broad menu of ideas, through a series of thought-provoking articles, as to how we could all take action to address the damaging impact that 'food miles' have on our environment.

This is not just an issue for those keen gardeners who work with what land (gardens, allotments or pots and window boxes) is available to them; SEDA members do not need Wellington boots and green fingers to be directly involved (unless, of course, such activity appeals). Indeed, we would suggest that the need to address these issues could be on every SEDA architect's agenda, with or without the Wellington boots. Real opportunities could be created by the simple act of drawing a few lines on a plan, anywhere where the formation of usable gardening space could create an opportunity for someone to plant a few seeds and begin to nurture vegetables, fruits and herbs without a trip to the Supermarket. These activities are already underway; we simply need to see ourselves as a key part of this growing momentum, illustrated, for example, by the burgeoning rise in urban areas of gardening groups.

Undoubtedly the efforts of these groups, as well as those individual gardeners, could be given a real boost through the integration of a constructive awareness of their needs at both a planning and architectural design level.

SEDA members are drawn from a range of areas of expertise. As well as planners, designers and architects, other professions have a role to play in terms of taking this important work forward in their respective areas of work. For example, Stephen Brogan, this year's winner of the Krystyna Johnson award, whose article appears on page 11, is an engineer. We hope that other SEDA members are inspired to consider how embedding an active awareness of Permaculture into their own respective fields of work could have a real and profound impact on local food production.

We are not, of course, working in a vacuum and the appearance of the diagram of the re-use of 'space left over after planning' (SLOAP) at the recent SHIFTS exhibition held at the Lighthouse, Glasgow, whilst this issue of the SEDA magazine was in preparation, gave a hint that we could be on to something here! The issue of food production has certainly been a somewhat neglected discourse in SEDA circles and we hope that devoting 12 pages to this one topic provides Permaculture with some much welcome 'catch-up' space.

Finally, we hope you enjoy this bumper issue, and that it either confirms what you already knew or that it provides some new and inspiring, 'food for thought' - either way Bon Appetit!

What is Permaculture?

(continued from front page)

while yielding an abundance of food, fibre and energy for provision of local needs. People, their buildings and the ways in which they organise themselves are central to permaculture. Thus the Permaculture vision of permanent or sustainable agriculture has evolved to one of permanent or sustainable culture.'

Why Is Permaculture relevant to Ecological Designers?

The solar system drives a number of eco-systems, which are often described separately for ease of understanding. But they are all in a symbiotic relationship with one another and in perpetual motion. The complexity of each system and their interaction is a challenge to understand unless the study of them has been part of one's educational background. Even though ecological designers have their work rooted in co-operation with natural systems as far as possible, it is unrealistic to expect that individuals should understand in detail the immense complexities of them; that would indeed be a life-time's work. But the Permaculture design system offers a way to learn how Ecological Design 'fits in' and about its true potential once allied and integrated with a broader vision.

Permaculture employs systems thinking and a set of design principles that provide an organising framework for all actions that are working towards a vision of a sustainable world. Implementing this vision is a huge task and developing an understanding of how one's part connects to the whole makes even the smallest contribution relevant and worthwhile. And it also has the capacity to transform any sense of isolation that might be felt by anyone who is working with change of any sort in the 'Eco' field of endeavour, by connecting people from all walks of life and backgrounds.

The following information is taken, with permission, from David Holmgren's web site: www.holmgren.com.au/, as is the diagram on the font cover - 'The Permaculture Flower'.

The principles of permaculture are divided into ethical principles and design principles.

The ethical principles are:

- Care for the earth (hus band soil, forests and water)
- Care for people (look after self, kin and community)
- Fair shares (set limits to consumption and repro duction, and redistribute surplus).

There are 12 design principles as follows:

- Observe & interact
- Catch & store energy
- Obtain a yield
- Apply self-regulation and accept feedback
- Use and value renewable resources and services
- Produce no waste
- Design from patterns to details
- Integrate rather than seg regate
- Use small and slow solu tions
- Use and value diversity
- Use edges and value the marginal
- Creatively use and respond to change

This list of design principles gives a taste of what Permaculture is about and some of them will be already be recognised by ecological designers.

Where can I learn more about permaculture ?

The permaculture network is growing fast on all continents. Recently a group has started in Glasgow - contact Paul Barham: pjbarham@btinternet.com. The Permaculture Association has a regular journal and can put you in touch with courses.

Concluding remarks

Permaculture is a designed system, within which ecological design can understand its potential. Its outcome is the integration of human needs and activity with the eco-systems of the planet and it replaces a mindset that is unaware or dismissive of the ecological consequences of that activity, to one of understanding, co-operation and respect for the eco-systems on which all humanity depends. It is open to all - all ages, races and backgrounds - and its relevance at a time of 'energy descent' is plain to see.

We live on a planet of astonishing and wondrous beauty that is our only home, a planet that is witness not only to extraordinary human endeavour, but also to equally extraordinary suffering. In sharp contrast to the scarcity of resources for basic human needs that is the experience of the greater proportion of the world's people, the practice of Permaculture leads to the discovery of abundance, (both in production and of the human spirit), a major characteristic of nature when left to itself. This, together with the principles of sharing and community building which underpin the practice, is Permaculture's gift.

News

The Scottish Building Standards Agency has launched a consultation - www.sbsa.gov.uk/latestupdates/consul_proposals_fees.htm - suggesting building warrant fees should be waived for those applications which can demonstrate that a substantial saving in carbon emissions compared to the minimum required by the regulations.

SEDA is supportive of this initiative and the fact that the demonstration of carbon reduction requires the proposed design to be certified by an Approved Certifier of Design Section 6 (Domestic). For more details see www.RIAS-regs.co.uk

Events

Wednesday 9th January, Perth:
SEDA Steering Group meeting, Ralph Ogg & Partners, 2 King James Place, PH2 8AE -5.30 for 6 o'clock start.

Friday 15th February, Dundee: (To be confirmed)
Sustainability Event, University of Dundee School of Architecture

As part of SEDA's continuing involvement within educational institutions in Scotland it is proposing to hold a sustainability event on "What is Sustainability?" in which the broader arguments of sustainability will be discussed in the context of scale, mostly in Scotland but with international viewpoints put across to give a balanced perspective. This Event will be held in conjunction with ADAS (Association of Dundee Architecture Students), the University of Dundee School of Architecture and the Geddes Institute.

The event programme will provide an overview of the subject appropriate for student learning within the context of the ARB part 1 and Part 2 criteria, as well as CPD for built environment professionals, creating a dialogue and discussion between students, professionals and experts in the field of sustainable building practices. The lecture subject areas are divided into: Urban, Communities, Conservation, Energy, Resource Use and Materials, with a diverse range of lecturers invited from built environment professions.

Tuesday 26th - Thursday 28th February, London:
Ecobuild Conference and Exhibition, Earls Court, London

Exhibitions, talks, discussions - this annual event is the biggest one on the subject in the country.

Full details available on: http://www.innovations-forthebuiltenvironment.co.uk/

The Big Tent Event 2008

26th and 27th July
Falkland Palace, Fife

Building on the success of last year's SEDA / Reforesting Scotland Pavilion (bottom right), at the Festival of the Stewardship in Fife, SEDA will once again be running a series of building workshops, under the expert guidance of Duncan Roberts. It's a good opportunity for sponsors who might like to showcase specifically eco-materials and provide some funding towards the pavilion, which would enable us to underwrite the building / materials costs and perhaps lower the costs of any self build course; thereby reducing the fee for participants. We're asking if anyone has any ideas for a different shape this time - which has to be BUILDABLE! We're also suggesting that the completed pavilion could be auctioned off after the event - with bids being considered not only on their monetary offering but also on their proposal for the future use of the pavilion.

If you are interested in helping to sponsor the pavilion, or in taking part in the workshops, please contact Mary Kelly - **seda-info@uk2.net** - for further details.

View from the Chair

by Richard Atkins

It seems to me that for the last 300 years humanity has been (amongst other sins) digging large holes all over our planet, burning, melting and mixing what comes out of them and spreading the results over the remaining green bits in between.

This issue is my first introduction to Permaculture and the designer in me likes it. Not just the connectedness, the enjoyment in discovering the layers of reason and relevance, but also the evident need for a dispassionate assessment, what Ed Taylor calls 'reading the landscape' to kick start the beginning of a cyclical rather than linear process.

Headline predictions conclude that in the future over one billion people will lack fresh water, that natural vegetation will not cope with rapid rises in temperature and coastal areas will come under threat from rising sea levels. Most worryingly of all it is predicted that by 2025 two thirds of the earth's rapidly expanding population will be city dwellers.

So what of this apocalyptic future? Again as a designer I remain eternally optimistic. Mary's article suggests a future where food and material production is integrated into a holistic approach to life, where the limits on the linear exploitation of resources has affected a lasting change. Instead of the office canteen, we have the office garden - surely it is in every employer's interest that their staff eats healthily.

Am I being realistic? Maybe not, but I certainly know that such change as is required can only come about if governments start responding meaningfully to articulate pressure from an intelligent and informed hinterland of public opinion, and SEDA must remain to the fore in shaping such opinion.

Permaculture as a Design Discipline

by Graham Bell

The attractions of an ethic of environmental design are manifold. A key reason for this is that good environmental design is a connected discipline. We don't seek 'iconic' buildings, with their implicit isolation, like a picture framed upon a wall to be admired only for itself, but a built environment which integrates into a whole range of needs and outputs.

When I first came across permaculture some twenty five years ago I was enthused by its essential applicability. It is something that touches on all of things that most interested me in my striving to see how we could make the world a 'better place'. It is also rooted in 'can do' attitudes - how to make the best of the resources we have. Its original basis was in 'permanent agriculture' - the provision of food and other essentials. As the discipline grew it became apparent it needed to be about the management of the whole human environment. It begs the questions:

- What do we really need and how can we get it?
- How can we minimise usage (and therefore demand)?
- How can we minimise wastage (and therefore pollution?
- And how can we connect our human endeavours together with regard to these in ways which limit the amount of work we have to do?

Today permaculture continues to evolve in the hands of those hundreds of thousands of people who have embraced it, not so much as the answer, but as the questions we need to ask to arrive at answers tailored to individual time, place, resources and culture.

Put simply it is a design system. Some obvious examples: by solar aspecting a building and adjusting glass areas, overhanging roof areas and the quality and u-value of materials in the construction process we can make buildings which harvest free heating supplies in cool weather and shade and airflow in the heat. When we do this we are observing (learning from) natural energy flows in the landscape and then getting them to work for us (saving energy cost). It's just intelligent design.

As a concept that allows you to think of all the other energy flows which we can build into our designed environment, food, water and access are early necessities. What building is incapable of being a food production zone? None. Even in urban public space it's easy to do. Why plant flowering cherries when you can have fruiting ones (which also, obviously, flower). 'But people will eat the fruit' complain the park authorities. Yes, that's the point.

An off-the-contour swale which intercepts rainwater run-off can also be a pathway. As a water harvesting mechanism it can also provide growing areas for water-hungry plants (e.g. squashes) in its banks. Or it can supply a pond. Which can support fish. We can build food forests in which we live which are largely self-managing. It's just about thinking things through. You don't have a slug problem in a garden, you have a duck shortage. And ducks are another useful output. Every problem contains its own solution.

All sound too obvious? Well it's just common sense, but sense that isn't common enough. As long as we build housing schemes on the random suburb / maximum income per hectare plan we won't solar aspect buildings, and we won't make the environmental and cost gains of passive solar. If the drive for Scotland's healthy diet is so important, wouldn't free fruit trees in our public spaces (including school playgrounds) be a great investment, whilst also contributing to carbon capture. Too much like hard work? Scarcely. Look at the exemplary models of Grounds for Learning for inspiration on that last one. Espouse the visionary techniques of Tony Gibson's *'Planning for Real'* and design and build communities that serve people's real needs and vision.

In an article this length we can do no more than touch on the potential. To realise that offering you need to do some work (low work systems always require a little work to establish them).

The first step is to connect into the permaculture network to harvest as many great ideas and fellow travellers as you could wish for in a lifetime.

Graham Bell lives in the Borders with his family and is author of 'The Permaculture Way' and 'The Permaculture Garden.

Recommended websites:
www.permaculture.org.uk
www.permaculture.co.uk
www.grahambell.org

Recommended Permaculture websites...

Graham Bell 'Agent for Change'
www.grahambell.org

In Graham's words... "This site is designed to connect you with my world of helping others develop their future. I am passionate about enterprise - and the power of enterprise to make people's lives better. My job is essentially to help other people get more out of their business. It is also a link into mycelium, a new network of other people who are capable in their own fields, but also committed to social and environmental justice."

Permaculture Magazine portal
www.permaculture.co.uk

Portal web page to the various Permaculture Magazine websites including: Permaculture Magazine; Permanent Publications; Permaculture Information; a Green Shopping Online Catalogue and information on Reversing Climate Change.



Permaculture Association
www.permaculture.org.uk

Home of the UK permaculture network & the Permaculture Association (Britain). The Association is an educational charity run by its members and helps people use permaculture in their everyday lives to improve their quality of life and the environment around them. The website includes: news; listings of job opportunities in permaculture; online discussion forums; an online bookshop and and information on joining the Association.

From the Margins to the Mainstream

by Ed Tyler

It is important to remember that permaculture is a design system. Practitioners think of themselves as having a toolkit which enables them to successfully design virtually anything at any scale, from a garden to a whole BioRegion. This includes the built environment, though here they lack the specialist training of the architect. I teach the built environment as part of the 72-hr design course, and recommend that students join SEDA, especially if they have a particular interest in buildings and structures (it's refreshing to find a group in which architects and non-architects mix quite happily, sharing common goals).

I explain that both the ethics and principles of permaculture are highly relevant to architecture, whether it's a matter of choosing a site, working with it in a spirit of harmony and cooperation, dealing with energy matters, timescales, project management etc.

I see permaculturists as generalists in the sense that their knowledge, skills and experience cannot be pigeon-holed in terms of both discipline and subject matter. Indeed, there is a strong sense within the permaculture movement that it shouldn't be hijacked by mainstream thought-systems such as are found in universities. We like to be on 'the edge' (more of this later!) as we see this as more productive. The core of permaculture learning is still the 72-hr design course, which is mostly delivered by independent self-employed tutors.

However, this 'edge' is communicating more and more with mainstream society, especially perhaps in Europe where we realised (belatedly perhaps) that the vast majority of people live in towns and cities. We, the people, are a great resource to be set alongside the unfathomable, subtle and mysterious wealth of nature. We are now on a journey of re-discovering a 21st Century sense of 'community' based on co-operation, mutuality, localisation, sense of place and other similar notions. We realise that in the dawning age of post-peak oil and human-induced climate change, we have got to learn how to co-create such communities. Obviously permaculture has a lot to offer here both in terms of food production using perennials and in terms of understanding and co-operating with natural systems. It is to this end that I and some friends in Argyll have set up ourclimateourfuture.org: to help folk along this journey.

On December 8th with the Bodhi eco-project and a host of other organisations we held a day of workshops with the aim of Glasgow starting to become a 'Transition City' (a new grassroots movement using permaculture principles to wean communities off their current over-dependence on fossil fuels).

It's my experience that most permaculture designers, though generalists in one sense, end up being specialists in one particular field of study, namely 'reading' the landscape in all its deep subtlety. I agree with David Holmgren in his recent book on permaculture: "In consultancy work I have found...skills in 'reading landscape' to be the most important a permaculture designer can develop...in advising others on the potentials, limitations, land use history and successional processes of any particular parcel of land." (I think this holds true for those who design in the city, for cities are still landscapes even though they are substantially built over).

Why shouldn't permaculture designers be called in by architects just as they might call on a structural engineer or quantity surveyor, only in this case at the beginning to 'read' the land on which the building is to make its footprint?

Some words in the 'permaculture lexicon' which are helping define the new (ecologically aware) paradigm:

Edge: this is a key permaculture concept based on the observation that the area where habitats meet (known as ecotones) is more bio-diverse because it contains species from both habitats, plus other species. This translates, in design terms, into wavy paths and/or 'keyhole'/curvy/spirally bedding areas in the garden; also a good mix of habitat including wildlife areas, various composting areas (both slow and fast), forest garden (essentially a carefully planted mix of soft and top fruit and nuts), intensive beds, lawn - all creating maximum edge.

Marginal land: Holmgren's principle number 11 is "Use edges and value the marginal". The 'marginal' part refers to our lack of appreciation of so-called 'marginal' land which was traditionally valued as a seasonal source of what we now call 'wild' foods; also seasonal forage, fibre, roofing material, wood and timber and bedding. This marginal land is now being rediscovered by conservationists but permaculturists want its traditional value to humans recognised once more.

Transition: the Transition Movement was started in 2005 by Rob Hopkins and Ben Brangwyn in Kinsale, Eire, and has since spread to more than 50 communities in the UK and beyond. Rob's background is as a permaculture teacher and his ideas about Energy Descent stemmed from this (see above for Glasgow event).

Abundance: in the new, permaculture context, this means abundance from Mother Nature, i.e. locally produced health-giving food and other products gained as a seasonal gift resulting from cooperation with and sustainable harvesting of natural systems (the emphasis on seasonality is important!).

Mutuality: my idea. I'm searching for new definitions that point to the way forward regarding our rebuilding of re-localised communities. 'Mutuality' - i.e. co-operating together in mutually beneficial ways to have fun, do artistic and cultural things, celebrate the local etc. 'Convivial' and 'congenial' also spring to mind.

Ed Tyler is a permaculture teacher teaching both introductory and full design courses in Scotland. He is currently in the middle of teaching a module-based course (modules take place once a month at weekends) at Kilmartin. For enquiries for the next course in 2008 contact Sally Wilkin, events officer at Kilmartin House Museum, Argyll - sally@kilmartin.org.

Permaculture: Insights for Architecture

by Mary Roslin

Architecture and Permaculture are joined together through their common need for land. Neither can happen without it and so land is a resource that potentially offers shared possibilities for design. Permaculture practice informs the ecologically advantageous placement of building on the land and can help to decide priorities for ecological architecture.

There are few things that are essential for human life. Food, water and shelter are the physical ones. A sense of belonging is one of the psychological ones. Permaculture offers them all, for the 'yields' of Permaculture are food, clean water, building -materials, renewable energy production and community life.

As a social discipline, architecture, especially in Scotland, already has a long tradition of working in close co-operation with people at a community level. Not necessarily ecologically, as the close co-operation with people and the participatory design and consultative practices now taken for granted, developed before human ecology was on the agenda. But, as helping to build community is a part of Permaculture, so is it a part of Architecture; and the two are beginning to meet up.

As a land based discipline, architectural design has the potential to create opportunities for local food production that could use Permaculture techniques (that do not require much land), almost anywhere - it just requires a change of mind-set at the planning stage and an architectural awareness of its necessity.

From city balconies, to back gardens, to the design of a city or region, Permaculture can be practiced at any scale. In the UK, Permaculture building examples have been small scale and sometimes constructed by self help methods. However, there are a small number of architects who are also trained Permaculture designers, where it informs their architectural practice for buildings of any size.

The impact of food production on carbon foot-printing is becoming well known through the concept of 'food miles' and the 3,000 mile sandwich. Food distribution within the UK accounts for the highest proportion of heavy vehicles on our roads. Settlement size used to be limited by the amount of food that could be produced for the inhabitants, but we lost the plot as far as that is concerned a long time ago. A dramatic change in government policy towards food production in the UK is needed. Networking organic farms and supporting them, finding alternative retail outlets for local food, introducing local food into supermarkets, business support for local food processing, should all from part of that change.

Above: 'Customised Landscape 2057 Housing Development in Cumbernauld surrounded with new activity' Voluntary Design and Build (Part of 'SHIFTS: Projections into the Future of the Central Belt' an exhibition organised by the Lighthouse)

Joined up thinking involves joining 'top down' and the 'bottom up' people. Grass roots activity, through Permaculture and groups like the Allotment Association (there is a 20 year waiting list for allotments in London!) has the potential to inform decision making at higher levels. Policy at a political level can sometimes progress unaware that it could be informed by current grassroots activity that is taking place almost hidden from view. Architecture is involved at both ends of this spectrum and has the potential to put food production on the agenda as a planning and architectural issue.

Sometimes referred to a 'paradigm shift', an ecologically aware cultural change has been emerging for the last 50 years without much public attention being paid to, what can now be seen as, pioneering work. With the recent 'change of pace' in public awareness about climate change matters, this work has begun to be noted and even celebrated. 'Earthships' appearing on a TV property programme is an example of this shift of public attitudes.

The significance of Permaculture practice is that it informs, not only the agricultural practices for this emerging culture, but also human settlement patterns, as it has the potential to provide for all human basic needs within a very low ecological footprint. This ecological human settlement design strategy can be seen in Eco-Villages, such as Crystal Waters in Australia, where planning with Permaculture principles is done from the outset; dams to the rivers were amongst the first interventions on the land. Suburbs, such as that found in Davis, California, also demonstrate how Permaculture can be retro-fitted into existing communities.

Some of the pioneering Eco-Villages in Scandinavia also demonstrate how long people have been aware that another sort

of strategy for living is not only required, but that it is possible. More than that, they challenge the public perception of 'going back into the dark ages' with their evident substantial positive benefits, both technically, in energy demand and supply, and socially, in health and community life.

Involvement with Permaculture enables relevant ecological insights for all design disciplines, and for the design of the built environment in particular, to be illuminated. Permaculture Design has the potential to enrich and inform the work of all SEDA members, but the ability of ecological architecture to meet human needs comprehensively through developing a systemic understanding of eco- connections offered by Permaculture Design is particularly worthy of consideration. Although many SEDA members will already be familiar with some, if not all Permaculture concepts and practices, they may not have realised that we are part of a global movement!

But for those who have not looked at architecture through a Permaculture lens the message is clear. There is no 'tacking on' of technology and techniques in Permaculture. They are embedded in co-operation with planetary systems and people. Period.

So we need to think constructively about how Permaculture, with its emphasis on self help at an individual and community level, and Ecological Architecture can be connected.

A starting point might be to remove the word 'site' from the architectural lexicon. It reduces the land from being perceived as precious, - needing care and stewardship, to the utilitarian, - to be used and abused.

Participating in a vision where basic human needs can be met locally, and providing some of the means to do that by the way in which we design for local food production, is within our capacity. It does not require much effort, and there are three key points to keep in mind:

First of all, an awareness that food production is an architectural issue.

Secondly, being aware that there are gardening groups, both well established and in their infancy, that have the potential to look after productive growing areas in buildings and urban spaces.

Thirdly, introducing, through design, the space and the means for growing productive plants in public buildings wherever there is an opportunity, both inside and out. Every little bit becomes a lot.

The space is already there - atria, conservatories, balconies, window cills, car parks (permaculture planting can deal with pollution), and Space Left Over After Planning (SLOAP).

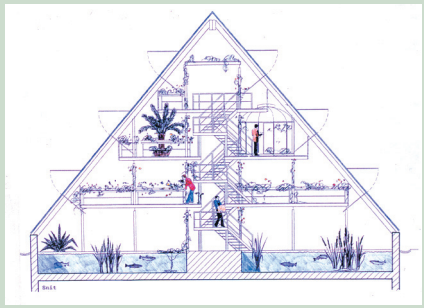
Architecture, at its best, is celebratory. Even in quiet ways we can express our hopes and celebrate change and the 'turning times' in which we live.

Permaculture in Practice

A Regeneration Project in Kolding, Denmark

Water conservation is a big issue in Denmark due to its high water table. These images are of a 'Solar Aquatic' sewage system in the final stages of construction in the early 1990s. Sewage is firstly treated anaerobically undergound before undergoing a process on the ground floor of the glass house where it is open to view. The upper floors of the glass house are designed for food growing by the surrounding residents, closing the loop between waste and resource.

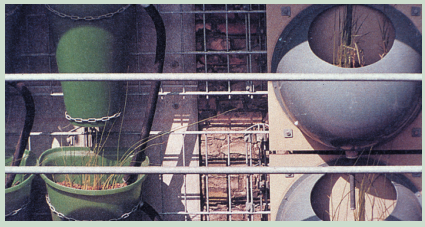
(Below) The final treatment of sewage via a reed bed (at an early stage of growth) with the resulting clear water being aerated over the flow forms in the landscape



An Earth Sheltered Larder, Solbyn Co-Housing, Sweden

Earth mounded over a plastic former moulded in the shape of a daisy. Each petal has named shelves to take preserves- pickles and jams etc processed from the garden. The change in temperature between outside and inside has to be experienced to be believed!

(Below) A vertical 'swamp' grey water treatment on the gable end of a building in Copenhagen.



Urban Gardening (Permaculture in Cuba)

by Tony Gowland

On the face of it there seems to be little in common between Davis, California and Havana, Cuba, but they are both, in their different ways, experiments in urban gardening.

In the early '90s after the demise of the Soviet Union and disintegration of the soviet bloc, Cuba entered what was designated as the 'Special Period'; trade had collapsed, oil imports were down about 50%, fertilisers and pesticides imports were down about 70%, and import and export markets dwindled. While Cuba's agriculture had diversified after the revolution, sugar was still the main crop, primarily for export, and much food was imported. During this period the average Cuban's food intake was down about 30% compared to earlier.

Before this Cuba had been a fully paid up member of the 'Green Revolution' - the industrialisation of agriculture. It had the highest numbers of tractors and highest usage of fertilisers in Latin America, and was technologically similar to California. The challenge was how to convert an agriculture-dependent on high fossil fuel inputs to a low input, sustainable one.

Fortunately, Cuba had started to diversify its agriculture, it had a strong scientific research tradition, and while it was highly urbanised there were still many farmers familiar with traditional techniques. Also, Australian permaculturists visited in 1993 and started a permaculture training program that included organic farming, composting, and seed saving and swapping.

Some of the main features of the new agriculture were:

- recycle nutrients on the farm and reduce off-farm inputs;
- move to integrated farming of crops and livestock;
- improve soil quality by adding organic matter;
- biological pest control;
- move from monoculture to polycuture and crop rotation, and;
- use local knowledge and match crops to location.

Michael Corbett's *Village Homes* in Davis, California (above) designed in 1973, with the intent to conserve natural resources, minimise energy use and to develop a sense of community.

Other changes were:

- the redistribution of land; state farms were handed over to local co-opera tives and smaller farms were created from larger ones;
- local production, and;
- the ability for farmers and gardeners to sell produce at local markets.

These changes also made their way into the cities. While urban gardening had been popular, primarily for domestic use, after the revolution it almost disappeared, with the government focus on industrialised agriculture. However, in the special period urban gardening mushroomed when plots of state owned land were released for food production. Agricultural and horticultural units range from moderately sized suburban farms to balcony and roof gardens. In between there are small plots, gardens and patios as well as restored waste and derelict land. They encompass market gardens, orchards and small animal production. Factories and offices also grow produce for their own canteens. Over 50% of Havana's fresh food is produced in urban farms and gardens. This is the same for other Cuban cities.

As a result of this experience, Cuba is seen as a possible model for a post oil economy. In contrast to this enforced low energy system the Village Homes subdivision of Davis, California, was designed to be low energy.

Michael Corbett designed Village Homes in 1973 with the intent to conserve natural resources, minimise energy use and to develop a sense of community. Streets are cul-de-sacs running east-west, facilitating the passive heating and cooling that is a feature of the houses. The backs of the houses face onto the streets whereas the fronts face onto public green spaces that are drained by swales with streams and pools. There is no mains drainage.

These public green spaces are classed as household commons, the use and maintenance of these are the responsibility of the neighbours surrounding the area. They are often planted with edible fruit trees.

Also running through the community are what are know as agricultural lands. There are the orchards and vineyards, which can be harvested freely by residents. The only exception to this is the almond orchard, the income from which is used to support the community areas. There are also private allotment areas for personal householder use. The produce from these areas can be for personal consumption or for sale.

By accident or design it is possible for urban communities to become more self sufficient. However, as we enter an era when oil will become less available and more expensive, it's probably better to design sustainable communities now rather than hope that they will self organise

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Healing the City - Thoughts on Urban Permaculture Design

By Declan Kennedy and Kathleen Battke

This very dense article expands Davis Holmgren's, (Co-Founder with Bill Mollison of the Permaculture Concept) twelve principles in an Urban Design context.

The article ends with the following sentence:

"We can master four perspectives: how things were, how things are, how things might become and how things ought to be- and synthesising them into a compelling concept of a constructive, peaceful urban future."

An attempted précis of this article did not do it justice. It will be accessible in full via SEDA's web site.

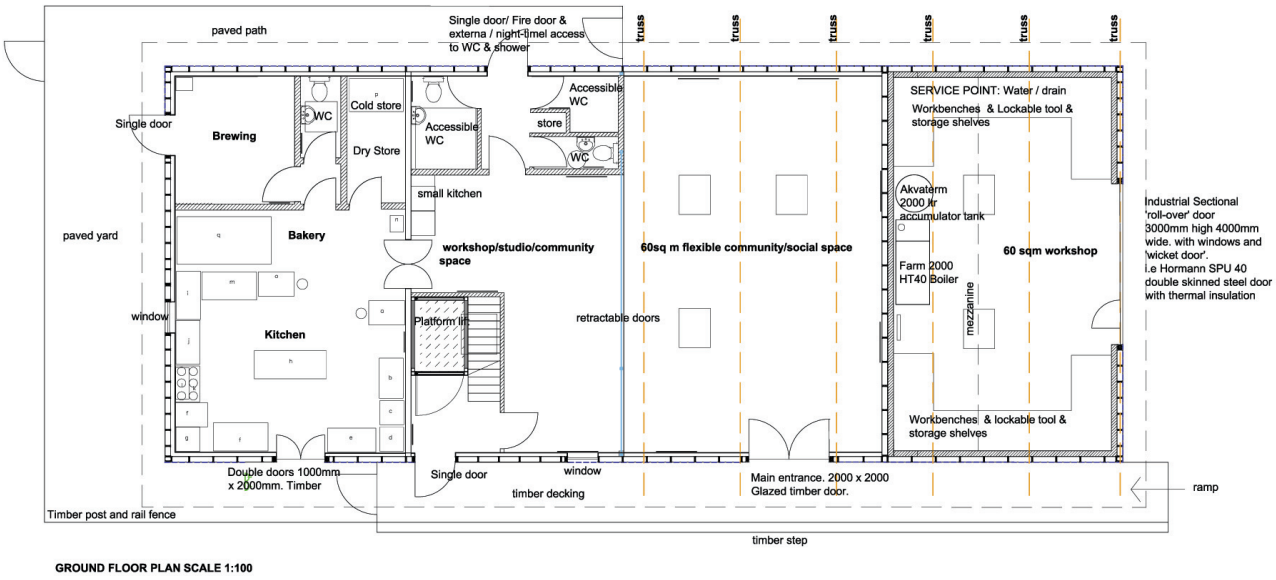
Declan Kennedy is an Architect and a former Professor of Urban Design at the Technical University of Berlin. That was before he took his Permaculture Diploma!

Since then he has been the director of the Permaculture Institute of Europe, the founding chair GEN (Global Ecovillage Network) and a member of the board of ZERI (Zero Emissions Research &Initiatives) Germany amongst many other things. See www.declan.de for more information.

Declan Kennedy is now actively engaged in a new educational initiative - Gaia University, which can be viewed at: **www.gaiauniversity.org**

THE BIG SHED PROJECT: A Community Resource

by Sue Manning



GROUND FLOOR PLAN SCALE 1:100

The BIG SHED project at Tombreck is at the funding application stage. The design brief was developed for a flexible multi purpose space, capable of being used by different people and groups at different times. The proposed building is divided into five zones and one of these zones, containing a kitchen, bakery and brewery, provides a facility for local food production and marketing. The other four zones contain a variety of workshop and community facilities. From preliminary marketing information of all the 5 zones, the food production areas have created the highest amount of interest from potential future users

The kitchen and bakery will be fully fitted out to a professional level, including gas hobs and oven, double sinks, fridge freezer, storage and prep areas and bakery and catering equipment. Adjacent to the kitchen is a small area designated for the Community Brewery. The adjacent flexible studio / community space, linked to the kitchen by swing doors, can be used as a dining / café area.

It is intended that the kitchen and bakery will be hired out on an hourly or daily basis, by anyone who has undergone a basic 'elementary' food hygiene course. The bakery will be in regular use two or three times a week. The kitchen will be booked by a variety of individuals and groups; local WRI, a local 'chocolatier', an outside caterer, a 'master chef' running children's cookery classes, as well as preparing for internal functions. The kitchen and bakery will be used by an estimated total of three professional regular users, two professional irregular users, and twenty non-professional or irregular users. The kitchen will be fully equipped, with the professional users expected to provide their own kitchen knives and personal equipment. The permanent users will have access to a small lockable equipment cupboard.

The Community Brewery will be managed by the Head Brewer, who under guidance from HM Customs & Excise will support individuals in making 'home brew,' for their own consumption. There could be a total of eight 'brewers' over a twelve-month period.

The Big Shed building incorporates many permaculture principles in its design and construction, including the creation of training opportunities (sharing skills). With a food production facility and other community and business facilities that reinforce its premaculture credentials it is an innovative rural project with great exemplar potential.

Why We Need a New Building

by Isobel Gibson and Sarah Watts

We're a small independent Glasgow allotment association. Like most allotments we grow fruit vegetables and flowers. We have social events and open up our plots once a year to our local community. But we're ambitious to give more people the chance to garden and to do that we have to provide better facilities.

What we'd like

A Sustainable allotment building that is:

- fully accessible;
- low cost to build;
- easy to look after;
- reproducible by other allotments and

will be used by our members and the local community for meetings, social events, training, storing tools and equipment.

What we've got

Two inaccessible and dilapidated portacabin and the findings of an action research project that we carried out. We now have a good understanding of what local people think of allotments, their benefits and what would encourage them to get involved.

How we hope to get there

It's an ambitious vision for a small community group. With our evidence that allotment gardening benefits us on many levels:

- our health - physical and mental, building new skills and confidence, allowing us to grow and eat healthy food, make friends;
- and a natural affinity for *Reduce, Reuse, Recycle* (you should see what our sheds are built of!).

We hope to secure funding from the Lottery and RIAS to carry out a feasibility study, so watch this space!

The Reading International Solidarity Centre Permaculture Garden

by Dave Richards

Look up in the heart of Reading town centre and you might just see a mini wind turbine peeking over the top of a roof looking back at you

Behind central Reading's only renewable energy installation lies the RISC edible roof garden; a forest garden complete with over 120 species of edible and medicinal trees, shrubs, vines and plants from around the globe. Fed by stored rainwater gathered from the roof, pumped by energy generated by solar cells and wind collectors on the chimneys; this 'urban oasis' is fed by paper and food waste compost from the RISC offices and is one of the nicest places in Reading for a picnic!

Creating an illusion of a rural idyll, these pictures (right) were in fact taken three floors up and one minute's walk from where Reading's inner ring road passes one of Europe's biggest new shopping malls.

'Growing our futures' the project behind the remarkable roof garden project at RISC is a statement about the potentials of working with nature, in a creative partnership, to create quality living spaces, providing food and resources for people whilst supporting biodiversity in our own backyard.

Roof gardens are increasingly becoming a focus for reducing the negative environmental impact of cities:

- *promoting biodiversity; valuable inner city habitat and feeding stations especially for insects and birds;*
- *producing food and other useful plants;*
- *reducing urban heat islands which distort local ecologies;*
- *storing tonnes of water and helping reducing flooding;*
- *encouraging organic waste recycling via composting;*
- *increasing thermal and noise insulation of buildings;*
- *creating valuable usable space for people*

Natural systems, such as forests, are made from a complex ecology or inter-relationships between many different species. This complexity is what makes nature abundant, robust and, most importantly, sustainable. No one gardens a forest, it draws nutrients from the soil, recycles everything and is solar powered - all by itself and leaves no waste! If we could learn to make make our own human designed systems work in the same way, then we perhaps we can come up with much more sustainable ways of living.

Some people call this approach to design - permaculture, or environmental design.

Roof gardens, like the RISC roof garden (above), are increasingly becoming a focus for reducing the negative environmental impact of cities.

Call it what you want, it's an idea that's time has come. Importantly this approach to development, applied in a broader way, presents the opportunity to learn from nature and to use that insight to help tackle some of the many environmental problems in Reading, the UK and around the world.

The RISC roof garden is home to over 120 species of useful plants from around the world, uses composted waste and is made from many recycled and local materials. It is powered by solar, wind and rainwater and is a unique space in Reading to explore issues of sustainable development and biodiversity; raising issues about our relationship with the environment.

The story of the roof garden

The original flat roof covering the rear of RISC's building had become run down, and as well as requiring repair; it also was insufficiently insulated for both heat and sound. This in itself was not enough to attract the necessary funds, so a bigger scheme was hatched: The Growing our Futures project and the roof was transformed.

This program was developed to both design and install the garden, with the help of a team of volunteers, and to employ an education worker to oversee its continued development. This broader aim successfully attracted a grant from SEED (the lottery's environment fund) and the Environment Trust for Berkshire (via landfill tax). So, as well as fixing and insulating the roof, RISC suddenly had this amazing new space to work with.

The garden is fed by rain water stored in tanks below the roof, where it is filtered and pumped around the garden in a water efficient irrigation system. The pumps and automatic timers for the watering system are mostly powered by the renewable energy installation on the roof, comprising of a small wind generator and an array of solar electric panels (photovoltaic).

The garden itself is designed to evolve into a mixed forest system with a wide variety of useful plants, with a strong focus on perennial herbs, shrubs and trees.

Complimenting this, there is also an organic vegetable garden and greenhouse where the focus is on producing fresh salads and herbs for the Global Cafe downstairs. In turn, the garden is fed by composted veg peelings, tea bags and coffee grounds from the cafe and staff kitchen.

Now we are four years into the project and the garden has to be seen to really appreciate how much it has flourished. It is attracting increasing amounts of attention from the public and we are regularly hosting visits from schools and other community groups. It won an award from *Britain in Bloom* as the most innovative garden, has been recognised as a Reading Heritage site and is a member of the prestigious National Gardens Scheme.

Design and Food Systems

by Steve Brogan - Winner of the SEDA /Krystyna Johnson Student Travel Award 2007

There is no need to stress the importance of food in our lives. One need only skip a single meal to feel the immediate biological reaction of the body. Like any living thing this basic biological craving has led us to ensure a secure, plentiful food supply. In Western society the problem of food scarcity is largely forgotten and accordingly we have reaped the benefits of this abundance for the past fifty years. Recently, however, we have begun to see a marked decline in our quality of life. Soil loss, water contamination, loss of biodiversity, cancers, obesity and heart disease are all tied to food. These problems are not inherent in the food itself, but are more often the products of how the food was produced, processed and prepared.

This complex web of interconnected parts and pieces that bring us our food are often termed 'the food system'. Traditionally, these systems have been complex adaptive systems that operate in a closed loop, with all inputs emanating from and residuals returning to the source, a manipulated ecosystem. More recently, especially since the Second World War, the food system has made the transition to what may well be described as an assembly-line system. This industrial influence can be seen throughout the system where farmers have been replaced with 'farm managers', animals replaced by 'production units' and meal ingredients by 'feedstock'. Tasks have been minimised in complexity in order to achieve simple repeatability, management has strict control over inputs, physical labour is de-skilled and output is high and very uniform. Rather than resembling ecosystems, modern food production and processing have more in common with factories that produce ball bearings!

Whilst the simple 'input divided by output' efficiency cannot be denied, the external impacts are taking their toll on the health of local economies, farmers, animals, the environment and the food consumer. Recent system-wide crises such as bird-flu, BSE, and foot-and-mouth show the overall vulnerability and ill health of the entire system.

With the proverbial advantage of hindsight, it is easy to point out the short-sighted reductionism which seems to pervade food developments in the post-war era. This paradigm is still dominant in the science-based realm of food-professionals, but what is of greater concern to me, is the silence of design professionals when it comes to food.

Designers are, by nature, integrators who bring together specialist knowledge from various fields to satisfy the demands of clients. Many designers are obligated, by a code of ethics, to also take into account design criteria for the greater good, such as public safety, health and environmental protection. However, even within the circle of eco-designers, it is rare that food is considered as part of the design, even though food forms the basis for all natural eco-systems.

Putting this in perspective, one might consider the building industry. How does food fit in to the design of buildings and the human-built landscape?

All building sites were once food production areas, even sites which were not farmland provided food for animals and therefore ultimately humans. Changing land use for habitation, commercial or industrial purposes alters the food landscape. If one imagines a map showing food growing density per unit area, our urban centres would be vast pits. Even green spaces in cities would offer little direct food for humans, barring the harvest of squirrel, pigeon and rabbit meat.

The design of food preparation and serving areas in our built environment has become closely tied to the provision of highly processed and packaged meals. Little to no space is allocated for food storage beyond a week's supply, a serious limitation if one is a gardener. In commercial buildings, employees are usually provided with no more than a table and chairs, with an assortment of vending machines for lunch facilities.

Issues such as these seem to be hidden until designers come to the realisation that food is a critical element in all eco-systems. The challenge then becomes dealing with design problems raised by these complex systems, especially knowing the mistakes of the past and humanity's over-zealous rush toward solutions.

The answer to these and many other 'wicked problems' in design may be found in the application of a type comprehensive design science, like that championed by Buckminster Fuller. Where the focus of the design becomes the development of healthy parts *and* the wholes rather than merely solutions to discrete problems.

Steve Brogan has been awarded the 2007 SEDA/Krystyna Johnson Student Travel Award for a study entitled 'Ecological Design of Food Systems: the Cuban Miracle'. As part of his PhD studies at Dundee University's Centre for the Study of Natural Design, Steve plans to visit Cuba to study the revolution in the country's food production.

In 1991 Cuba experienced an economic crisis following the collapse of the Soviet Union, its largest trading partner and main source of oil. Cuba's oil imports dropped 90%. Adding to the food problem was the overwhelming mono-crop of sugar cane - the sugar crop occupied three times more land than other food, with much of the remainder planted to tobacco and citrus fruits. Sixty percent of all food was imported from the Soviet bloc.

The Cuban people had to rebuild their agriculture to produce food in a sustainable manner, with little to no chemical or fossil based inputs. Reforms have taken the shape of urban and rooftop gardens, redistribution of collective state-run farms to smallholdings, and the re-education of the country's farmers.

These very radical changes offer many lessons for the rest of the western world as it faces up to the impact of declining oil production. Much of the success of organic agriculture in Cuba is due to long-standing government research programmes, and to forward thinking designers. Early in the crisis a group of planners, architects, and community developers brought Permaculture designers from Australia to teach and set up demonstration gardens.

Steve will visit Cuba early in 2008 and will present his study at a SEDA event later in the year. He has also been invited to talk about the 'Cuban miracle' at the 2008 Big Tent at Falkland. - Jim Johnson

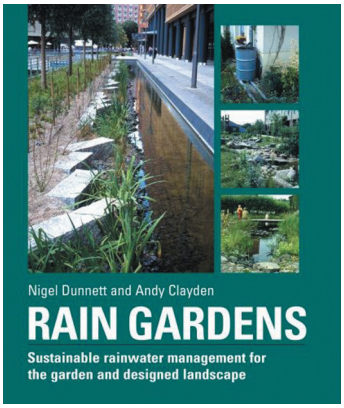
Books

Designing Ecological Settlements: Ecological Planning and Building - Experiences in New Housing and in the Renewal of Existing Housing Quarters in European Countries
Edited by Margrit and Declan Kennedy
ISBN 3-496-02630-8
(Hardcover - Mar 1999)

Permaculture: Principles and Pathways Beyond Sustainability by David Holmgren
Cab be purchased at the following web site: www.holmgren.com.au

Essence of Permaculture by David Holmgren - free eBook - Updated August 2007: 16 page summary of permaculture concept and principles taken from Permaculture: Principles and Pathways Beyond Sustainability 2002.

"If the 'Permculture principles' that David Holmgren discusses in this extremely important book were applied to all that we do, we would be well on the road to sustainability, and beyond."
(Prof. Stuart B. Hill, Foundation Chair of Social Ecology University of Western Sydney)



Rain Gardens, by Nigel Dunnett and Andy Clayden
ISBN 978-0-88192-826-6
RRP £25 hardback (or from £11.10 on Amazon)

For anyone interested in some background reading on rain gardens, two lecturers in the Dept of Landscape at Sheffield Uni have written a good book on the topic). It addresses the role of water in the garden, the components of a rain garden (giving international examples, photos and sketches), and includes a plant directory.

Record rainfalls this year make this book especially timely: if the features of rain gardens were broadly adopted, the rate at which rain reaches mains drainage and water courses could be greatly reduced, potentially reducing the threat of flooding. As well as architects, garden designers, planners and gardeners, this book will appeal to those concerned about this issue.

by Mel Evans

New Members

We warmly welcome:

Kelman Taylor, Building Contractor, Peebles
Nadine Juignet, Environmental Management, Paisley
Tom Piper, Kilmartin
Barbara Seel, Edinburgh
Chris Wood, St. Andrews
Patrick Boase & M.A. McDiarmid, Glasgow
Leo Norris, Fife
Carla Muncaster, Edinburgh
Karen Mackenzie, Biobags (Scotland) Ltd, Inverurie
Sarah Griffiths, student, Broughty Ferry
Steve Wheatley, Landscape Student ECA, Edinburgh
Elizabeth Leighton, WWF Scotland, Dunkeld
Jonathan Hedges, Rogart, Sutherland
David Cousland, Triodos Bank, Edinburgh
Melanie MacRae, Highlands & Islands Community Energy, Sutherland

SEDA MAGAZINE

Thanks to to everyone who has contributed to this issue. If you have any views or letters you would like published please send them marked "for the attention of the Editor", to; SEDA, 28 Albert Street, Edinburgh, EH7 5LG.

This issue of the SEDA Magazine was put together by Mary Roslin, Tony Gowland and Steve Malone. While we hope you find the articles and features of interest we would point out that they do not always represent the opinions of SEDA or our sponsors.

We wish all our members a prosperous new year.