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An Ecological Model For Community Economics & Sustainable Communities

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Socio-cultural and economic systems are known to function very much like ecosystems (Capra, *The Hidden Connections*), however we lack truly ecological models for economics and for community development.

A woodland ecosystem, and the ‘forest garden’ concept¹, offer a perfect model for understanding the practicalities and complexities of economies and human communities, because an economy or human community lives, feeds and sustains itself, and evolves - or dies - in a very similar way to an ecosystem. So we can use a woodland ecosystem or forest garden as a model to better understand how economic and social forces *really* work, and how we can then use those forces, and our own economic influence to bring about sustainable communities.

This is a model of patterns, relationships and processes – at this stage it is a qualitative model. At this stage the point is to get a feel for how things work, not to try to tie it down to numbers. In the future it may be possible to use this model quantitatively, adapting computer models of ecosystems growth, ecofootprinting, etc.

The ecosystems model represents a quantum level evolution in the John Locke-Adam Smith models of economics, that were based on what were then seen as natural laws. Now that we know so much more about nature and ecology we *can* actually build useful and realistic economic and community development models based on what we *now* understand about nature’s patterns of natural complexity, diversity and chaos.

We need this new ecological understanding of economics and community development if we are to make real progress towards sustainability, because our current understanding is often failing. Whilst there are pockets of significant progress in

relation to sustainability, generally our dominant economic models are getting us nowhere very positive on this front.

Returning to economic basics, an economy is a system for distributing resources, energy, skills, knowledge and information to meet our human needs. Social and community systems also exist to meet needs. A woodland ecosystem or forest garden is also a system for distributing resources, energy, plant/animal/insect activity (‘natural skills and knowledge’) and information within a network of inter-related elements that each have their own basic needs and niches (e.g. ants and bees are excellent examples of how nature interprets and conveys information). So it can easily provide a model that can be the basis of a truly ecological understanding of economics and community development.

A woodland or forest is vibrant and healthy because of its complexity and its wide range of mutually beneficial relationships (e.g. between plants and plants, plants and insects, insects and insects, etc.). Similarly, if a community has a diverse range of activities, organisations, community groups and businesses that have a wide array of mutually beneficial and mutually supportive relationships that supply local and regional needs then it will evolve naturally into a unified and integrated system of exchange and distribution of energy, knowledge, skills, information and resources in much the same way that a forest does – naturally and through continually evolving, self-generating processes.

The basic principles of community sustainability and economic health therefore can be seen to be in accord with the natural laws of ecology and the forest – and they are:

- *high levels of diversity bring health, adaptability and resilience;*
- *system health comes from mutual support and symbiotic interactions between businesses², institutions, individuals, families and community groups;*

¹ A forest garden = a multi-layered food producing system modelled on the 7 layers of a natural forest or woodland (from canopy, to understorey trees, shrubs, herbaceous, ground cover and root crops, as well as climbers), which is deliberately designed to make every layer and element productive, or to fulfil some need (or multiple needs) of other

elements in the system – imagine a designed woodland ecosystem where every element is useful or productive. (See: Robert Hart: *Forest Gardening*, Green Books.)

² Note: Even in the global economy there is actually far more cooperation between businesses and industries than there is competition – cooperation down supply chains, between



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- *efficient use of energy and resources arises from multiplicity of functions, with each system element usually meeting a variety of needs;*
- *system fitness comes through economy and effectiveness in activities and use of resources and space;*
- *all process lead to total re-cycling of energy and resources, there is no 'waste' in nature so nothing should be wasted (including creative energy, and resources of human skills and experience);*
- *the whole system functions to build and not deplete of the community's creative and productive capacity ['fertility'] - skills, knowledge, experience, information, financial resources, social and environmental capital, etc) - to maintain and strengthen community structures, productivity and circulation systems;*
- *a wide and diverse range of niches (activities and opportunities for involvement) maintain a climate favourable to creativity, innovation and self-reliance;*
- *a wide and diverse range of niches also attracts a wide diversity of types of people, especially for cross-fertilisation of new ideas, skills, knowledge and activities.*

High and healthy levels of diversity are essential for sustainable and vibrant economic health, because in a diverse community (or world) there is a vast diversity of needs to be met. Huge corporations, whose products have to be standardised to some extent, cannot be focused on the *true* needs of people – they must be primarily focused on meeting their own needs for cost management, increased share value, continued profitability, and sufficient turnover to maintain the huge economic entity that they are. There is no suggestion that this is 'wrong' – the suggestion is that this creates a number of inevitable results, including loss of local diversity.

Communities and local economies, and sustainable businesses, are living systems - they are communities of people living and working together to distribute energy, resources and information. A woodland or forest provides an excellent four dimensional model that grows in time and space, that helps visualise and get a feel for the variety of economic and social relationships that exist amongst individuals, local businesses and community groups. Individual elements grow and thrive healthily together in the ecosystem – the ecosystem's *size* does not need to grow to ensure that all their needs are met, although the *quality*, complexity and diversity of its inputs and outputs, and its relationships can *always* grow in some way.

The model also contains further dimensions of detail. For example, different plants thrive according to different levels of lights, water and soil quality i.e. some plants will thrive on poor soils given sufficient water and light; equally some plants are happy in shade, with no need for direct sunlight, whilst others are very drought tolerant.

If we compare or equate:

- a) information with *Light*,
- b) money and resources with *Water*, and
- c) skills and experience with *Soil* (or *Available Fertility*),

then we create a very useful model for economic and community development. In this way some businesses or community activities need a lot of information to grow successfully, but not a lot of financial input. Others need a lot of money or resources, a certain amount of information but not a lot of skills or experience.

In addition, the quality of the air and wind can be seen as representing the '*Atmosphere*', mental attitude or general mood in the economy or community i.e. positive, solution-oriented communities, businesses and economies will be healthier and more successful than those with a negative, 'problem' mentality (similar to air or water pollution in an ecosystem).

producers and customers, within industry bodies, throughout the whole financial system, throughout the international standards systems, and so on.



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To take the model further the seven layers identified as existing in a woodland or forest system can be used to identify seven dimensions of activity in a local community and local economy:

1. **Private sector business** equates with *the canopy* as it uses and produces more energy and resources than any other sector; overall it needs a lot of light, soil and water;
2. **The public sector** equates with *the understorey*, often in the economic / resources shadow of business, although it has a very important role;
3. **Small businesses** (SME's) are like *the shrubs*, in that they are smaller in scale but much more numerous in number than the trees, and in many ways are equally important and productive in the overall system;
4. **Staffed / salaried third sector or community organisations** are the vibrant *herbaceous* layer that spring up to fill in any gaps, bringing health giving vitality to the community;
5. **Unpaid voluntary groups** provide the ground cover that hold the 'top soil' of the community in place, and that provide a variety of useful benefits and outputs in the community;
6. **Clubs, societies and people's individual hobbies and pursuits**, like gardening, sculpture or sport for example, equates to *the root layer* or rhizosphere, quietly growing away below the surface, often unseen, yet always playing an important role in a balanced and healthy community;
7. **The education sector** is *the vertical climbing layer* that stretches up and weaves its way through all the other layers.

This is a model that seeks to integrate community development and economics. So as it is with plants and forest relationships, many different projects, businesses and community activities will

have beneficial relationships with other activities - such as sustainable building design and construction with locally managed timber or production of bio-renewable materials. Alternatively, an ESCo or partly community-owned local energy supply company with numerous local businesses, schools and so on - or a local organic food supply network and local organic farm with local schools and consumers. The whole system is based on beneficial relationships; competition exists, but cooperation is far more prevalent. (See tables on following page, which sets out the model in a structured form).

A community garden project which could be started on a small piece of land would sit at a lower level of needs in terms of information, finance and resources/skills than a city farm - which would be a bigger venture needing more land and finance, more skills and more information to get it going and to sustain it. Equally a small business requiring premises and capital equipment (e.g. a car-wash) would need more financial resources than one that can be operated from home, although if the home-business is consultancy, that requires more knowledge and experience than a car-wash, although not nearly as much capital.

A large new enterprise obviously would generally need a great deal more capital and skills, however because it will be likely to lead to a bigger pay back, that capital and skills may be just as easy to attract as that needed for a small venture – sometimes it may be easier.

Good gardening or woodland management come from an overall sense of the garden or woodland's needs (rather than measuring everything) – equally local economic management and community development is best achieved by getting a sense of the different needs of various economic entities and community activities, and the development of healthy and beneficial relationships between those elements, understanding where seeds need sowing, where the soil needs improving or the growth of one element needs to be controlled so as not to take all the resources from many other elements.



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So the particular combination of needs for a project can be explored within a matrix of needs,

very similar to a plant or trees needs – and the table below outlines how the matrix would work:

LEVEL OF NEED	High	Medium	Low
<i>Finance Revenue/Resources/Finance Capital (equates to Water)</i>			
<i>Information/Intellectual Property (equates to Light)</i>			
<i>Skills & Experience/ Human Capital (equates to Soil)</i>			
<i>Attitudinal Change (equates to Air / water quality / Pollution)</i>			

GENERATES	High	Medium	Low
<i>Money/Resources/Financial Capital (equates to Water)</i>			
<i>Information/Intellectual Property (equates to Light)</i>			
<i>Skills & Experience/ Human Capital (equates to Soil)</i>			
<i>Attitudes / Intent (equates to Air / water quality / Pollution)</i>			

NUTRIENT NEEDS - plants	NUTRIENT NEEDS – for healthy growth of businesses, projects, institutions, etc	High Need	Medium Need	Low Need
For stem growth (nitrogen)	Specific nutrients for growth of physical capital, infrastructure and structures (e.g. finance and land)			
For root growth and flowers (phosphorous)	Specific nutrients for growth of human capital, knowledge, etc (e.g. skills training and development)			
For fruit and seed (potassium)	Specific nutrients for growth of spin-off products and enterprises (e.g. R&D, partnerships)			

Unlocking of the natural *fertility* that lies within the earth is the art and science of organic growing. Equally it is the unlocking of the innate fertility within people and a local community / project, or business - skills, experience, motivation and abilities - that is the art and science of sustainable community development and sustainable economic development (i.e. nurturing and feeding their

productive potential). Creating a good, rich, living ‘soil’ will have a huge and powerful effect, whether one is talking of the ‘garden’, or talking of the ‘community’ and local economy.

There are also different cycles of productivity within the community. As some trees take years to mature and fruit, so it is with some projects or businesses. Others are merely annuals, but these lie mainly in the layer of



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community activities rather than that of businesses, large or small – although some shrubs (SME's) have a relatively short life, whilst others can grow into canopy trees. Being aware of these different scales and cycles of productivity, both in terms of maturing, and then the seasonal fluctuations of productivity can help shape or design a local economy or community that is healthy and productive through the year, and from one year to the next.

Within any community there is always a level of competition, both within sectors and between sectors. In the same way that there is competition for light or water amongst plants, so there is competition for information or money amongst businesses, amongst community groups, or between particular sectors such as health and education. But what is far more important in creating a healthy and sustainable community and economy is mutual aid. When you look carefully you see that within sectors and between sectors, between organisations and within organisations, ***there is far, far more co-operation and mutual aid than there is competition, especially in business*** (i.e. supply-chains, industry groups, professional associations, industrial standards systems, the whole financial system, etc). Without this high level of co-operation, that has emerged because it finds the best ways to meet everyone's needs, the system would collapse. Mutual aid is the law by which all this complexity grows and sustains itself. It is what enables any community or economy to grow, mature, blossom and bear fruit.

In a forest garden there are insects, birds, animals, fungi and bacteria. There is a huge diversity of different forms of life all have different functions and relationships between each other that help them to exploit particular niches. In a healthy community and economy there are specialists, innovators and skilled individuals in each sector, trade or organisations, and there are musicians, artists, community activists and sports enthusiasts - they all have their particular niche, and they all play a part in keeping the community healthy and alive.

The critical insight is to understand that it is the way elements are placed together and the relationships between them that is crucial in maximising the health, productivity and even the beauty of a system. Whether you are looking at a woodland or forest garden as a community of life including plants, animals and insects, or looking at all the diverse parts and pieces of a community of people or an economy, with its institutions, businesses and voluntary groups, all these systems, these living communities, depend on flows of energy, information, skills, knowledge and resources. To have a healthy and sustainable community, within a beautiful environment, you need numerous, diverse and balanced cycles of energy, information, skills, knowledge and resources.

Where the income and profits generated by a community flow largely into non-local sinks (such as national chain stores or multi-nationals) there will always be a gradual, or sometimes rapid, depletion of the local community's fertility, creative capacity and resources. Similarly, a small range of introduced species that you can find all around the world in food producing monoculture systems – 4 crops supply 50% of human food needs. These crops take out of the system more than they put in, thereby exhausting the soil, and destroying the diversity and the self-generating creative and productive capacity of an ecosystem or landscape. Equally a community can be exploited and gradually degenerate if it becomes exhausted by businesses with no real local interest, which put nothing back into the local area. In the same way that large scale organic farming has a role because not all food will be supplied by small local suppliers, there is a role for large scale businesses ... However, they *must* put a lot back into the local areas where their operations are based, and not simply suck anything of value back to head office and the shareholders – in the same way that large scale organic agriculture consciously puts a lot back into the soil that it farms. And in the end they will get more in return, because you can't get a long



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term return if you are always creating a desert in your wake.

Another pattern that has obvious ecological parallels is that our society is tending to create communities and a mainstream culture that are less and less diverse - in the same way that it is creating vast agricultural monocultures. Whilst we may have a more diverse mix of peoples or cultures overall in our towns and cities (like introduced food plant species), most of those towns and cities look and behave much the same, with the same types of high street stores, pizza parlours and theme pubs, shopping malls, junk-food outlets, shopping malls and lifeless steel, brick and glass supermarkets and business parks, popping up where ever you look. Similarly, whilst there are thousands of native and exotic food plants, 50% of all human food needs are met by just four plants – wheat, potatoes, rice and maize, all of which are non-native, as is soya, which is the next largest source of food.

In this way the domination of towns and cities by national chains creates a less interesting, less creative and in the long run less productive system overall. The chains harvest the fruits without returning sufficient resources to sustain a diverse, healthy and fully productive community. They throw on the chemical fertilisers - in the form of an easy and secure life, car loans, regular holidays to get away from it all, pension contributions and the promise of a better future – and the pesticides – in the form of addictive and unhealthy foods, drinks and medicines - whilst gradually exhausting us during the best years of our lives.

What this means is that our local towns and cities, and our culture overall function well in many ways, as a kind of monoculture they sustain a complex system that is currently meeting many of our current needs. However, in doing so they are becoming less and less beautiful, less sustainable, and more and more mundane, uniform and uninspiring. The flows of energy are not healthy - they are outward and draining, rather than being circular and

creative. This runs against the fundamental principles of nature.

We only need look around to see the effect this has on our hearts and souls. Where is the beauty in all this? The spirit of many of our communities are dying a slow death, whilst we are offered pills, junk food, entertainments and distractions to take away the symptoms of malaise. So we drive on down the ugly urban highway, going with the flow, stuck in a traffic jam with others, and constantly reminding ourselves that we should have taken that last turning. Stuck in a long check-out queue, with the tills not working ...

Meanwhile, in working towards sustainability we are developing an integrated science of local economics and community development that is based on a truly ecological understanding. Nature, the woodland, the forest garden - these are vital tools in such a science. They can help you and others in the search for practical alternatives to the one dimensional economic models that are currently dominant - yet which don't work well. Better still, creating, caring for and being cared for by a forest garden will help you to understand and experience the ecological nature of beneficial community relationships and the natural law of mutual aid. It will help you to understand the inter-related global-to-local economies that you are part of and that you constantly have an input into and an effect upon. And it will also give you food. In this way good gardeners can become good economists or perhaps even good politicians (... which echoes of Peter Sellers last and very brilliant film, *Being There*).

The key is to use our economic power and economic effects wisely, consciously, creatively and effectively ...