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NATURAL REALITY

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BY JOHN A SEED



NATURAL REALITY

or

Fundamental Science

**UNDERSTANDING YOUR SELF,
YOUR COMMUNITY,
AND
YOUR PLANET**

by

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Preface

1. A scientist is a person who first appreciates, then interprets, what they are sensing. Over the last century, scientific method evolved to establish a hierarchy of scientific fields. That process accelerated as physical and biological branches were complimented by a group of social sciences. In the latter part of the 20th. century, environmental science, more or less being the study of how our species interacts with the natural environment, gradually matured.
2. What remains is the need for a fundamental branch of science that serves to position our species within the whole of creation. A science that encompasses what is not observable, as well as what can be sensed. A science that delves deep into the knowledge we inherit genetically, as distinct from knowledge that has passed our 'peer review' system. With such in place, the goal posts for sustaining life on our Planet would be much closer.
3. People generally fall into two categories. Those with closed minds, and those with open minds. What follows is dedicated to the latter. It examines the significance of natural limits to life, with the intent of distilling out how our species might better serve our Planet.
4. The approach adopted, puts conventional wisdom to the test. Based on instinct, common sense and experience, it provides a multi-disciplinary snapshot of where *Homo sapiens (H.sapiens)* stands in our Universe. The story starts with a brief outline of '*what was*', tracing the path of evolution on Earth. That is followed by a synopsis of '*what is*', essentially highlighting the salient features of the choices made by contemporary society. A third section, '*What if*', serves as a hypothetical exploration of viable futures.
5. As an Australian, I am thankful to my forebears for the right of free speech, without which I would hesitate to share my thoughts.

Introduction

Natural evolution is a process that has little regard for the sanctity of the individual, whether that be a single organism, a single community, a single species or a single planet.

1. Wisdom has it that if you are going to operate and maintain any piece of machinery proficiently, you should understand how it works. While there may be individuals with a functional appreciation of natural mechanics, *H. sapiens* prefers to operate in communities, and communal decision making tends to rely on consensus of opinion. Currently, the consensus of our species when it comes to understanding natural mechanics, is dangerously superficial.
2. Nature is the ultimate environmental manager. She will respond appropriately to any agenda that we, as a species, might choose to promote. For her, a good result is one that progresses evolution, while a 'bad' result is one that hinders evolution. Any other definition of good and bad is an anthropogenic construct.
3. To a large extent, contemporary society is inclined to "leap first, then look". It tends to react belatedly to environmental concerns, relying rather arrogantly on its considerable technical capabilities to solve all problems. Unfortunately for the balance of life on Earth, *H.sapiens* penchant for developing life changing technologies is consistent with the narrow whims of an artificial economy, that has scant regard for the damage it is causing to the natural environment.
4. It will not be easy to make amends. Any species bent on tinkering with natural balances needs to appreciate that there are associated risks. The following perspective of where our species stands in the bigger picture, is based on (a) what we think we know of the workings of Mother Nature herself, (b) what makes an individual tick, and (c) how our communities are organised.
5. Natural reality suggests that we exist. Existence without change is pointless. Change would appear to be the mechanism that Mother Nature relies on for evolution. Evolution is apparent as cycles and balances. Progressive change is what justifies **creation**, and thereby our existence. The chaotic **diversity** that follows creation is needed to establish flexibility and durability. Thereafter, **balance** orders the chaos, and in doing so preserves any gems that would emerge only to be lost again if diversity was limitless. **Maturation** is when productivity peaks, and that is followed by **Decay** completing the cycle, and releasing energy needed for re-creation.
6. Not only does Nature work in cycles and balances on Earth, she does so on a scale where the non-linearity of natural phenomena, along with complex ideas such as quantum physics and chaos theory make sense. Time may well be cyclic, and while our universe appears to have been created during an event we term the "big bang", and ultimately will age and die, we can reasonably assume that its energy value will be recycled as a component of a greater cyclic event.
7. Seemingly, evolution involves a cornucopia of inorganic matter and organic life forms that together facilitate change. Despite an essentially inorganic framework, all living individuals are unique. Each organism faces continuous and rigorous testing by Nature to eliminate any but the exceptional version, that through ability and luck, manages to survive. In total, her graduates are able to influence sustainable change, or in other words, evolution.

8. Maintaining cultural diversity is the cornerstone of durability for our species. Maintaining species diversity is the cornerstone of durability for life on our Planet. Culture is used to order communal effort. Communal output is enhanced by the synergism's that stem from cooperative efforts.
9. In nature, time is relentless. It could be said that time is nature's "legal" tender. Evolution is a function of time over change. Balance buys the time needed for life to evolve. Although biological life on Earth may exist in an uneasy coalition, it has managed to introduce enough stability into Earth's physical environment, to buy the time needed for our species to evolve. We have reached the point where a single species is now able to consciously influence natural balance on a global scale. As that species, we humans have yet to fully acknowledge that there are accompanying responsibilities.
10. When it comes to evolution, time is critical, yet time is being splurged by the current plague of *H. sapiens*, with its focus on unsustainable consumption of increasingly scarce resources. Resources that are being mined out, rather than harvested sustainably. Our excesses are upsetting a natural balance that just happens to suit our species. Symptoms of careless acknowledgement of natural processes are endemic, yet obvious solutions are being ignored by those empowered to act. That inaction is depriving future generations of access to the time and resources they will need, for life as we know it to persist.
11. It is conceivable that we could halt and reverse the decline in a meaningful time frame, but already the damage bill is high, and reserves of time, from the perspective of our species, are fast running out. Mankind's many technical advances are now at risk of being lost for want of time. Should we intend to consider how best to preserve opportunities for future generations, we will need to devise a strategy based on a functional appreciation of natural mechanics, balanced by an equally sound appreciation of our species' social mechanics.
12. The primary symptom of environmental vandalism is social discord. Emerging social discord is evidenced globally by increasing numbers of displaced persons (refugees). Social media is fueling violent, negative reactions from both "haves" and "have not's". Violence only serves to increase that gap, and to hijack resources that could otherwise be applied to reversing the growing discord. Political rhetoric abounds in lieu of affirmative action. Our species has some serious introspection to do, should it wish to maintain any sway with mother Nature.
13. Ultimately, the carrying capacity of the biosphere is limited by nutrient availability. All life is financed from the natural supply of minerals that are spewed forth from the Earth's interior by volcanic activity. Minerals that are then swept up into the atmosphere as dust, to be distributed around the globe by the weather. Minerals that wash into oceans as silt or solute. Minerals that enter the biosphere as nutrients, thanks principally to the morphology of specialised living organisms. Minerals that are eventually sub-ducted by tectonic activity into the Earth's core, whereupon the cycle begins once more.
14. Surface erosion, complimented by plant species with roots that can penetrate well below the surface of the land to mine minerals, underpins the bulk of terrestrial nutrient production. The broader ecosystem operates to distribute, recycle and store that production, which would otherwise be quickly leached out by acid rain and transported into the oceans.

15. Trees are an essential element in the nutrient cycle. They effectively mine nutrients in a three dimensional exercise, substantially increasing the yield from surface erosion. Our species behaviour is decimating natural forest stands around the world. Climate destabilisation is compounding the problem by increasing the incidence of intense wildfires that limit the ability of any ecosystem, both to support trees, and to store nutrients.
16. And that is only the tip of the iceberg. Nutrients and minerals leached into the ocean would be quickly lost to subduction, except that a multitude of marine organisms serve to store and recycle minerals as organic nutrients. Oceanic currents, driven horizontally by a temperature differential between sea water on the Equator, and that at the Poles, transport organic nutrients around the globe. There are many physical and bio-mechanisms that return vast amounts of oceanic nutrients for use by terrestrial ecosystems.
17. With climate destabilisation, the critical temperature differentials in Earth's oceans are decreasing. Polar regions are warming at a greater rate than the Equatorial regions. Consequently, the currents that rely on those differential, are waning. Over the last century, deforestation and various disruptions to bio-system balance have impacted negatively on marine productivity, and the capacity of Earth to support life.
18. Having regard to the aforementioned, the human race has come to a crossroad. Its environmental vandalism, exacerbated by the exponential growth of its population, is now outstripping the earth's ability to maintain supply. Natural balance is not a permanent state. It is the outcome of juggling many variables that change continuously, meaning that the balance point is changing continuously. What we might term pollution, Nature sees as perfectly natural variation in balance. Should accumulated variations lead to a situation not being conducive to the aspirations of *H. sapiens*, as far as she is concerned, the species is far from indispensable.
19. The natural environment is the medium in which we exist. We are amongst the users, we share the environment, we do not own it. As one small spanner in mother Nature's tool chest, our set task is to evolve. To do so entails developing the wherewithal needed to manage the manner in which we exploit natural resources, so that the environmental balance conducive to life of Earth is sustained for as long as possible.
20. Social balance is threatened with increased mechanisation that, supplemented by the growing recourse to artificial intelligence (AI), is leading to a social abyss featuring inequality and wasted potential.
21. So far, the social response has been to refine marketing science to better drive a materialistic ethic. The rise of materialism is serving to obscure the once well marked road to enlightenment. The way forward is now cluttered with the weeds of greed, irresponsibility, and lack of self discipline. Creating demand for unnecessary goods, and thereby pseudo jobs, has become the holy grail of society. Unfortunately this ploy is resource intensive, and if life on Earth is to persist, some generation, somewhere, sometime, will have to pick up Nature's tab.
22. The alternative is enlightened management, where *H. sapiens* balances its population with sustainable resource availability, technical capability, and social equality. In other words it positions itself so that it can better serve the needs of evolution. This "managed" scenario would replace pseudo-jobs with satisfying goals for individuals,

communities and the human race as a whole. It would also better acknowledge the inter-relatedness of life.

23. Should we ever tread this road, we will be confronted with a difficult climb for our species, leading to a new plane of natural understanding. The climb will include major social adjustment, and the prospects for doing this without widespread pain are slim.
24. The environment is not in need of a crusade. It is in excellent hands, with mother Nature in firm control. However, for the species *H. sapiens* it is a different matter. What was created by Nature to further her evolutionary intentions, seems bent on competing with her, despite the fact that to buck mother Nature is to court disaster. The situation begs the questions "what was?, what is? , and more importantly, what if?".

1.

Part 1: WHAT WAS? (*Inheritance*)

Nature at work:

1. Natural simplicity began with an energy spectrum released into a void. A “big bang”. Thereafter, those concentrated energies commenced to diversify. Thermo-nuclear energy was able to materialise into a range of elements, the simplest being Hydrogen. We use a ‘Periodic Table’ to catalogue the elements. Other energetic phenomena have blended those elements to form many compounds, including those needed to support life.
2. Life can be viewed as illumination. Individuals are but torches that carry the illumination for as long as the individual exists. In that sense, life is a single persistent organism able to flicker for a moment as an individual, as a viable community, as a species, as a planet, or seemingly as a universe. One torch may burn out, but providing it has passed on its flame to another torch, life persists. Snuff all torches and life ceases to exist, until such time as a match is struck to light up a new torch, or in Nature’s language, a ‘big bang’ occurs.
3. Natural change generally advances incrementally, but occasionally something happens to speed it up. These exceptional events introduce a degree of chaos, that accelerates diversity. The earliest of these events on the earth might have been when life emerged, or when single living cells began to aggregate into complex and diverse, multiple celled organisms. The next event might have been attributable to the emergence of organisms able to exist by preying on primary producers. Those individuals were the forerunners of the Animal Kingdom. A third chaotic period would have accompanied the introduction of sexual reproduction. Development of a central nervous system in animals, including a brain able to process information, would have spearheaded another tranche of chaotic diversity. Environmental trauma caused by ice ages, vulcanism, asteroid strikes etc would also have contributed to the process. The leading question then is, ‘what future chaos might evolution reveal should life on Earth continue to develop?’
4. Until very recently, all this happened on a level playing field, with those best able to adjust to environmental balance of the time, becoming today’s survivors. Now life has evolved to where a single species has the ability to deliberately modify natural balances. The challenge for that species is to decide if, like the biblical Samson, it intends to pull down the pillars of the temple that is life, and in the process self-destruct, or if it to use its powers to enhance life on the Earth, buying more time for the Planet’s inhabitants to pursue life’s potential destiny.
5. Our story begins when the earth had first cooled sufficiently for a rocky crust to start forming. Nature had a job to do before life could evolve, but she systematically addressed the various constraints until that became possible. This is how she did it.
6. Imagine a bog of molten rock with a treacherous crust at risk of being reclaimed by widespread volcanic activity. The atmosphere above laden with sulfurous gases, lethal radiation, and equally lethal, violent electric storms.
7. The first task facing Nature was to cool down and balance the system, so that free water could form and persist. Water is unique, for while it requires relatively large

amounts of energy to change its phases from ice, to water, then to gas, the changes only require a small shift in temperature. Consequently, water is an effective medium for storing and transferring energy. It is also an effective medium for storing and transferring mass. A little acid and it dissolves and transports a range of minerals, a little alkali and it precipitates them out. It is no accident that the special properties of water are what comfortably supports life. Where did life come from? Trace back to the source of water, and the answer may be revealed.

8. Initially, it was mainly patience that was needed. The outgoing radiation was greater than incoming radiation, so the Earth was slowly cooling. Eventually it cooled enough for water vapour in the atmosphere to condense at night and become rain. That nocturnal rain, enabled Nature to get down to business. The suns' direct radiation was still intense enough to prevent rain falling during the day, but the energy needed to evaporate the night time precipitation was drawing vast amounts of energy out of the daytime system, and so the Earth's cooling process accelerated.
9. In time the environment cooled to where it could rain during the daytime, and rain it did. Massive storms smashed into the hardening crust, eroding it at an unimaginable rate. Giant, acidic rivers transported material that ranged from rocks the size of a house, to fine silt, to dissolved minerals, all cascading downhill to form vast seas and lakes. The solids settled to the bottom, later to become sedimentary and metamorphic rock. Volcanic eruptions continued to maintain pace, building massive mountains even as the erosive forces chopped them down. Certainly the Earth at that time was no place for life as we know it.
10. However, all the rain and subsequent erosion was achieving two things. The oceans that formed accomplished Nature's requirement for an environment that could shield life from the lethal radiation bombarding the atmosphere. At the same time erosion of the land surfaces brought minerals with it that were concentrated in the oceans by evaporation. All of a sudden, in geological terms, we had a niche where Nature could play her trump card. Life itself.
11. Where did life come from? Who knows. Perhaps divine intervention, perhaps freak chemistry, perhaps an extra-terrestrial hitching a lift on an ice comet. Or was life always present? Not as individual organisms, but as energy in a form we have yet to understand. With the appropriate environment in place, some form of energy would have been needed to enliven the inert materials accumulating in the oceans. Whatever, life on Earth prospered in the oceans, spearheaded by single celled organisms able to survive on mineral and energy alone.
12. Evolution involves change, and so, having introduced organisms able to synthesise organic matter from energy and minerals alone, Nature had to program those organisms to die. Their organic remains could then be used as food by a new genre of organisms that, freed from the need to transform minerals into organic nutrients, could diversify to occupy a much greater range of habitats. Since that time, the progression of life has been based on the 'dog eat dog' principal, with a balanced, cyclic food chain forming between the plant and animal kingdoms.
13. Natural reality is a combination of energy, inert matter, and life. The signature of life as we know it is deoxyribonucleic acid (DNA). DNA is a form of natural communication that links individuals to creation, and a record of evolution that goes back to the beginnings

of life. It forms a bridge between pure energy and matter. It provides the cornucopia of knowledge that we term instinct, and quite likely it incorporates a blueprint for the future. While DNA has mass, the mass would appear to be but a shell for the greater energy that is life. When a living organism dies, the mass is left behind as part of its mortal remains. The greater energy goes we know not where.

14. Although evidence suggests that life appeared on the Earth soon after the planet formed, and while the environment at that time would have been vastly different from that we humans now flourish in, the DNA of millions of species and countless generations that evolved from that first flush of life, all bear a common genetic code.
15. If we take Planet Earth as a case study, Nature seeded the physical chaos with suitably programmed, single celled forms of life. The essential difference between living and inorganic matter is that living matter has DNA which enables it to communicate. In other words, the ability to communicate is what marks life. Initially the single celled life form that populated our planet would have depended on rudimentary tactile and olfactory senses to survive.
16. Carrying genetic material, now common to both the plant and animal kingdoms, the organisms that started the ball rolling were able to produce the organic, carbon based nutrients, essential for advanced life. They also produced oxygen, a reactive element that, coincidentally, could be used in the atmosphere to shield out some of the harmful radiation.
17. And so the process of unification, that we call evolution, progressed. Eventually, more complex organisms with specific functions relegated to various cells began to emerge. The animal kingdom evolved from the plant kingdom, producing numerous different species able to fill most ecological niches. Life prospered until it had the capacity to balance the energetic, physical environment on the planet, allowing even more complex life forms to evolve.
18. Soon even the vast oceans became overcrowded. It was time for life to move onto the land. When life began to move from the water to the land it was equivalent to a baby leaving its mother's womb. Those hardy pioneers were vacating a stable environment and a convenient supply of bodily needs, to face a hostile and foreign world. It would have been a risky and traumatic undertaking, yet they didn't look back.
19. Their new frontier would have lacked temperature stability, essential humidity and the screening from radiation enjoyed by the pioneer's marine ancestors. Most minerals were still being swept into the oceans with little opportunity for any long lived organism to find a niche capable of sustaining themselves. Nature needed to extend her balance to the terrestrial environment, and establish concentrations of nutrients on land able to support larger, more complex organisms.
20. The first land pioneers would have again been simple organisms with the capacity to convert energy and minerals into organic nutrients. Bacteria, tiny algae, lichens, mosses and the like, would have been busy establishing themselves in or near the inter-tidal zone where they could still access ocean nutrients. Even that process would have entailed an epic journey.
21. For phytoplankton floating around in the ocean, their first hurdle was to stay put in the turbulence characteristic of inter-tidal areas. To do this, they evolved "hold fasts" enabling them to retain a grip on the stable rock surface, either by expanding inside

small fissures and/or by a variety of adhesive systems. The next step for those pioneers was to develop the ability to access nutrients from the land, as well as from the nutrient rich waters they were in the process of vacating. Accordingly, hold-fasts evolved to become roots able to glean essential minerals and nutrient, from the decomposing rock surfaces they were clinging to.

22. Imagine a diminutive plant like organism with the temerity to confront the hardships accompanying life on land. Subsequent generations of those pioneers started to build up a little soil, mixing organic matter with sand and silt trapped in cracks and crevices. Eventually soil deposits provided a large enough store of organic food to support advanced plants with stronger root systems, able to survive above the high water mark.
23. Lichens and a few sturdy pioneers on a shoreline were one thing. The land surface beyond that was still unstable and devoid of minerals at the concentrations needed to support life. Slowly the colonising army would have populated inland along drainage lines, probably starting in the polar regions where damaging radiation was less intense. This theory is supported by the dominance of angiosperms, i.e. conifers, in the Northern forests which contrasts with southern forests being dominated by gymnosperms, or flowering plants. In concert, these eco-variations may well provide us with an insight into the diversity of life that may exist elsewhere in the universe.
24. The harsh environment of the land surface would have been an effective barrier to animals seeking to participate in the vanguard of that epic advance. Even the struggling plant life may well have succumbed to the rigors of that environment, save for an adaptation that not only paved the way for ecological balance on land, but also enabled those hardy pioneers to operate efficiently. Enter the Fungi. Fungi were able to dodge the severe radiation and the harshest conditions by beetling around under the surface of the juvenile soils, helping to recycle dead organic matter, deploying minerals and moisture to where they were most needed. In doing so, they co-incidentally provided plants with the edge they needed to complete their exodus.
25. It takes millions of years and a great deal of evolutionary progression to establish a fertile soil able to support a complex community of plants and animals. In moving from the stable marine environment onto the exposed surface of the land, these life forms were martyring themselves to meet the demands of evolution. Exposure to high levels of UV radiation would have played havoc with their DNA resulting in the massive diversity of life needed for the job.
26. Once Nature had a foothold on land, her next tactic was to evolve more complex organisms with the natural ability to mine minerals from bedrock and sub soils. This eventually lead, via a succession of increasingly complex plants, to the creation of trees and the formation of forests. Forests transform the two dimensional process of surface erosion, into a three dimensional and much more productive exercise. Trees are terrestrial, primary producers. Using photon energy from sunlight, tree roots penetrate deep underground to tap into hitherto unavailable inorganic minerals, transporting them to the surface. Their leaf drop then adds value by providing a reservoir of organic carbon and concentrated nutrients that other life forms, including plants such as grasses, can access. Without forests the biological carrying capacity of the Earth would be much diminished.
27. Nutrient production from one solitary tree is very modest. In fact forest tree species own

as solitary individuals usually do not prosper. In that regard trees are no different to humans. Nature's answer was a plant community, a forest where competition for light and minerals would favour the tallest growing and most aggressive plants. The synergistic consequences on production from a forest community is far greater than that from the same plants growing as solitary individuals. Not only do trees concentrate minerals as nutrients, when present as a forest they enhance the hydrological cycle, and serve as Nature's humidicrib for a myriad of species that embrace a forest habitat.

28. Evolution eventually led to forest ecosystems climaxing as rainforests, able to maintain relatively stable species diversity over thousands of years. This fantastic achievement is rarely acknowledged by mankind, whose rapacious hunger for natural resources pays little heed to the importance of diversity or of maintaining a natural balance. The ability of that balance to absorb change without becoming unstable can be termed "natural capital". Natural capital is a finite resource best applied to meeting the demands of evolution. In terms of sustainable life systems it is much more important than the dollar.
29. The cycle of minerals through an ecosystem is fundamental to all life. It is progressed by the full range of organisms including bacteria, fungi, plants and animals. On land, forests are an essential link in the production chain. Next time you look at a majestic forest giant, think about the fact that you actually owe your existence to the presence of that giant.
30. The role of forests is directly linked to the production levels of other plant and animal species, including mankind's crops. Including mankind itself. Get the balance wrong, with the store of nutrients in the soil being harvested faster than it is replenished, and that, in any language, is unsustainable exploitation.
31. The natural production of fertile soil also involves shallow rooted plants that serve to impede the erosion of organic nutrients downslope and along drainage lines. In high rainfall locations, nutrients and minerals in the soil tend to be leached out by slightly acidic downpours. In many rainforests it is not unusual to find most of the system nutrients contained in the standing vegetation. Clearing and burning the forest removes the bulk of the system nutrients, which is why farm production from land that was previously rainforest is often negligible, compared to biomass productivity from the original rainforest.
32. A case in point is an area in Spain known as "Oak Forest" Here, for millennia, little acorns grew to produced majestic oak trees. Unfortunately for them, the government of Spain once aspired to lay claim to the British Isles. With that objective in mind, it felled the oak trees to make a large armada of warships. The armada was sunk shortly thereafter, and since that time considerable community resources have been being applied to try and reclaim the nutrient deprived, desert left behind.
33. Similarly, where did the Easter Islanders go? Once a thriving, technically advanced society, their demise is linked to disruption of the nutrient cycle caused when they cleared the Island of trees. The limited supply of nutrients provided by the remaining surface plants was insufficient to maintain the thriving population, and so it collapsed. These are two examples that clearly demonstrate the pressing need to better understand environmental limitations.
34. Armed with its original programming, a diverse biological presence on Earth grew in complexity, until eventually its influence served to create a balance between organic

and physical cycles conducive to the emergence of advanced forms of life. It was a team effort that *H. sapiens* would do well to remember.

35. In the process, life took three different paths. The first of these relied on single celled organisms that learned to aggregate as a communal entity. They became forerunners of the plant kingdom. Those entities were characterised by an instinctive ability to convert energy and minerals into nutrients. This path eventually produced plants as complex as a tree, and as large as a giant fungi. Take for instance, the River Gum, *Eucalyptus camaldulensis*. It responds to drought stress by instinctively dropping perfectly healthy branches; typically on a hot windless day; to reduce its rate of transpiration and thereby its chances of surviving a drought. How does it do that? How does it know to do that?
36. The second path resulted in organisms with a central nervous systems. Ants, bees and a variety of invertebrates, all use this path to good advantage. Evolution of a central nervous system greatly enhanced an organism's ability to learn and to diversify. The brain developed as an efficient device for processing knowledge, and it has a vital role to play with memorising the experiences that occur to an individual within their lifetime. While there is no obvious communication link between our brains and our genetic history, one's frequent recourse to instinctive behaviour suggests that such exists.
37. Finally there are organisms where central control in each individual evolved to create a brain capable of over-riding natural instincts. *H.sapiens* is the most advanced of the species to have taken this path. It has evolved with a majority of its members now relying heavily on the information stored in their brain, while discounting the bulk of their inherited instinctive knowledge. That oversight has generated an imbalance that may well underpin the fallibility of the species.
38. The Chinese practice of "Feng Shui" originates from a time when humans were more in touch with their instincts. The term translates as wind and water, both of which have connotations of genesis. Instinct suggests that there are three categories of action. The right action, being the action that best progresses evolution. The second group of actions are those that do not inhibit evolution, and we might think of these as being actions that are not wrong. The third group encompasses actions that circumvent evolution, and these actions, in natural terms, are the only actions that can be deemed wrong. Feng Shui would appear to be an attempt to communicate with residual inherited instincts, to determine what is right, or at least not wrong.
39. Nature manages the environment. Mankind can only aspire to manage its rate of environmental exploitation. The issue for life on Earth, is that the direction of evolution can be either forward or backward, and hard evidence suggests that currently the antics of *H. sapiens* may well have it in reverse. Diversity and balance remain as priorities for our species should we wish to persist. Regulating the impact of *H. sapien's* ecological footprint demands total respect for, and understanding of, the role of all living organisms.

1.

Homo sapiens:

1. Genus *Homo* made its appearance as a species proficient in linking dexterity with intelligent thought. Against all odds, the genus maintained a presence long enough for *H. sapiens* to evolve. *H. sapiens* is the culmination of a phase of natural evolution that saw a single celled organism evolve into a complex, multi celled organism capable of directly influencing the process of evolution. In the process, the species developed communication skills that supported the ability to think in series rather than in parallel.
2. Initially, the priority for the genus was survival in a world populated by many physically stronger, highly competitive genera and species. At that point in time its chances of survival were very much linked to the instinctive knowledge it inherited, plus luck. Individuals were at great risk, so groups formed from necessity, the tactic helping a relatively small population establish a tenuous toe-hold.
3. In the beginning, knowledge exchange would have occurred mostly as a 'father to son, mother to daughter' exercise. Progressively, collaboration between like-minded individuals led to the accumulation of communal know-how. Inter-generational communication introducing the need for artificial storage of knowledge. Over time, writing, and then copying technologies developed, with written records growing to become an increasingly valuable community asset.
4. Eventually, family groups found they could better prosper by affiliating with other groups to form clans, and in time clans affiliated to become communities. Communities established cultural bonds that formed a foundation for social unity. Enhanced communication and education spin-offs enabled civilization to become a reality. Technical abilities continued to supplement natural instincts as the species understanding of physical phenomena grew. The only cloud on the horizon to darken the evolutionary prospects of the species, was indecision about which culture should dictate what constitutes civilised behaviour.
5. That journey involved three major eras. A golden era saw mankind emerge from Africa to populate the world. It was an era characterised by exploration, with access to natural resources generally unfettered by competition from other members of society. The chief threat to an individual's survival at that time would have been from freshly encountered, competitive species (i.e. monsters). The genesis of ancient myths and legends can probably be pinned to this era.
6. As populations increased, competition for the best resources would have developed between adjacent communities, no doubt including genetic resources. Thus began an era characterised by warfare, where the strong persevered over the weak. That was still a perfectly natural situation designed to weed out suspect genetic material.
7. The third era, being the current era, extends back at least 6,000 years. Mankind continued to evolve its capacity for technological innovation. This skill, supplemented by the broadening of social groups or communities, was the basis of *H. sapiens* advancing to an agrarian lifestyle, cultivating plants considered useful, and husbanding animals in the same category. That change in lifestyle carried with it the responsibility of "ownership," and relative wealth that could be traded. It saw numerous groups, initially isolated by topography and politics, using sophisticated technological advances

to penetrate and subjugate, in both physical and economic terms, other less technically advanced groups.

8. Soon the simple barter system proved too ponderous, and a surrogate, cash based economy was introduced. At that time, and until recently, cash was directly linked to the value of natural resources, either as the commercial value of metal used to mint the coins, or as gold reserves matching the value of the money in circulation. The simple mechanism of linking the economy to the value of a tangible environmental resource was an effective way of preventing over-spending. It established a buffer that helped to moderate consumption and maintain inter-generational equity.
9. While money serves as a convenient and practical alternative for the circulation of assets, it becomes the agent of deadly change when its value is divorced from environmental values. Soon after the Second World War, the link between money and natural resources was replaced by market speculation. Accountability succumbed as collateral damage, and an all powerful, financial system based on “e-cash” with the ability to trade “virtual assets” for real natural resources emerged. With nobody demanding that the environmental books balance, society has been able to gorge itself on undervalued resources; especially energy and the priceless capacity of the environment to assimilate a degree of change without damaging to its balances.
10. An individual on their own, with luck, might survive in the wilderness for a while. A group of individuals pooling their experiences, can survive for generations. A community that has accumulated inter-generational experience over a millennia or two, can land a man on the moon.
11. And so, primary social mechanics revolve around the creativity of individuals. Synergies stem from a group of individuals working together to realise the benefits of that creativity. Common effort is a fundamental requirement for establishing culture. Cultural diversity provides the flexibility that is characteristic of a robust population. Equity is the hallmark of a functional community. Unity is the holy grail for sustaining all life.
12. Every individual cannot be expected to do all things proficiently. The sensible alternative was to establish group protocols to help coordinate effort and minimise the chaos. In practice, protocols were established to direct the general populace, being the client so to speak as well as the source of diverse skills and innovative products, a governing element, and a private sector. Governance is a multi-disciplinary exercise. Good governance will instigate equitable distribution of resources, while promoting education and training programs designed to enhance individual, and thereby communal, productivity. The private sector is a medium for commercialising innovation, and delivering services.
13. Self discipline and education are what enables an individual to rise above their selfish instincts and behave in a civilised manner. A civilised individual is one who has learned to appreciate, and empathise with, the positive attributes that can be found in others. A civilisation is a group of individuals so conditioned, that choose to live together in a community.
14. After food, drink and security, education is the priority for any community. Education, or knowledge acquired post-birth, supplements instinct. Effective education requires a balance between integrity of content, spiritual robustness, and technological enhancement. The rewards that stem from a balanced education include a successful culture.
15. The efficacy of the processes involved in appropriate conditioning individuals is critical to achieving a productive outcome. The importance stems on one hand from the role education plays moderating any anti-social components of an individual’s personality,

and on the other, its role as a vehicle for promulgating the communal know-how. Any impediment to individuals acquiring a sound education will detract from the potential of that community to evolve.

16. Informal education is a product of the environment an individual is born into. It comes as personal experience and mentoring from immediate contacts. The demand for formal education emerged from the need for communities to hand down acquired skills to subsequent generations. Access to communal knowledge is a strong incentive for individuals to become involved with their community.
17. As communities grew in size, so did their administrative demands. Eventually it became more efficient to delegate administrative functions to full-time representatives able to focus all their energy on coordinating productivity. In other words, a government. Various systems of governance emerged to regulate resource sharing, and to provide for the accumulation, storage and reapplication of social know-how and experience.
18. Over time, what developed as an economic balance synonymous with a sustainable environmental balance, gradually became less so. "Economic strategies" are now being adjusted, or manipulated, to serve the government of the day, rather than the people who elected it. Inequitable resource distribution and burgeoning social conflict are widening the gap between "haves" and "have not's", setting the scene for "what is".

1.

Part 2: WHAT IS?

1. Pure energy is infinitely mobile. Converted to matter, energy is apparent as its sedentary format. We principally exist as sedentary matter, and are therefore incapable of grasping the infinite dimension of energy. Accept this limitation and we become comfortable with our understanding of natural reality, or spirituality, as the case may be.
2. A millennium ago mankind was uninformed about electricity. Despite constituting the largest portion of our universe, the nature of “dark energy” still evades scientific explanation. There are forms of energy or matter we have yet to understand.
3. While some energy clearly exists as the tangible physical energy that we do understand, energy is also evident as an intangible organic phenomenon, perhaps without physical accrument, or acknowledgement of time, but revealed as the difference between inert and living matter. Life itself would appear to derive from an energetic continuum that transcends any individual's life span to incorporate the infinite dimension of eternity. The journey that is life is documented in every organism's DNA. DNA regulates a range of chemical reactions in an individual that result in the complex outcomes underpinning the process of living.
4. This universe cycled through its **creative** phase, featuring **diversity**, thence to a **balanced** phase, introducing the order that provides for **evolution**, and at some point it will enter a **decay** phase, eventually completing this cycle and presumably, facilitating birth of a new cycle.
5. Nature's model for life involves those same phases occurring at many scales as fractals. From a planet to a species, to individuals within species, to the cells that make up individuals, even to intra-species behaviour, such as culture. Time itself may well exist as a dimensional fractal, with the birth and death of a planet in our dimension, measured as milliseconds in another dimension.
6. Similar to the concept of perpetual motion, a closed natural cycle is a physical impossibility. All natural cycles must incorporate a degree of change, otherwise there is no logic for existence. Change is introduced as evolution. Evolution appears to be a process that trends towards unifying the potential of life. Humanity exists as an internode - albeit a pivotal internode - in the fabric of life, with its ability to maintain a presence reliant on the integrity of that fabric.
7. Time is a medium on which the tapestries of individual effort are recorded as change. Life may well predate our “big bang” and possibly an infinite succession of “big bangs”. We can speculate that while it probably will have evolved quite differently, life anywhere in the Universe may well carry the same basic genetic programming as the organisms that first appeared on the Earth.
8. We can also anticipate that Nature is likely to have a multitude of planets in our Universe able to support a diverse selection of life, all vying in parallel for whatever conclusion evolution is leading them towards. Most will fall by the way. Those that persist will need both luck and good management.
9. Given that Nature seems to work in fractals, it is possible that the Universe is a component of an even greater living system. Perhaps Black Holes are the equivalent of

synapses between Galaxies, created ultimately to communicate or coordinate inter-Galactic business?

10. From our perspective, after the Big Bang time moved from infinity to reality, thereby providing a forum for the introduction of balance and the emergence of a biosphere. As individuals, we see our selves to be biological, or organic in nature, quite distinct from the physical resources that support us, yet an observer on the Moon would struggle to comprehend the compositional difference between us as individuals, a cell within our body, or the planet as a whole. They might well view the Earth in its entirety as a single living unit, It is comprised of inorganic elements and various organic compounds, some incorporating a unique component revealed as DNA.
11. Basically, individuals are comprised of various inorganic elements and compounds, that together form a framework for a range of organic phenomena to occur. The energy that facilitates the phenomena is what we call life.
12. The most fundamental capability of life is its ability to communicate. Communication requires that each individual organism be equipped with some form of nervous system able to respond to environmental stimuli.
13. The primary mechanism for introducing flexibility in living organisms is established via their genetics. Being able to react to external stimuli provides an individual with the luxury of choice, thereby providing a degree of flexibility. Genetics preserve positive change for future generations, and so, life and evolution are all about communication and behavioural adaptation.
14. Looking first at the physical cycles on Earth, the atmospheric cycle is characterised by energetic processes that have relatively low inertia, and we talk in terms of tens of years when we discuss profound change to the balances within that cycle. These flexible dynamics present as the weather. Then there is the hydrological cycle being the powerhouse of our world, and the font of life. Energetic processes in the hydrological cycle reflect a relatively moderate inertia, and we can expect to wait hundreds of years for balances therein to be respond to profound change. Finally there is the tectonic cycle, a near perfect natural recycling system. It operates on a scale of many millions of years.
15. Mineral resources are continuously being restocked via the tectonic cycle, albeit in a time frame our species may not appreciate. However, the issue for mankind is that the three physical cycles are all inter-dependent. Affect one and you ultimately effect the others.
16. Nature orchestrated those cycles to produce the rhythm of life. Her orchestra features water, essential for the transportation of nutrients throughout the biosphere, as well as around individual living organisms, a finite nutrient cycle that powers life, but also serves as a limit to productivity, and an energy element that is life itself.
17. The Earth circles the Sun once a year. Its motion appears as a cycle that takes approximately 365 days to complete. However, in reality space is expanding and our planet is forever spiraling through space never revisiting the same point. It is not inconceivable that this form of motion establishes the rhythm of life.
18. From the perspective of the individual, life is a two dimensional cycle having a start and a finish, but from the perspective of Nature life is a three dimensional continuum. Each living individual, or manifestation of life, is imbued with a genetic memory that accommodates subtle change and is able to reproduce itself. We acknowledge that

process as DNA. And so, the energy that is life itself spirals through time, being passed on from generation to generation via each individual's DNA.

19. Perhaps all forms of energy can be viewed in the same fashion. Energy, whether it is photon or electrical, is described as a sine wave, but what we see as a sine wave in two dimensions, becomes a spiral in three dimensions. Is a 'life cycle', be it that of an individual, a planet or the universe, actually be a spiral?
20. A cell within your body is created, it serves a useful function within your body until it ages, whereupon it dies. What makes up the cell? Various elements and compounds, energy and DNA. You were born, you matured and you are contributing to life on Earth as we know it. What makes up you as an individual? Various elements and compounds, energy and DNA. The life span of the Earth has finite limits, even though they are difficult for us to comprehend, and it too will eventually expire. What makes up the Earth? Various elements and compounds, energy and the essence that lies within the DNA it was seeded with. What makes up the universe? Various elements and compounds, energy and presumably DNA, etc., etc.. Cycles within cycles spiraling on "ad finitum".
21. Looking back at the history of life on Earth, what started as a single celled organism with its DNA containing the instinctive knowledge it needed to stay alive and procreate, evolved to become many species of multi-celled plants and animals, all based on that original DNA. As evolution progressed, species appeared with an ability to supplement their mental and physical heritage using various technologies. Project that trend, and you are left with the spiritual and technological unification of individual potentials, as the likely path for life to evolve sustainably. Writers of science fiction have been proposing that for years.
22. Nature seeded the chaotic birth of our planet with suitably programmed, cellular life. The first living organism consisted of a relatively simple framework of inorganic elements and organic compounds designed to house life. Life itself took up residence therein, complete with a genetic program in the form of DNA that is revealed in an individual by their physical characteristics, and their instinctive behaviour. Perhaps our DNA provides us with the only glimpse of our creator we are likely to ever receive. It is a glimpse that is reflected in every subsequent species to have evolved on Earth, making us all family, even if our behaviour towards one and other might indicate otherwise.
23. The rhythm of life can be used to describe the evolution of *H. sapiens*. The species has spiraled through time, in the process evolving to produce sentient life, with our species evolving to become hunter/gatherers, able to make and use various tools, advancing to an agrarian based economy that uses the capabilities of other life forms to enhance its performance, then finally becoming a technically advanced species. Historically, life has had its ups and downs. Presumably the road ahead for life will have similar ups and downs.
24. The species is now at the brink of a new stage of its evolution, with the development of artificial intelligence. Survival remains a high priority, but the threats humanity now faces are quite different to those faced during its time as a hunter/gatherer. We can expect that the tactics it needs to meet future challenges will be quite different.
25. Life is not about what any individual can achieve, as much as it is about the ongoing evolution of life. That goal requires a sustainable balance between physical and organic

systems. We are only a component of that balance with a degree of responsibility for maintaining the integrity of our inherited environment. That requires a team effort. It will tax all the physical and organic resources we have on the Planet. Should we succeed, we might expect to achieve the ability to evolve further than our earthly limitations. Currently, that dream seems a long way off.

26. Time is relative, therefore a lifetime is relative. The lifetime of a human is relatively longer than that of a butterfly, yet both, given the right environment and a little luck, enjoy full lives. It is convenient for humans to divide their life time up into units. To a three year old a year between birthdays is a long time. In fact it is a third of their lifetime. To a 100 year old, a year is only a hundredth of their lifetime, and a year passes relatively quickly. Within this relativity, lies lies the inevitability of aging. As you age, time needed for the body to repair itself becomes is less effective.
27. Change as a function of time is likewise affected. For a child the environment around it appears to be stable and relatively unchanging. As a person ages, their appreciation of change sharpens. The first day at school, leaving home, getting married, having children, all bring major change to the life of an individual, and help to bed home the reality of change. From the perspective of a ninety plus year old person, the only thing seemingly permanent is death. Although that assumption does not account for the energy embodied in their living self. Energy is never lost.
28. Life introduces change, and change is the basis of evolution. Should a three year old contract a disease and die, they will still have lived a full lifetime, but they will have had minimal opportunity to introduce change. Someone living for 100 years will have more than 33 times as much opportunity to evolve. The net incremental change that results from their life cycle, will reflect the opportunities that individual has had to become knowledgeable, and to apply that knowledge. However, the perception of a lifetime in both cases is the same.
29. To mother Nature, the degree of environmental change that might be precipitated by a three year old child is relatively minor. Likewise the degree of change that might be attributable to a 100 year old adult generally is not all that much more. How long does a community exist? Perhaps a thousand years on average. Consequently, a greater degree of change could be expected from a community of individuals. But then, an even greater contribution to evolution might be expected from a species. Like the layers of an onion, the lifecycle of a planet is simply the next layer or cycle pursuing the imperative of evolution Beyond Earth comes the solar system, the galaxy, the universe and infinity. Cycles within cycles. Interlocked spirals. All contributing to the process of change or evolution. Consequently, life can be viewed as a mix of individual organisms, or it can be viewed as a single entity that is able to transfer its essence, over time, using an assortment of transient organic entities designed to serve whatever purpose it is that life itself serves.
30. Using *h.sapiens* as a case study, conception happens when two different organic data bases come together, to form a single cell containing a blueprint for a unique organism. Immediately cell reproduction commences, eventually leading to an individual, based on that blueprint. Now if we retrace the process, those data bases were inherited from two other unique individuals who were created from the same process, and so that process can be traced back at least to an asexual organism or organisms that appeared

amongst the first life on Earth.

31. If one were able to read their own genetic makeup they would be able to access the story of life on Earth from day one. However, for *H. sapiens*, the only access an individual now appears to have to this genetic record is referred to as intuition or “gut feeling”. Individuals range from those who rely heavily on intuition, to those who strive to ignore it.
32. Evolution is a function of change over time regulated by balance. To survive, a species needs a viable population, food and an ability to procreate. It does not need to concern itself with questions about “why?” There is no need to put a man on the moon. The obvious conclusion concerning the nature of natural reality, is that during maturation, and prior to the decay phase, life is able to evolve and achieve abilities that accelerate change between cycles. Without evolution there would be no change, and therefore no logical reason for life. It is the classic Catch 22 situation. Is evolution a consequence of cyclic change, or is change to a natural cycle a consequence of evolution?
33. Living organisms have a productive capability that is fundamental to their ability to evolve. That capability is seemingly managed by an individual’s DNA, via a range of chemical reactions and complex energy transfers. Life’s role can be divided into organic production and spiritual evolution. Spiritual evolution involves choice, and choice is what provides the potential for change. With evolution, directional change as distinct from random change, is progressed over time by the accumulated actions of responsible individuals. With its ability to innovate on the run, the animal kingdom at least, would appear to be intended by Nature to progress spiritual evolution.
34. To date, life has been able to evolve on Earth with humankind a product of that process, not a driver. Should our species wish to contribute in a positive way to the process that is evolution, it will need to show much more respect for the role of life, past, present and in the future.
35. For most of the time that there has been life on Earth, evolution consisted of accumulated experience, retained as incremental modification to the genetic inheritance or DNA of various organisms. Those organisms principally operated on instinct. Evolution of a nervous system managed by a brain, provided a group of organisms with the ability to store and retrieve personal experience at will. Eventually an even smaller group emerged as innovators able to manufacture tools that could be used to assist their various agendas.
36. The stand-out of those tools is advanced communication. It enhances species survival by facilitating production from families and ultimately colonies and communities. Evolution accelerated as the genetic inheritance of some species was complimented or magnified using knowledge accumulated in a communal environment. Knowledge is in effect “communal DNA”. Communal DNA has the ability to coordinate the brainpower of a number of individuals, or in other words, to have them think in series. That strategy is behind *H. sapiens* success as a species.
37. In the cycle of life individuals innovate, while communities exploit the potential thereof. Initially communal effort was mainly directed at facilitating food gathering and improving both living standards and security. As communal know-how grew, communal influence incorporated formal education, or social conditioning, intended to lift individual productivity. A community is, as the term suggests, a communication enhanced

environment, serving to catalyse the benefits that stem from the accumulation of knowledge, and experience.

38. All living organisms improve their situation by responding to external stimuli, and seemingly, all have the ability to assimilate their experience within their genetic makeup. Animals balance instinct with logical thought processes. Individuals base logical thought on the experience and knowledge they gain post-birth, moderated by social pressure stemming from community expectations.
39. An individual on their own has virtually no influence, either positive or negative, on the global environment. Working in concert, a large population can leverage their ability to affect change, by synergistically combining effort. A global community, aided by technology, can regulate natural balances on the Earth, either in the direction of evolution or the reverse. To maintain positive evolution, a technically advanced global community would need a detailed appreciation of Earth's natural balance mechanisms, complimented by a suitably advanced level of social maturity.
40. Despite our species having acquired a basic understanding of many natural processes, globalisation of its economy is grossly unbalanced. It features obsession with materialism, technological advancement and parochial war mongering, while having scant regard for social and environmental priorities. Like the biblical Samson, humanity would appear to be intent on bringing the palace roof down to destroy all who reside therein.
41. There is something fundamentally wrong with a society that rewards avarice and greed, while discounting enlightenment and the efforts of those attempting to progress a sustainable society. A culture that plunders another culture is wasting natural capital. A culture that sends its well equipped soldiers out to murder innocents is guilty of animalism as well as of wasting natural capital. A culture that conditions its individuals killing and raping for fun, is sub-animalistic and terminally ill. The human race is indeed its own worst enemy.
42. Good management demands a tight focus on the needs of evolution, and *H. sapiens* current disregard of environmental and social priorities is anything but. An executive summary of the status quo would conclude that while Nature's game plan is presumably well on track, *H. sapiens* really must revise its tactics if it wants to maintain a presence at her table.
43. There is no guarantee from Nature that life on Earth will continue to evolve. Actually, common sense suggests the opposite. Avoiding the clutch of natural attrition requires opportunity, capability and luck. With Nature, the window of opportunity is a function of time framed by environmental stability. Lost stability equates to lost opportunity.
44. Capability peaks when the potential for the diverse creativity that comes from individual effort is balanced with the order that derives from a community being able to coordinate individual contributions. Unfettered individuality is chaotic. Consensus decision making dampens innovation and creativity. It discounts instinct and tends to homogenise the way individuals think and act. Producing the right balance is all important.
45. What life is evolving into remains a teasing wraith in the mist of time to come, but the patterns we observe do give it some substance. We believe that all life on Earth evolved from an organism similar to a bacterium, and there are even those who

postulate that complex organisms, such as a mammal, are simply a symbiotic gaggle of bacteria. Should life on Earth manage to stay on the path of evolution, could it eventually be able to communicate as one? If so, evolution will require the marriage of natural and social systems, with the ultimate goal being unity. That may sound far fetched, but if we look at how *H. sapiens* has evolved over the last 100,000 years, it has emerged from a few fearful individuals scuttling around in the bush, to become a complex and inter-dependent global community able to transport materials, including life, through Space.

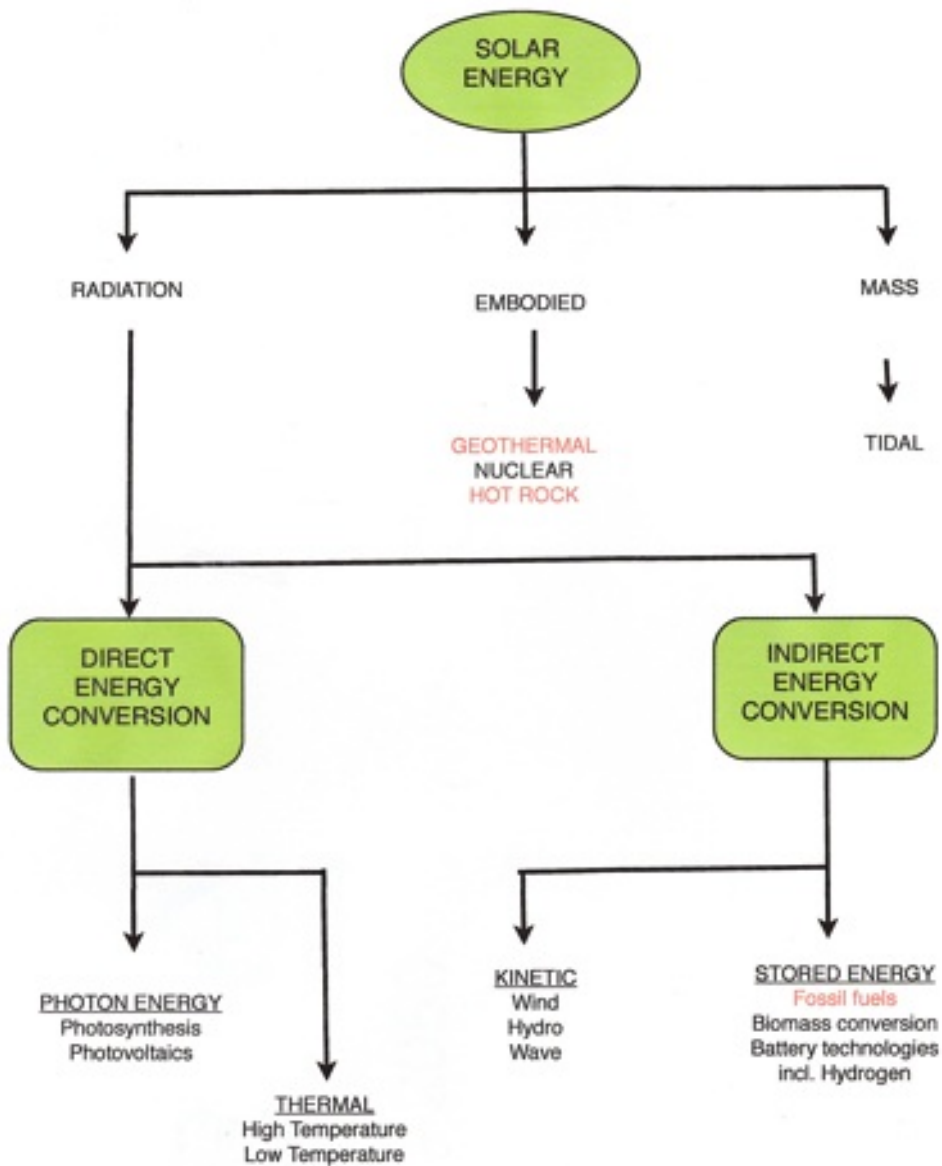
Energy:

1. In Nature, total energy would appear to be the only constant. With four fifths of the mass or energy existing in our Universe still a mystery, it is safe to assume that our understanding of the nature of energy is, as yet, incomplete.
2. Earth's functional beginning was a modest energetic event in galactic terms. It formed, as an accumulation of solar debris, caused to coalesce by gravitational forces. Radiated energy from the agglomerated mass was far greater than incoming radiation, so the mass started to cool, eventually to become a liquid core, a solid crust and a gaseous atmosphere. Virtually all energy, insofar as the immediate welfare of we humans is concerned, comes from the sun. The main exception being tidal energy which stems from the gravitational forces generated by extra-terrestrial bodies.
3. It is no exaggeration to say a Rainbow is the icon of all life on Earth. A rainbow reveals the visible, or near visible, spectrum of solar radiation. The longer wavelengths (infra-red) provide a source of thermal energy, the shorter wavelengths (ultra-violet) provide photon or light energy. That energy spectrum is the basic fuel for all life on Earth.
4. As well as incoming solar radiation, the Earth re-radiates energy back into space. Nature had balanced this process over millions of years to produce a stable environment providing sufficient time for complex life forms to evolve. The balance includes a cocktail of atmospheric gases that cycle through the biosphere, maintaining a ratio, one to the other, that is auspicious for the well-being of life as we know it.
5. Solar energy is available either as direct radiation from the sun or as indirect energy. Indirect energy includes geothermal, wind-power, hydropower, chemical storage such as nuclear and hydrocarbon deposits and bio-storage achieved via natural photosynthetic processes. In the timeframe of the Earth's existence, energy stored chemically or as geothermal heat are finite resources. Transient options such as direct radiation, wind power, hydro power and biomass energy are all, within limits, sustainable energy supplies.
6. Light or photon energy can be converted to electricity artificially, using semi-conducting materials such as silicon. Photovoltaic cells are used to convert sunlight directly to electricity, and the panel they normally sit on should not be confused with a solar "hot water" panel. The latter uses the thermal end of the solar spectrum to heat water. Surprisingly a photovoltaic panel does not like heat. The standard for photovoltaic panel output measurement is 25 degrees centigrade, and any increase in temperature beyond that is accompanied by a corresponding reduction in conversion efficiency. Cool or even cold, sunny locations are ideal for deploying photovoltaic technology.
7. The stability of the Earth's climate hinges on society's choice of energy supply. While the environmental repercussions of using energy are minimal, the environmental repercussions of extracting that energy from fossil fuels is potentially catastrophic. The use of non-cyclical indirect fuel such as oil, gas or coal lies at the root of the climate instability. Fossil fuel derives from ancient, natural processes that extracted and sequestered the gases responsible for an unstable atmosphere. These processes required vast amounts of solar energy over a very long period of time. Raiding the stored energy resource used to drive those reactions simply releases the destabilising gases back into the atmosphere. The problem is as simple as that. Burning fossil fuel along with the manufacture of cement from limestone, together are at the root of

atmospheric pollution and climate destabilisation, not the use of energy. We are now destabilising the Earth's energy balance at a rate that is beyond the ability of most life forms to adapt to. Natural diversity is being lost and the support system for life, as we know it, is now in a state of collapse. Should it become necessary to re-capture the problem pollutants, we can assume that the account rendered by Nature will include reimbursement of an equivalent amount of energy, possibly with interest. The sooner mankind starts paying its debts, the lower will be Nature's settlement demands.

8. As well as being a source of non-cyclical pollution, fossil fuel also happens to be an inefficient source of energy. The processes involved in bringing it to the market from its solar origins yield a small fraction of one percent of the energy that was used to store the hydrocarbons in the first place. The organisms that the hydrocarbon reserves derived from were relatively inefficient solar energy converters, compared to modern plants, and the sequestering mechanisms Nature used for storing hydrocarbons had gross inefficiencies. Almost all of the residual energy is lost to a combination of poor extraction efficiencies, compounded by parasitic losses attributable to transportation, processing and conversion inefficiencies.
9. Sustainable energy options are much more efficient. Modern plants such as sugar cane are capable of converting around five percent of the sunlight that falls on them into stored energy. Hydro-energy is a limited resource, but conversion of eighty percent plus of the energy available is possible. Modern wind turbines extract in excess of twenty percent of the wind's energy. Even nuclear energy and energy embodied in geothermal and hot rock resources can be extracted without producing climate destabilising pollution.
10. Direct conversion of sunlight is efficient and relatively unlimited. Solar photovoltaic technologies are now capable of extracting in excess of thirty percent of the sunlight that falls on them each day. Combination solar photovoltaic/thermal technologies yield in excess of forty percent of the solar energy falling on an area.
11. In lieu of hydrocarbon fuels, the use of transient energy resources, including the direct conversion of sunlight, would have a positive impact on maintaining climate stability. The figure below sets this out graphically. In fact there is no one technology that is capable of delivering all mankind's energy needs without destabilising the natural climate. It would be a big step forward with management of mankind's energy consumption if demands for energy were met using a mix of renewable energy sources to meet base load demands, while limiting raids on fossil fuels to emergency situations.

THE ENERGY TREE



n.b. All energy is solar or solar derived. The products highlighted in red are finite non-renewable resources that demand conservative exploitation. It is also wise to note that at the moment, the transport industry depends upon stored energy.

Intelligence:

Intelligence is no guarantee against stupidity.

1. In the Oxford dictionary “Intelligence” is defined as “intellect”, or being quick to “understand”. Intelligence is what enables us to communicate at will.
2. The human race is rather smug about being the most “intelligent” life form on Earth. But is it? Can a species such as ours be classed as “intelligent” when it is knowingly destroying the environmental balances necessary for its wellbeing? Can a culture be classed as intelligent when it allows minorities to set its agenda, for instance the gun lobby in the USA? Can a government be classed as intelligent, when it is prepared to divert taxpayers money away from stimulating new industries and a range of emerging employment opportunities, to prop up war mongering and the destructive habits of ancient industry behemoths? Can individuals be classed as intelligent if they shoot the last member of a species in the name of sport?
3. To answer those questions we need first to agree on a definition of intelligence. There are two other adjectives that are frequently used in company with “intelligence”, so much so, that the distinction between them has been blurred by common usage. They are “clever” which the dictionary defines as skillful, talented or dexterous, and “wise”. Wisdom is defined as “possession of experience and knowledge, together with the power to apply them critically or practically”. The dictionary definition of wisdom goes on to include common sense.
4. Almost legalese, Wikipedia defines ‘common sense’ as follows, *The first type of common sense, good sense, can be described as “the knack for seeing things as they are, and doing things as they ought to be done.” The second type is sometimes described as folk wisdom “signifying unreflective knowledge not reliant on specialized training or deliberative thought.” The two types are intertwined, as the person who has common sense, is in touch with common-sense ideas, which emerge from the live experiences of those commonsensical enough to perceive them.*
5. That definition is on the right track, but it fails to acknowledge that ‘common sense’ is exactly that. It is a sense that is common to all life, not just a few individuals in one species. In other words ‘common sense’ is instinctive. That said, it may well be that not all members of the human race actually have recourse to use their instincts effectively.
6. In practice, being clever is the ability to think logically, and to then apply the conclusion efficiently. The word can equally apply to an individual or to an organisation. Cleverness is the child of competition, and it is generally revealed in the form of parallel or competitive effort with the successful taking all, and the unsuccessful falling by the way. Cleverness is an echo of our ‘survival of the fittest’ instincts, and a much revered pillar of the free market. Clever is an adjective that can be comfortably applied to the clever artisan, a competitive business, even a clever species such as the bees or the ants.
7. Most would agree that there is more to “intelligence” than straight logic. Logic is simplistic, particularly when it is applied as the perspective of the wielder. It is logical for the capable to push the less capable aside. It is even more logical for the capable to enslave the less capable. ‘Intelligence’ provides us with the ability to analyse information derived from a new experience and assimilate it with the sum of knowledge previously acquired. ‘Intelligence’ applies to organisations and governments, as much

as it does to an individual. Advanced computers can now incorporate statistical probability into their program using “fuzzy” logic. Fuzzy logic introduces a learning capability that gives another dimension to the computer’s intelligence, enabling it to modify its behaviour without needing a change to its basic programming. Subject to sound programming, artificial intelligence is now superior to organic intelligence, That raises the question, could technology supplant life?

8. Enter wisdom. Wisdom is more to do with how analysis of a situation is translated. it derives from instinct, (natural programming) formal education, (data inputs) and personal experience. Its focus is on providing outcomes that add value to the existence of life on Earth. Its speciality is the ability to anticipate coincidental outcomes rather than just interpret historic knowledge. Both intelligence and cleverness can be used for social, or for anti-social agendas. Wisdom has only one agenda, and that is to further evolution. There is an element of spirituality associated with wisdom. To be considered wise, the depth of care one normally feels for oneself needs to translate to the welfare of one’s community, of future generations, and of life itself. A wise individual instinctively knows how to apply knowledge and experience to further evolution. We modern humans may justly claim to be the most “intelligent” life form on Earth, but our credentials as far as being the wisest of species is concerned, are more than suspect.
9. Wisdom applies to individuals, under the direction of a robust social conscience, who are able to balance comprehensive experience and intelligence with an instinctive understanding of a situation. A conscience is something that is specific to the individual. It stems from their DNA, being a product of evolution that supports ethical behaviour, as distinct from logical behaviour. We can anticipate that the potential for AI to analyze complex socio-technical situations, will be hampered by its lack of a cohesive natural conscience that incorporates the depth of experience represented by the DNA in a living organism.
10. In any communal decision making environment, there may well be wise individuals who appreciate all the implications of a given situation, but they surrender their effectiveness when they delegate that responsibility to representative authority. Consensus decision making negates an individual’s natural conscience. Delegation is a potential catalyst for social dysfunction. A community needs to recognise this limitation, and introduce appropriate safeguards to minimise the negatives associated with representative governance.
11. In evolutionary terms, intelligence, and the technological products thereof are quite capable of turning on their wielders and becoming counter-productive. When we review the actions of *H. sapiens* we highlight the limitations of intelligence. Despite its technical understanding of natural processes, the species seems set on consigning all its considerable achievements to oblivion by refusing to recognise that it is only one component in a delicately balanced natural system.
12. International investment is currently focused on war and its accruements, rather than on restoring the environmental balances that are so important for the future of life on Earth. Surely that aptly demonstrates the stupidity of intelligence.

Self Determination:

Nature is a continuum that individuals live and die within.

1. I am here. Of that I am reasonably confident. Logically, there must be a medium for me to exist in. That medium is generally referred to as the natural environment. I can observe, appreciate and even modify my environment, but why am I here?. The answer to that question can be approached by extrapolating from myself as an infinitesimally small element in Nature's grand theatre, or conversely, by studying the grand machinery that is Nature herself.
2. Nature works in cycles. A closed cycle is like the concept of perpetual motion. It is a finite impossibility. Even on a cosmic scale, a closed cycle is a pipe dream. The saying "he is just going around in circles", is generally used to reflect the futility of chasing the impossible. That is the first clue to the answers we are looking for. The universe is not a solid state phenomenon. If it was, the cycle, from energy to matter and back again, would be closed with no opportunity to alter the sum presence, and accordingly no opportunity for evolution. For a cycle to persist, change to the quantum or balance of incoming or outgoing matter and/or energy is essential.
3. We can view the Universe as comprising three components, energy, matter and life. Energy and matter do not have the ability to self determine, and thereby the ability to introduce change. Apparently life exists to serve Nature as her champion of evolution.
4. Cyclic change is enhanced by diversity. Over time, diversity has yielded sentient life with the ability to appreciate that it is continuously evolving. Cyclic change is just another term for evolution. We may ponder where evolution might lead us, but whatever, evolution, or change, would appear to be the justification for life to exist.
5. The direction of natural change is not ordained. The cycle that is evolution begins with creation, followed by diversity or chaos, leading into a period of maturity or orderliness. Establishing order requires intervention. That intervention is provided by life that has advanced sufficiently to determine for itself how to progress, confirming that the ability to self-determine, or in other words choose which road to travel, is a valid aspect of evolution.
6. From the perspective of an individual, evolution can be viewed as a string leading from a hypothetical point immediately before conception, to a point represented by absolute self determination. Essentially, infinity to infinity. Progress along the string is achieved by enlightenment. An enlightened individual is one who appreciates both the role of Nature and the unity of life. Evolution is aimed at the concerted enlightenment of all life, and it is not something an individual might hope to achieve in isolation.
7. Life evolves, communities form to enhance the process. An isolated individual, advancing along the string would be limited to what they learn from interacting with their environment. Education assists an intelligent person with those endeavours. It becomes possible for life to progress further along the string when multiple, educated individuals pool what they know. Efficient evolution is best served by a community or culture able to generate balanced, quality knowledge over time.
8. On a personal scale, what ability does the individual have to determine how they spend their time on Earth? Nobody gets to say whether they are to be born or not, so the case

for absolute self determination is scuttled at first base. Even as an infant, individuals have little control over their situation. It is only as we mature that significant opportunities for self determination emerge. Educating an individual enhances their potential to chose wisely. Wise change enhances evolution.

9. A single individual can achieve as much as their potential allows in the time they are alive. A viable community will magnify individual achievements. Unity of all life would be a prerequisite for absolute self determination. Just possibly, that is the aim of evolution.
10. Historically, the course of evolution on Earth has been dictated by natural, environmental stimuli. However, that is changing. *H. sapiens* is maturing. It has advanced further than any other species along the continuum of self determination, and must now accept responsibility for its own choices. Accepting responsibility for making your own bed would appear to be a condition of Nature's "self determination" program. However, like too many contemporary 18 year olds, mankind is taking every opportunity to "kick over the traces" without heeding their mother's advice. In the process, it is destabilising environmental balances that are conducive to its wellbeing. Unless this waywardness is corrected by refocusing effort on sustaining evolution, life on Earth will be left with insufficient time to qualify for whatever it is that Nature has in store as a reward for success.
11. Educated individuals enjoy a relatively high degree of self determination, and surprisingly most appreciate the gravity of their situation. When, as individuals we delegate our ability to self determine, we risk providing faceless, selfish elements, lacking in a socially balanced education, with access to our delegated power.

The Individual:

Individuality is the greatest treasure a community can possess.

1. The fundamental component of any species is the individual. All individuals are linked to a vast knowledge asset from which they derive their genetic inheritance, including their instinctive behaviour. Life has evolved to include animals with a central nervous system, managed by a brain that is able to override instinct. Brains logically manipulate post birth knowledge and experience, to aid life's broader agenda. Instincts are designed to promote survival, and in the context of survival, an individual in touch with their instincts will automatically know right from wrong. (Whether they respond accordingly, or can respond, given social demands, is another matter.) Contemporary humanity discounts the importance of instinct in individuals, at its peril.
2. Instincts are an expression of the genetic inheritance that links every living organism on Earth, to the first life that appeared on the planet. An individual's prescription for survival is written in their DNA. It provides the foundation for an individual's personality. It includes a suite of self preservation tools. It stimulates the reproductive drive, and seemingly for us, it instigates a range of shadow abilities such as premonition, or perhaps even mental telepathy. However, instinct also includes a range of potentially anti social attributes that need to be suppressed if an individual is to contribute effectively in a communal environment.
3. The DNA in a living cell is present as 46 chromosomes, each chromosome containing around 20,000 genes, all of which underlie our individuality. Given the pedigree of DNA, we cannot discount the probability of each gene containing a large suite of latent potentials that can be activated in response to any environmental opportunity encountered. The statistical probability that any two organisms may acquire identical genetic programming is nearing infinity, thus every living organism on the Earth is an individual, with the power to activate their own unique genetic combination.
4. That degree of diversity is chaotic. The process of natural selection, coupled to sexual reproduction has, over time, effectively grouped similar genetic inheritances into what we describe as taxonomical groups. While individuals within any one group will have a similar genetic makeup, they still maintain a degree of individuality.
5. Genetic inheritance is responsible for a range of traits in an individual, such as sexuality, physical appearance and behaviour, including that associated with socialisation. Originally, life was present as a single celled organism, programmed with the knowledge it needed to source food and procreate. Evolution has since produced a range of living organisms, but they are all extensions of the initial programming.
6. Genetic change is recorded when sufficient individuals in a population are present to "fix" that characteristic, so that it is transferred from generation to generation. Animal breeders use this process to stabilise breed characteristics. Generally it requires from five to ten generations to "fix" a characteristic into a breed.
7. To survive for no good purpose is a pointless exercise, and presumably Nature intends that individuals not only survive, but that they make some effort to progress evolution. Effort is prompted by motivation. The instinct to reproduce is a strong motivation for an individual to survive. Motivation to evolve is spearheaded by the instinctive logic of preying on those weaker than you when in need of sustenance. Instinctively we want to

become be the most powerful. The most learned. The most successful. Instinct is what drives innovation. From the advent of stone tools designed to extend natural capabilities, to the introduction of the wheel enabling us to transport more, faster, to the industrial revolution, and now to electronic robotic and communication systems with the potential to coordinate all human effort. All are naturally programmed outcomes that originate with the instinctive behaviour of individuals.

8. At birth, that combination is focused on an individual's immediate survival needs, with scant regard for the nuances of social behaviour. Ethics and morals largely derive from communal conditioning. They are socially agreed standards, that are either instilled in an individual by positive education, or demanded on the pain of punishment. The balance struck between inherited instincts and acquired behaviour is critical for efficient social productivity.
9. Traditional religions generally attempt to mentor individuals within a community about ethics, morals and communal values. They emerged at a time when their advocates were struggling to explain the logic of many natural phenomena. For today's realist, natural reality transcends religious doctrine. Most religions exhibit elements of common sense, and some contain profoundly wise observations, but all incorporate flawed logic, beefed up by guesswork and marketing hype. Most don't even acknowledge the little we do understand about the workings of Nature.
10. Personality is an interesting component of the knowledge we inherit as DNA. Personality is the basis of individuality, being a reflection of our genetic makeup. In the case of *H. sapiens*, instinctive behaviour, modified after birth by social conditioning, delivers to society an individual with a natural personality, overwritten by their artificial personality. The latter serves as the public face of that individual. However, under stress, such as that caused by fear, or that generated between two persons living closely together, as in a marriage, latent natural personality traits can default, with unpredictable outcomes. Similarly, psychedelic drugs and alcoholic drinks can release social inhibitions, in the process revealing glimpses of the partaker's natural personality.
11. Individuals with minimal difference between their artificial personality and their natural personality, tend to be well adjusted and comfortable within themselves. As the personality gap widens, so does the stress factor, and with that, a predisposition for depression. In modern societies that gap is ever widening. Marketing pressures raise unrealistic expectations that 'virtually' become real as individuals increasingly use social media to represent themselves as having a third or 'virtual' personality.
12. We, instinctively market our individuality in society, yet that trait is balanced by a natural desire to blend in and belong to a group. As individuals we instinctively covert, but communal cohesion is created by a willingness to share. Thus, individuals are a product of their genetics, as expressed by the effect that modification due to social conditioning, education and experience has on their natural personality.
13. The ramifications of instinctive knowledge are largely overlooked by contemporary *H. sapiens*, suffering from the misconception that the brain is the genesis of all know-how. The brain evolved incrementally in animals, and is possibly the greatest ever step in the process of evolution on this planet. However, the speciality of the brain is processing and storing post birth information, and is limited in what it can achieve by its short life, as well as by its relatively ponderous electronic circuitry.

14. Instinct operates differently. It is the sum of the experience acquired by all life over time. It is not truncated at the death of a living organism. It provides a font of knowledge relevant for all living organisms. Without the impedance of electronic circuitry, an instinctive response to a threat is immediate. A response filtered by the brain considers the ramifications, and is therefore much slower. If there is a link between the knowledge stored in the brain and that inherited as instinct, it is the degree to which instinct can imprint itself on the evolving brain, and the efficaciousness of that process is greatly influenced by the environment an individual is born into.
15. In Nature only the best survive. That translates to any weakness in the individual being a liability. A weakness may be physical, but it may also be revealed as a difference in the way an individual thinks or behaves. Instinctively, we tend to hide what we think are our weaknesses, while promoting our strengths. The fear of being seen as too different from the norm, is used to justify a plethora of environmentally wasteful cosmetic industries that have grown to thrive on presenting individuals as something they are not. Social media takes the deception even further, allowing a person to invent a 'virtual' personality that may or may not reflect their actual self.
16. Not only are we instinctively fearful of being seen as being too different, we tend to perceive differences in others as a threat. Being different flags danger. That fear lies behind the excesses of religious inquisitions and the like. One could view the current situation in the Middle East as an example of an "inquisition like" situation.
17. Herd behaviour is potentially dangerous. In a group environment, suspicions of danger often fester into support for illogical behaviour such as sexism and racism. An individual's genetic inheritance provides it with a conscience. As an expression of their instinct, an individual's conscience is unique, and cannot be delegated. Herds lack an equivalent attribute. In a group environment, individual consciences are subjugated to the power of a majority. Herd behaviour provides the anonymity under which negative individuals can resort to their instinctive personality without any form of accountability.
18. Individuals are born with an instinctive agenda driven by the needs of evolution. Organised groups are not. Individuals make decisions based on logic moderated by instinct. Surprisingly, the mix results in many individuals being prepared to appreciate that the broader aspects of life may take precedence over their personal welfare. All too often, community leaders exploit this trait to justify punitive restrictions and warfare.
19. With biologically advanced species such as *H. sapiens*, each individual has a mental set of scales allowing new information to be weighed against against their natural programming. This autonomy opens the door to co-operative liaison with other individuals. Consequently, we humans are gregarious. With gregariousness, it is generally important for individuals who might seek to enter a group, (a) to be accepted by that group, and (b) to be able to contribute to the welfare of that group. These are logically sound instincts with serious behavioural ramifications for the individual should they be suppressed or even distorted. Isolating an individual from access to their instincts introduces social vulnerability.
20. Individuals are born motivated. Newborns are strongly motivated survivors. Motivation is universally evident in the way older children behave. Motivation is an instinct that waxes and wanes throughout an individual's life, depending on the environmental influences an individual encounters. To realise the potential provided by natural motivation, a

culture must be able to focus the asset on common priorities. For that to happen, individuals need to be convinced that contributing is worthwhile, and that the effort involved will yield some personal benefit. Education is a valuable incentive. For any culture, an education that coincidentally teaches an individual to better appreciate the value of social cooperation is a wise investment. Leave a balanced education out of the equation, and individual motivation may easily be lured from a productive role into a negative one. It behoves any community looking to sustain a presence, to carefully husband the motivation instinct of its individuals.

21. In a communal environment, education is essential to counter the negative consequences of instinctive behaviour, and to provide individuals with an appreciation of community priorities. A sound education markets the logic of communal participation. It requires discipline, community support and the presence of strong incentives for an individual to put community priorities before their own. The objective of education, is to provide society with ordered and productive individuals, able to exercise self control, and who are prepared to take responsibility for their own actions.
22. Another instinctive asset that should be cherished by any culture, is bonding. Bonding is a critical element of effective social conditioning. It would be fair to say that the individual who finds it difficult to bond will also find it hard to develop as a socially responsible adult. The mother/baby bond is particularly strong in our species, reflecting the helplessness of the new born. Bonds are easily established between members of a functional family group. Bonds often develop between individuals and their pet animals. Children will bond to a good teacher and adults to a good friend. The Australian Aboriginals generally bond to the land where they are born. In that sense the term “bonding” is interchangeable with the term “love”. It is instinctive to both love, and to want to be loved, and as a motivation for communal effort, love certainly has the potential to replace power.
23. Love engenders comfort, trust and respect. It involves acceptance of a responsibility for the welfare of who or what is loved. We can contrast the love of the Australian aboriginal for their land, with the treatment that land generally receives from its current occupants. We can also compare it with the disdainful behaviour of many landlords who are prepared to invest heavily in circumventing regulations intended to minimise the negative impacts of their revenue raising operations on the natural environment.
24. Trust itself is difficult to define. Being trustworthy is a product of instinct, albeit revealed as an individual’s natural personality, moulded or modified by social conditioning. Someone may be absolutely trustworthy with money and property, but the line might not be as sharp when it comes to relationships. Trustworthiness depends to a degree on perspective, and that can range from a liberal interpretation of behaviour to a conservative one. To “trust” another person, you need to be comfortable with their instinctive personality, not just their public personality. Covering up weakness, is a very powerful instinct in the individual. You trust someone if you can display your weaknesses to them, knowing that they will not betray your confidence. You are inclined to trust a person who reciprocates your positive feelings towards them. Successful marriages are the product of two people that know and trust each other’s instinctive personality sufficiently well to be able to share weaknesses, without fear of them becoming weapons of abuse.

25. An instinctive reaction to bonding suggests that it may well be a key feature of the continuum that is life. DNA is the interface between an individual and their life force. Some describe that phenomenon as their 'soul'. Others may see it as their 'guardian angel'. There is nothing to say that life force cannot be channeled through the individual to interact with other animate or inanimate objects, that are important to the individual. That would explain rumors that we have vestigial premonition, or even thought transfer capabilities.
26. It would also seem that the energy required for bonding can wax and wane over time. The bond between an individual and their DNA, or in other words the will to live, is at maximum strength at birth, thereafter gradually diluting as the individual ages and becomes more comfortable with their mortality. Friendships wax and wane as circumstances change.
27. Relationships are built on the ability to bond, reinforced by common experience, mutual trust and a proven willingness to share. And so a cycle is formed. Establish sound ethical and moral conditioning that nurtures trust, and in the process, provide the basis for bonding as communal motivation, in lieu of materialism and power. The approach is not new. It is the central theme of many ancient philosophies such as Buddhism, Taoism Confucianism and Paganism.
28. In the past, communities were generally smaller, with relatively stable populations. An individual's power in those circumstances tended to develop from personal actions that drew the respect of others. In contrast, power for the individual living in a mega community, may well come from amassing a big enough fortune to buy the compliance of others. At the end of the day, if they are honest with themselves, those who spend their life buying power must agree that their profligate expenditure lacks real value. Like all species, we are wired by our DNA to evolve. Our "need" for acceptance is met where individuals can readily interact to form close bonds. Commercial relationships do not sate that need.
29. As the world's various cultures homogenise, negative instincts increasingly become a concern. Living in a tribal situation where everybody knows everybody, the process of natural selection tends to moderate the influence of prominent anti-social individuals. In a modern, faceless society, the disconnection from clan and family associations provides cover for anti-social individuals. Scientific studies to determine the potential for domesticating a wild animal, indicate that only a small percentage of any population has a basic personality that inclines them to become domesticated. The conclusion is that domestic pets, such as dogs and cats, are the end product of careful selection for suitable traits over many generations, suggesting that without equivalent control measures, in a faceless global community, anti-social individuals will eventually outnumber the socially responsible population.
30. Natural selection is a competitive forum favouring the strong, the clever, the fecund, the fast and the selfish. The instinct to evolve in individuals is powerful. It is revealed as a natural interest in surmounting perceived challenges. Contemporary Western society confuses this with competition. Certainly competition can present itself as a challenge leading to individual improvement, but it can also shackle productivity. All too frequently, competitive research and development encourages parallel effort when a more cooperative approach would go further, faster, while minimising wastage.

Likewise, useful skills and knowledge are often claimed as individual property, to the incremental advantage of the claimant, but to the detriment of efficient social evolution. Individuals are motivated by the prospect of enhanced survival, and a successful community is one that can blend the positive aspects of competition with social order. The holy grail of innovation and evolution is the unimpeded ability of individuals to fully appreciate their positive instincts.

31. Instinct is the source of common sense or perhaps it is common sense. Whatever, common sense is an instinctive asset designed to enhance an organisms survival prospects. All living organisms inherit common sense via their DNA.
32. Over time, communal suppression of anti-social instincts to better serve the social agendas of our species has tended to numb instinctive behaviour in most people, including the good with the bad. How many times has a commonsense observation of a minor been addressed by an adult saying "Its complicated, you will understand when you get older". Individual concerns are often subjugated by social pressures that discount common sense. The consequential conflict between natural instinct and the contradictory intelligence the brain is receiving, results in a form of trauma. It also wastes important time needed for life to evolve. Despite its versatility and convenience, the brain in a modern human is often in conflict with their instincts.
33. Automatic obedience is essential for keeping front line troops focused. However, put army training techniques into the hands of an unscrupulous marketing fraternity, and marketers will program a child so that as an adult they will buy anything the market wishes to sell, whether the product is useful or not. The moral in all that? "In parenting make sure your newborn has enough space and time for their personality to mature. Give them a good grounding in ethics and self reliance, encourage them to think for themselves and to accept responsibility for their own actions. Do that well, and the social potential of the individual will be maintained, albeit at the expense of unscrupulous marketer's profit margins.
34. Learning social behaviour by rote, produces community members who operate under a thin veneer of civilisation, with a penchant for dropping that at the slightest provocation. Effective conditioning demands that the student appreciate the logic of what they are being presented with. A person wearing a public personality that is loosely pasted over their default personality will instinctively engender mistrust in others, and find it hard to form close bonds. They will tend to operate in isolation, foregoing the benefits of a communal environment and with that, the ability to contribute effectively. The combination of inadequate social conditioning, coupled to lack of opportunity to realise personal potential, results in individuals losing focus and balance. That is then revealed as frustration and impatience with life, often with negative behavioural outcomes including self abuse and a general lack of respect for all things natural or otherwise. When a majority of individuals in a community are so affected, the sum of their negative behaviour has a destabilising effect on the community that, if not addressed, will derail its prospects.
35. Nature appears to have balanced the "survival at any cost" instinct with a "fail-safe", in the form of a programmed behaviour that inclines individuals in a population; or for that matter a community should it be so afflicted; to self destruct, when they diverge too far from their natural responsibilities. A per capita rise in anti-social behaviour, coupled to

an increase in the rate of juvenile suicides, are both indicators of that malaise.

36. Mankind's global footprint is now impacting negatively on the planet's physical and biological stability. The bottom line for our species is burgeoning social discord, with the degree of discord being directly proportional to the extent of that deficiency. Any solution will involve restoration of natural balances and include steps to reinstate the potential of all individuals to influence positive change.

Education:

Is evolution served by education, or does the reverse apply?

1. Nothing is going to change for the good without all humanity having access to a balanced education. An education that matches the aspirations of a community willing to accept responsibility for ensuring that future generations have equitable, if not better, access to natural resources than the current generation inherited. Only then might we hope to sustain life as we know it.
2. In contemporary society, pressure for families to earn money is forcing very young children out of the home environment into institutional environments, in the process eroding the space and time a child needs to develop its individuality. The first few years of life are when children are most vulnerable to negative programming. Institutional environments have many positives when it comes to training, but they also have serious negatives. An institutional environment can limit a child's development by squeezing it to conform to the model sponsored by the institute. It also exposes a child to the influence of "role models", with mixed outcomes. Not all "role models" are appropriate. The other consideration is that while a disciple may improve themselves by emulating a good "role model", the convenience of following by example obviates the need for them to plumb their own potential.
3. The Achilles heel of contemporary education, is its poor appreciation of the knowledge inherited by individuals as instinct. Instinctive behaviour is nothing if not logical, dictating that any impediment to an individual's progress through life be eliminated. During the establishment phase of a species, the selfish and the strong are best equipped to survive. As communal life matures, residual instinctive behaviour in the individual is still present as a powerful influence on their decision taking. Natural instincts that have potentially negative consequences in a communal situation have to be managed, and that involves conditioning the populace, by establishing an appreciation of ethics, and the importance of equity.
4. Notwithstanding, it is essentially instinct that drives an individual to achieve. By educating a person, the community assumes responsibility for providing an appropriate career challenge for that individual. Deprive them of a challenge and they will focus their creative drive in alternative directions. If that happens, the efforts the community has put into educating that person may well backfire to become a key element of anti-social behaviour. Modern society is faced with having more qualified people than there are satisfying challenges, and the gap is ever widening.
5. In any population there are individuals that like to to be seen as leaders of fashion, and there are those who prefer to blend into the crowd. Likewise there are those who strive hard to become be the best in a specific field, and there are multi-disciplinarians who are more interested in systems operation. Other personality variations include 'risk takers' ,who make good pioneers, contrasting with 'consolidators', who perform best following behind the former. Formal education should ensure that balance is maintained between individuality and the delivery of an equitable education able to meet the needs of all personalities.
6. Educating an individual involves both informal and formal conditioning. The former is important in shaping the way a person relates to their contemporaries, while the latter

underpins the effectiveness of the contribution from that person to community development and productivity. Should their education fall short, selfish instincts may be unleashed that will incline that person to view access to communal assets as their right.

7. Immediate survival essentials for any newborn are food and security. Thereafter, their first conscious action will be to push behavioural boundaries to determine where they lie. This adventurous undertaking is Nature's primary tool for selecting the strongest of any species. The protection and direction provided to a newborn by its mother, its wider family, and the community it is born in to, is critical during the boundary setting phase of a child's development. Good parenting will quickly introduce black and white boundaries to a child, distracting them from being able to "push" boundaries too far before they have sufficient experience to make their own judgements. Should the child be deprived of this foundation, they may develop without a realistic appreciation of the risks associated with behaviour that fails to acknowledge natural and social boundaries.
8. In the first five years of a child's life, family relationships generally are the major player in forming their approach to life. It is the first five years where their learning skills are most malleable. By the time a child is expected to encounter the broader community, the family should have equipped them with a suit of ethical standards that they can use to moderate and control their negative instincts, in line with community expectations. As an individual ages, their horizon expands beyond the mother/baby relationship to encompass immediate family, clan, community, regional, country and species dimensions, each dimension adding a degree of complexity to the process of contributing in a positive way to communal productivity.
9. Once a child encounters other children of the same age, a generation gap emerges that will test the effectiveness of family conditioning. This natural weaning occurs because children of a similar age are able to communicate more effectively within their group than they do with adults. Should the ethical and moral conditioning of their contemporaries be deficient, a dichotomy will appear between parental training, and the influence of the group. That development is a negative for the nuclear family model.
10. A formal education that provides balanced social and technical programs, is an essential element of sustainability. As they mature, an individual will be confronted with the need to learn more about a community's knowledge asset. If that person lacks an appreciation of the importance of equity and the value of ethics, the effectiveness of the formal education process will be handicapped by their unbalanced viewpoint. When that person reaches adulthood and enters society, their deficiencies will leave them with a poor appreciation of their obligation to contribute positively to communal welfare, and should that person not be an isolated case, the community will find that it has opened the door to social decay, and ultimately, to anarchy.
11. The quandary that we, as a species, now face, is that the current process of education is self limiting. In practice, formal education reflects social priorities that may, or may not, parallel an individual's personal aspirations and interests. By over-institutionalising education we are anticipating that the potential of all individuals happens to coincide with the existing sum of common knowledge, as interpreted by a particular institution. Currently, social expectations often divert the efforts of individuals away from their natural interests, and consequently, from their potential to innovate.

12. It is not that organised education is wrong. Certainly, as a community grows, it is the most efficient means of ensuring productivity. However, under the current institutional model, the “free thinking” aspect of education is compromised as knowledge is increasingly coveted by private interests for their commercial purposes. Knowledge potentially able to add value to communal life should be shared as a common asset.
13. From a community perspective, private sector involvement in education can be counter productive. The private sector seeks and encourages specialists able to focus on quite narrow fields of endeavor. The public sector needs multi-disciplinarians able to piece together the various components of modern society. in a logical format. The balance of education is now heavily weighed in favour of the private sector, and that translates to social inequities that limit communal productivity.
14. Communication is the holy grail of education. A quality education depends on an individual's ability to communicate effectively. Recent advances in communication technology are being abused by marketeers to compromise the integrity of education. Instead of a primary focus on providing a balanced education, these technologies, including the internet, have been hijacked, to market unnecessary or even useless products. They expend vast resources on promoting unfulfilling activities. We now place a lower priority on teaching our children how to thrive socially, intellectually, or even spiritually than than we do on training them to become avid consumers of useless products. This focus on consumerism equates to environmental vandalism.
15. In most economically advanced countries, ineffective governance has allowed the private sector, with its narrow focus on specialisation, to influence what the public receive as an education. This trend has resulted in commercial research and development prospering at the expense of basic science. Lacking balance, the current model of education in Western society is inadequate, inefficient, inequitable and unsustainable.

Culture:

Think of 'culture' as being a communal personality, then decide if you like it or not.

1. Culture amounts to a set of guidelines and protocols that individuals, choosing to cooperate, accept as a basis for cooperation. Education is the architect of cultural advancement, individuals the building blocks, and communication the mortar that binds the blocks in place.
2. Religion is a medium for dressing the window of most cultures. Over the past aeon, religious orders have emerged with doctrines ranging from simple acceptance of natural phenomenon, expresses as a desire to work with Nature, to various attempts to articulate Nature in human terms. Most mainstream religions are based on the teachings of disciples claiming enlightenment about the workings of Nature or a de facto deity for Nature. Generally, these disciples were "common sense" individuals using the promise of a presence beyond death as the incentive for ethical social reform. If that was where religious activity stopped, the world would be a much different place. All too often religious expression includes a history of distortion, manipulation and abuse, instituted to serve selfish personal, and political agendas.
3. Those early disciples were able to appreciate the nature of life without having the advantage of access to the scientific understanding that our species now has at its disposal,. The only avenue they had to acquire that degree of empathy, was to tap into their instincts and exercise their common sense. Unfortunately their viewpoints were not adopted universally, and enlightened cultures and community fortunes have waxed and waned over the centuries in response to the rise and fall of barbarian influences. Nevertheless, it is probably right to say that our species would not be here today, but for the contributions of those disciples.
4. Culture is a double edged sword. Balanced, it will sponsor positive effort to produce outcomes that result in efficient productivity. An unbalanced culture lacks that attribute. Taken to the extreme, an unbalanced global mono-culture would be a direct route to environmental decay and a threat to all existing species on the planet.
5. Over the last 60,000 years *H. sapiens* evolved many different cultures. Historically, these have prospered for a while, then declined, more often than not violently, making way for new cultures to establish. The process simply exhibits the flexibility that is characteristic of the natural cycle of birth, growth, maturation, decay then rebirth. However, cultural diversity has been in steep decline over the last thousand years or so. Many cultures have hybridised, and many have become extinct, leaving Western and Eastern cultures dominant.
6. Each extinct culture had put millions of man years, into developing their knowledge base as a cultural asset. Contemporary mega-cultures have become malignancies riding roughshod over minorities, in their arrogance trashing that valuable knowledge. "Endangered cultures" is as important an issue for the evolution of mankind as is "endangered species".
7. We humans now have most of our eggs in the one basket. In a multi-cultural society, the majority of the population is immune from the results of a dysfunctional culture. In a global society dysfunction will affect a species in its entirety.
8. Social instability is the main indicator of environmental abuse. Currently humanity is

facing an unprecedented level of social instability. Politics based on gender, race, and living standard differences, preoccupy the media. The media itself, often confuses terrorists with political and environmental refugees, rarely acknowledging that both are symptoms of overpopulation and inequitable access to natural resources. Civilisation appears to be in a backslide, as individuals increasingly revert to their instinctive self preservation mode.

9. The world's dominant cultures have become obsessed with technical capability and material accumulation, while neglecting, or even rejecting, any responsibility for equitably husbanding natural resources. The combination of selfish behaviour, abuse of marketing science, and the burgeoning growth of humanity's footprint on the Planet is increasingly dividing the global populace into a few gluttons, generally unwilling to share, and a largely deprived multitude. There are many examples of what happens to a culture that does not regulate its success within natural and social limits. Lemmings, Locusts and Easter Islanders, to name a few. All suffered the consequences of their disregard for the importance of natural balance.

Governance:

Arrogance begets ignorance:

1. Governance is the principle mechanism used by our society to manage the distribution of resources. Good governance is a product of balance, too much and the bulk of available resources are consumed by the process, too little and chaos enters into the equation at the cost of social equity.
2. Communal activity is a mix of public and private sector mechanisms. In theory, the public sector deals with management issues while the private sector drives productivity. The public sector consists of four elements. One, the end user or client, two, an independent judiciary, three, elected representatives charged with making responsible decisions about resource distribution, and four, various specialist departments available to support and advise all of the above. Competent governance requires those four elements to work together as a team, with each team member respecting the role of the other members. From the perspective of the client, the system is most functional when it is in balance.
3. The practice of governance is a management exercise, synonymous with sound animal husbandry. The priorities in both instances are to manage the harvest of natural resources sustainably, while introducing programs that, in the case of the farmer, lift the average performance of the herd, and in the case of government, lift the average performance of the general population. There is a strong correlation between extremism, fear and ignorance. Accepting that extremism is a counter productive influence, the education of its members is clearly the priority for any community.
4. A government's involvement with natural resource distribution is intended to be a socially accountable activity, designed to foster equity. Private sector activity is a fragmented exercise involving the aspirations of individuals, corporate entities, small business, religious groups, plus a multitude of special interest agencies and organisations. It uses doctrine, commercially valuable knowledge and innovative products to compete for resources. The last thing it desires is equity. Competent governance will enhance communal performance. In the process, it will neutralise pressure from the private sector to covet natural resources and knowledge, for personal gain.
5. In theory, having control over communal assets, enables the public sector to support, regulate, and coordinate private sector activity, thereby enhancing gross output. The efficaciousness of this strategy depends on communal assets remaining in the hands of the community. Natural resources are communal assets and while private interests may well be effective at 'value adding' to natural resources, they can not, other than on paper, morally own them.
6. In accordance with the natural edict that strength comes with diversity, management of the resource distribution process by the end user is theoretically the ideal form of governance. For that to work well, each individual would need to have similar appreciation of the value of the resources, similar ethical standards, be of the same social standing and have an equal voting rights. These are impossible conditions even within a small, special interest group, much less the global economy.

7. Anything more than a family group, and the end user ideal falters. Historically, the solution to that limitation was for the most influential member of a community to take charge. The “chief” or the “king”, so to speak. Dictatorships and kingdoms are the modern expression of that process. Contemporary governance has often opted to abandon the model where a community is governed by a self appointed individual, be that individual the strongest or the wisest, in favour of representative control. A decision presumably prompted by most dictators proving, more often than not, to be avaricious, rather than wise.
8. Individuals differ from organisations. Individuals are born with a natural conscience that, in the right environment, will mature to incorporate a social conscience. Decisions making by individuals is generally influenced by their conscience, so long as they remain independent. A well balanced individual will feel accountable to the society they live in. On the other hand, organisations rely on consensus decision making, an averaging process that often discounts social conscience. Organisations usually put agreed operational principles before community priorities. Taking those considerations into account, the increasing engagement of corporate interests in public education is of the gravest concern.
9. Recent trends in governance have seen the democratic principals that underpin equitable distribution of natural resources compromised by coalitions of like-minded representatives operating as political parties. Party politics negate an individual's conscience, thereby corrupting democratic process. Party decision making is generally based on a desire to retain office. All too often their decisions are being influenced by minority interests. In practice ‘representative’ governance in Western society has become an irrelevance. With the personal element removed, party politics has become responsible for turning social accountability into a three card trick, especially when the financially powerful private sector seeks payback for undeclared financial support of a party.
10. Even though the majority of voters be dissatisfied with a party's performance, once established, it is much harder to vote a party out of existence than it is a discredited individual. Party politics has paved the way for multi-national, corporate interests to penetrate the natural resource distribution process. In Australia, the institution of political appointments to the judiciary, and to lead government departments, has sealed the fate of socially and environmentally responsible resource distribution.
11. The relationship between good governance and politics is being obscured by party politics. Many countries are experiencing a mixture of apathetic and incompetent governance that has left the back door open for the private sector to trespass at will. As a result, communities suffer the undue influence of a private sector that, operating efficiently and effectively as a specialist group, has little time for multi-disciplinary problem solving. As yet the private sector is showing minimal evidence of being able to self regulate its operations in a socially responsible manner. Classic symptoms of the malaise are burgeoning antisocial behaviour, and growing underemployment, despite an ever increasing plethora of environmental priorities that are demanding attention.
12. The private sector is now in control of Western media, and it is using its communication

muscle to enhance its influence in favour of its own agendas. Lack of commercial balance is now detracting from the prospect of life on Earth being able to maintain a presence, much less realise its potential.

13. Theoretically, the private sector provides services for reward. The cost of a service includes materials, overheads, a margin for error, and fair reward for the time component, which traditionally, would about double the material cost. Recent trends have seen numerous situations where private sector profits are increasing by many orders of magnitude, both as a consequence of mega corporations gaining monopolies, and via corrupt marketing practices that effectively blackmail consumers. The price of products that are essential for personal well being, or that are marketed as being essential, are frequently well in excess of their production and distribution costs. In concert with its lucrative blackmail agenda, the private sector is accessing a multitude of environmental and governmental subsidies which it rarely passes on to the consumer. The bottom line is acute social inequity.
14. Profiteering from arms supply now keeps several major economies afloat. Whether it is a communist army, a democratic army or a terrorist army, all have shown themselves to be capable of pursuing genocide and vandalising both natural and social environments. This is despite the vast majority of people in the communities they claim to service, being of peaceful inclination, decrying the collateral damage that is being dismissed so lightly by their governments. Currently, the vision of the private sector is anything but sustainable.
15. The presence of private sector intrusion can be measured as the percentage, over time, of the public purse that is being diverted from public sector responsibilities, such as education, communication, infrastructure and health, into private sector profits. The graph should be flat or dipping, rather than the exponential upward curve that many modern economies now experience. Another measure that indicates the rate of social decline, is the extent of regulations being introduced to support corporate interests, and erode freedom of speech.
16. We can observe the last nails being driven into the coffin of social equity as responsibility for more and more essential services, including communication, education and health, are transferred to the private sector to be “commercialised” for profit. In the process, environmental priorities are being written off with false regrets. The corporate sector, is now able to profit from its exploitation of both natural and human resources without regard to natural limits. It is even guilty of taking steps to legislate so that it is illegal for representative governments to interfere with its rapine intent.

1.

Democracy:

Democratic governance is a social response to extremism.

1. It is generally thought that democratic forms of governance first emerged in Greece about 500BC. In a democracy, elected representatives are entrusted with the task of managing the distribution of communal resources. When it comes to performance, the principle of acting in accordance with a majority vote has many limitations, not the least of which is its averaging influence.
2. Take a simple democratic decision making model between two individuals who decide to collaborate. The synergistic output from the collaboration will reflect a democratic average of their individual perspectives. For the arrangement to hold together, both individuals will, more often than not, need to make compromises.
3. In theory both have an equal vote. Nothing could be further from the truth. The value of a single 'vote' varies according to the perspective of the individual, and to their appreciation of the issue being voted on. A vote on something important when one is well informed is a valuable contribution. Voting on something important when one is uninformed is a form of 'Russian roulette'. Therein lies the logic of education. For the vote of individuals forming a group to have anything like equal value, every individual needs to be suitably qualified to cast their vote.
4. To compensate, democracies rely heavily on establishing advisory committees and departments, formed from members considered to be competent in a field relevant to the issues being addressed. Committee recommendations are then ratified by the majority, via a range of public and private sector mechanisms. Most of the general population responsible for ratifying those recommendations will not be qualified to debate at any depth on the issue at hand, but will largely be trusting the committee's advice. In the same way, a first home buyer normally has minimal understanding of the small print included in the purchase agreement they are signing. However, in most cases they will have sought the advice of someone conversant with contract law before they do so.
5. A community exposes itself to a range of negative consequences when only a small percentage of a population understands issues requiring ratification. When a committee contains all the intellectual property, and it asks for its decision to be ratified by a public totally in ignorance of the issue at stake, then the door is open for a minority to profit at the expense of the majority. For any ratification process to be meaningful a reasonable percentage of the population needs to be conversant with the situation,. Education introduces that accountability. A government that places class or financial barriers to any of its members gaining a balanced education, is untrustworthy and unsustainable.
6. A range of democratic models has emerged since the Greek model, with capitalism, weighted to represent private sector interests at one end of the spectrum, and communism, weighted to represent public sector interests at the other. Human nature compromises the pure application of either option. To work well, a model has to balance the instinct for self preservation in individuals with motivation to become involved. Too much capitalism results in inequitable distribution of resources, as the rich get richer and the poor become less inclined to contribute. Communism fails to gain credibility amongst many for a variety of reasons, including its dilution of spontaneous, individual

motivation. It also can lead to the rich getting richer and the poor being less inclined to contribute.

7. Australian Aboriginal culture is a prime example of communistic governance where the influence of the public sector far outweighed that of the private sector. Aided by having a sound ethical foundation, resource distribution in an Aboriginal tribe generally was fair, but that came at a cost. Over several millennia, Aboriginal culture stagnated, and the evidence suggests that, in terms of technical competence at least, it was even regressing. The cause of the regression could well be due to the absence of motivation to do more than subsist.
8. In a democracy, elected representatives are entrusted with the task of governing. As with any larger group, a specific action intended to enhance productivity will generally have some of the group diametrically opposed to the action, some dedicated to the action, and the majority somewhere in between. The divisions of opinion will not be black and white. There may not even be one member of the group who gets exactly what they want. In conclusion, in a classic, one class situation, democratic decision making, at best, can only produce an average outcome. Even that result depends upon every member having an equal appreciation of the issue being voted on along with an equal vote.
9. Control of natural resource distribution provides the public sector with the muscle it needs to realise those priorities. Privatising that control corrupts a democracy. Most democracies establish specialist public service departments, including a judiciary, to provide their decision makers with sound advice. Functioning efficiently, democratic decision making can deliver stability plus an average result, but when the government is subjected to undue influence from the private sector to interfere with, or even disregard the advice it receives from its advisory departments, then equity will suffer. Vested interests will surface, and the community will start to divide into 'haves' and 'have nots'.
10. An average to sub-average capability equates to stagnation. If it is to perform as a productive unit, democratic governance needs to address the issue of averageness. There are two mechanisms for doing this. The first is, that for any given situation there are some individuals who will be capable of better than average performance. A community that nurtures individual creativity, and has a process for putting the right person at the right place at the right time, will perform much better than the classic democracy outlined above. The basic division of any community is its "public" sector, with the balance of the population referred to as the "private" sector. The private sector is far more effective than is the public sector at extracting the potential of above average individuals. This comes from its charter, which is to attract and apply the best available workforce to deal with specific priorities.
11. The second and perhaps most important mechanism, is to lift the bar of averageness by lifting individual capabilities across the community. Responsibility for educating the wider community is an essential component of good governance. Therein lies irrefutable logic of a government's priorities. Sustenance, shelter, communication, **education** then social welfare, in that order.
12. In contrast to 'specialisation', which is the strength of private enterprise, the competent exercise of governance demands a 'multidisciplinary' appreciation of the variables involved. To counter an imbalance the private sector's influence, elected representatives

seek advice from a range of specialist departments. Multi-disciplinary skills are needed to manage the complexities that stem from matching that advice to the range of electorate priorities.

13. The vulnerability of Western democracies stems from deficiencies, both in departmental performance, and with the governments limited multi-disciplinary analysis capability. In the first case, the emerging practise of appointing political party representatives to head departments has compromised the integrity of the advice received from those departments. Governments are all too often guilty of demanding advice adjusted to support a political agenda, when they should be seeking sound impartial advice. In the second case most communities focus on social conditioning, including formal education, that tends to favour specialisation at the expense of multi-disciplinary skills. Specialisation is sustenance for the private sector. Multi-disciplinary competency is essential for good governance. Once again, balance is all important.

1. **Regulation:**

1. Rules, protocols, laws & regulations can be likened to a ship's rudder. The rudder is there to keep the ship on course, but use it to alter course, and the change in direction will also slow the ship's progress. As a ship's course is maintained using its rudder, social culture is maintained using regulatory instruments.
2. Social regulation is intended to usefully supplement ethics and common sense. Regulatory Instruments are generally designed to address average situations. It should always be remembered though, that statistically there are relatively few average situations. In practice, laws and regulations are an expensive surrogate for ethics. Abused, they suffocate productivity. How often are they used inappropriately as a revenue raising tool, or to pursue a personal vendetta. Unfortunately, there is a small minded, unethical minority prepared to enforce their inappropriate application, whatever the social cost. There are two tests that should, in every instance, be applied to the exercise of regulatory instruments. First, are they achieving what they are intended for, and secondly, is the community getting value for the resources it is investing in the process?
3. Regulation can be applied in a positive manner to help establish order, or it can be used in a punitive way to rectify anti-social behaviour. In the latter case, it is addressing symptoms rather than the problem. To be effective, regulation generally requires enforcement. The more vigorous the enforcement needed, the greater their parasitic cost on production. More rudder, less way. A common sense approach to both the interpretation and application of regulations is all important. Organisations lack DNA, and therefore direct access to common sense.
4. The term 'thinking conservatively' is almost an oxymoron. A totally conservative person wouldn't think. Rather, they would rely on established precedent, regulatory standards and religious frameworks to direct all their actions. They certainly would not initiate action without an appropriate directive. The skeptic lies at the other end of the scale. Skepticism dampens innovation and generally leads to unproductive procrastination. Efficient communal productivity requires balance. Balance between maintaining diversity and the introduction of order, which needs to be lightly imposed to avoid choking creativity.
5. Ethics are self imposed regulations. To be effective they must, in the eyes of the individual applying them, be appropriate for a given situation. Ethical behaviour would have you treat others as you would have them treat you. Punishment for ethical transgressions is essentially a product of personal conscience, sometimes supplemented by social pressure. Depending on the attitude of those affected by unethical behaviour, social pressure can range from slight amusement at the transgression, to the label of being rude or, in extreme cases, of being seriously anti-social.
6. And behaviour is not the only target for regulation. Knowledge is also regulated. It is compartmentalised into categories and sub-categories. For instance science has its various fields with 'expert' bodies set up in each field to ensure the veracity of new contributions. Financial regulation has seen commercial research displace the focus on basic research or free thought. Most of the great leaps in human knowledge have not come via the peer review process or by commercial research. They are initiated by individuals short circuiting the system, in response to their intuitive feelings. It is said that Einstein's theory of relativity developed in that manner. Steven Hawkins' Big Bang theory came about in a similar fashion.
7. As communities expand and become more complex, institutionalised decision making becomes increasingly ponderous and inflexible, in the process crippling diversity.

Decisions are made on the chess board of power, with community priorities often discounted. Enacted rules, laws and regulations establish standards, imposed universally on a cosmopolitan society.

8. In most countries, there are many more villages than there are large cities. In a small community, where everybody more or less knows everybody, the plethora of laws designed to regulate the irresponsibility that flourishes in the anonymity of large city environments, is frequently inappropriate. Villagers may well be exercising common sense when they disregard a law that is inappropriate given their situation, but nevertheless, they still risk being caught in the net and penalised by a faceless enforcement regime, operating as a flawed surrogate for common sense.
9. Communities that are light on for ethics and common sense, rely heavily on rules and regulations. A community with a sound ethical base, and which encourages the application of common sense to solving problems, might institute behavioural guidelines and protocols, but its need to institute black and white rules and regulations would be minimal. Excessive administration, when a degree of local control would better suit the situation, chokes community spirit. Soon after it was formed, the Northern Territory Government of Australia recognised this and allowed its magistrates to return aboriginal offenders to their community for local justice.
10. Inappropriate use of rules, regulations and laws is only the tip of the iceberg. Enforcement and litigation are outcomes of rule making. The associated costs impact negatively on productivity. Productivity itself involves a plethora of costs such as licence and inspection fees, transport fees, middle-man charges plus a burgeoning range of costly precautionary initiatives designed to insure against the possibility of exorbitantly expensive litigation. When the sum of those costs is greater than the value of the produce, productivity ceases to be (Use of the present tense is intentional). If authorities were serving their community well, they would be taking steps to minimise production costs, not exacerbate them with an ever growing set of rules and regulations, and they certainly would not be confusing “production costs” with “production”.
11. Insurance is a much abused mechanism. Applied to ameliorating the negatives following an accident, it makes sense. When applied to protecting the irresponsible from the consequences of their irresponsible behaviour, insurance only fuels social discord, widening the gap between the haves and the have nots.
12. Combine overuse of rules regulations and laws, insurance abuse and ponderous legal costs that are well beyond the purse of ‘Mr. Average’, and an atmosphere of fear is created. As state enactments gradually assume more of what were once traditional local or even family responsibilities, the ability of a community to effectively educate its children to recognise risk, and accept responsibility for their own actions, is eroded. Children become victims, reaching maturity with an unrealistic understanding of their social responsibilities. Communal cohesion erodes and enters into a downward spiral characterised by increasing social discord. More rules regulations and laws are enacted to compensate. They only impact negatively on individuality and productivity, opening the door to a modern form of slavery, as a prelude to advanced social decay.

1.

Economic Management:

The product of sustainable economic management will mimic the needs of evolution.

1. The economy is the carburettor of society. It fuels the motor. A balanced economy is one that is able to distribute natural resources efficiently and effectively so as to maximise the prospects for a community to prosper. A healthy economy will provide all community members with equitable access to education, as well as to the benefits that stem from technology and know-how.
2. Modern economies are neither balanced or healthy. Aggressive marketing is founded on misleading if not dishonest communications, compounding the problems. Inequity detracts from economic performance. It's a repeated lessons of history that money in the hands of the rich does less good for the economy as a whole than money in the hands of the working classes and the poor. The reasoning here is as simple as it is inescapable. Industrial economies survive and thrive on consumer expenditures, but consumer expenditure is limited by the ability of consumers to buy the things they want and need. As money is diverted away from the lower end of the economic pyramid, demand slows and consumer expenditure falls off. The rich, by contrast, divert a large share of their income out of the consumer economy into investments. When consumer expenditure falters, then investments linked to the consumer economy falter in turn, and the economy becomes unsustainable. An economy featuring commercial expansion with zero or negative wage growth, indicates that the economy is out of balance.
3. In recent times "Business managers" have proliferated throughout the economic world, purportedly excelling in their ability to return a cash profit for distribution amongst shareholders. That has been at the expense of real managers able to sustain a profit over time. The former tend to rely on cashing out the asset they are responsible for. The latter operate more on having a good understanding of the business they are engaged in, and of their employees capabilities.
4. Historically the consequences of inequity have generally been localised. That is no longer the case. Inequity has become a global issue. It is spawning violence, and stimulating a flood of environmental refugees from areas cursed by the consequences of inequality. A flood that submerges individuality and threatens to overrun all balanced or even unbalanced communities in its path.
5. Money *per se* is not the bogey, but the inflated value that global stock markets, with their smoke and mirror techniques is. From *H. sapiens* perspective, the bottom line of the distortion is leading to social decay and anarchy. From Nature's perspective, any such disturbance is likely to introduce a minor re-balancing issue.
6. Technological advancement is now running rampant, with total disregard for its relevance to natural limitations and the imperatives of maintaining evolution. Climate destabilisation, overpopulation and the chronic impact of non-biodegradable compounds on ecosystem balance are all the result of uncontrolled technical advancements. Fault can be directly attributed to our obsession with commercial research, development and commercialisation. Any balance between basic research and commercial research is

history. Responsibility for investment of public funding into research, has effectively been transferred to the private sector. Government departments, once the bastion of technical advancement, have become increasingly political, That reduces their independence, and thereby their effectiveness as government advisors.

7. The twin gods of consumerism and materialism, have spread their influences far and wide, leaving mere echoes of the numerous cultures that once featured balanced economic management, with relatively equitable access to resources. Private sector involvement in the distribution process has reached a scale whereby multinational agencies, presenting themselves as unelected governments, are able to influence the distribution of resources without being held responsible for any negative side effects. Stocks and shares, once indicators of a company's value, have been divorced from any resemblance of a company's real worth in asset/resource/production terms. Their value is grossly distorted by stock-market manipulation and share gambling, an internet based activity that capitalises on market volatility without appreciating what the shares being traded represent. Patenting laws have become the tool of those aspiring to privatise Nature. Global trading institutions are infinitely complex, thwarting all attempts to predict economic outcomes based on the simplistic "village", or closed system models favored by traditional economic theorists.
8. The free market is touted as the most efficient mechanism for distributing natural resources, but on the global stage, the free market is a myth. Finite natural resources used in production are generally undervalued. Private sector involvement in the distribution process has reached a scale whereby multinational agencies are able to influence resource distribution processes, without being held to account for any negative side effects. Currently, the bulk of harvested natural resources is being distributed globally in response to the demands of industry. The distribution process is designed and engineered to reinforce short term, corporate interests, using advanced marketing techniques that, equate to social and environmental vandalism. "Need" has been replaced as a justification for acquiring an asset, by "Want", highlighting the ingrained problems of greed, a lack of self control and a dearth of common sense. In other words the human race has effectively rejected eco-stability, replacing it with unsustainable economic warfare.
9. *H. sapiens* idea of "economic balance" is being squeezed by political convenience, the consequences of which ignore sustainability, and create rampant consumption unfettered by supply logistics. The 21st century market place is a scene of subverted ethical and legal safeguards. It has seen the demise of any superlative serving as a meaningful adjective, and the emergence of marketing practices that would make an eighteenth century 'snake oil' salesman blush. A valueless cash economy, supported by corrupt marketing practices, spells disaster for the natural balances that underpin the wellbeing of life on Earth.
10. Governments are printing money at will, hoping those susceptible to marketing ploys will buy more unnecessary "stuff", that has been engineered creatively with inbuilt obsolescence to prop up demand. In reality they are establishing an artificial economy complete with an artificial market for employment, and more significantly, an artificial feeling of achievement for individuals. In other words, as a whole, the human race has effectively rejected eco-stability in order that a minority can glut, unsustainably on

natural resources.

11. Natural balances are being eroded by the impact that unfettered globalisation of a market economy has on the needs of evolution. The corporate world seeks uniformity and predictability, paying scant regard to anything that cannot be quantified and accounted for in dollar terms. Corporate decision making is based on plain logic aimed at enhancing the relatively narrow goals any company has set itself. Evolution, in its terms, is collateral damage

In retrospect.

Arrogance begets ignorance:

1. Looking at our species recent track record, there is little evidence of it even attempting to manage its rate of natural resource exploitation within sustainable limits. Examples of its neglect exist from when the indigenous population of Easter Island cut down every tree, even though that action led to their cultural extinction, to, on a larger scale, a contemporary global culture that is prepared to carry out the same exercise with trees, fish, air quality, water quality etc., even though that degree of irresponsibility is prematurely consigning life on Earth to its decay phase.
2. Major natural disasters aside, fundamental change to natural balances occur slowly relative to the lifespan of most organisms. This allows genetic variation to play an important role, providing organisms with the time they need to adapt to change. However, anthropogenic influences are altering the status quo by accelerating the rate of fundamental change, leaving minimal opportunity for life to adapt. Consequently, species diversification is on the decline, and gathering momentum. The population explosion of *H. sapiens*, when coupled to its wasteful, cash based economic system are essentially to blame. Its inadequate, if not corrupt, governance systems undermine any prospect of positive change.
3. A social minority, motivated by greed and without regard to the wider consequences, has been able to erode socially equitable access to natural resources. With the integrity of its decision making mechanism compromised, our species ability to service its natural responsibilities is in disarray. Any attempts to rectify the situation using representative models of governance are doomed to failure. Repairing the species social mechanics will involve balancing its technical abilities with an equally advanced appreciation of natural mechanics, sometimes termed "spirituality". Responsibility for restoring balance lies with you and me as individuals. It cannot be delegated for much longer.
4. Taking into account developments over the last 50 years, it would seem that in the eyes of Nature, *H. sapiens* is behaving like a malignant virus. We will soon face Nature's court charged with damaging her natural balances. If found guilty, the penalty is to have our DNA extinguished for all time, with no provision for an appeal.

Part 3: WHAT IF? (Enlightenment)

The Challenge:

Without its future, the past ceases to exist.

1. Whatever lies ahead for Earth will occur within limitations imposed by natural laws. Should our species act to maintain the natural balances conducive to its wellbeing, its decision makers will need to respect the underlying mechanics.
2. 'What if' is not a prescription for restoring balance. It simply demonstrates that there are feasible alternatives should humanity choose to address the social chaos it is currently inviting.
3. The challenge facing our species, is the need to acknowledge that we exist as an organism within a greater organism that is planet Earth. In doing so we need to understand that we are a component of a well balanced, natural system involving all that is organic, and all that is inorganic, on the planet. We also need to appreciate that the same relationship between inorganic and organic matter exists within every living individual, and indeed within every cell of every living individual.
4. One might ask what it would take to establish a perfect society. The first step would be to determine what is perfect. In natural terms this would require a balance that efficiently and effectively promotes evolution. The social equation for that is ethics (providing a focus on sharing) plus cultural diversity (enhancing innovative capabilities) multiplied by equity (maximising productivity), adding up to sustainability. For life on Earth to have a rosy future it will need to learn how to incorporate its technical capability into that sum, without affecting the balance.
5. Innovation is the essence of sustainable evolution. The ability for individuals to express their individuality is the essence of innovation. True happiness for any individual comes being able to add value to their inheritance, or in other words, to grow and evolve. The prospect of that happening depends on them being able to exploit their individuality. Natural mechanics underpin evolution. Social mechanics is a sub-set thereof. Justification for social mechanics is its potential for enhancing an individual's ability to evolve.
6. An able bodied individual needs to be stimulated by an environment that is relevant to their embryonic capabilities. To achieve their full potential, they need discipline, training and education. Education is capable of producing a balance between chaos and order which could go a long way towards sustaining life, as we know it, on our Planet. Conversely, ignorance could be blamed for most of the recent environmental vandalism attributable to our species. Accordingly, any social barrier to an individual gaining an appropriate education should be eliminated.
7. Communication is the catalyst for collaborative accumulation of knowledge. Advanced capabilities underpin development of complex bureaucratic structures able to manage the distribution of natural resources in such a way that the potential benefits stemming from accumulating knowledge can be realised. Currently, distorted structures are inhibiting evolution by justifying over exploitation of resources at the cost of natural balance. Private sector aggrandisement is flourishing at the expense of social equity. Lack of balance is triggering natural retaliatory mechanisms that threaten the cosy environmental conditions to which life, as we know it, has become accustomed.
8. Globalisation of ethical traits, of environmental awareness, of support for a common

empathy, and of appreciation of the importance of equity, will all further the cause of environmental unity. A global community, comprised of individuals with a responsible view of what a partnership involves, would have no need for warfare, little need for regulation, and require only minimal governance. Associated costs would be reduced accordingly, leaving more resources available for productive pursuits.

9. From Nature's perspective, restoring sanity is no big deal. It only requires the majority of individuals in the population to display their appreciation of the natural mechanics involved by restoring natural productivity. From a social perspective, it may well be an impossibility. It would entail universal trust, and recognition that the sanctity of life is not specific to a single species. It would also mean that population levels be adjusted to establish sustainable demands on natural resources.
10. Given that we even have the will, major adjustments to the way our society currently operates are needed. This situation could be reversed in a generation if half the level of resources currently applied for military purposes was spent on providing universal access to education, while the other half was used to seed appropriate community productivity.
11. There is a strong argument for the Earth itself being classified as a living entity. Its presence can be described as energy, associated with organic and inorganic materials. That description fits us as individuals equally as well. It also fits every cell within our body. Chaos theory suggests that this formula holds throughout the Universe, perhaps even to Nature herself. On that basis it is reasonable to assume that evolution is taking us towards becoming part of a natural system that requires close synergies with the physical world. It would appear that advanced communication and robotic technologies are stepping up as the missing link, and that existence carries with it the acknowledgement that *H. sapiens* is just one element in a grand program of systemic change.
12. Evolution weeds out and disposes of any life that fails to meet its demands. Humans have evolved as an intelligent species and we can anticipate that Nature has an expectations in terms of how that capability might be applied. Sustainable evolution will require the majority of individuals to behave in an environmentally responsibly manner. Should our communities progress towards becoming more sustainable, natural selection will automatically trend in that direction.
13. At the moment our species technical capabilities far outstrip its understanding of natural spirituality. Too many individuals, posing as responsible citizens, are using technology selfishly without regard to natural limitations. Restoring essential balance will entail less arrogance, a greater understanding of natural mechanics, and recognition that system unity, or the oneness of life, is a fundamental natural ethic. Communities will need to acknowledge that the value of an individual's life is measured by its contribution to the process of evolution rather than any materialistic value it, or its contemporaries, might assign thereto.
14. As individuals, we are comprised of various living cells that function as an entity. Some cells are designed to protect our health, others are aberrant cells that either don't contribute or, as with cancer cells, undermine our health. A social group is no different. While the majority of individuals within the group work unquestionably to otherwise support the social system, a percentage of them will be 'Knights Templar', or individuals willing to sacrifice themselves for the greater good. Conversely there is a percentage

of cancerous individuals, willing to to gain advantage from the system without necessarily contributing to its upkeep. Social conditioning is what determines the percentages. Tactically, we as a species, need to reinforce the socially responsible population so that it forms a large majority. That shift will involve downsizing the importance of our market based economy while promoting responsible achievements.

15. The priority is to replace materialism with a sustainable market place that motivates the individual, terminates monopolistic control, and better matches productivity to need. The move will require multidisciplinary practitioners as managers, involved in establishing ethical standards, together with a functional appreciation of what actions are needed to repair the environmental balances that suit our species. The authority of the public sector will at least need to match that of the private sector. That will necessitate a global movement able to eliminate the chronic abuse of power. It is a path that may require 'unnatural' selection for socially responsible traits. That level of change will only happen by demand, not by decree.
16. The explosion of *H. sapiens* has reached plague proportions, and for life as we know it to persist, numbers must be adjusted to acknowledge, sustainable limits. It may well come to be that under those circumstances, an enlightened population will no longer be willing to support cancerous individuals. Can the catharsis in both cases be achieved ethically? Once again, yes, providing there is the social will.
17. Whether that will is likely to emerge is questionable. Working out what "needs" to be done to rectify the situation is not the difficulty. It is "how" to do it that that raises seemingly insurmountable obstacles. *H. sapiens* may well be a born loser. Looking for a bureaucratic solution is pointless. We, as individuals, have to accept responsibility for repairing the damage. It is the actions of individuals working proactively in unison that will deliver answers, not the decrees of essentially reactive governments.
18. "What if" is an attempt to outline the scope of the changes needed by contemporary life on Earth should it aspire to sustain a presence. Without presuming to detail what has to be done, this section explores the degree of social adaptation that goal might demand, in the process raising common sense options.
19. Initially, all individuals need to receive conditioning designed to instill an appreciation of natural values, and to reinforce common exercise of self constraint and ethical behaviour. Natural selection may even need to be tweaked by communities to favour individuals exhibiting socially responsible behaviour. Environmentally valueless "e-cash" must be replaced with some form of tender that values sustainable evolution. Resource distribution needs to incorporate inter-generational economics. The focus of the communication industry must change from promoting materialism to educating the population about the logic of positive change and the best way to make it happen.
20. It is well to highlight problems, but it is even better to identify tactics that might be used to good effect to help resolve them. The complexities presented by the machinations of contemporary society are such that no individual might suppose to find all the answers. However, in the spirit of what has been established so far, we can start with a review of the underlying mechanics to asses the probability of success. Hopefully we will then be in a position to use that understanding to resolve how we might sustain life on Earth.

1.

Relocating the Goal Posts:

Knowledge is not something that a healthy community can afford to privatise.

1. *H. sapiens* has yet to acknowledge that it is only a small cog in a much larger machine. Currently, it would not appear to be performing as Nature intended, a situation that is wasting valuable time, while threatening to prematurely lower the final curtain for the species.
2. What if we humans made a concerted effort to tap into the knowledge we inherit as instinct? What if 'common sense' then took precedent over 'expediency'? What if our children all received a strong ethical grounding that stressed the oneness of life? What if every individual had access to the organised knowledge base of humanity with which to educate themselves? What if all religious doctrines were focused on progressing evolution and inter-generational equity? What if our energy needs were met without relying on fossil fuels? What if industry developed alternatives to non bio-degradable plastics and other environmentally damaging compounds? What if the current population explosion was adjusted to sustainable levels? What if elected representatives put inter-generational equity before self-aggrandisement and corporate interests? What if self-sufficiency was actively promoted by the community? What if the economic agenda of our species acknowledge the imperative of sustainability? What if we all could see the goal posts and were prepared to work as a team to kick goals?
3. Productivity of the nutrient cycle is the bottom line for all life. Restoring productivity to pre-industrial levels is essential should we aim at repairing the integrity of the ecosystems disrupted by human activities. What would that mean to human society? What would that mean for life on Earth?
4. Those adaptations would go a long way towards restoring the balances needed to sustain life as we know it. However, we can not expect the initiative to stem from our political representatives, nor will they evolve from a small group defying all odds to establish a 'sustainable living' model. That degree of change would require a global movement, formed using a communication system such as the internet, to establish a universal appreciation of what needs to be done and coordinate a joint response.
5. Stimulating species diversification is a critical elemental of that process. It will involve dramatic change to the magnitude of *H. sapiens* footprint on the Earth, starting with population management, and the need to refrain from actions that contribute to or accelerate environmental change. Technically achievable, but socially a minefield.
6. The main stumbling block facing our society, is that we still lack universal understanding of the issues. If we humans are really to evolve sustainably as a democratic, global community, then every member of our species must have equal opportunity to contribute, reinforced by equal access to a comparable, quality education. The ability of humans to sustain themselves as a persistent species very much depends on there being proficient and equitable education opportunities that are measured both by equity of access, and by quality of information. Collectively, are individuals contributing in a positive manner to the evolution of the species, or are they detracting from that objective? The goalposts for sustaining life on Earth are innovation, equity, equality and

cooperation, maintained over time.

7. A community needs to be able to access the individuality of its constituents while taming or conditioning their feral instincts. Doing so requires good parenting during the formative years of an individual. In that sense good parenting is a communal priority as much as it is the responsibility of a child's parents. The village environment, where parents and grandparents form a child minding entity, in the process supporting one and other should there be a problem with any child, is an effective mechanism for civilising a child, and coincidentally serves as the font of culture. The extended family model must replace the 'nuclear' family option.
8. Nature dealt life on Earth a full hand, and it is up to that life to see that its cards are played well. Potentially, the most powerful of those cards, is an ability for an individual to curb its competitive instinct and work together with others. Why is that the most powerful card? It trends towards unity, and unity is a prerequisite for assembling and efficiently ordering change so that it becomes meaningful. All normal children are born with an instinctive need to contribute to their community. Most anti-social behaviour is attributable to environmental factors that frustrate that need. Together, sexual drive, and a 'need to belong' potentially provide all the effective motivation and reward needed for individual members of a healthy community to contribute productively.
9. The performance of any community is hard wired to its ability to access the potential creativeness of its individuals, and that involves effective communication. Non-verbal communication, such as a touch, is very effective with couples. Verbal communication is helpful for small groups. In association with genetics, written and audible, recorded information suffice for inter-generational communications.
10. Sophisticated technologies are required for efficient and effective communication on a global scale. Effective global communication is a balance between technical capability and its application, so that every individual on the planet can benefit therefrom. That requirement underpins the importance of universal access to education. It pre-supposes the need for an early life, conditioning environment that motivates and equips individuals with a common appreciation of natural priorities, and an ability to acquire new knowledge with a minimum of supervision.
11. Trust is built on honest communication and trust is an essential ingredient when it comes to cooperative effort. The instinctive link an infant has with their mother demonstrates absolute trust. While perhaps not as absolute, trust between family members is normal. However, as the affiliation weakens, trust of any sort becomes increasingly elusive, and with that, the effectiveness of communal activity diminishes. Social structures designed to counteract that trend are essential.
12. To remain functional, the wider society must behave in a civilised manner. Civilisation involves teaching individuals to appreciate the value of self constraint and responsible behaviour. Both underpin adoption of the ethical standards needed to keep communal productivity on track. This level of training is not easy to come by, nor is it easy to instill in an individual. Relatively common in pre-industrialised times, today, competent exponents of 'ethical standards having precedent over personal priorities' appears to be thin on the ground. Social systems that capitalise on the aspiration of individuals to contribute to the common good are essential for evolution to proceed in an efficient manner.

13. The model for achieving sustainability is already established. 'Wikipedia', for example, where contributions from anybody are accepted by a suitably qualified review committee able to filter and adopt, adapt or discard them. That model could be extended to include all fields of knowledge, with appropriately qualified multi-disciplinarians in place to conduct reviews and maintain the quality of contributions of various specialists to a global knowledge repository.
14. Individuals perform best if their efforts are suitably rewarded. Contemporary society relies too heavily on money as a reward. Money, as the principle form of motivation in a community, has flaws. Certainly money can be fair reward for effort, but it also serves to reward the cunning, able to acquire cash without comparative effort. It rewards greediness, where money is accumulated at the expense of others, and it even functions as reward for dishonesty when crimes go unchecked. Communities need an alternative "motivator" where scarce resources are traded equitably.
15. The population of any species has finite limits, *H. sapiens* included. Unless our species is prepared to manage its population growth so that Earth's web of life is not compromised, life on Earth is not going to meet its full potential. The population of humans is exploding. It is a plague that is laying waste a beautiful world. Returning to a manageable population is now a priority. The options for doing so range from chaotic self-annihilation to natural culling or to a managed process. Therein lies our future./
16. The Chinese government has tried legislating limits on the number of children per family, but the natural motivation to breed proved to be stronger than the legislated disincentives at that time. More information is needed to ascertain what the sustainable carrying capacity of the Earth is, and how individual populations might adjust accordingly. Employment strategies that match the work needed for a species to evolve in an efficient and effective manner, would trend towards a self limiting population.
17. Managing the harvest of natural resources sustainably is another priority for *H. sapiens*. The challenge facing our species is firstly to recognise that life on Earth is a team effort, then to understand and accept the finite nature of supply, and finally to be prepared to share the sustainable harvest with other members of the team. That will require considerable advancement towards social maturity. It is not a game. Life on this planet either meets the grade or it can expect to bow out.
18. *H. sapiens* requires a new breed of pioneer able to cut through the distractions of contemporary life, and flag that way for others to follow. Without prescribing exactly what needs to be done, it is possible to develop a simple scenario, or example, to demonstrate that there are options for life on the Earth should it wish to sustain a presence into the future. That will necessitate sufficient individuals willing to tread the initially indistinct path, until it becomes a highway, highlighting the need for universal education.

The Mechanics of Balance:

1. We can reasonably assume that Nature's agenda does not depend on life on Earth continuing to evolve. As a tenant of Earth, we have a different perspective, and would hope that the planet continues to serve us well into the distant future. Meantime, our species has assumed a degree of responsibility for harvesting and distributing the planet's natural resources, without appreciating how that might effect natural balances. Understanding the mechanics involved is essential for any attempt to address the situation.
2. If life on Earth is to sustain itself, then it will need to maintain a social balance that compliments the natural balances provided by Nature. The mechanics of social balance are not just matching population to sustainable resource availability. A balanced society will have tuned its communal agenda to realise the potential of the **natural** personalities of its individual members. The better the fit, the more likely we are to sustain life as we know it on our planet.
3. Natural balances are being stressed beyond their ability to assimilate short term change. Our generation is stripping the asset - being the ability to assimilate short term change - without consideration for the needs of ours, or other life forms. We must recognise that the environment we all thrive in is a finite resource, and manage our demands accordingly. In broad terms, that includes the land we inhabit, the air we breath, the water we drink, the foods we eat, and the material requirements associated with technological activity
4. As individuals, we appreciate that our competitive instincts can be counter-productive, and that there is much to be gained from cooperation with a group of like minded individuals. It follows that cooperation with Nature, or the balance of life on Earth, rather than trying to go it alone, is only common sense. Repairing ecosystem damage caused by our thoughtlessness will be high on any agenda designed to address the issue. The process will entail social upheaval that can only be minimised if there is universal appreciation of the need and the consequences, highlighting the importance of providing the majority of the globe's inhabitants with a balanced education.
5. The integrity of a river catchment is linked to nutrient inflow and distribution. Ecosystems need to be viewed as one would their own digestive and renal systems. Our bodies appreciate them being kept in good order. More often than not, contemporary attitudes to catchment viability reflect rampant capitalism devoid of any balance that should come from the public sector. Inexorably, our vandalism is eroding ecosystem health.
6. The ability of any natural balance to assimilate change is a tangible resource. The first step, should we aspire to manage environmental change, is to be cognisant of that fact. It is the degradation of this capacity that we term 'pollution'. Pollution equates to wasting natural resources. In nature, healthy land based ecosystems operate to filter out and store nutrients while buffering other natural changes. All contaminates generated by humanity, over and above the natural capacity of the environment to do so, need to be contained and recycled.

7. Climate destabilisation is the result of an increase of incoming solar energy that is being stored as heat to upset the planet's natural energy balance. Industrial activities, such as cement manufacture and burning hydrocarbon fuels, have unlocked a range of destabilising compounds; including carbon-dioxide and methane; that had been sequestered by Nature to provide the climatic stability needed for evolution to progress. Now elevated levels of both gases in the atmosphere act as a blanket causing the average temperature to rise. The increase is leading to naturally stored methane being released from thawing permafrost. and to retreating ice fields, both exacerbating the rate of climate destabilisation. While it is within the power of humankind to stop its polluting activities it may already be too late. Any steps to rectify the situation will involve action to achieve an immediate reduction in atmospheric carbon dioxide and methane levels.
8. In the chapter dealing with energy, it is quite clear that solar energy, in either its direct or indirect forms, is capable of meeting the energy needs of the biosphere sustainably. That includes mankind's energy demands, all of which can be met using current technologies that would draw on a small fraction of the daily energy received on the Earth's surface. It only needs the will of the populace for that major threat to future life on Earth to be addressed in an effective manner. Rebalancing Earth's climate could actually involve using more energy, not less. It may be necessary to re-sequester some of the greenhouse gas production attributed to human activities. That in itself would be an energy intensive activity.
9. Another strategy would be to convert heat energy to a form that can be stored; i.e. as chemical energy; or as biomass. Tactically, if enough energy can be extracted from the system, natural processes, aided by initiatives such as a global forest restoration program, will work towards rebalancing or stabilising the climate. With the possibility of needing more, not less, energy looming, and the cost of conventional energy prices soaring, mankind is not going to ignore natural limitations for much longer. Technology for using solar energy to fuse the heavier nuclei is seemingly within reach, and possibly that technology can be used to achieve results on the required scale.
10. Action to reverse pollution will require social appreciation of the mechanics involved. International climate research is developing a predictive capability able to display a credible range of possible scenarios. The earth's climate has a finite assimilative capacity that will determine where the point of no effective return is. To be credible, interpretation of corrective scenarios need to acknowledge those tipping points.
11. Coal powered electricity generation is an anachronism that was discontinued in most progressive countries last century. An immediate embargo on burning bunker grade fossil fuels anywhere is only common sense. The introduction of demand management measures to increasingly penalise all fossil fuel burners is likewise an imperative. Despite it having enormous alternative fuel reserves, such as natural gas and renewable energy, Australia has an economy reliant on massive coal exports and oil imports. If it wasn't for established vested interests, encouraged by misguided government support, the common sense application of gas and renewable energy technologies could form the mainstay of a rational climate re-stabilisation program for Australia. Natural gas, can be used for both electricity production and transport fuel.

and It could provide the breathing space needed for the economy to ramp up to a sustainable energy platform.

12. Food is at the head of essential demands for any living organism. The sustainable harvest of food is limited by nutrient and water availability. Nutrient production requires minerals sourced from the Earth's mantle. Nature has addressed this requirement principally by surface erosion and by using deep rooted plants to seek out and mine the required minerals. Mankind has seen fit to remove the bulk of standing forests, in the process decimating primary nutrient production and coincidentally destabilising rainfall patterns to the detriment of biological diversity and ecosystem stability. As well as depleting the capacity of the biosphere to provide nutrition, our species has been raiding and laying waste the biosphere's nutrient storages, including standing biomass, soil fertility, bird guano deposits and sequestered hydrocarbons.
13. Step one in restoring productivity will be to repair natural mechanisms, at least to a level where they match sustainable demand. That will require a global forest restoration initiative. That alone would help to resolve the social problem of idle hands engaging in anti-social activities. It would create challenging opportunities able to satisfy and motivate a range of individuals wanting to contribute, but not knowing where to start.
14. Step two is to get more from what nutrients are available by minimising the leaching of nutrients from terrestrial ecosystems via our water ways, and that includes both subterranean and surface runoff systems. Nutrient rich wastes such as sewage are potentially valuable, and to simply discharge them into a marine environment under conditions where they cause permanent damage, is inter-generational vandalism.
15. The consequences of reduced productivity and burgeoning demand have only one outcome. Either mankind restores a sustainable balance between natural productivity and its demand or it doesn't. It is doubtful that Nature will even notice, but the consequences of maintaining its current "head in the sand" approach, is set to write off human society, including its impressive technical achievements, overnight.

Economic reality:

1. If a “balanced economy” was a balance between natural productivity and consumption, maintained throughout a geological time frame, then “environmental balance” and “economic balance” would be as Ying is to Yang. Under those circumstances, a growth economy would equate to progressed evolution, with both economic and environmental agendas sharing the holy grail of sustainability.
2. Human society is entering a vortex of change, and the opinion of any mono-disciplinarian who claims to know where that will lead to, should be discounted. We have blurred glimpses of possible scenarios, appearing as a kaleidoscope of human endeavor tangled up with advanced communication and robotic capabilities, all adjusting to environmental limitations. That raises questions such as ‘what is the role of the individual’, ‘what are the aims of society’, and ‘how and when do we play the cards that Nature has dealt us?’
3. Artificial intelligence (AI) and organic intelligence will need to operate in unison to answer those questions. AI is more competent at logical thought and processing than is organic intelligence. However the innovative capabilities of AI are limited by its reliance on programming. Innovation is catalysed by the three ‘I’s, individuals, intelligence, and instinct, with the latter playing a major part in most innovative breakthroughs. While programming is based on brainpower, instinct taps into a knowledge asset that goes back to the beginning of time.
4. An economy is essentially a formula for distributing the benefits that derive from productive activity. In a modern economy, production incorporates an increasing a range of costs that reduce the total benefits available for distribution. The two major categories of these parasitic costs are related. They are the high cost of social welfare programs and the burgeoning cost of insurance against expensive litigation. Together they stand to reach proportions that will soon render any form of production economically unsound. This is a situation that defies common sense.
5. Workers unions only compound the problem. Theoretically they benefit workers by increasing their bargaining power when it comes to sharing profits, but in reality they have become a tool of unethical private sector agencies that use the union movement to reinforce their control of production. Economic logic guarantees that workers will receive sufficient remuneration to maintain their buying power. The risk for the private sector is that access to the public purse is reduced by increased public sector employment. Essential services are funded from the public purse. Unions involved in essential service industries are doing the bidding of the private sector when they resist efficiency enhancements to productivity, along with ‘work for the dole’ and volunteer inputs. Where a government is giving welfare to able bodied individuals, it is only common sense that those people be deployed on social projects so as to reduce private sector costs. For instance, repairing some of the damage that has been done to the natural environment.
6. Handouts are soul destroying. Accomplishment is valuable motivation for a person to become a positive member of their community. With underemployment a growing concern that is being exacerbated by the introduction and uptake of AI alternatives, the work forum presented by the need to rehabilitate the natural environment is potentially a social life raft.

7. Currently, the the footprint of humanity is unsustainable. The 'Hunter gatherer' or 'Dog eat Dog' ethic has passed its use by date, whether exercised at the scale of the individual, the community or the Country. *H. sapiens* will need universal self control to establish a regime that will enable it to maintain diversity, encourage innovation and regulate its consumption of natural resources within sustainable limits. Where to begin?
8. Any hope of the environmental issues humanity faces being addressed effectively, hinges on its ability to coordinate the rehabilitation of damaged ecosystems globally. That presupposed some form of effective global governance. From the perspective provided in the section about "**what is**", the chances of that happening would appear to be a virtual impossibility. To have any hope of success it will require a crash course in environmental ethics that reaches virtually every member of the human race. Resource 'management' will have to supplant resource 'exploitation', and that encompasses the need to manage the human population at a sustainable level. Likewise, the global economy will need to be managed to reflect real values over time, rather than to support political or commercial opportunism.
9. Since the Stone age humans have gradually developed technologies that alleviate both the physical work load and the day to day risks associated with staying alive. The species has now developed technologies that enhance accuracy, speed, consistency and complexity. These advances would appear to have the potential to free humans from most physical work and the need to think logically. In other words to alleviate 'the daily grind'. From the perspective of future individuals, that means they will need sufficient self discipline to maintain their body in a healthy state, along with social conditioning designed to prepare their mind to enter the chaotic cauldron of innovative creation and deep spirituality. The separation between technical and organic achievement will blur, as synergistic partnerships between organic and inorganic intelligence present new frontiers for mankind, with unknown challenges behind every horizon.
10. Society will need to differentiate between what is best done using AI, what is best done as communal effort, and what is best left to the individual. Artificial intelligence has a far greater capacity for assimilating and manipulating knowledge than have we humans. On the other hand humans represent the knowledge expressed by life since its conception. Individuals create diversity, programmed responses tend to muzzle diversity. Our 'gut feeling' is something that does not lend itself to programming terminology. Instinctive knowledge is what lies behind human emotion, our social conscience, our ability to empathise with another individuals, and it is the source of the motivation that inclines us to lust for the stars.
11. In future, if not already, society should be looking to gainfully employ its individuals more as managers, coordinators and innovators covering the fields of, research and development, natural resource maintenance, entertainment, regulation, health, welfare, socialisation, artistic creation and the like.
12. Advanced communication technologies are capable of minimising the need for centralised control of a community. Effective social conditioning could offset the need for negative regulation, and a population managed sustainably would moderate the incidence of individuals seeking to covet more than their fair share of available resources. A balance between technical advancement and spiritual understanding

would produce communities easily united by the thought of exploring new frontiers. Sustainable evolution would become a matter of course.

13. The ideal major project hierarchy would comprise a strategic cell with a multi-disciplinarian chairperson and a representative from each specialised discipline involved in the project. Each of those disciplines would need access to a team of individuals with a common interest in the project outcome. Selection of representatives would be based on competency and experience.
14. The role of government should be confined to overall coordination of essential services. That should see the community firstly focus on determining the potential of each member to contribute to productivity, then to reinforce that potential with education, and finally to motivate and provide opportunities where all members are able to contribute. No community that aspires to be sustainable can afford a governing agency that has contrary agendas, or which places artificial barriers in front of anyone striving to address those responsibilities.
15. Historically, enlightened communities that pursued those aims successfully, have generally succumbed in time to the destructive influences of external agencies prepared to use violence to acquire what they envy. In the process the intruders kill the goose that lays the golden eggs. This suggests that, to be sustainable, an enlightened community must be willing to share its capabilities.
16. In a sustainable economy, competent governance would achieve production and distribution efficiencies, while promoting equity and sharing. The definition of sustainable production is to value add to natural resources without eroding the integrity of that resource. Education is value adding to the capabilities of an individual, health is value adding to the ability of a person to contribute to society, industries that process raw materials add value to primary production etc.. All are examples that can be accounted as legitimate forms of sustainable production. On the other hand, governance, accounting, insurance and legal costs, resources diverted for defense, law enforcement etc., are all costs of production. To view them as contributing to gross production is hard to justify when they actually divert valuable resources away from production. A focused effort at cost reduction in their case would seem to be a wise investment.
17. In nature, diversity equates to flexibility and durability, with balance being a catalyst for order. The laws of diversity and balance apply equally to commerce. Diversity and balance between small and large business activity. Balance between the public and the private sectors and balance between demand and supply.
18. A “growth” economy is a fine medium for selfishness to flourish in. It is a ‘fool’s paradise’. Add lack of self control to more than a smidgin of unethical behaviour, and the system quickly degenerates into unsustainable consumption of natural resources. In those circumstances, governments elected to service the general population often find themselves in a reactive mode, dancing to the tune of a private sector agenda. The desired end product is an economy that motivates individuals to consider the welfare of others, including that of future generations. An economy based on getting more from the farm than from selling the farm.
19. The first priority for any living organism is access to essential resources. Demand for the

resources that provide empowerment comes with the evolution of social complexity. Empowerment is the basis of a community's ability to rationalise minority influences and coordinate productive outcomes. To alienate or delegate that empowerment to minorities, risks being counter-productive should the delegate not be prepared to share. Western governments seem all too willing to accept these risks as they privatise more and more of the public asset.

20. Sustainable management will involve equitable resource distribution with consumption efficiencies based on sustainable population levels, the use of appropriate technology, realistic land tenure models, effective management of waste/pollution, and the introduction of strategic measures designed to preserve critical natural balances.
21. The right to use land is fundamental to our existence. Rational land use management could address the needs of the community, maintain the integrity of occupied land, and repair inappropriate land use decisions of the past. To date there is little evidence to suggest that contemporary land use planning instruments are suitable, or even sufficiently flexible, to meet these basic needs. In fact, they are an anachronism inherited from materialistic cultures short on spirituality.
22. Land is a natural resource, the integrity of which is governed by ecosystem activity. Though one might reside on the land, one cannot own it exclusively. The parcel may benefit from multiple uses, certainly it will have multiple users. To be sustainable, the relationship between an occupant and the land that they occupy, requires good stewardship, a fact that is well recognised by many so called "primitive" cultures. That Western society assumes ownership is environmental nonsense. Individuals may benefit from access to a parcel of land and from the improvements thereon. However, in natural terms they can not own land any more than they can own the air we all breath..
23. Land is a communal asset. A sustainable community would appreciate the value of their access, and would provide appropriate stewardship. The once common option of land being 'leased' for a specified purpose is the logical system for any community aspiring to become sustainable. It enables the capability of the land to be assessed in terms of its value to a community over time, and it allows a community to reverse inappropriate or outdated use decisions.
24. Leasehold systems serve to prevent individuals gaining unearned wealth from the increased intensity of use when a community rezones land. Leasehold provides that a community can manage and service its land assets efficiently, using development covenants that void the lease should they be broken. Leasing sets the real value of land as a reflection of servicing and conveyancing costs, leaving the bulk of a developer's capital free to be used on improvements and production. Investment profiteering is then restricted to the investment in improvements made under the lease provisions.
25. Leasehold minimises the problem of oncoming generations being shut out of the housing market by artificially increased values. The rental system provides a revenue stream for government in perpetuity. The only complication with leasehold is that not all land parcels are equal, and a community needs a mechanism that enables allotments to

be allocated in a fair manner. We address that issue later.

26. Even a leasehold system of land management needs to acknowledge the importance of land capability parameters. Understanding land capability requires a sufficiently comprehensive grasp of river catchment dynamics and energy flows to be able to appreciate the ramifications of modifying natural balance. That understanding needs to be matched by an equally perceptive appreciation of social priorities and expectations. Even without global considerations such as the issue of climate destabilisation, the complexities inherent in traditional planning processes suggests that effective land use planning requires a multi-disciplinary approach that is not subject to being tweaked by private sector agendas.
27. Natural resources are finite, and logically, demand for survival needs comes first. Whatever communal economic management might aspire to, Nature ultimately ensures that population matches resource availability. Economic management that acknowledges natural limits will facilitate sustainable harvesting of natural resources. It will also ensure that any excess harvest is used to wisely.
28. Without a dominant private sector overgrazing the farm, a sustainable economy would be an instrument of balance. The private sector has established a system where society is subsidising many large resource hungry companies that use intangible e-cash as a power base. To regain lost ground, society could re-introduce cumbersome bartering, or it could come up with a viable alternative.
29. One option is to tie the value of e-cash to a form of tender that reflects the real value of natural resources to future generations. That would serve to regain the protection lost when governments abandoned holding equivalent bullion reserves as a safeguard against valueless e-money being circulated at will. It would present resource hungry companies with an account to pay, based on the sustainable value of their operations.
30. For that to happen, common sense needs to enter the equation. There are five categories of natural resource. Two that conveniently can be used to empower the public sector. Land, or space in which to exist, which from an environmental perspective is inalienable, and mineral resources including gems and precious metals, which from the perspective of our species are non-renewable, but able to be traded and owned. The second two categories are air and water, both of which are naturally purified and recycled over and over again, their limit in quantitative terms being a function of the efficacy of the purification process. Air and water are generally held to be communal assets that, with the exception of delivery costs, are free to all. The final category is bio-production. Natural bio-production is often tweaked by artificial modification otherwise termed farming. However, all forms of bio-production are ultimately limited by the rate at which minerals are converted into organic nutrients. On land, the principle mechanisms involved with that process are surface erosion and growth of deep rooted plants, especially trees.
31. A public sector equivalent of money could be based on a measurable, unit contribution from an individual, or group, to advancement of community priorities. The reward for time spent on community endorsed activities, adjusted to reflect the value of that activity to the community, would be a unit of credit (social dollar?) issued in acknowledgement of that service. Advanced computer technologies could manage the accounts. The

role of the cash dollar as a commercial tender could be retained for flexibility.

32. There are two steps a community would need to take to set the process in motion. The first introduces the concept of intergenerational and interspecies assets. That would eliminate freehold land ownership, and declare land to be a shared asset managed by the community. The right to lease a parcel of land could only be acquired using social credits. Lease instruments would specify what the land can be used for, and contain conditions to ensure that the land's environmental integrity is respected.
33. An individual could volunteer their time and skills to earning either money or social credits. For instance, a doctor of medicine could earn conventional money treating private patients, or community credits by volunteering his services to treat public patients. To afford their own clinic, a doctor would need a combination of community credits to secure the land, and money to 'value add', that is to pay for the improvements.
34. Community credits would be the only legal tender for access to environmental resources such as land. Public credits would effectively be an I.O.U. issued by the community receiving the principle benefit. That credit would be non-transferable between recipients. Their value could only be redeemed by the community, either as access to land, or converted to money, should the holder so wish.
35. People volunteering their services to 'not for profit' organisations, such as the "Red Cross" would also be eligible to receive public credits. If the only way to secure the right to occupy and use land was to acquire and use community credits, equity and sharing would be immediate benefactors. speculative investment aimed to amass unearned capital would be nipped in the bud. Cost effective infrastructure development would proceed in an orderly manner. Prime land for whatever use, would be leased from the community by the most deserving person or organisation.
36. Perhaps contemporary society is not so far off such a system. As governments commit more of the public purse to supporting the private sector, the shortfall experienced by essential service providers is increasingly being taken up by "not for profit" organisations and volunteers attempting to fill the gap.
37. The second key social motivation would be the right to have children. Any increase in population of a species in excess of what is needed to maintain a viable community is both a luxury and a privilege, and the right to procreate over and above this level should be discouraged by society. The population of humans on this Planet is exploding at the expense of natural diversity. It would not be too onerous to limit parents to two children per family as of right, with the authority to have any more than two children needing to be purchased using social credits, each successive child getting more expensive. Mandatory sterilisation might be needed to achieve population stability. A system favouring socially responsible families would be a wise investment for our species.
38. Elected representatives are directly responsible for the management or mismanagement of *H. sapiens* demand for natural resources. The all too common, negative consequences of consumption excesses can be directly attributed to a combination of self interest, incompetence and thoughtless, if not corrupt, management practices. In a faceless society, even democratic elections are a farce, with most voters generally relying on the media for information. In that situation the media effectively elects the government. Ask yourself "who owns the mainstream media"? Then ask

yourself is your preferred representative able to deliver on their election promises when they are being debated by parliament.

39. If the appointment of social representatives was on the basis of the number of social credits an individual held, rather than their ability to purchase market presence, social equity would automatically apply. Socially responsible individuals, rather than media marketed appointees would be the norm.
40. It is time for our species to address the situation. That will involve grass root strategies that target fundamental needs and priorities. Individuals cannot afford to institutionalise their intelligence for much longer. Government administrators must be re-civilised to understand the importance of balancing spirituality and ethics with technical advancement.

1.

Education:

There is a strong correlation between conservatism and ignorance.

1. Every living creature is born with a running 'survive at all costs' instinctive program. That totally selfish outlook is not likely to see them put their hand up if asked to care for others. Those instincts need to be modified if they are ever going to accept communal responsibilities. There lies the justification for bedding home the importance of social conditioning or education.
2. Contemporary education generally ignores the potential of instinctive behaviour in the individual to affect performance, both positively and negatively. Imagine the difference if any one of the positive instincts we are born with was intentionally honed by social conditioning. Say for instance there was a conscious nurturing of the common sense ability in individuals. A form of governance that placed social benefit in front of vested interest might become the norm. If we look at recent "stand outs" in leadership such as Mahatma Ghandi, Nelson Mandella, the Deli lama and even Lee Kuan Yew, their undisputed strength is, or was, essentially a product of their ability to analyse situations using common sense.
3. All individuals require honing or conditioning to maximise their effectiveness as tools for social change. Education serves to translate the relevant aspects of the community's intellectual property for the aspirations of its individual members. It could be said that the honing stone of an individual is education, which in itself must be of the highest grade if it is to produce the required sharpness. Therein lie the three priorities for sustainable cultural development. Education, education and education, starting at the birth of an individual, and continuing thereafter to the grave. The economy of countries performing well above average, all feature major investment in quality education, South Korea being the most recent case in point.
4. Every individual should have unfettered access to a training program that has been tailored to best nurture their potential. Add to that, effective motivation, in the form of a reward system based on each individual's aspirations and needs, and a community will have the wherewithal needed to sustain its economy.
5. A balanced education introduces the intelligent individual to the value of wisdom, leaving that person comfortable with the idea that, to work for the common good, is simply to pay for one's keep. Should the cultural experience fall short, individuals will begin to view access to communal assets as their birth right, and selfishness will predominate to the detriment of communal productivity.
6. Free education and good governance are inextricably linked. For the community to realise the potential benefits of its investment in education, it is important for outstanding students to be given the opportunity to apply their acquired knowledge. This pre-supposes a balance between population size and availability of satisfying occupations.
7. Establishing a responsible community commences with agreement about the basic principles, or 'constitution', under which the community will operate. A constitution identifies operational parameters that, to have any hope of sustainability, will incorporate a set of sound ethics. To be effective, a majority of the community will need to

understand and support the principles embodied therein.. That normally requires education designed to reinforce the logic of ethical behaviour, and to engender an appreciation of the synergies that stem from joint effort and reward sharing.

8. In the circumstances facing our global community, re-establishing the will to get things back on course is the essential first step. How does a materialistic community advance to become an enlightened culture committed to to furthering evolution of life on the planet? Contemporary society makes all the right noises about making much needed changes, but its actual performance belies that sentiment, suggesting that the education individuals currently receive is flawed.
9. The future of *Homo sapiens* depends very much on the balance that is struck between individual and community priorities for education. No individual in a large community is going to be well informed about all issues. However, a sound education will help them to assess the importance of the choices confronting their community, insofar as they personally are concerned. We need only to observe the recent effectiveness of compulsory education in countries such as Singapore, Scandinavia or South Korea to appreciate the value of general access to a balanced education.
10. It is impossible to change the status quo without good parenting becoming the norm. The learning environment in a child's formative years crucial for any individual to become a productive member of society. The role of parenting is fundamental for introducing basic communication skills, ethics and self control to an individual, and any community seeking to repair itself will need to successfully address this prerequisite. If moral standards based on the ethic of sharing are effectively established in early childhood, the temptation to covet is minimised, coincidentally diminishing the requirement for law enforcement.
11. From a community perspective, investment in establishing ethical standards is cost effective. There would be no need to train and support the range of individuals employed to enforce regulations that ethical people would recognise as common sense. In an ethical society corruption would be minimal and common sense targets could largely replace rule books.
12. Training in social ethics tends to occur during early childhood at which time a child's ability to assimilate new concepts is peaking. It is at this time that the foundation is laid for the quality of the relationship the individual will have with the wider community. Balance between the family environment and the community environment is essential for a good result.
13. Positive community support is best taught by individuals exposed to positive post birth conditioning themselves. When a majority of those responsible for training children have been exposed to flawed post birth conditioning, it becomes difficult to claw back lost ground.
14. Traditionally, responsibility for the wellbeing and training of children was shared by the community, and a child's conditioning incorporated the community's viewpoint. The nuclear family environment conditions children to accept their parents viewpoint and often that is in conflict with community priorities. A child is vulnerable to confusion when their contemporaries generally have viewpoints that are different to those expressed by the child's immediate family. Formal education often struggles to then restore clarity for

the child.

15. A young child does not always appreciate the need to communicate at more than an elementary level. Discipline is needed at this stage of a child's development, with the priority for primary school education being competency with communication taught as the three "R's". Accordingly private sector involvement in primary education is to be discouraged. The private sector has a vested interest in influencing developing children to serve its particular interests, and it should be kept out of the equation until such time as a child is mature enough to make their own decisions.
16. Generational bonding is an important tool in the education box. Bonding and trust are entwined sentiments. Generational borders are blurred by the nature of human reproduction. We do not produce offspring in a 20 year cycle. However, from an individual's perspective, their age group (ie the friends they make at school) is seen as their generation. The significance of this is that communication and cooperation within that group tends to be more effective than communication across, various age groups. Even more telling, in today's mobile population, immigrants, no matter how long and how well they serve their adopted community, tend not to be accepted as a 'local', the exception being those that are young enough when they arrive to attended school.
17. The powerful influence of a child's contemporary friendships start when their ability to assimilate knowledge is at a maximum. A three year old will normally have a functional vocabulary. Their ability to communicate vocally with a four year old sibling is achieved with ease, and a minimum of misunderstanding. Being of a different generation, parents will find the three year old's conversation harder going. The important point is that the older sibling will have a strong influence on what the three year old is learning. In any group of children playing together, the older children are very effective at educating the younger members. Providing the older children appreciate the value of ethical behaviour, a cycle can evolve where the positive attributes of ethical behaviour are passed on by older children to younger children "*ad infinitum*". By puberty, individuals are inclined to hear the voice of a contemporaries far louder than they hear the voice of their parents. Accordingly, parents need to be confident that their offspring keep good company during those formative years.
18. Intermediate level education should focus a developing child's ability to use advanced communication technologies effectively, to explore how they, as individuals, may wish to contribute to the society they live in. Intermediate schooling should maintain the three "R's" as core subjects, but include a wide range of "electives" that expose individuals to the full range of creative possibilities in order to to enhance an their ability to appreciate career options. Up to this point all education curriculum content should remain free of private sector influence. Funding for education at this level, should be a public sector responsibility.
19. Effective communication and education are the cornerstones of social order. Fortunately, contemporary society has developed communication technologies capable of including every living individual on the globe in a productive dialogue, yet sadly, the principle focus of that capability is being directed towards maximising corporate profits and the spread of misinformation designed to promote materialism globally. That behaviour is unsustainable.

20. The primary aim of a teacher should be to help a student realise their full potential. Traditionally the effectiveness of formal education has been limited to the relatively narrow horizon of the institution, and to the guidance of teachers frequently employed on the basis of their receptiveness to delivering institutional perspectives. At the tertiary level lecturers are struggling to keep abreast of the multi-faceted advances that are being made in most disciplines. Teaching and lecturing need to yield to mentoring and tutorial techniques. Cross- institutional courses facilitate access to the best support and they will become the norm as tertiary students fine tune their education to best meet their individual aspirations.
21. Tertiary education should offer three branches. A manual skills stream, a multi-disciplinary systems management stream and a specialist stream. The individual that drops one subject to pick up another, then drops that to try something else, is not necessarily a 'misfit'. They are probably multi-disciplinarians, fumbling around in an inappropriate educational system, searching for an education to supports their instinctive capabilities.
22. Unless it is a philanthropic gesture, private sector funding for education should only apply to tertiary training needs. From the perspective of the private sector, education is an investment that generally is directed at outcomes designed to benefit the benefactor. Private sector companies provide specialised services to the community, and thus they naturally seek to employ individuals with qualifications that are relevant to their agenda. Public sector management includes a strong demand for multi-disciplinary skills. The need is for a tertiary education purse that ensures funding for training in both fields is balanced with private sector funding supporting manual skills specialist fields and public money providing equivalent resources for multi-disciplinary education.
23. Advanced training, aided by modern communication systems that provide powerful leverage, will enhance an individual's natural abilities. A sound education will balance ethics with academic capability. It will include processes that acknowledge the spectrum of individual personalities, ranging from manual creativity to multi-disciplinarian to specialist, and it will approach formal training of an individual based on an assessment of their potential to contribute to the community in any of those categories.
24. Individuals innovate. Businesses promote and promulgate innovation. In a healthy community, the rewards that stem from innovation will be shared equitably between the innovator and those benefitting from the innovation. Internet capabilities provide the global communication flexibility needed to achieve this, so long as the internet service is neither abused nor regulated out of existence. The future of education and the ability of life on Earth to realise its potential, may well rely heavily on a free running internet service.
25. A model for using available communication technologies to maximum effect, is based on open source communication. Current examples of open source communication assets include "Wikipedia" and "Linux" networks. When it comes to equitable access to education, that model could be applied by an 'epidermal' level of government to set up an open source kernel of information designed to catalyse the aggregation of knowledge and ideas globally. The kernel could serve as a coat-hanger for the various disciplines to link in information relevant to their field, with authors contributing to the

knowledge base via a competent screening or quality control process such as that being used by the creators of Linux. This resource would eventually provide the opportunity for free tertiary education to all, contrasting with the current static model, which links quality of service to ability to pay. Coincidentally it would reinforce the benefits of sharing.

26. With a system that identifies and mentors the potential of every individual to be creative, the boundary between student and teacher would blur, with much of the responsibility for an individual's tertiary education falling back on the individual. Thus, the role of the institution in tertiary education would be to provide access to mentoring, along with access to the educational aids and equipment required by course work. Above all, as in the heydays of the ancient Greek philosophers, it should stimulate bonding between like minded individuals. A balance between "face to face" contact and "virtual" contact would evolve over time.
27. There are a variety of circumstances that can limit the effectiveness of society's investment in education. The material being delivered must be sound, and it must be relevant to the aspirations of the student. It must be well presented, but most importantly, there must be valid challenges awaiting the graduate. Fail to meet that expectation, and that person will find a substitute challenge for their sharpened wit, a situation that has the potential to spawn anti-social behaviour.
28. Universal access to education stands at the head of needed action. The priority for any community is to complement instinctive behaviour with learned behaviour so as to enhance social cooperation. As a snake sheds its old skin to emerge renewed, so must human race shed animalistic behaviour to assume an enlightened condition that accepts and appreciates its connection with the whole of life. In the process it will find that the traditional approach to education is well past its use by date.

1.

Population:

1. For many Millenia, *H. sapiens* struggled to establish itself in sufficient numbers to ensure a robust population. The 'Industrial Revolution' that occurred in the last Millenia changed that circumstance, and the impact of human activity that followed has now reached global proportions. Since then, advances in technology, including artificial intelligence, further increased our environmental footprint, allowing the population to explode and reach plague proportions.
2. A plague may be defined as an exponential increase in population that, on a graph showing population over time, is nearing the vertical axis. Earth is now blighted by a plague of *H. sapiens*, and like all plagues, if left unchecked, this one is destined to end with a population collapse accompanied by an acute loss of capacity and capability.
3. Over-population fuels inequitable distribution of resources, which in turn breeds anti-social behaviour. Managing population levels sustainably is integral to the long term health and wellbeing of society. "Populate or Perish", the historic catch cry of society, has now reached the stage where realistically "populate and perish" applies.
4. To manage anticipates an outcome, in this case raising the question, "what is an ideal population"? It would seem that the current population of *H. sapiens* is well in excess of that required to man ship Earth. Achieving the ideal population depends on what is being demanded by evolution, and our understanding of that is as yet dangerously superficial.
5. A sustainable population balance is feasible if every individual within the population has an opportunity to be engaged in doing something constructive. There has never before been a plague of global proportions, so the consequences of the seemingly imminent collapse of *H. sapiens* population remains to be seen. Effective management of the inevitability will minimise social pain and disruption.
6. There is little point in using valuable natural resources to grow and educate an individual if that individual does not have the opportunity to contribute to the wellbeing of the society it is born into. As a sub group, under-utilised individuals often engage in anti-social behaviour and in extreme cases may even commit suicide.
7. It would seem reasonable for a couple to replace themselves by having two children. With that limit in place, population reduction would be achieved humanely as some couples will choose not to have children, and some to have one only. That is the theory. In reality, to achieve that outcome every individual on the planet would need to be aware of the stakes and be prepared to contribute to a solution, once again stressing the importance of effective social conditioning or education.
8. Individuals have a natural responsibility to progress evolution. That responsibility is proportional to an individual's ability to effect change, with that being an expression of their inherited instincts, acquired knowledge and lifetime experience. Likewise, a group of individuals has a responsibility to progress evolution proportionally to its ability to effect change. Therefore, it follows that a species has a responsibility to pursue evolution proportionally to its ability to affect change. Among the species inhabiting the Earth, *H.sapiens* may well claim to occupy the high ground when it comes to an ability

to affect environmental balances, however, the corollary to responsibility is action. Action that reflects an appreciation of what that responsibility involves.

9. The genesis of responsible behaviour is ethics, self discipline, experience and common sense. It requires recognition that that life on Earth constitutes a team. It anticipates that the depth of care one normally feels for oneself will translate to the welfare of one's community, of future generations, and of life itself. It demands that we hear what our instincts are telling us.

Cultural Adjustment:

1. As a measure, it can be said that a community is not in decline if its knowledge asset is growing. Having examined the mechanics of a robust community, we are well aware that the fundamental building blocks of any community are its individuals. We are also aware that in a robust community, most individuals would be naturally inclined towards communal effort because they would anticipate a synergistic benefit in terms of their personal survival prospects. We recognise that to realise the potential of its individuals, a community has to present its agendas in such a way that the need for the individual to adapt their natural personality is minimal. We know that will entail quality social conditioning and a satisfactory outlet for their ambitions
2. Culture is the basic mechanism for social order. It is designed to realise the potential synergies that might stem from cooperation between individuals. Its expression in the individual requires self control. It appears to a group of individuals as tacitly agreed standards of behaviour, and finally it is instituted as laws and decrees by a 'superior' authority such as political and/or religious leadership. Cultural robustness involves shared circumstances and good communication. With culture, diversity is essential, because it generates a more detailed interpretation of how best to manage a local environment and that, in turn, enhances group flexibility and viability.
3. On the other hand, a community is less organic, being the product of coordination and control. Control generally achieved via a 'Constitution' that establishes agreed ground rules under which a community will operate. Unlike culture, constitutional behaviour comes at the expense of diversity. The ideal communal environment would be aware of that limitation, and take appropriate steps to ensure that there is opportunity for all individuals to realise their natural potential to contribute to common group objectives.
4. Mutually agreed regulation can stimulate greater production from group effort. However, regulation is by nature restrictive, with promise of punitive consequences for any contraventions. Over-regulation, introduced by 'out of touch' authority, can compromise productivity by crippling diversity and by incurring the heavy parasitic costs of enforcement. When the group size being regulated extends to become a global monoculture, over regulation dampens the innovative power of a total population, while the bulk of resources that should be used to further evolution are wasted on war and enforcement.
5. Regulations are drafted to address the average situation. The majority of situations are not average, so regulations generally need interpretation if they are to realise the intended outcome. The current system acknowledges this limitation when it appoints experienced judges, but their wisdom is not accessible in all but the most important situations. The alternative is to nominate the intent of a regulation, then rely on ethical training to minimise abuse attributable to the flexibility so introduced.
6. As with all things in nature, it is balance that is important. The answer is for a community to rely on self regulation rather than instituted order. A sustainable balance between the two will necessitate strategic investment in education. In an unethical community, self regulation does not work, or conversely, if self regulation is not working in a community, it lacks ethics.
7. Individuals must have ample opportunity to realise their positive aspirations. While

seemingly a contradiction, instinctive behaviour also inclines an individual to contribute. Perhaps the next tranche of innovation could be catalysed by treating regulation more as an exercise in orchestration. Orchestration has connotations of leading, rather than reacting to a situation. Orchestration has the potential to eliminate many of the negatives associated with contemporary regulation. To orchestrate, individuals would need the opportunity to excel in whatever socially beneficial field of endeavor they aspire to, with the 'conductor' leading to the end product. To be effective, orchestration would require the majority of the population to be socially responsible, once again stressing the importance of sound, universal education.

8. The performance of an individual is driven by ability and motivation. Their potential ability is a balance between their natural abilities and the social conditioning process that the community applies to better engage the individual. The primary motivation driving the individual is a sense of belonging to the group and of being able to contribute to the best of their abilities.
9. Historically, children born into a community were treated as communal assets with all members of that community contributing to their upbringing. By sharing the task of good parenting, the community benefited from the improved consistency of social attitudes that followed, and by the social accountability, that resulted from everybody knowing everybody. It provided the children with a sense of belonging. It made the community more aware of the potential of its individual children, enabling it to better modify community agendas in accordance with those potentials.
10. With modern communication capabilities, it should be possible to recreate something like that environment. There should be no pressure for cultures to aggregate. Rather the reverse. Small communities benefit from close involvement and natural accountability that improve the individual's appreciation how consensus is arrived at. With good inter-community communications, any person with skills excess to immediate needs would tend to relocate to another community where their particular skill is in short supply. This process would trend towards optimising a sustainable economy.
11. Communities strive to husband, grow and capitalise on their knowledge base or intellectual property. However, it is not what you know as much as it is how wisely you apply your knowledge that is important. The integrity of a community's knowledge asset is also relevant. As the knowhow accumulates, it becomes less definitive due to assimilation of erroneous facts. The accuracy of historic records also becomes blurred both by the passage of time and by political fudging of the records. Flaws in communal knowledge are often promulgated by formal education. There is a strong case for all cultures to periodically "spring clean" their knowledge asset with a view to eliminating erroneous information and fencing off suspect material. Contemporary cultures are faced with the added complication of new information being fed into their knowledge base at an exponential rate.
12. Repair, at the level of the individual is relatively easy. It requires an appreciation of instinctive behaviour, and a social mechanism that re-establishes ethical behaviour early in childhood. Repairing an aberrant community is a little more complex. The fabric of mankind's resource distribution network is a complex range of economic instruments sired by the vast tangle of individual personalities and cultural formats found throughout the global community. Yet repair is theoretically possible. Break the complexity down

into manageable components, use common sense to identify action priorities, then introduce solutions that balance and marry our species technological advancements with an equally advanced appreciation of its environmental responsibilities.

13. There are two imperatives that underpin social balance. Firstly, functional societies incorporate a willingness to share. Natural instincts run counter to sharing and, in a social environment, instincts must be moderated. Education is used to achieve that moderation. Secondly, social ethics establish the rules of sharing, and in doing so the willingness to compromise during negotiations with others. The enhancement of personal security, and access to a formal education are strong inducements for individuals to behave ethically.
14. Religion has emerged as a frequently used tool of abuse, crippling its effectiveness for establishing the ethical and moral standards that support communal development. Ethical behaviour is socially respected behaviour. There is a need to clarify and promulgate a set of universal ethics founded on a common sense approach to the natural imperative of maintaining diversity and focusing productivity on the needs of evolution. That springboard would then be complimented by sets of social ethics specific to each operational sub-culture. The task ahead for contemporary society is to identify and establish ethical behaviours that facilitate restoration of the balance between technical and spiritual evolution.
15. The first step for humanity, should it wish to extricate itself from the mire of consumerism, is to appoint a qualified mechanic. It is no good looking at the private sector to fill the role, as its *raison d'être* is to promote market growth at the expense of social balance, should that be necessary. It is no good looking at elected representatives who are generally pre-occupied with supporting the private sector, only being reactive to social imperatives. The general public, given suitable motivation, access to effective tools, and ethical leadership, is the only possibility for effecting positive action. Action based on common sense is almost always initiated by individuals. However, the public generally lacks a common appreciation of the situation, and it is still prepared to delegate its environmental responsibilities to a largely unethical minority. While it does so the rich will get richer and the poor will be increasingly enslaved.
16. If balance is the first law of Nature, diversity is the second. Nature strives hard to maintain diversity. That is because diversity equates to durability. Diversity is also where the ability to introduce the much needed social changes might be found. Diversity of opinion, diversity of culture, diversity of capability etc., are maximised when they are a product of individual involvement, and minimised when they are a product of institutional proclamation. The ability to prosper as a community is tied to the sum of its individuality. Surely then it makes sense for a community to make sacrosanct a program of herd improvement that raises potential for its individual members to contribute. It follows that it also needs to make sacrosanct the rights of an individual to choose their cultural preferences, providing those preferences don't include an anti-social behaviour.
17. To sustain a healthy planet, we will require the exercise of "communal" self control, as distinct from "personal" self control. Judging by the extent of environmental damage that has emerged over the last fifty years, there is a sound case for assuming that many communities are already well past their natural carrying capacity. Addressing the

problem will require steps to adjust populations accordingly. It will also entail social conditioning focused on shifting demand for resources away from what individuals might want, to what individuals really need. Exercise of the self constraint needed to establish sustainable communities will involve effective communication, which we have, plus universal trust, which is lacking.

18. The primary symptom of environmental vandalism, is social decay. Indicators of decay include the percentage of production that is consumed by defense, warfare, and litigation, the number of displaced persons inter-nationally, the rate of climate destabilisation, deterioration in sustainable natural resource harvests, etc.. As it stands, the situation suggests that with a 'business as usual' attitude, the day of *H. sapiens* is fast drawing to a close.
19. An ethical community would be prepared to work with Nature to restore the natural balances needed to maintain life as we know it. An ethical community would minimise its wasteful demands on resources. In a community where ethical behaviour is the norm, the bulk of the public purse presently being consumed by law enforcement, war and insurance, could then be applied to meeting the needs of evolution. The exercise of both communal and personal self control would facilitate adjustment to sustainable population levels.
20. Equity is all to do with relationships. Relationships can be anywhere from constructive to destructive. When someone with more resources than they need, distributes their excess amongst those in need, the relationship is constructive, in due course possibly attracting reciprocal behaviour. When someone shares what they themselves need with another, then that person is entering into a relationship that risks a potentially destructive outcome.. Natural laws dictate that when the resources available to two individuals are only sufficient for one to survive, the stronger of the two will prevail.
21. The goal is to change the thinking of one generation. Maintaining diversity is a priority. The necessary communication technology is in place, but tactics need to be agreed upon. One generation of community members suitably conditioned and educated could rebalance the dangerous relationship that our species now has with Nature, along the way shedding the many encumbrances that stem from anti-social behaviour. Lack of a common will remains an obstacle. Vested interests in retaining the status-quo another.
22. Nature cut her teeth maintaining diversity on a far greater scale than mankind can presume to understand, so she is not particularly troubled by what happens on one little planet. However, the time is fast approaching when our society will need to decide whether it really wants to wear the catastrophic consequences of the changes to natural balance precipitated by its actions or not. If it is not prepare to do so, it will need to review its approach to life, and look at how best to live with the degree of environmental instability introduced by its actions. Any blueprint for slowing, much less reversing the decline, will certainly occasion dramatic social change.

1.

The Needs of of Good Governance:

1. The political process as it stands in a modern society is compromised by corruption, waste and inefficiency. The generally held perception that what we have is better than the alternative is wrong. More often than not, governing authorities reflect a mafia like approach, with the interests of a minority protected using legislation, at the expense of the majority.
2. Sustainable governance, where individuals receive fair benefit for their contribution, requires common sense, good organisation and a common will. Sound governance could facilitate efficient use of available resources using computer systems to help diminish the intrusion of individual and corporate agendas on decision making. It certainly would not intrude on the functions of the various public departments, set up to provide it with advice on technical matters and social equity issues.
3. Nature provides a model for good governance that we, as a species might do well to emulate. Each of us has a set of organs that keep us alive. Our dermis lies over the organs as the framework of a transmission infrastructure that serves to distribute the resources needed by the various organs. Finally we have an epidermis which, amongst other roles, translates and communicates external stimuli for us. Translating that into ideal levels of governance, our organs would equate to culture and local governance, the dermis operates at the regional level, while the epidermis has more of a communication and coordination role.
4. In an ethical, educated World, the need for governance would be minimal. Nature's model would see the bulk of governance taking place at the local level, as it is best suited to translating how its community might relate to its external environment. Local government should be responsible for all inter-community servicing and infrastructure requirements. The next level of government would be responsible for regional servicing and infrastructure requirements, including tertiary education, and coordination thereof. That leaves the 'epidermal' government with responsibility for global communications and marketing common environmental ethics designed to enhance sustainability. Any road back will need a clear definition of responsibility.
5. Governance should understand "what makes a community tick", and apply that understanding to managing society's "bottom line", leaving the private sector to manage individual accounts. The negative influence of the private sector on politics could be easily trimmed. All it needs is for the public sector to require all gifts to parties or individual members of any community representative be placed into consolidated revenue.
6. The appointment of community representatives should be based on logic, not emotion. In a society where community credits are a viable currency option, the individual with the most community credits would be the most appropriate candidate to represent a constituency. Starting with a community of 3,000/5,000, perhaps those in the highest bracket of community credit earners, could be offered an appointment as the local community representative. Such a system would eliminate the need to expend valuable resources on attracting votes. It would also eliminate the risk of people voting for a

platform that is based on deceit.

7. Those representatives could then nominate a representative to sit at the next level of government from within, their own group. No elections, no lobbying, no industry able to provide the stage scenery now used to support party lines. Freed-up resources would all be available for real priorities. There would be no such thing as a cash inducement from a minority group.
8. Remuneration for appointees could be either cash or community credits, but it would be based on man hours contributed towards community services, plus a factor reflecting the importance of that contribution. Day to day operation of the community would be run by mini-departments /sub-committees appointed on the basis of competency, with the option of their members being remunerated with either with cash or with community credits. Departmental staffing for the higher levels of government could come from appointees made by the mini-departments.
9. A democratic community that has a focus on evolution should operate with two strategies in mind. The first would be to maintain an open conduit to the creative potential of the individual. That will require delicate balance between the averaging influence of democracy, and the chaos created should all individuals choose to go in their own direction. The second will be to realise the value of the community's common knowledge asset, with success thereof a function of effective communication and universally accessible education. The holy grail for effective communication is freedom of speech. For sustainable social and economic development, it is access to an affordable and balanced education system, with rewarding career opportunities to match.
10. For all that to happen, governance needs to come from the people, for the people. That requires everyone to share responsibility for governance. Generally governments are perceived to be leading their communities. They are the head so to speak. What if this position is reversed? Governments become the legs of a community. Their task being to carry the community in the direction it wishes.
11. Using current communication technologies, democratic decision making could be enhanced by decisions being made on the basis of voting on a specific issue being restricted to those recognised as being suitably qualify to vote. Such changes, if implemented well, could render current systems of governance an anachronism.
12. As we have noted already, forming a community has an averaging influence. We have identified the main means of lifting production above average being first to lift the capabilities of a majority of members in the community, and then to tap into the specialised capabilities of those individuals able to perform above average. This translates into clear divisions of responsibility that, in balance, equate to sound management.
13. The public sector is responsible for lifting the output of the average individual, and that encompasses being responsible for providing its constituents with unfettered access to education, health & wellbeing, effective communication, and provision of opportunities for all individuals to realise their potential to contribute to the common good. The private sector, is competent to tap into the speciality of high performing individuals to enhance production on a product by product basis. The importance of balance between the

private and the public sectors cannot be overstated.

14. The ideal would be for flexible governance serving to manage natural resources sustainably. There are several major adjustments needed for that. First and foremost the ability to access unearned remuneration by claiming ownership of natural resources needs to be quashed. The reality is that Nature is inalienable. Non-renewable natural resources such as land, water and clean air cannot be owned. Access to them can be regulated using leases, or licenses, but ownership cannot be transferred from Nature. Improvements or other investment, such as a building on a piece of land, are kosher investments subject to the normal profit & loss market environment. That achievement alone would counter 90% of the corruption that currently hampers good governance.
15. The second major adjustment will be to expunge government meddling in the affairs of advisory departments or tampering with the legal profession or curtailing the right of free speech. A good analogy would be a ship sailing in dangerous waters with an approaching storm. The crew are sailors, but their captain is a political puppet, dancing to the tune of a remote political party rife with warring factions and vested interests Few would think the prognosis for that ship and all aboard was anything short of a disaster.
16. Departmental functions would be more effective if technical support venues or nodes were established on the internet, as a virtual knowledge library with appropriate measures to vet individual contributions on merit. Wikipedia is a prospective model. Instances where the government is prepared to disregard information contained on a node could be registered, with the perpetrators being held accountable for any outcome.
17. The third major adjustment would be to split governance so that the responsibility for the care of a community's natural resource assets is not compromised by responsibility for their exploitation residing with the same authority. The split would leave one section of government responsible for ensuring sustainable resource management and maintaining ecosystem viability, with the other responsible for infrastructure and production. The former would develop the concept of "community credits" as its legal tender, the latter would still rely on money for the majority of its transactions.. Coordination between the two would come naturally with a morally conditioned and well educated community setting direction.
18. Again, using farming as an analogy, a person living in a city can own a farm, but they will have difficulty managing it efficiently. Sound farm management requires an on-site manager who has intimate and current knowledge of the land being farmed, as well as appropriate husbandry skills. The city dweller may well contribute marketing wisdom and provide complimentary resources that the manager can use, but it is the manager, with their intimate knowledge of on-site conditions, who ultimately is responsible for meeting production targets.
19. That need raises the question of how such a government might be established? In the social arena, local government has intimate links with its constituency, equivalent to those of a farm manager with his land. Logically, local government is in the best position to manage the cultural expectations of the community and oversee local productivity.
20. This would leave higher forms of governance to pick up on inter-local government coordination, facilitate equitable access to resources on that scale, manage the regional

infrastructure and servicing priorities, and be proactive accessing the leverage available from combining the knowledge assets from all local government agencies, thereby creating a national asset.

21. As ethical and moral conditioning take hold, honesty and willingness to share would lubricate the union between the community and its government representatives. The introduction of community credits as the only legal tender for non-renewable resources would emerge as an influence on marriage, and ultimately natural selection will favour socially responsible individuals. With population managed to ensure that individuals can find appropriate challenges, social maturity will accelerate, easing the drain on resources to counter crime and warfare.
22. A cultural prescription is needed to replace the role of religion in setting what “civilised” behaviour in a community constitutes. Each community will be responsible for managing its population within the limits of sustainability, while having a child will be viewed as a privilege, not a right.
23. With the principles in place, the governing agency could progressively delegate responsibility for production to sub- groups within the broader community as they are able to demonstrate that they had developed the competencies needed to manage their responsibilities. The size of the group and the scope of interest that the group has, are irrelevant. It could be as specific as a cancer support group or as broad as a public health agency. The strategy could be an extension of the current trend for volunteers to pick up and run with unfunded or inadequately funded government services.
24. To be judged competent, a group will need to demonstrate that it has access to qualified multi-disciplinarians as well as appropriate specialists. It will also have to demonstrate that its nominated representatives are individuals of some substance in terms of holding community credits. That process will incrementally downsize the role of government, and the trauma associated with dramatic change.
25. Governance could focus its efforts on enhancing group competencies, and coordination of total effort to best effect, guided of course, by agreed cultural foundations. Brick and mortar institutions are an anachronism, now facing being replaced by virtual fora. Instead of advisory departments, specialist disciplines should share their knowledge base on the internet where it can be accessed for advice as well as for research and education. Each discipline could establish a global mentoring capacity, able to filter incoming information and ensure that it is a positive and valid contribution.
26. A materialistic society does not deal well with the intangibles that gave many of the so called “primitive” societies (their cultures now a casualty of “progress”) a wonderful sense of purpose and belonging. Restoration of social balance is a pre-requisite for the evolution of our species. Self indulgence, materialism and the lust for power that characterises contemporary society, only erode balance and serve only to establish social inequities. Equity is the vanguard of social order. Good governance will restore the balance between materialism and spiritualism and promote a social order that features durability, purpose and efficient application of effort.
27. Instruments of governance and commerce are not sacred. They are tangible, creations that can easily be changed or modified, given a community’s will to do so. The catalyst that would help to restore the balance between the public and the private sectors, is

universal access to education, commencing with a sound grounding in ethics, well before a child's world expands beyond their home. The only agency with sufficient power to bring about those changes is you, the individual.

FOOTNOTE

A revolution is needed if life on this planet is to realise its full potential. Not one based on the the violent destructive exercises that inevitably fail (at great expense in terms of time and resources), but a silent revolution, one that wakens the whole of humanity. One that resurrects using 'common sense' as a filter. One that instinct tells us is right. One that accepts cooperation as the way forward, not competition.

We must learn to listen to our instincts. It would seem that an introspective interpretation of our own genetic code could reveal all the answers we need to sustain life on Earth. The primary instinct of any individual is to survive. The genetics underpinning that instinct are just as relevant when it comes to crossing the dark abyss now confronting humanity.

Accordingly, we should View our own body as though it is a fractal of the planet. The planet is of similar composition to us, and it operates via a complex association of cycles and balances, as do we. Our bodies can assimilate a surprising amount of mistreatment, but overstep the mark and we are in real trouble. The balances that exist as the natural environment can assimilate a certain degree of change, but go to far, and the consequences for life on the earth as we know it, become serious.

Unwittingly, the destructive elements of contemporary society have presented the general population with all the armament it needs for such a revolution. The 'secret' weapons they have placed at its disposal are an efficient global communications network, achieved via effective marketing of smart phones throughout just about all civilisation, and 'the internet'. The internet has the potential to replace 'institutional conditioning' as a means of every individual on the planet gaining access to a balanced education. Now, all that is needed is a common will to wrest control of our future from the tunnel vision of multinational elements and return it to the real world. Then, and only then, will our fleeting time as a living organism be rewarded with the satisfaction of doing a job well.

As an individual, I would like to live in a community comprising essentially enlightened individuals, able to appreciate the importance of natural balance and be willing to exercise self control. One where common sense displaces dogma. One where the priorities for community spending are survival, education, communication infrastructure, and health, in that order.

Appendix: 1

Definitions:

Debate about the natural environment is characterised by words and terms that often confuse those using them professionally, let alone the layperson, so it behoves us to ensure that we start with a common understanding of several key terms. In general, these terms can be grouped, firstly to reflect natural phenomena, secondly to reflect specific phenomena such as mankind's social behaviour.

Natural

Climate Change: The media talk about climate change. It is the nature of climate to change, so the term is not really functional. The term "climate instability" makes more sense, in that it refers to disruption of the climate balance established by Nature over time.

Environment: Includes both the natural and the social environments. We incorrectly tend to discount the antics of Homo sapiens as being distinct from Nature. However, the species along with its various activities (from governance and religion, to urban development, to economic models developed for trade purposes) is a natural phenomenon.

Environmental Balance: Nature's has provided a balance that is a dynamic association of environmental elements at a point where the properties of water can be used to greatest effect to promote life. Earth's natural stage is set somewhere between the freezing point and the boiling point of water. In geomorphological terms, that is a very narrow temperature range. The priority for maintaining mankind's evolutionary prospects is to not upset the balances needed for life to exploit Nature's chemistry.

Environmental capital: Ecological balances, established by Nature over time, contain a degree of flexibility that equates to the capacity of the environment to absorb change without acutely affecting that balance. This also serves to define environmental capital, and it varies from ecosystem type to ecosystem type. Understanding what lies behind this variation is the key to sustainable harvesting of natural resources. The classic example is a river along the banks of which exist several villages. In the beginning their uptake of water and their discharge of effluent into the river are of little consequence. The environmental capacity of the river is sufficient to assimilate the nutrient changes along its length between villages, without destabilising the river ecology. However, as the village populations increase, the demand that each village places on the river outgrows the river's capacity disrupting the natural balance. The simplified ecosystem (or reduction in species diversity) that emerges as a consequence, while valid in Nature, may well become a problem for many higher order species, including the villagers.

Environmental Sustainability: The term "sustainability" is used to describe environmental change taking place at a rate that does not affect ecosystem balance sufficiently to incur an acute loss of bio-diversity. The fundamental characteristics of a healthy ecosystem; be it on a local or global scale; are species diversity and balance. When we talk about sustainability we are referring to prolongation of ecosystem viability or extension of a situational balance. "Eco-stability" is perhaps a more functional term than "environmental sustainability".

Evolution: The term is usually applied in the context of evolution of a species. Science has provided a fair picture of past evolutionary processes, but it struggles to find a template that can be used to signpost what lies in store for any species managing to continue further down its evolutionary path. The trick may well be linked to James Lovelock's Gaia theory that views the world as a living organism. Viewing evolution as a balance between organic life and the physical systems that support it might well lead to more predictive science.

Natural capital: The ability of the environment to assimilate change without disturbing any natural balance

Nature: Fundamentally, Nature is pure energy. The enigma of pure energy is that its nature is not obvious. Matter, including biological life, is revealed as an energetic state. We can but glimpse the various facets of energy, such as matter itself, thermal energy, photon energy, electromagnetic energy, nuclear energy, gravitational energy and that grab bag of mystery, dark energy. For mankind, the parent of all these energetic manifestations remains obscure.

Natural capital: Gross natural capital is measured by the ability of the natural environment to assimilate change without destabilising the physical and biological balances conducive to life as we now know it.

Nutrient: Carbon based organic substances generated by plants, but needed by all living animals to sustain life. Not to be confused with inorganic "minerals," also needed for life.

Pollution: An agent that introduces undesirable change to a natural balance is categorised as pollution. The negative aspects we associate with pollution derive from the impact that ecosystem destabilisation has on humanity's social wellbeing. Pollution consumes natural capital..

In Nature there is no such thing as pollution. Nature deals with change that has a destabilising influence on environmental balance as a matter of course, treating it as necessary facet of evolution. The problem for our species is that Nature's

restoration of the balances we might prefer, will have little regard to either our time frames or our priorities.

Productivity: Natural productivity is an expression of balance, species diversification and the evolution of life. It has nothing whatsoever to do with the accumulation of virtual cash.

Spirituality: Natural phenomena that are as yet unexplained by science.

Social

Barbarism: "Absence of culture". (from Oxford dictionary).

Civilize: "Bring out of barbarism, enlighten, refine and educate". (from Oxford dictionary).

Realism: "The practice of regarding things in their true nature and dealing with them as they are". or "fidelity of representation, truth to Nature by showing life as it is" (from Oxford dictionary).

Fanaticism: "Filled with excessive and mistaken enthusiasm" (from Oxford dictionary). or, "belief untempered by ethics", the omission of which fuels a burning ambition to reduce cultural diversity.

Environmentalism: "Caring for the natural environment. "Acceptance that the environment has a primary influence on a person or group's development" (from Oxford dictionary).

Environmental Management: The difference between the term "management" and the term "exploitation" is often discounted. Nature manages the environment, not mankind. She does this by balancing resource availability in such a way that species diversity is enhanced. Currently mankind, with disappointingly few exceptions, exploits natural resources and its use of the term "environmental management" applies to the manner in which that exploitation is conducted.

In that sense, sound management of the natural environment involves limiting harvesting rates so that the energy and nutrient balances of an ecosystem remain within the natural limits established by Nature. To manage this, mankind would have to determine what yields of natural resources are sustainable, in other words establish what is the environmental capacity, then limit its harvest (what demands are met) within that parameter.

Effective management also requires that the difference between "harvesting" and "mining" be acknowledged. Both come within the ambit of "natural resource productivity" however, harvesting generally refers to biological production based on an annual cycle of renewal. A resource is being mined when the rate of harvesting exceeds the natural rate of production.

Environmental Values: There is a need to have more regard for "Environmental values". Legal tender when dealing in environmental values is not dollars. Not Australian dollars, not even American dollars. It is energy. Natural processes are based on energy cycles, not cash flows. This simple fact is omitted from most economic assessments of the effects that stem from exploiting environmental resources. This omission has always been the Achilles Heel of our society when it comes to making decisions about sustainable natural resource exploitation.

Ethics: Modification of the instinctively selfish behaviour of the individual to meet with what the wider community deems to be moral behaviour. Ethics are the genes of cultural DNA.

Religion: "Human recognition of superhuman god or gods entitled to obedience and worship" (from Oxford dictionary). or. "Social surrogate for unexplained or misunderstood natural phenomena.

Social: Social equates to gregarious behaviour in a population. Culture is a subdivision of population, usually built around specific religious beliefs. Community is a subdivision of culture defined in general terms by its economy, while family is a subdivision of community.

Spirituality: It is the aspects of Nature that we do not understand that evoke spirituality. From our perspective, we instinctively sense a link between our existence and the void we have yet to cross to reach that understanding. Mainstream religions lay claim to spiritual appreciation, but perhaps the occasional individual guided by personal instincts can better reduce the void. Nature is. It exists as an energetic entity without the limitations of time. It has always existed and it always will. For whatever reason, it can transform energy to transient mass, and so our Universe was formed.

Presumably Nature created the universe for a reason, and the only clue we have is that, despite its transient existence, the balance of inorganic and organic mass involved extends the time needed for order to emerge, and order advances evolution.

Physical life is expressed as organic matter, and the evidence provided by evolution would appear to link every living organism in the Universe to Nature; and thus to one and other; via a common genetic inheritance. We are not yet privy to most of the mechanisms involved or to where evolution leads, so it is convenient to refer to both as spirituality.

Objectives for society

- a. Appreciate that *H. sapiens* is only part of a living system and its wellbeing depends on maintaining the integrity of that system. Appreciate the importance of diversity.
- b. In that context, respect the needs of other species.
- c. Get control of your representatives. They stray down dangerous paths.
- d.
- e. Disengage the private sector from public sector responsibilities.
- f. Resist attempts to alienate, inalienable rights of access to natural resource stocks.
- g. Work to realise the importance of being able to coordinate the potential of all individuals within the community by balancing regulation with freedom for individual creativity to flourish.
- h. Ensure that there are challenging opportunities for all members of the community, or in other words, fit the aspirations of each individual into community priorities,
- i. Identify the timeframes needed to replenish natural resources, and use the knowledge to manage consumption sustainably. Demand, (or market) managed consumption encourages gluttony, and that is a short route to environmental instability and social decay.
- j. Manage population at sustainable levels. Don't balk at the need to regulate family size in accordance with sustainable natural resource limits.
- k. Don't defecate in society's bed. Desist from using non-biodegradable materials including plastics, at least until the assimilative capacity of the natural environment is understood. Restore atmospheric gas balances. Restore the integrity of natural drainage systems. Rekindle the natural nutrient cycle and seek to restore the environmental balances that life on Earth, as we know it, requires.

Objectives of governance.

- a. Community security.
- b. Coordinate input into, and maintenance of the communities knowledge asset.
- c. Support the potential of that asset by establishing education systems that minimise impediment to its content being accessible to all members of the community.
- d. Organise government so that those regulating the consumption of natural resources are not the same as those seeking to exploit them.
- e. Organise and finance equitable delivery of services such as Communication, Education Transport, Housing, Health, Law enforcement and basic Research & Development.
- f. Regulate and manage access to natural resources so their harvest is sustainable.
- g. Ensure that the community's knowledge asset is reviewed on a regular basis to maintain its integrity,

Objectives for the private sector

- a. To facilitate productivity, based on value-adding to natural resources so that the net return achievable from a unit of resource, is enhanced.
- b. In the process, provide infrastructure and the infrastructure support needed by the community.
- c. Facilitate associated research and development