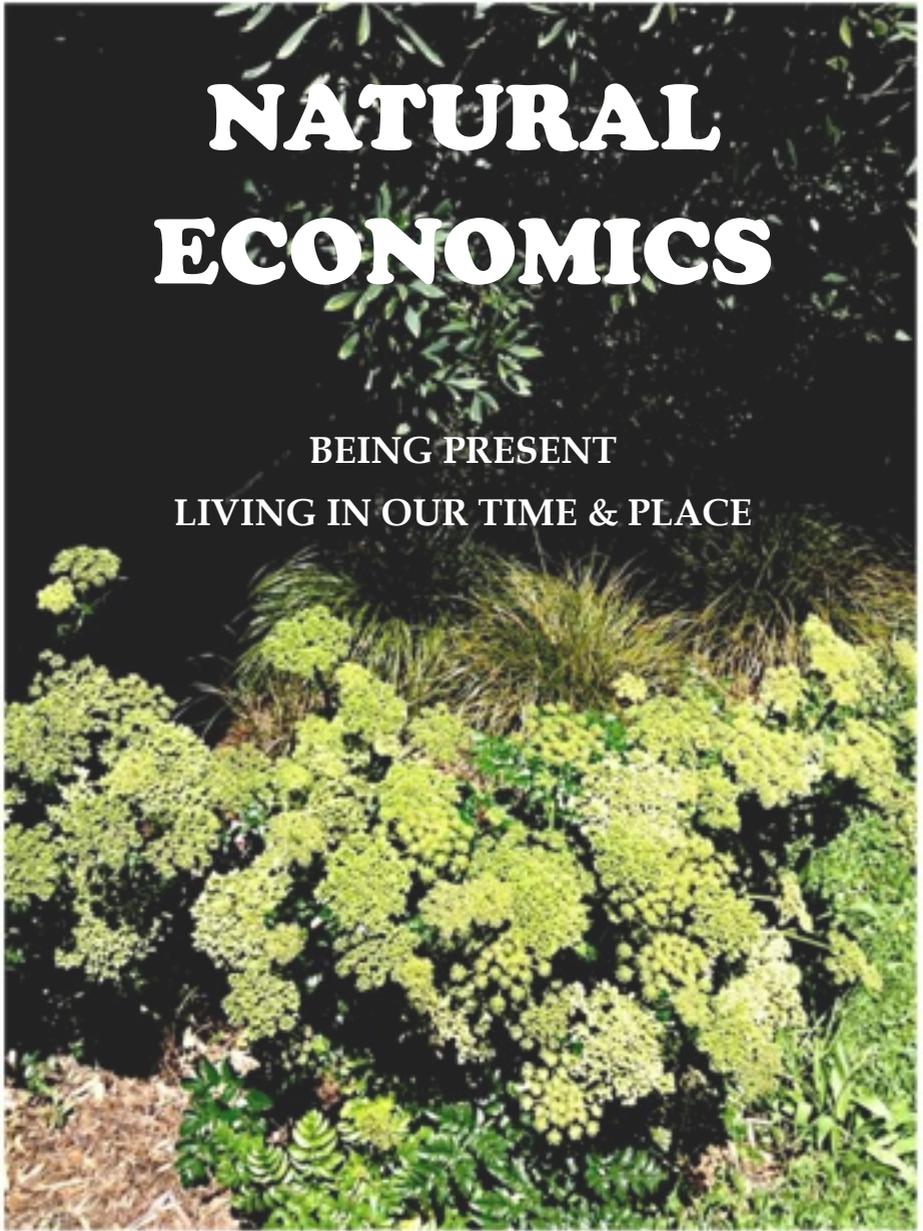


NATURAL ECONOMICS

**BEING PRESENT
LIVING IN OUR TIME & PLACE**



A TRANSFORMATIVE VISION

GARY WILLIAMS

Water & Soil engineer - Biodynamic farmer - Permaculture activist - Natural philosopher

Gary and his partner Emily live on a small farm where there is a wide diversity of farming and forestry activities, from home gardens and orchards to staple crops, animal grazing, firewood and plantation forests, and wilderness. Their stewardship of this land is guided by the principles of permaculture and the practices and methods of organic and biodynamic agriculture. They have a bio-filtered swimming pool and an eco-building farm stay for short-term rental.

Gary is a teacher of permaculture and provides advise and design assistance to people and communities seeking a more resilient and sustaining way of living, which reflects the nature of their place.

Gary works from home as a professional engineer in the field of water and soil resources. His academic qualifications are: Bachelor of Engineering, Bachelor of Science (Physics) and Master of Commerce.

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“Community Democracy – A Study in Alternative Economics”
1977, 145 pages.

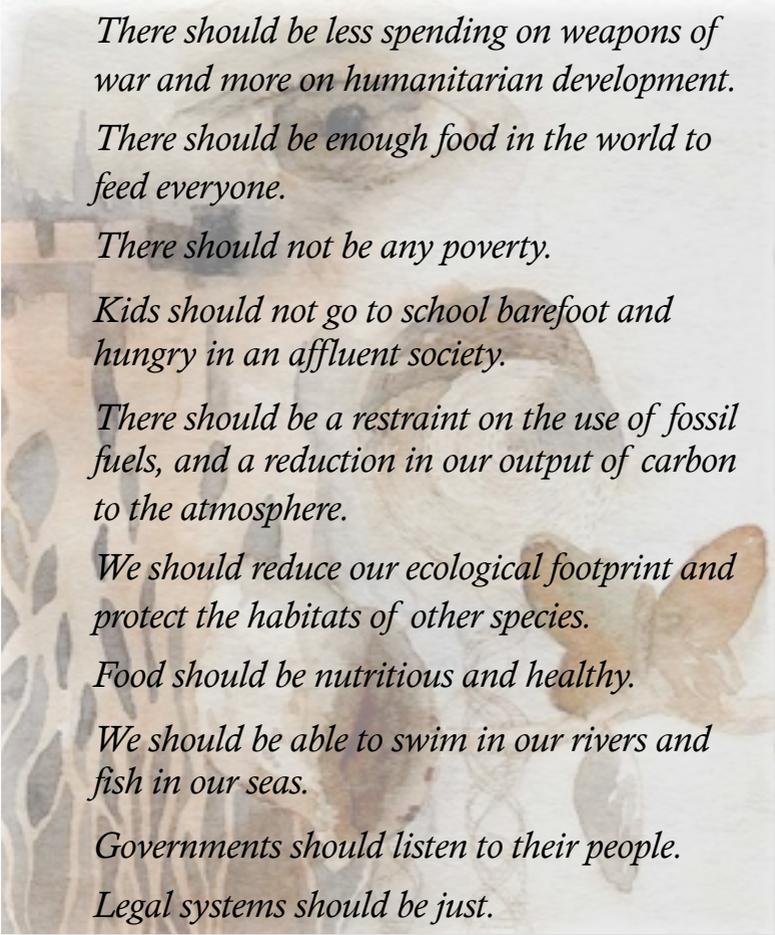
“Patterns of Exchange – A Study in Human Understanding” 1988,
401 pages.

“Out of the Helix – Essays on Cultural Transformation” 2006,
275 pages.

This pamphlet is the second of three, and describes a possible economic system based on the patterns and processes of nature.

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There should be less spending on weapons of war and more on humanitarian development.

There should be enough food in the world to feed everyone.

There should not be any poverty.

Kids should not go to school barefoot and hungry in an affluent society.

There should be a restraint on the use of fossil fuels, and a reduction in our output of carbon to the atmosphere.

We should reduce our ecological footprint and protect the habitats of other species.

Food should be nutritious and healthy.

We should be able to swim in our rivers and fish in our seas.

Governments should listen to their people.

Legal systems should be just.

There are lots of 'shoulds'.

But wishing or desiring is not reality, and is not realising.

There are good reasons why things are the way they are, and much of it has to do with the economy.

“It’s the economy, stupid.”

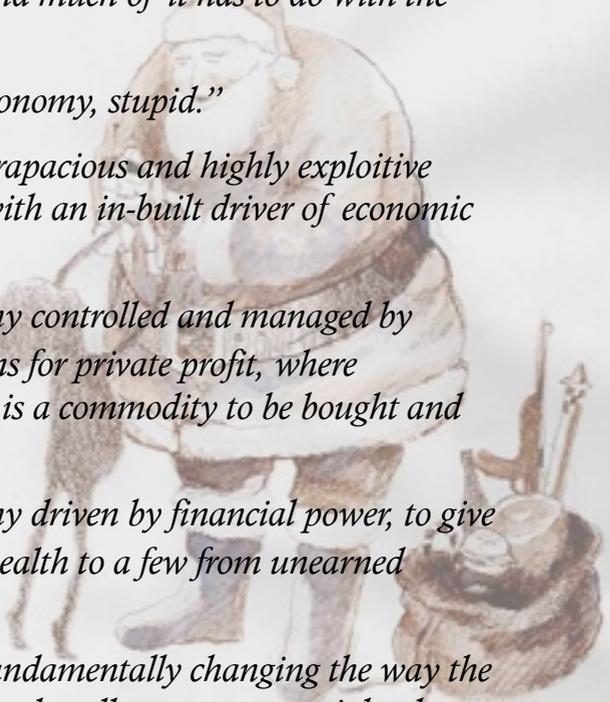
But it is a rapacious and highly exploitive economy with an in-built driver of economic growth.

An economy controlled and managed by corporations for private profit, where everything is a commodity to be bought and sold.

An economy driven by financial power, to give excessive wealth to a few from unearned income.

Without fundamentally changing the way the economy works, all attempts at social redress and a fairer sharing will, sooner or later, fall flat. Repeatedly.

There is a disconnection between our way of life and the economy that provides it, and the ways of nature and life on planet Earth.



	NATURAL SYSTEMS	HUMAN STRUCTURES & PROGRAMMES
EDGE	<i>complex diffuse margins</i>	straight fixed boundaries
PROCESS	<i>multi-functional inter-connected processes</i>	separate single objective structures or service functions, with simple causal connections
PATTERN	<i>complex repeating patterns (similar at every scale)</i>	unconnected specific solutions (different for every problem)
SYSTEM	<i>self-organising open exchanging systems</i>	highly managed inputs & outputs of separated components
CONTROL	<i>multi-level feedback linkages (of information and energy exchange)</i>	imposed control by constant surveillance and additional energy to monitor sequentially linked elements
RHYTHM	<i>variable pulsating rhythm of constancy and extremes</i>	uniform regulated rhythm, of no surprises and 'business as usual'
OUTCOME	<i>interwoven cycles of growth & decay, giving both robustness and a dynamic creativity</i>	continuous expansion based on maximising short-term gains, giving increasing exploitation, and a dynamic of competitive fear

To understand an economy that allows and encourages us to live in partnership and with respect and responsibility, we have to understand nature.

This means we have to reconnect.

Then we can envision a natural economics, of healthy sustenance and good living for all.

An economy that is constructive and regenerative, providing sufficiently for our needs, while maintaining the ecosystems and habitats of our environments.

NATURAL ECONOMICS

AN ECONOMY

An economy is mostly about bread and circuses, about the consumption of material goods and those services that have a material basis or requirement. We can not, though, live by 'bread' alone, and the economy is a subset of society, and conditioned by the culture and beliefs of that society.

Healthy vibrant living requires an all-round nourishment of body, mind and spirit. Healthy food, vitalised water and comfortable shelter nourish and protect the body. Supportive communities that foster creative potential and cooperative enterprise nourish the mind, while a sense of connection and identity, of belonging and purpose, nourish the spirit. Human societies are a subset of the living eco-systems of the world and the physical processes and energies that underlie and make possible this life on Earth. It is our connection to the wider environment in which we live, and which contains, supports and enlivens us, that gives direction and purpose to our activities.

An economy is concerned with our material well-being, but it depends on natural resources and living eco-systems to provide the 'raw materials' that are modified by economic activities to give (humanly) consumable goods and services. It is a social abstraction of rules and institutional arrangements, that direct physical action and enterprise and organise these activities for specific purposes and outputs. To be productive and healthy activities that strengthen and enhance the larger world of which we are a small part, as well as our own health and well-being, this social eco-system needs to mimic the ways and means of natural eco-systems.

A natural economics would be a social system that follows the ecological principles and strategies of life on planet Earth. It

would be defined and organised by a cultural framework based on sharing and caring, of giving as well as taking, within the constraints and opportunities of our place and its dynamic and ever-changing environment. This culture would be one of permanence or long-term resilience within the natural dynamics and continual exchanges of energies or information that is the signature of life.

A natural economics would be a subset of a society that understands the nature of its place and time, with its dynamics of change and self-regulation. This human society would then be a subset of the natural world, of life on this planet, recognising the part it plays in the greater scheme of things, from atoms and DNA to galaxies and the cosmos.

Natural economics is about nature and economics, and its principles and arrangements would replicate those of natural systems.

NATURAL SYSTEMS

Life is an interdependent, responsive and creative system, dependent on, and interacting with, physical resources and processes that are continually varying and changing in tempo and rhythm. There is an essential movement and dynamic pulsing to life, which repeats itself at all scales, and keeps living systems far from a stable equilibrium, or static state. Life loves difference and diversity, always exploring the margins and continually testing the limits of order and stability. In natural systems there is life and death, growth and decay, expansion and contraction, and all this interaction and exchange takes place in complex eco-systems within larger systems.

Natural eco-systems have a very different rhythm to that of our present economy with its time-rigid orderliness, high-energy and destructive technology and ever increasing exploitation and expansion of consumption. An economics of equilibrium and

stability is an economics of death not life, while one based on ever-lasting growth is just as unsustainable.

Well functioning eco-systems are self-organising, and maintain themselves by continual exchanges and the flow through of energy or information, with multiple connections and feedback linkages. They are highly inter-related, as systems within systems, supporting and being supported, in a very complex and interconnected way. They have a pulsating dynamic and a form or structure of interwoven converging and diverging spirals that gives both identity and connection, with these patterns being repeated at all scales, from the atomic to the cosmological. They are, then, highly productive and resilient systems, that have an essential vitality and creativity. Life is an open-ended and evolving complex of systems, and hence inherently unpredictable.

Our social systems need to have the same form and dynamic, and be as interconnected and responsive. Sustainability is about systems dynamics, and being supported by the larger system of which any sub-system is an integral part. It is not simply about maintaining our resource base with renewable sources of energy, or protecting biological or cultural diversity, but depends on a systemic integration that gives rise to a (dynamic) balancing within the greater whole, and in a coherent and self-regulating way. This gives rise to a balance of supply and use, with no 'wastes', because all outputs become inputs, and no on-going excess in the consumption or population of any part or species.

The sensitivity and responsiveness of eco-systems makes them self-regulating, and effective social systems, aimed at maintaining the health and well-being of all its people, will be based more on responsibility than rights. Taking responsibility, for what is your part or role (your rights) is empowering as well as connecting.

A natural eco-system you may find easy to focus on is your own body. It consists more of foreign species, by weight, than bodily cells. There is a large mass of them in your intestines, so the food you eat can provide nourishment to the cells of your body, and others that allow your skin to provide a breathable protective layer. Everything in the body has to function in its appropriate way through continual interactions and exchanges, and for health and well-being no part is more important or essential than another. The flow of blood to every cell of the body provides their necessary nutrients and takes away the toxins and by-products of the life-giving processes.

We then exchange with larger eco-systems to maintain ourselves as a whole. An individual with its own identity, but one conferred by exchanges and connecting relationships.

Systems of nourishment, information transfer and monitoring, feedback regulation and reproduction, define and maintain us, as individuals, as they do in larger (and smaller) living systems.

A natural economics would give rise to a social arrangement with comparable systems to regulate and maintain it, and ensure healthy, creative and responsive relationships, socially and with the wider natural environment of the society.

DYNAMICS OF LIFE & THE ECONOMY

If the universe exists, then it is because of change. Movement brings about being, energy transfer gives rise to a differentiation, of less and more. At its most basic, existence involves a polarity, where movement gives rise to difference. There is both flow (energy) and substance or identity (matter), and both are defined by each other.

In an economy there is both exchange and storage (assets), and a well-functioning economy must allow continual exchange through all its parts and have storages at all levels. Like matter and energy, storage and exchange are connected and

interdependent. Storages are more concentrated accumulations (that may be used locally), while exchanges transfer storages between (separated) entities that have some definition or bounds. The real economy, like all of life, only exists in the present. Recognising that all economic activity takes place in the present is critical to an understanding of economics – as it is of all aspects of life!

There is an essential differentiation, which we can call positive and negative, but this duality is wound into a complex of interconnections that generates the vast and fantastic diversity of the universe. The interweaving of diverging and converging spirals gives rise to the fundamental form of the torus, which we dumb down into dualities in the structured logic of language.

The two extremes of a spiral are a point (or circle) and a straight line. The circle is complete and stable, while the line goes on for ever. Spirals interconnect, flowing into each other, with some identity and some interaction. There is both substance, or matter, and flow or energy, storage and exchange – and its all happening together, in time and space.

Abundance and scarcity are then two sides of the same coin, and when there is abundance in one part there is scarcity in some other part, and vice versa. Excessive accumulation or consumption in one part starves another. Our present financial system generates a monetary scarcity, as the banks issue less money than they demand back, through the interest surcharge on loans. This imbalance of supply and repayment generates a competitive drive for economic goods, and hence an abundance of technological innovation and productive activity – whether it is really beneficial and enhancing of well-being.

The abundance of human goods and services, of course, then gives rise to scarcity for other species, through habitat destruction as well as by direct consumption. There are no free lunches, as everything is connected, and the influences of any activity spread out and affect the encompassing larger systems in multiple and

diverse ways — and hence unpredictably from our perspective. Extreme excesses generate large disturbances which ripple out in all directions through the eco-systems and networks of life and physical processes. The more rapid the excess of population and consumption growth, the greater the disturbing and distorting impulses.

The present world economy of financial capitalism is one of ever accelerating growth (within its boom and bust cycles), but it is structured on a basis of strict asset and liability equalisation. From a structural viewpoint, the economy is assumed to be one of stability, with supply and demand trending towards equilibria. Debits and credits equalise and hence are in perfect balance. Similarly savings equal investments.

Given an ever-expanding money supply, this balance can not be achieved, and there has to be economic growth, in the real economy, for something to be associated with the additional money, or the currency will be devalued by inflation. The easiest outlet in the 'real' economy for this spiraling money is in rising land values. Producing new goods or services requires innovation and new technologies to attract additional spending, and this does require real effort and economic activity. Despite all human ingenuity, the land area of the world does not grow. Or only very marginally through lake or sea reclamation!

There is a direct connection between the expansion of the money supply by credit creation (unrelated to any economic fundamentals) and the increasing value of the underlying land, for any economic activity, be it agriculture, housing, commercial or whatever.

There are two simple scams, or myths about economics, that seem to con most people. One is that interest as a risk premium should also be charged on the risk-free credit created by banks, which is unrelated to any of the assets or deposits held by the banks. The other is that people gain from rising sale prices of houses or buildings — as general across-the-board increases. It is

the underlying land value that is being represented by increasing numbers of dollars. The houses and buildings deteriorate over time, and require on-going maintenance, and this reduces their real value, as assets.

The land and houses do not improve over time because of a general increase in land or house values! It just means the loans required to purchase a home or upgrade to a 'better' home become larger. The payments made by wage and salary earners to occupy a house increases, while the houses, of course, remain the same, or actually decline in real use value. People have to work harder and longer to save a deposit or service the mortgage, as house values increase more rapidly than wages.

There is, thus, a fundamental disconnection between the theories of conventional economics, of equilibrium and stability, and the 'necessary' growth driven by a competitive monetary expansion. The relative scarcity of money means people (and governments) compete to obtain sufficient of the available money to pay their debts, or at least the interest on their debts. People and governments have to work harder, or be more and more engaged in money making activities, to service debts that can never be repaid. More and more community resources, assets and cultural treasures are sold off to a very small moneyed elite to repay loans, which were taken out to pay the interest on previous loans.

All the peoples of the world are being drawn into this expansionary and competitive economy, through a very contagious 'virus' of greed and self-interested enrichment. Conventional economic theories have no answers to the destructive impact of this growth on the natural environment and the compounding loss of species, the tearing apart of families and communities, or even how to manage the debt that is intrinsic to the money supply.

There is far too much expansion and competition, and far too little contraction and cooperation. Where there is birth and growth in life, there has to be death and decay. Maturing and

storages require cooperation, and within the dynamics of life there have to be conditions favourable to cooperative activities as well as competitive growth. Our bodies burn carbohydrates to obtain energy, but to remain healthy we must have reducing anti-oxidants in our blood stream. Our food must be both alkaline inducing and acid forming, with a constant interplay of nourishment, cleansing and protection.

Throughout all the complex interweaving processes and relationships of life there are dynamic pulses from opposing influences, a movement of energy or information between semi-closed but interconnected entities. This dynamic and open-ended connectedness must underpin a natural economics, with appropriate yin/yang balances.

YIN	YANG
CREDITS (Accumulation)	DEBITS (Utilisation)
SAVINGS	INVESTMENT
STORAGE (Maturing)	EXCHANGE (Growth)
COOPERATION	COMPETITION
ABUNDANCE	SCARCITY
ACID	ALKALINE
REDUCTION	OXIDATION
CONTRACTION (Implosion)	EXPANSION (Explosion)
CENTRAL CORE (+ positive)	FREE ENERGY (– negative)

TRANSFORMATION

The fundamental disconnection of the present economy from a humane culture and the natural world means that a profound transformation is required to bring about a natural economics. Transformations are very much part of the natural world, and there is a generalised system dynamics to the way in which these transformations occur. Everything in this world goes in quantum jumps, with different pathways for the processes that reverse the state of a system. Moving from state A to state B follows a different pathway to that of moving from state B to state A, and there are irreversible jumps, or sudden state transitions, on the way.

There is a step-dynamic to life, with polar swings, and the more extreme the excess in one direction, the more catastrophic the responding transformation and the more destruction that is required to bring it about. Catastrophes are simply larger and more intense occurrences of events that have a wide range in their scope of action or energy intensity. Transformations that radically alter the form or function of a system, organism or ecosystem are a specific type of change, but a very common one in nature. The metamorphosis of a caterpillar to a butterfly, or a worker to a soldier ant, is a complex and dynamic process of struggle and shifting trends. It does not happen through gradual alterations and progressive development. A climatically induced change in forest type or from forest to grassland can be very sudden, and initially very destructive of the living components of the existing ecosystems.

The transition to a natural economics from the present extremely expansionary one will not occur through many gradual steps that will be 'acceptable' to people as they live their lives at present, with their present cultural mind set. On the contrary, it will come about because of changes in our understanding of life and the part we play in this life on Earth. This is the pre-condition –

whatever the cause. There has to be a cultural and then political shift to provide the necessary social framework for fundamental change. The implementation of the new economic arrangements and institutions can then take place rapidly, as a transformational process.

This will cause disorientation, fear and genuine suffering, but the need and desire to carry out the changes will provide the momentum, and carry the day, provided there is a clear vision of what is proposed. I do not see such fundamental changes being brought about gradually through a progressive implementation of policy changes with a varying mixture of old and new. There will be a transition period, and no doubt there are many different ways of bringing about useful changes and sowing the seeds of a natural economics. Many reforms are, though, likely to be counterproductive, and in essence part of the protective responses of the present power structure, and within the cultural mind set, beliefs and identity that underpins and maintains it.

I will, therefore, focus on the ways and means of a natural economics, to paint a picture of what it would be like, and how differently people would be influenced and behave within such an economy. Seeds of this economics can be formed now, within the present hostile environment, given an isolating shell to protect the essence or germ of the seed from the repression and potential attacks that it would otherwise be exposed to. I will not try to outline some sort of complete set of transition measures, as I think this is both unnecessary and distracting. That is for the moment, when the opportunities arise as the existing economic system breaks apart or self-implodes. It could be very complex or quite straightforward, but either way, most probably messy.

Any transformation to a natural economy from our present circumstances has to follow the ways of nature, while the resulting economy has to reflect the particular character and nature of its place and society. It would start slowly, one small step at a time, like a natural transformation, with self-monitoring

and feedback as different ideas and approaches are tried out and tested. There are many trials and much failure, and that is an essential part of the process. It is a quite different way of living that is being tried out and planted in different environs. Then, when the time is right, the new approach, now well tested, can rapidly spread and develop.

If a habitat is to radically change, the existing plants, animals and soil microbial life have to be largely destroyed. It is the burnt or decaying matter that provides the fertility for the new seeds and stimulates the growth of a different type of ecosystem. The present political and economic systems have to collapse, in smaller and larger ways, to provide the opportunities for a new way. Then the seeds of a different way of living can sprout and flourish.

The faster and more catastrophic the collapses, the greater the opportunities. But the seeds must be prepared, as nature abhors a vacuum, and something, anything, will fill the gaps if there are no or insufficient proactive responses.

That is the challenge.

LIVING WITH ENOUGH

Natural economics is based on interdependence and self-regulation to ensure a fair sharing and the nourishment of all life. Essential to this is a sensitive responsiveness to what is happening, locally and throughout the sphere of influence of the economy. As a social 'ecosystem' it is made up of sub-systems and is nested in larger systems, and feedback monitoring that triggers appropriate action is required at all levels and throughout the system.

It is not a stable economy, but one that is regulated to ensure all the exchanges of the economy result in an on-going dynamic balancing over time and space. Excesses are reigned in and deficiencies remedied. There is an underlying appreciation of

what is enough, with an acceptance of the limits of life as well as its opportunities.

It is an economy of sharing and limits, as well as stimulation and creativity.

What, then, would it look like?

At its simplest, an economy consists of a means of exchange and rules about rights of access to resources and services. There are use rights or ownership that allows management and direction of economic activity, and there are methods of exchanging the goods and services that are produced within the economy.

The rules and obligations of the economy are set (and changed) by some form of social decision-making or governance. The economy is a social arrangement to achieve social purposes, and it functions within ground rules set by society. There is then a larger issue of governance and the exercise of power, and this arises from cultural norms and beliefs.

Thus, to come into being a natural economics requires a cultural transformation that changes power relationships and social expectations. However, in this essay I will focus on the form and functioning of a natural economy, leaving aside its larger context. Given the transformation in understanding, values and attitudes that would make natural economics possible, what form could it take and how could it function?

Assuming community decision-making and governance that is inclusive and encouraging of participation and responsibility, a natural economics would be based on local communities, as the basic units or cells of the system. These communities would be grouped together into inter-linked sets with common purposes, which would act as nodes for a larger grouping. In this way there would be societies made up of nested communities, which would themselves be sub-systems, as systems within larger systems, as with natural eco-systems.

The basic necessities of life (water, food and shelter) would be provided for locally, to ensure a direct connection of people with their place and its landscape and natural character. This basic interdependence of people and place is essential to a natural economics. Self-regulation then requires restrictions on the trading of basic necessities. Economic exchanges beyond the closely grouped communities of a local region could, though, still be very extensive, and include manufactured goods and many different services. The proviso is that the basic survivability of the local communities is not compromised by these exchanges. The purpose of trade and exchange should be to enhance the productivity and creative potential of the communities engaging in it, not engender a one-sided dependence or facilitate a privileged group that extorts its necessities from servile sections of society.

A natural economics is, thus, founded on an acceptance of life with its inherent limitations, which come from a connection to place and a sense of respect and responsibility to the larger systems of life that support us. Its trade would be regulated by the real constraints of the natural world and living ecosystems, and therefore the means of exchange used for trading would be essentially non-expansionary and self-expiring over time or as trades are completed.

The sharing that lies at its heart means that rights of use or ownership would be largely held in common, with guardianship responsibilities, and economic activities would be undertaken within an ethic of openness and cooperation.

This is very different to the highly privatised and competitive economy we suffer under today, with its emphasis on unlimited consumption and an irresponsible exploitation of anything and everything.

COMMONS & OBLIGATIONS

The essential expansion of the current economy is driven by debt based monetary expansion and private ownership of the fruits of economic activity. Over time there has, therefore, been an increasing expropriation of the resources of the world and the treasures of human culture. Nearly every type of thing or service has been converted into a commodity that can be bought and sold in some sort of market place.

A natural economics requires a reversal of this privatisation and commodifying of economic goods and services. A reclaiming of the commons – of land, water, knowledge, symbols, chemicals, genes, and all the other expropriated physical, biological and cultural ‘resources’ that are the common heritage of humanity, and of life as a whole.

There can be many different approaches to ownership and use rights, and we do have different types of ownership in our present economy. A natural economics would have a diversity of rights, obligations and modes of ownership. Land held in common can be shared through agreed rights and responsibilities, or leased out for different uses through rental agreements. These agreements can be based on customary use or be specific to individuals or families as tenants in common.

Public land is vested in a political or governing authority and managed by the staff of that authority on behalf of the public in general, and these authorities can be at a community, local, regional or larger national level. Private land can be held by individuals, partnerships, trusts, companies and large corporations, and the private owners then decide the use and management of that land.

Economic enterprises can, similarly, be owned privately, by public authorities, or held in common as cooperatives. Cooperatives can be a group of producers with a common interest or product, or consumers with similar buying

requirements, a mutual trading society or mutual financial associations for savings and loans or insurance. An enterprise may be held in common by its workers, or have a more complex structure involving all its stakeholders: workers, suppliers, buyers, financiers and the local community.

The mix of ownership and the obligations around the use and management of economic resources or enterprises, through custom, lore or law is an important determinant of an economy. The way it operates and the outcomes that result from economic activities is fundamentally conditioned by ownership and the decision-making rights/responsibilities that go with it. In a natural economy this mix would be guided by principles of an integrated support and caring for all people, communities and environments, the maintenance of health and a robust resilience throughout, and a flexibility that allows creative endeavour and effective feedback and regulation at all levels.

It is not a matter of either/or, but the appropriate mix to achieve the desired social and environmental outcomes.

EXCHANGE

There are many different ways of exchanging economic goods and services, and money or currencies that act as tokens of value is one means. The aim of a representation of value, be it a stamped gold coin or digitised numbers in a computer, is to facilitate exchanges within a group of people, or between groups of people, who want to buy and sell different things. Instead of direct trading, one-to-one, a series of trades can be carried out, and by many different people, or economic agents, with an overall balancing up achieved across all the trades.

Anyone can issue money, provided someone else accepts it. It is just some thing or symbolic entity that other people will accept as representing economic value. An IOU that represents something of a given value can be passed on and facilitate other trades. It is

issued into circulation by the person who writes out the IOU and will back it, by providing what is owed to whoever presents it back to them. When it is cashed in, or redeemed, it is cancelled. It is issued, circulates and then is cancelled. Similarly a letter of credit from someone (or authority) who is trusted by others can circulate and facilitate exchanges. This is, in fact, the historical basis of monetary notes. It is all a matter of acceptance and trust.

In a natural economy, money, or means of exchange, would be issued at all levels. Individuals and families can simply book-keep exchanges between themselves. Local communities can issue their own money to circulate within that community. Producers can also issue vouchers backed by their products, which can circulate as money. Gift vouchers are a form of money, and can be used for other exchanges before being redeemed for their face value and specific product.

Reclaiming the cultural commons of gifting and the personalised exchanges of mutual obligations is the first step. Money exchanges are based on exact accounting, of equal \$ value from buyer to seller, and thus can be formally added and subtracted. Obligations are much more complex, without the equal value exchange of money, and are based much more on need and ability to provide. Obligations bind people together and develop communities of trust and goodwill. There is no strict accounting, and mutually understood obligations within a community, or functionally connected groups of people, has been the basis of social living and the main method used for exchanging goods and services. The wide spread use of money for economic exchange is very recent, and has paralleled the privatisation of assets and resources. Returning to gifting and mutually accepted obligations is the most important 'monetary reform'.

Obligations facilitate social or economic exchanges within the smallest groupings of people, of families and close friends and neighbours, where there is the necessary trust and goodwill for sharing and helping. Beyond that smallest social unit are

communities of common interest, where local currencies can be used. Some more formal management of these currencies is required to facilitate trading and maintain balances of debits and credits, but there can still be strong social support and sanction to ensure fairness and a sense of responsibility.

Local currencies can take a wide range of forms, from privately issued scripts backed by products or redeemable gift vouchers, to the bookkeeping of local exchanges of LETS (Local Trading and Exchange System) schemes. Time banking involves a bookkeeping of exchanges, but based on time, or hours, where all hours are treated as equal, regardless of the services provided.

These local currencies extend the range of economic activity and generate additional exchanges, while being managed in a self-organising way by people in local communities. They increase local economic exchanges, but within the community that accepts the currencies. Beyond the local communities and their currencies would be wider circulating national or internationally accepted currencies.

There could be different national and international currencies or means of exchange to facilitate the many and varied economic activities of larger societies, with very complex technologies, long development or construction lead times, and a wide range of servicing requirements.

The dynamic balancing of a natural economy can be maintained by a yin/yang duality of currencies. One would encourage growth and innovative competition, while the other would reflect the maturing and decay of all material things. Both currencies would be managed by governing or public authorities, and be legal tender with the same (and directly exchangeable) denominated values, but with different notes to identify and underwrite them.

A time devaluing currency would be issued directly by a government authority, which was redeemable for all government

fees, taxes and rates. This direct issuing of money would eliminate government borrowing from private banks to fund government activities. To maintain its denominated value, a fee would be payable at defined time intervals, by those holding this type of funds. This demurrage or 'rusting' of the currency would encourage its circulation and use as a means of exchange, and not for savings or storage.

Government chartered, but privately or cooperatively owned banks, would be able to issue legal tender money, and lend it at interest – as at present. They would do this using savings deposits, and lend for activities that generated more economic output. The growth in the economy through the development of additional goods or services would pay for the interest charged on loans – and represent in the real economy this interest. This lending would be regulated by the reserve ratio, of saving deposits to loans issued, and in a dynamically stable economy (with no overall growth) the lending would be on a full reserve basis, solely from the savings of others, and not by any unbacked credit creation. If some overall growth was warranted for a period of time, then the public regulator could adjust the reserve ratio to be less than 1.0.

The banks would bring together savers and borrowers, with interest paid to the savers and by the borrowers. The banks would charge fees for their money clearing and investment facilitating services, and not earn revenue from margins on interest. The interest is a direct exchange from borrowers to savers for the use of their savings to invest for future productive returns.

Both the interest bearing money issued by private banks and the publicly issued fee bearing money would be legal tender and interchangeable, but would be separate currencies and accounted for separately. There would be fees to pay on the government issued money, and its circulation would most likely be within the realm of the government authority that backs it. The interest

demanding money could, on the other hand, circulate beyond the borders of the chartering government, to facilitate foreign trade and exchange. External trade, beyond a society with a certain cultural identity and legal jurisdiction, would take place when there were mutual savings, for both parties, given an agreed exchange rate or conversion of bank issued money or 'lines of credit'.

This dual currency system of money creation allows money to reflect both the natural decay of real assets and economic goods, and the natural growth that comes from exchange. A money supply that is all interest based allows money to grow regardless of what is happening in the real economy, and encourages the accumulation of money and savings (as future buying power) rather than the encouragement of economic exchange and productive activity.

Money is the blood of the economy, and it has to move and be continually used for exchanges to retain its usefulness. Storage of value takes place in living cells, in real economic assets. The blood brings nutrients to all the cells of a body and takes away the wastes or by-products of living, allowing growth and managing death and decay. The heart acts as the main regulator of these flows, being a moderating organ, not a delivery pump. Similarly, all currencies and means of exchange require some form of regulation or management. Cross-boundary exchange rates also have to be determined for all interacting currencies.

The key issue with money, especially money that has a standard unit for adding and subtracting accountancy, is value. What is the value of the unit. Local currencies now in use are generally complementary currencies, which directly or indirectly use legal tender (national) currencies as the measure of value. The exchanges are worked out in accord with understood \$ values. Only time banking uses a different measure of value, that of an hour of human labour.

In the present globalised world economy, there is really just one internationally useable currency, as all national currencies are interchangeable through financial markets and private institutions. However, the real value or purchasing power within national economies varies greatly, with the purchasing power of the \$US, Euro or Yen being very different in different nations. This allows goods made in China or India to be very cheap in affluent 'western' nations.

The fundamental value of economic activity, which modifies or transforms what the world and living systems provide (without our input), is human enterprise or labour. Currencies can be based on human labour, and fair exchange rates would give equal value to the same human labour or enterprise. In time banking, all exchanges are on an hour for hour basis, regardless of the work or service undertaken. Differences in skill and training can, however, be taken into account in hour or human labour based currencies.

Money values can, and have been, based on specific goods (such as grain, cattle, wine, salt etc) or on a bundle of goods and services. The decaying or demurrage money issued by public authorities could have a unit value based on goods especially representative, or symbolically important, to the communities of the issuing government. As legal tender within that realm, this would indirectly set the value of the privately issued interest bearing money. Exchange rates between realms or nations would then have a real economic foundation in the unit value of each of their currencies.

Continual exchange allows productive activity and healthy living through mutual nourishment and managed growth and decay. Means of exchange, as gifts and obligations, local currencies and formally issued and authorised money, can together promote the economic activities that allow healthy and sustainable living.

INVESTMENT

If money is the blood of the economy, then economic enterprises or assets are the cells. All productive economic activity takes place through the utilisation of assets. These real assets (as cells of the economy) provide temporary storages for growth and development as well as goods and services for current consumption. Investment should then be managed with respect to these real assets, and use entitlements.

Savings are retained present purchasing power, which is directed into investments that develop future additional purchasing power. Privately owned financial institutions, as cooperatives, companies or partnerships, would mediate the investments, by vetting loan applications and the capabilities of borrower. The loans would, though, be initiated by the borrowers, with the financial organisations gaining no direct reward from the lending. They would bring together savers and borrower on a fee for services basis.

These financial services could link up savers directly with borrowing enterprises, so the savers have a direct investment in a specific enterprise. In this way the financial investment can be a partnership, where they share in either profit or loss, depending on the outcome of the investment. Thus, instead of a fixed interest return, there is a variable return that depends on the actual economic return. The investors then have a real interest in the success of the business or organisation that is making use of their savings. The investors are further partners to those already engaged with the enterprise as owners, or holders of shared interest.

The 'savings' are just an entitlement, and are related (by bookkeeping) to an organisation that is utilising the purchasing power of those savings. Their 'interest' payment arises from their interest in the business, and is a return for the use of that purchasing power. This could be done by shares in profit or loss, as a non-usury partnership, or through a fixed interest return.

This use of savings can be managed at different levels, and families or small community groups can form mutual savings schemes, where their savings are pooled and distributed to members of the savings pool by mutual agreement. This is a closed savings pool, where the members of the pool decide on their own allocation to themselves of the available savings. There is, then, a time sharing of the purchasing power of the group savings, with a bookkeeping of saving debits and credits.

Apart from a small pool of funds to act as a balancing reservoir for the inputs and outputs of deposits and withdrawals, all the 'savings' are actually in use, by other members of the pool. In these mutual schemes, the exchange of savings can be carried out without any interest payments. Instead, there is a direct reciprocity of savings units, which is \$ value multiplied by Time period. Borrowers pay back their loans to an agreed schedule, but at the same time pay into the pool the same amount again. Once they have paid off their loan, the additional money paid in can be withdrawn or becomes their savings. In this way they provide the same amount of money over the same period, for others to borrow, as they have borrowed, and in this way discharge their debt with a directly reciprocal amount of savings.

Instead of paying and being paid interest, there is a mutual sharing of savings, with the reward from savings being a future ability to borrow.

These mutual savings schemes can link up to form a pool of savings pools, to allow for larger and longer term investments. It is all based on reciprocal savings, with no interest charged, and the savings are always in use in the local economy (with no interest leakage). The economy takes place in the present, with continually updated credit and debit balances that represent future entitlements or liabilities.

Savings and investments at different levels allows a specialisation and diversification of economic enterprises, like the different organs of the body and its different distribution and regulation

systems, such as the endocrine and lymphatic systems. The economy can increase its complexity and productive potential, through savings and managed investments, and thereby open up further creative possibilities.

DISTRIBUTION

The exchanges of an economy involves both production and consumption as a balanced circulation, or more realistically as a dynamic spirally in and out of productive and consumptive activities. There are rights of access to and use of economic resources and assets for productive activities, and there are rights of income for consumptive activities.

A natural economy requires a fair and equitable sharing of the goods and services produced by economic activity. Share entitlements have to be determined, and arranging this income side of an economy is just as important as the productive side. A sustainable economy in terms of the use and recycling of natural resources can be socially destructive through an unfair and inappropriate distribution of the economic output or rewards.

Business enterprises have to, at least, break even over the longer term, individuals, families and community groups require incomes, and public authorities have to have revenues. There has to be rates and taxes to pay for public infrastructure and services.

Ownership, generally, gives rights of disposal of income as well as rights of management of enterprises and use of resources. The structure of ownership, and the rights that go with it, are thus important for distribution of income as well as the control of production and working conditions. The distribution of income in cooperative enterprises will be different to that in private companies.

A natural economics ensures a fair share for everyone, which guarantees the essentials of life, and open access to fundamental life-giving resources. This can be achieved through a common

ownership of the basic resources of the land, and a universal income for all citizens. There should also be open access to social resources of knowledge and technologies.

Common ownership would be based on a local 'ownership' or stewardship of local resources, essentially land, including forests, water and soil resources and coastal waters and fisheries, but also dispersed energy sources like sun and wind. The land and its resources would be leased to individuals, community organisations or business cooperatives and companies for economic activities, with the land rental based on its unimproved value. This value covers the inherent value of the soil and site for economic use and the economic advantages conferred by public infrastructure and services. Local community governance authorities would decide on the general use of land: for wilderness, plantation forestry, pastoral agriculture, arable agriculture, horticulture, light and heavy industry, low and dense commercial, suburban residential, high density residential, rural residential etc. Land valuations would then be determined for these separate zones, as relative values, and the annual land rental would be a percentage of these valuations.

The revenue from the land tax would go to the local government authorities, which would use this revenue to maintain the public infrastructure and services (which give rise to the land value). The percentage of land values of the rental would, however, be set by the regional or national government authorities, for the different use zones. The valuations would also be carried out by professional valuers, independent of the government authorities. This gives rise to an interdependence, but with a separation of the powers of valuation, rental setting and revenue spending.

In this way the basic resources used in economic activities (which modify natural resources and ecosystem services for human use and consumption) are held in common at a local level. The basic unit of the economy is the basic unit of society, which is the local community of people who live together and regularly interact, as

an identifiable group. There is, though, a larger society, made up of these distinct, but open and interconnected, communities, which provides the systems regulation of a larger 'organism'.

The regional and national levels of governance would, thus, be there to ensure effective coordination and an overall consistency throughout the larger society and economy. They would be responsible for the larger and more intensive health and education services and facilities, infrastructure coordination and more centralised power, transport and communication services. Concentrated mineral and power sources would be managed at this level, as would ocean fisheries.

Revenue at this level would come from extraction charges, or resource taxes, on what was at their level of responsibility, such as mining, power generation and fishery quotas. Being responsible for cross-border matters, they would also collect customs duties and excise taxes on imported luxuries.

National or state governments would have the power to tax incomes, but this would be solely for the purpose of income redistribution. Income taxes would be about income, and ensuring a fair sharing of the rewards of the economy.

There would then be a universal basic income provided as of right, because people are citizens of a country or state. Instead of a charity based or means tested welfare system, there would be universalised support at a basic level. This income support would be provided through income taxes, where a graduated tax on income would be used to ensure a minimum income for everyone. This UBI would be provided regardless of circumstances, with further income gained from payments for work or services, which would be subject to the income tax.

This UBI does not redistribute income beyond a bare minimum, but it does replace circumstance based welfare benefits. There would still need to be support for accident, sickness and disability that prevents income-earning work, but there would be

no other general superannuation or benefits when unemployed or for domestic or other purposes.

There would be personal and family responsibility for their actions and choices about economic activities and income. This would, though, be within supportive communities, and with a basic income support for every member of the (larger) society. This universal support would increase work and income flexibility, and hence alter work and employment relationships.

Purchasing power would, thus, be distributed to different levels of social organisation and governance. All citizens would receive a universal basic income, as well as income through employment or paid work. There would be much less income received simply because of ownership or from interest on savings.

GOVERNANCE

Behind any economy is a legal framework and governance powers. Productive activities take place within a legal setting and a cultural context of socially accepted norms and conventions. Purchasing power and the distribution of the rewards of economic activities also depends on socially defined rights and responsibilities, especially with regard to ownership or rights of management and decision-making.

Regulation and effective governance is essential for natural economics, as part of complex social living. Appropriate governance approaches and decision-making processes are essential for a human society and its economic activities to be an integrated and constructive part of the world we inhabit. However, these social matters are beyond what this essay on economics is focused on.

Suffice it to say, in this context, that governance has to have the same natural characteristics of interdependence and connectedness, with checks and balances at different levels.

There has to be a separation of powers, but with mutual obligations and understanding of respective roles and functions.

At the local community level there can be direct involvement with a direct interest in the outcome. Participatory decision-making is practical using a consensus approach. At higher levels of governance, covering a network of communities, as a naturally nested social organism, there has to be representation. There also has to be professional specialists who carry out technical tasks and provide analyses to inform decision-making.

This representation has to be mirrored by accountability, with effective feedback being dependent on regular contact and effective flows of information. Power can then be delegated upward from the local communities, but with the representatives at each level selecting and monitoring their representatives at the next level up.

Given different regulatory systems that link together the whole social organism, this nested governance of representation and accountability follows the ordering processes of natural ecosystems and organisms.

A NATURAL ECONOMY

An economy is a complex and integrated system, with many aspects, set within a social and legal framework. As with all complex and dynamic systems, the parts are all interrelated.

Describing any part must always be incomplete, and leave open questions about how it connects to other parts. But description relies on this division into parts! Grasping the whole comes from an intuitive leap of understanding – and of faith, when it comes to its viability and efficacy.

A natural economy that is attune to the rhythms and ways of nature, could consist broadly of the following:

- ❖ A cultural framework of connection to place and sufficiency.
- ❖ A common heritage and shared guardianship of the social and natural commons (of land, water, air, forests and fisheries, fertility and minerals, energy sources, food and medicines, language, knowledge, song and dance, stories and symbols, customs and moral principles).
- ❖ An interconnection, and responsive regulation through feedback monitoring and respect for all people, communities and species.
- ❖ Responsible participation and fair sharing of rewards.
- ❖ Diversity of exchange mechanisms, with complementary currencies at different levels.
- ❖ An emphasis on guardianship and sharing of natural resources and social assets, but using a mix of private, public and common 'ownership', with different use rights and responsibilities.
- ❖ An emphasis on cooperative enterprise and mutual insurance, with the pooling of savings and direct group or partnership investment.
- ❖ Resource and land taxes based on value and usefulness, and a universal basic income for all people.
- ❖ A basis in local (identifiable) communities, with an open connectedness that gives rise to a network of communities, and communities of communities.
- ❖ A dynamic balancing of production and consumption, saving and investment, work and rewards, within a context of interdependence and mutual respect.

This is a very different economy to our present one, and requires a radical transformation of our understanding about the world we live in and our part in it, and hence in the way we act and behave in our social and economic activities.

We can pre-form parts of this approach to economics, within the present highly exploitative and destructive economy, and set some seeds of a different way of life. We can take land out of the market place and put it into perpetual trusts, form cooperative enterprises and manage our savings and investments within local savings pools. We can exchange by gift and through mutually understood obligations, or facilitate our local economy with self-generated local currencies.

We can rebuild community networks through shared activities from cooperative buying to neighbourhood support. We can reconnect to our place and become acquainted with its character and dynamics.

The transitions will take place, though, when the opportunities form, and this is likely to involve rapid changes, as a transformative process. In those times of rapid change a clear vision and understanding of what is possible, and how a natural economics can function, will be vital. Successful transformations require a clear understanding of the end state. The means will depend on the circumstances of any transition, but must be guided by the ends.

In this essay, I have tried to paint a picture of a natural economy, and how it might be organised, as a contribution to that vision.

Gary Williams

Spring 2012

Otaki, Aotearoa/New Zealand

www.waterscape.co.nz

Exercise your right to be responsible.

As a community in its place.

*With thanks to the economic activists who try out the
unthinkable.*

ECOLOGICAL PRINCIPLES



SPIDER WEB

NETWORKS

All parts of the system are **inter-connected** through diverse relationships and linkages, giving rise to complex and **resilient** systems, that maintain themselves through continual **exchanges**.

SPIRAL FORM

A world of inter-connected spiral forms, with **flows** of inward convergence and outward divergence, as resources are **re-used** and recycled, without waste or loss.



SHELL



SHELL

SCALE REPETITION

Patterns of semi-enclosure and diffuse boundaries repeated at all scales, with systems nested within systems, maximising productive edges and providing **identity with inter-dependence**.

PULSE DYNAMIC

A pulse dynamic of **clustered events** and sudden **transitions**, where there are both discrete elements and interwoven processes, giving identifiable objects and highly variable events.



WAVE



FUNGI

META-STABILITY

The constant **flow-through** of energy or information provides nutrients and resources, while maintaining complex states far from stable equilibria, that can **adapt and evolve**.



PLACE
&
PEOPLE
— CONNECTED

AN ECONOMY OF

LIVING with ENOUGH

FAIR SHARING & COMPASSION

SUSTENANCE & HEALTHY LIVING

LIVING with SENSITIVITY & RESPONSIBILITY