"SUSTAINABLE PROGRESS"

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ABSTRACT

Sustainability definitions such as the popular Brundtland one are values-laden political constructs, not consistent with a humanly-natural market economy, with human desires as well as human needs, or with individual freedoms and democratic government. Nor are they subject (in the round) to rational scientific analysis, thus clear understanding and acceptance of human implications and the sustained human implementation of sustainable solutions. Yet the era of environmental free-loading is indeed reaching towards absolute limits in some areas. Some value-based changes to property developmental rights and containment or conversion of effects are thus needed to ensure (natural) progressive development becomes net-positive for the human environment and thus the sustained progress of the human race.

In New Zealand, current bureaucratic and political regimes, under the auspices of the Resource Management Act and associated legislation, including impending carbon gas emission taxes, are implementing a highly regulatory approach to achieving "sustainable development" via top-down single-minded "sustainable management" of developmental effects. But the feedback effects on society and its economy of such sustainable management are almost invariably not or inadequately anticipated, far less defined, considered and evaluated before implementation. Evidence is mounting that those feedback effects can be very substantial and often counter-productive and/or detrimental. Is such an approach to sustainable development itself sustainable?

Hawken/Lovins' "natural capitalism" provides some intriguing perspectives on possible solutions to the sustainability conundrum, but relies heavily on governmental intervention while advocating natural markets, freedom and democracy, and the application of science to find nature-based solutions. But today, science is threatened with discreditation by activists, regulation by government and self-destruction by practitioners, and the sustainability of a progressive solution to human/environment problems is thus also threatened. This paper holds that, to ensure science's survival and increased contribution to the sustainable progress of humanity, it is essential that science-based professionals maintain strict professional impartiality by excluding personal, societal and even professional institutional values from that part of our persona we would call "scientific".

1. INTRODUCTION

Progress is essentially human, and humanly essential. More specifically :

- All forms of life are genetically driven to sustain and better themselves through survival, growth, empowerment, adaptation and regeneration. This requires intra- and inter-species competition and cooperation in the acquisition and consumption of life-enabling resources.

- All forms of life interact with and change their environment in that reach for sustenance. Given an opportunity in the form of a "vacant niche", they are all capable of growing to dominate it to the point of destruction of other species (witness viruses, algae, weeds, cicadas, rabbits, humans, even elephants!).

- "Higher" forms of life including humans seek higher forms of betterment through acquisition of specialist skills (in creating goods or providing services) to enable their voluntary exchange for the betterment of both parties. **That fundamentally human co-operative reach for betterment is the fount of civilising institutions** such as families, tribes, villages, towns and cities.

- All such co-operatives exist solely to facilitate the acquisition of personal, family and community betterments by providing multi-level markets for **transactions, interactions and experiences (TIEs)** of all kinds. Their development as manifested by ongoing civilisation has enabled us to live lives which, while not as yet perfect, are ever "nicer, more refined and longer" than the "nasty brutish and short" lives of our forebears.

- **When TIEs occur involuntarily, ie by coercion** of one party by another, betterment of the coercing party is achieved at the expense of, ie via **"loss" or detriment to, the coerced party.** Tribal leaders, local authorities and **governments exist to coerce** the avoidance or mitigation of personal actions where they are or will become net-detrimental to the overall public interest. However, there is a **fine line** between governors serving that overall public interest, and their abusing the trust and powers vested in them by coercing outcomes that frustrate individuals' and the public's interest in overall and progressive net-betterment in favour of their own interests.

- Recent and current genetic studies (eg Pinker 2002) are demonstrating increasingly that our genetic makeup strongly pre-determines our social as well as physical characteristics, whereby **"human nature"** is imprinted and **not changeable by social indoctrination or by governmental coercion without devitalising** psychological damage, (comparative) socio-economic stagnation, and the undermining of the presumption that "all other things can remain equal".

Thus, **humanity's personal and collective reach** towards the primal and eternal goal of **"peace and prosperity"** via personal choice within a market-based capitalistic system are entirely natural, representing as it does the absolute essence of humanity. Such progressiveness can not be denied without also denying humanity's essential nature. **"Sustainable progress" is the hallmark of humanity and its ongoing civilisation.**

The rest of this paper considers various aspects of "sustainable development" in the light of the above thesis. It is divided initially into three parts. Part A considers the popular concepts of sustainability and weighs the stasis element against the progressive, finding the former wanting.

Part B investigates the ability (and otherwise) of government and local government to apply these popular concepts to useful effect. Part C explores the nature and role of science and applied science (engineering) in human progress, and seeks a basis for their own sustainability as well as their useful contribution to elemental environmental sustainabilities. These parts are then brought together under Part D : Conclusions.

PART A : ON SUSTAINABILITY

2. SUSTAINABILITY : ESSENTIALLY NATURAL & NATURALLY ESSENTIAL

There is nothing new or unnatural about environmental or ecological degradations – and re-aggregations. All forms of life require and become feedstock one way or another. Each originated to take advantage of a (biologically) "(part-)vacant niche" – to prosper from it by consuming its components and creating "wastes" which become nutrients to other life-forms. On occasion, variation of environmental parameters (such as solar radiation levels, tectonics /geology/topography, oceanics/sea-levels/climate, evolution/revolution of flora/fauna types and relationships) especially favour some new (to the niche) form of life, and the likes of a "red tide" or locust invasion occurs, dying out when the rogue parameter(s) changes again.

Since time began, human societies have been concerned to sustain their life-sustaining and enhancing resources. Within our tectonically, geologically, climatically and demographically dynamic world, every society has forever faced new blockages to ongoing betterment. Once the problem becomes widely evident, and rarely beforehand, community cooperation can be mobilised for the necessary remediation. As any local food source became damaged or run down, the primitive response was to move on, leaving the fauna, the flora, the soil or the lake to recover for the next user, or to be transformed to meet some "higher" purpose.

Farming communities emerged to achieve this higher purpose; to attain and sustain the more efficient production of food. Spare labour had time to develop skills in creating goods and services to exchange for betterment. Voluntary (win-win) trading within and between communities improved security by displacing coercive (win-lose) robbery; markets (and their host cities) grew in size with increased specialisation of skills and efficiencies in mass production and distribution, compounding personal betterment and collective prosperity.

But agricultural societies required a new and sustainable (stable) form of government in place of more primitive societies' tribal councils and natural leaders. Hereditary kingships emerged, protected by an elite class comprising warriors, advisers, sector managers and mystics, all mutually inter-dependent for their ability to live off their "subjects" (taxed or tithed workers, serfs, slaves, peasants etc with no rights of access to the power elite). This suppressive form of government continued until disrupted by the industrial revolution.

The important point is that the sustainability of living communities including their form of governance and means of betterment (today meaning freedom for individuals and companies to freely enquire, think outside convention, communicate, and innovate where advantageous, then trade their goods and services in open markets) are "naturally" of primary importance. When societies are stressed – as they are in despotically or badly-governed nations, and even in some supposedly free and democratic but over-coercively regulated western nations, excessive focus on environmental "sustainabilities" may well prove to be "fiddling while Rome burns". A society which respects its governance (prays together?) stays together.

3. SUSTAINABLE CONSUMPTION - AND REPLACEMENT – OF RESOURCES

The environment is forever changing, as a consequence of galactic, solar, tectonic, physical, climatic and biological changes. Such changes disrupt the would-be "Gardens of Eden" in which a harmonious balance of flora and fauna is ever sought by nature's "invisible hand". To survive and prosper, all species, certainly including man, must adapt to the effects of such sudden environmental changes, and that environment's slow reach back towards equilibrium.

Mankind has long sought to sustain elements of our environment to advantage, spanning the seasons, the droughts, the lifetimes. But we can't simultaneously control all of the enormous natural forces – and their on-going effects - which are the basis of our natural world, to guarantee perpetuation of our current environment and our current resources, and thus achieve eternal life for all future generations. Even were it possible, would we really want it? Environmental stasis would deny us the opportunity for further progress up our evolutionary path, which we have achieved to date by continually improving the quality of the resources we discover (ie create) and the efficiency with which we (learn to) use them.

Historically, homo sapiens has never exhausted any irreplaceable resource. As scarcity (within the current state of technology) dictated and/or opportunity presented itself, we superceded stone with bronze, iron, steel and now composites, copper with glass fibre. To date, human progress has been beneficial to the extent that our lives are now arguably much more comfortable convenient and safe, free of threat and fear, and longer, than ever before.

Thus, if future generations are to continue sustaining their own societies, we must not lock them into perpetuation of our perceptions attitudes technologies and resources. Decisions we make today ostensibly on their behalf must be in ignorance of the world they will face, and of their needs desires technologies and resources within that world. They will not thank us for constraining their options, any more than we would thank our forebears for restricting ours. What they will thank us for however is delivery of a vibrant and progressive society, with the freedoms, the education and the skills to enable the solution of future problems as they arise.

After two million years of progressive human evolution, there has been only one constant human resource; - our immensely complex and capable brain, developed to realise our genetic drive to overcome resource degradation and supply problems through conservation and innovation to better ourselves, our families and our "communities of interest", while also sustaining our environment. Sustainability has always been a problem to be resolved after it became an issue; our ability to overcome such problems has secured our survival to date. With good thinking and governance there is no reason why it should not continue to do so.

4. SUSTAINABILITY'S POPULARISATION AND POLITICAL EFFECTS

The amazing acceleration of technological progress since the industrial revolution, stimulated by wars and the space race, gave rise to humanity's third major revolutionary advance, that of inter-connectivity. Major advances in communications and transport modes enabled a step-change in the bulk and efficiency of communications and translocations linking people, goods and services, (potentially) within and between all cities and nations. The consequence is "globalisation" of everything from news and information to businesses and NGOs to the local-and-global legislation and regulation they promote. If the growth of (non-mandated) "international agreements" and "obligations" is any indication, some form of globalised government and police force is also in prospect. Whether our present forms of government can – or should – survive such a consequence of globalisation is canvassed in Part B

The rate scale and impact of the changes wrought by these overlapping revolutions destabilises financial and institutional arrangements, creates massive new vacant niches for wealth creation while destroying some traditional livelihoods and threatening others. Such effects have naturally resulted in widespread fear and a reactionary desire to "stop-the-world"

Special interest groups have emerged to meet the challenge and opportunity of fulfilling that desire by waging war on consumption, automobility, commerce (especially selected international businesses), and the impartiality of science and engineering. They include ecologists and meteorologists (or more particularly those within those disciplines supportive if disaster scenarios), town planners aspiring to create "designer cities", post-modernist "truth-deniers", enviro-NGOs, populist political parties, and those parties promoting the interests of special-interest-groups (such as Greens and other belief-driven world-savers).

Most of these groups and the public at which their wares have been pitched truly believe that the current world – including developing nations, our environment, and future generations - will be best served by stopping (even reversing) socio-economic growth thus consumption and waste, and are driven to carry that message to a world which, they believe, is bent on self-destruction "Sustainability" unites them, empowering them when its presumptions become law, which is why most "solutions" proposed envisage governmental regulation and international cooperation. Their enthusiasm and momentum blind them to realities such as :

- resources and choices as to which are transformed actually increase with techno-logical progress, rather than become exhausted,
- consumption per capita reduces with economic progress,
- the surge in consumption, rather than representing increased waste per capita, reflects catch-up living standards in developing countries multiplied by population growth,
- growth (eg) in packaging achieves reduction in spoilage and greater overall efficiency
- global population growth is pumped by greater longevity as much as by birthrates,
- global population growth is decelerating while the percentage of retirees increases, creating major new problems addressable only with sustained technological progress.
- bigger governments and United Nations-sponsored international agreements (which in turn empower the UN and promote its prospects of global government) together with globalisation of enviro-NGOs and the legislation they promote (rather than the businesses they pillory) are a major brake on quality of life and future prospects,

Some sustainability advocates reflect history's recurrent doomcriers in threatening hellfire and brimstone [1], [2] or by promoting environmental actions which would deny the human race's very existence [3], [4]. Their prescribed solutions are usually for government action (by cross-subsidisation or regulation) to coercively change public attitudes behaviours and/or lifestyles to achieve those the advocate considers "better for future generations".

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[1] "There are ominous signs that the earth's weather patterns have begun to change dramatically (in response to "global cooling") and that these changes may portend a drastic decline in food production – with serious political implications for just about every nation on earth. … The evidence in support of these predictions has now begun to accumulate so massively that meteorologists are hard-pressed to keep up with it" – Newsweek April 28 1975.

[2] "The battle to feed humanity is over. In the 1970s, the world will undergo famines.*(Because of scarcity rather than bad government)*, hundreds of millions of people are going to starve to death in spite of any crash program embarked upon now. Population control is the only answer" – Paul Ehrlich "The Population Bomb" 1968

[3] "We must make this (earth) an insecure and inhospitable place for capitalists and their projects … We must reclaim the roads and plowed (sic) land, halt dam construction, tear down existing dams, free shackled rivers and return to wilderness millions of acres of presently settled land", and "We advocate biodiversity for biodiversity's sake. It may take our extinction to set things straight" – David Foreman, Founder of Earth First

[4] "The collective needs of non-human species must take precedence over the needs and desires of humans" – Dr Reed F Noss, The Wildlands Project.

But the future is unpredictable beyond projection of current trends and educated guesses as to the effects of any conceivable scarcity [5], [6]. Any successful fixing of attitudes or behaviours must reduce humanity's ability to break free of artificial fixities in their technological development and selection/use of resources, in order to respond to change, as it has had to do in the past to ensure its survival, and has succeeded in doing to date.

The world is thus divided into Sustainability-promoting Stasists, and antithetical Dynamists (Postrel 1998). Stasists believe that we are irretrievably despoiling our planet, which is about to reclaim its authority by wiping us out with a flick of its climate, and/or by neutering us with chemicals or microbes of our own manufacture, and/or by removing the wheels on which we have become over-dependent. Dynamists believe that, once "tragedies of the (environmental) commons" are resolved through the assignation of property rights, market mechanisms will resolve ever-emergent environmental problems (as indeed they have to date) in humanity's ongoing upward march towards the ultimately-stable state of universal civilisation.

Both Dynamists and Stasists (other than deep-green anti-humanists and guilt-driven self-destructionists) seek the same outcomes; - survival of human society in a sustainably civilised or civilising form, enabling ever greater efficiency and diminished impacts in living in and off our environment, within an ever more enjoyable, understood and respected environment. The question is, which (if either) route provides the better prospect of achieving those outcomes?

5. "SUSTAINABLE DEVELOPMENT" – AN OXYMORON?

20 years after "Sustainable Development" was defined by the (United Nations-created) initially "independent" World Commission on Environment and Development's Brundtland report, conferences like this still grope for logically defensible ways of making development decisions amongst the enigmas, presumptions, and moral conundrums the definition presents.

The UN's motives in establishing the WCED (World Commission on Sustainable Development) were mixed; it sought to reduce the obstructions and costs (eg food tariffs) the western world imposes on "less developed countries" in their reach for betterment, while protecting them from being stripped of resources and environmentally abused in the process (thus sustaining resource availability while avoiding global environment problems for the rest of us).

The problem was how to reconcile these disparate – and irreconcileable? – goals. Over the years during which a clear solution has been sought, progress to date has been obfuscation of this fundamental problem by building (ie effect) a gigantic smokescreen around it. While the search continues, an industry of mutually supportive international and national "edicters" [7] (including symbiotic enviro-NGOs) has emerged and become empowered to imperialistically impose their environmental values, not only on the LDCs whose ability to progress is now handicapped as never before, but also in western countries adopting the sustainability ethos.

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[5] The (ecologist) Club of Rome's "Blueprint for Survival" forecast exhaustion of 6 mineral resources by 1990 and another 3 by 2010. All these minerals are cheaper and more abundant today than presumed on publication in 1972 (Ref), because of three factors well understood by economists but (evidently) not by ecologists : ongoing exploration, technological advance, and substitution. To believe such factors will not continue to apply for future generations is surely to give up on progress and on-going civilisation, ie to give up on life itself.

[6] The efficiency with which carbon fuels are used has increased dramatically and continuously since well before postulation of the greenhouse effect, continues today, and will continue into the future regardless of governmental coercion. The improvement in living and health standards resulting from such universally-available low-cost energy has reached all corners of the earth, enabling a dramatic increase in population and longevity which is only now returning towards a state of balance with technology-determining environmental capacities and resources.

[7] "edict" - an unsubstantiated (therefore probably unsubstantiatable) assertion, eg "cars are unsustainable"

In “A Poverty of Reason – Sustainable Development and Economic growth”, Oxford Professor Wilfred Beckerman deftly summarises a decade of penetrating criticism triggered by the Brundtland definition and its expansion in documents (especially including “Agenda 21”) and practices emanating from the 1992 UNCD-sponsored “Earth Summit” in Rio. With regard to the Brundtland definition, points made by Beckerman include :

- What will the needs of (some? all?) future generations be?
- If we must allow for (insert number) generations, what resources can we consume?
- Who are “we”; Western economies? Eastern? LDCs? Who allocates “shares”? How?
- On what basis can “needs” be separated from “desires”?

Clearly, the Brundtland definition seeks meaning beyond the consideration of who is entitled to what and how much of the resources describable as “current resources”. The rest of the Brundtland report “Our Common Future” comprised a litany of environmental catastrophes which (it claims) threaten to engulf the global ecosystem. Desertification, climate change, ozone depletion, industrial pollution, soil erosion, species extinction and the threat of nuclear destruction are all part of what the Commission called “the new realities”. Various chapters in Beckerman’s “A Poverty of Reason” address key issues, counter-claiming that :

- There is no measure, nor can there be, of a development’s “degree of sustainability”
- Since resources are a creation of the mind, and a reflection of the state of technology, which changes with progress, they can hardly be finite unless progress is precluded.
- If 98% of historical biota are extinct, how is it that the current 2% are crucial to sustainaining the human race (or the planet?) whereas the other 98% were not?
- The effects of implementing (eg) Kyoto may be negligible, but costs may be great.
- If not neglible, the effects of climate change are not necessarily net-negative, nor is there any mechanism for ensuring that benefits and costs are appropriately distributed
- If man controls atmospheric CO2, what can be done about other greenhouse gases such as (potent) water vapour, and other climate influences such as solar radiation?
- Future generations will likely enjoy greater wealth than we do, and will certainly have different technologies and needs, therefore, it is immoral to afflict today's population, especially those in LDCs, with costs more properly borne by future generations.
- Since there can never be certainty about side-effects of progress, the Precautionary Principle, in requiring such certainty, is effectively antipathetic to scientific method.
- Resources always come at a cost, and choices must be made as to priorities. In free societies the choices are made by those experiencing the primary effects – including the forgoing of alternative choices. That is, the user chooses – and pays . The greatly increased productive efficiency this enables accounts for western prosperity.
- In non-free countries controlled by a power elite, (often bad) choices are imposed on the powerless classes. UN “obligations” are effectively imperialist, restricting choice.
- Environmentalism is becoming a new form of imperialism. Rich countries impress their environmental values and associated high costs on those who are unable to afford basic living necessities. With better health, productivity and wealth increase.
- As countries reach certain income thresholds they can afford related environmental standards. Distorting their betterment priorities is counterproductive – and immoral.
- It may be financially cheaper to accept or deal with pollution than to prevent it.
- For all that, proper consideration of environmental problems is now necessary. Many of them are best addressed by assigning tradeable property rights (eg fishery quotas).

“Sustainable development” is thus merely a term reflecting popular concern that the safety/ security side of human nature feels unduly threatened by the risk-taking progressive side.

6. "SUSTAINABLE MANAGEMENT" UNDER THE RMA

New Zealand's Resource Management Act emerged together with other "more market" legislation in the aftermath of the 1984 economic collapse. The overall purpose, encouraged by an IMF requirement to free up the wealth-generating components of the economy if our loans were to be rolled over, was to replace previous highly-regulatory and economically-debilitating legislation with more personally- community- and commercially- "enabling" legislation, thus to educe frustration of wealth creators/developers in achieving their goals.

The then-current Town Planning legislation was a prime target for such reform. At that time, town planning applied artificial constraints like zoning, preservation of (tiny percentages of) farmlands from residential use, and status-quo protection of prior commercial development to achieve highly detailed socially- and economically-distortional architect-inspired "designer-city" plans for private (but not public) land use (only). Under the new RMA, regions were to establish their own "environmental bottom lines", justifiable in terms of their costs and benefits and effects back on local society and its economy. Any significant (more than minor) effects of development proposals on these bottom lines were to be avoided remedied or mitigated by the developer with the cooperative guidance of the new "resource (use proposal) managers"; - not city designers, or guardians of environmental absolutes, just managers "enabling" the passage of development proposals through a local council oversight process by ensuring environmental bottom lines were recognised and appropriately respected

On introducing the bill to parliament, the responsible minister stated that "with this (RMA), you can build a piggery in Queen Street, so long as you contain the (environmental) effects". But with town planners suddenly out of work, and an urgent need for resource managers, the former overnight became the latter, carrying their knowledge of (thus enthusiasm for) old-style city/urban design with them. Today, the original intent of the RMA has been entirely usurped with more complex costly time-wasting and severe land use planning then ever before, substantially a consequence of "integration" with the planning and provision of infrastructure so that any development serves the needs of the plan rather than the needs of the developers and users. It can be no surprise that Auckland now contributes less wealth per capita to gross national product than any other New Zealand city except for (retiree-/life-style-dominant) Nelson [8], and that housing unaffordability, traffic congestion, service overloads, neighbourhood destruction, and export of talent, businesses, and investment to more user-friendly destinations overseas continue to rise as productive efficiency erodes.

The ultimate purpose of the RMA is the protection of the life-supporting capacities of air, water, soil and (local) ecosystems from detrimental (ab)usage from urban development generally and from discrete development projects in particular. These is a laudatory purpose, and for (local, ie not international) water and ecosystems reasonably achievable in two ways :

(i) continue with the traditional approach of treating these receptacles as "commons", recognise "existing use rights", and forbid any development after capacities have been reached, ie "first in, best served", and/or

(ii) establish acceptable pollution levels for each receptacle, assign tradeable rights to pollute solely to that extent, and exact remedial actions or mitigatory fines from any transgressions beyond holder rights.

The first method doesn't encourage careful, conservative use but the second does. Moreover, the first method brings development to a halt once capacity is reached, whereas the second encourages development which pays the market rate, thus achieves the most effective usage.

[8] ASB economic survey of urban productivity, 2006

Soil, air, and ecosystems of international significance present much more complicated problems which can't be dealt with here, except to say that the Economist (Oct 10 1992) found that banning the land-disposal of hazardous-waste land disposal cost over US$4 trillion per premature death averted, and that international problems can only be peaceably resolved by agreement on discharge and/or taking rights policed by the rights-holders' governments, unless we are prepared to cede sovereign powers to an international agency such as the UN.

Back in New Zealand, local government planning can be the direct cause of substantial increases in resource consumption and detrimental emissions. For example, coerced and/or subsidised [9] densification without the provision of appropriate infrastructure causes drainage overflows, power/telephone wiring overloads, and increased traffic density thus emission-compounding congestion [10] while also lowering the standard of living for apartment dwellers at (per m2) double the building (ie resource use) cost (thus half the floorspace) and much higher building materials energy content compared with timber-framed subdivision housing.

Yet in such "smart growth" cities, Councils usually subsidise densification by not charging for service upsizing or the necessary increased roadspace, presuming (erroneously if American experience is any guide) that densification achieves a significant increase – rather than an ongoing reduction - in usage of public transport. Buses running on normal roads consume approximately the same resources – including energy – as car use (per person-km delivered), but Auckland rail transit probably uses about five times the energy and costs the public about 20 times the capital and running costs of car use [11].

While it might be thought densification "saves" the ecological value of peri-urban farmland, it is in fact in full (anti-natural) humanly productive use anyway (if only a fraction as efficiently used as for housing, as respective land prices indicate); all that is saved is the visual amenity residing in open farmlands – "bought" at the cost of urban gardens and (leftover) wildernesses which previously brought nature into the city.

The presumption that rail transit can attract enough patronage from cars to reduce congestion flies in the face of overseas experience [12] and is in any case obvious to that (greater than) 99% of daily trippers for whom (and for which) rail transit is inconvenient or unsuited. Public transport is a restrictive travel mode compared with car use, and is and will remain inferior in every way including energy consumption and emissions (even electrified rail sparks ozone and nitrous oxides, the additional electricity-generation it requires mostly creates CO2, aluminium and copper lines have high energy contents and cause "line losses" of transmitted energy, and braking creates toxic particles – witness the pallor of London underground users.

Without restrictive "smart growth"-style town planning, urban expansion would occur as the most economic thus resource-conserving and human needs/desires-satisfying form of development. Its denial is achieved at higher resource and energy use, thus higher cost, to no significant environmental advantage. Opposing arguments, such as that "smart growth" planning reduces travel and infrastructural costs, are invariably based on false premises [13].

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[9] eg densified developments impose about $35,000 worth of service-requirement per household on piped and wired services designed for traditional densities, but are effectively subsidised to this amount by ratepayers.

[10] Per km travelled, a vehicle travelling on a signalised, congested arterial consumes about four times the fuel and produces about six times the toxicity of emissions as the same vehicle at a steady 60kph on an expressway

[11]

[12]

[13] Willmott "Managing for REALLY smart growth" – paper for "Transport – The Next 50 yrs" July 2007

7. "SUSTAINABILITY" OF PRIVATE SECTOR DEVELOPMENT PROJECTS

Given the detrimental environmental effects of "smart growth" planning itself, it is hard to see how individual development projects can be rationally assessed within that framework for their detrimental effects on the natural as distinct from social environment, especially when the benefits of development attract scant if any attention in the "consultation" processes which can today effectively assign more rights in property to neighbours than they do to the (nominal) owner and would-be developer. The countervailing district, regional and national interests are subdued if not ignored entirely, eg there are essentially no plans to build more roadspace in Auckland other than for busways [14] (usually at the expense of other traffic) and for ongoing widenings of existing state highways, despite the major contribution that efficient inter-access can make to urban productivity.

The inescapable conclusion is that, however well intentioned the RMA was, it went too far in presuming to exclude economic effects of development (eg on neighbourhood "values"), and has been successfully subverted from its primary intent by the land use planning (specifically "smart growth" controls) that has been reintroduced under its aegis which reduce productive efficiency while coercing a form of development that systematically increases resource usage and emissions. A thorough and fundamental review of the Act is overdue, importantly to ensure that the effects of governmental edicts and local government planning (through any regulation of the form of development) back on society the economy and the environment are subject to the same scrutiny as private sector projects. Without such, their currently counter-productive effects will continue to render assessments of the effects of individual projects meaningless and unnecessarily wasteful of capital, resources and opportunities for progress. .

PART B : ON GOVERNMENT

8. ON THE NATURE AND PURPOSE OF GOVERNMENT

The basic purpose of government is to enable people who wish to live together for the purpose of enabling mutually beneficial transactions, interactions and experiences [15] to do so in (relative) harmony and safety. The government, whether chief, aristocracy, autocracy or democracy, backed by warriors, a justice system, and a penalty system, "defends the realm" from external threats, and internally, ensures that the detrimental side-effects of TIEs are avoided, mitigated or remedied.

Nobel economist Douglass North defines three types of society, each with its unique form of government. Hunter-gathers preceded the agricultural revolution, which enabled the feeding of much larger communities, which in turn enabled spare labour to specialise in creating goods and services. However, wealthy communities attract thieves rogues and vagabonds, requiring more authoritative forceful and sustainably stable government than tribal elders could provide. So "closed access" district and regional governments formed, comprised of power elites (including a brigand-turned-warrior class) led by hereditary kingships, empowering themselves to live off their (powerless) subjects of peasants, serfs or subjects in exchange for defence and a justice/penal system for civil disturbances. Because of its stability for millennia, North calls this "the stable state" of government.

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15 TIEs are means of acquiring personal betterments (social, cultural, commercial etc) – discussed in section 1.

The industrial revolution resulted in a plethora of goods and services, enabling a step-change in the scale of the state; the modern nation was born. But the primeval freedom of the hunter-gatherer reasserted itself in a migratory reach for freedom from religious persecution and socio-economic servitude, and the modern "open access" state based on "freedom and democracy" was born. But the question arises, is the open-access state we enjoy today stable, or does the current rapid upscaling of government as a percentage of the economy (about 40%) and the proliferation of "politically-correct", "socially-correct", and now "environmentally-correct" moralising it spawns portend a return to a powerless public governed by a power-elite? And to what extent can our sovereignty be eroded in non-mandated agreements to international agencies like the United Nations and its various departments before we have, in effect, achieved closed-access (non elective) world government by edicts from those agencies, the competence of management of which (by fast-rotating lay unelected "representatives" of all nations) must be in considerable doubt?

Nobel economist Professor James Buchanan, originator of the thesis known as "The new political economy" or "Public Choice", transferred the concept of the personal reach for betterment to the realm of political decision-making. The political process thus becomes the means of cooperation between party, departmental and symbiotic-NGO interests aimed at achieving reciprocal sector advantages, including enduring empowerment, regardless of more dispersed (ie insufficiently powerful) "general public interests", Only a constitution, prescribing the "rules of the (power-gaining) game" stands between the open-access (free, democratic) society and its reversion to a closed-access society controlled by a power elite of ideologically-cohesive government (and/or United Nations) departments superficially "governed" by often-out-of-their-depth and easily "captured" lay public representatives.

With the third major "inter-connectivity" revolution mentioned in section 4. and attendant globalisation, North's thesis may in any case have to be extended to anticipate a new form of governance appropriate to regulation of global markets. With the sustainability of the EEC in doubt essentially because of cultural and religious differences, one has to wonder at the short-term stability, far less any longer-term sustainability, of global government by the United Nations, without a capability of enforcement exceeding that of any constituent nation.

One would also have to wonder at the ability – or otherwise – of UN departments such as the World Meteorological Organisation and the UN Environment Programme (which jointly sponsor the Intergovernmental Panel on Climate Change) to maintain full scientific impartiality on climate change matters when the IPCCs summary reports are reportedly the work of politicians rather than of scientists [16]. It would be all too easy for a department to become enthused with its mission statement and policies signed off by a previous parliament to establish a coherent departmental ideology so to command employee focus and loyalty. The frequency with which government employment advertisements stress the need for being a "team player" and/or accepting of certain moral positions such as respect for (non-existent) principles of some treaty or other relates. Enviro-doom advocates who reflect if not represent the interests of a local national or UN department tend to have ready-made regulations (or more treaties) on hand which, if Buchanan is correct, can be relied on to reflect the interests of the department rather than necessarily being capable of resolving the initial problem. For example, "Kyoto responsibilities" accepted to date are well-known to make no difference to the (claimed) source of the (claimed) problem. But they certainly empower WMO, UNEP, IPCC, UN itself, national environmental ministries, enviro-NGOs, and all those willing to accept that a "consensus of scientists" means anything more than political bully-boy tactics.

[16] eg David Henderson as reported in The Guardian and repeated in The Herald

9. COMPETENCE OF GOVERNMENT GENERALLY

A representative democracy necessarily fluctuates around mediocracy as governments come and go. The constant element is the public service, necessarily responsive to governments rather than their electors, but ever more constrained by the policies and practices established under previous governments. Departments naturally develop or accept ready-made ideologies to encompass and make sense of the policies and practices – and pressures from "primary stakeholders" (special interest groups SIGs) which fit with it. Western governments continue to take over ever-larger shares of the economy, regulating almost everything that "makes headlines" for an aberration, however rare. Naturally, their interests are "managed" by their departments. While the major health education and welfare departments seem universally oblivious to public aspirations and governmental direction, other departments are also acquiring a life of their own in some mutually-supportive relationship with private sector special interest groups in the industry to which they are related. Despite the ubiquitous "consultation" processes, seemingly designed to provide a department's supportive special interest groups with the opportunity to give them the mandate they desire, the only power the public retains is that of firing the government at regular intervals – a crude weapon indeed.

A "Law of Unintended Consequences" might state that "any democratic governmental policy will be simplistic enough to attract the support of those still willing to give a government the benefit of the doubt (as most people can be expected to be insufficiently informed to worry about understanding the policy unless they are members of a symbiotic SIG), and therefore its proponents will not have considered the possible downstream consequences, the foreseeable ones of which will usually be debatable according to ideology rather than facts and logic". But many will be unforeseeable or considered inconsequential – at the time. Some examples of unintended consequences of United Nations-promoted, governmental, and local governmental regulation include :

- Carbon fuel replacement : A "environmentally-correct" inducement to include a percentage of ethanol in American carbon fuels has triggered a huge rise in the price of corn in the poverty-stricken Mexican countryside, where it is cheap enough to be an acceptably uneconomic source of ethanol as well as a basic foodstock. Meanwhile, American corn continues to attract traditionally much higher prices from efficient cropping and distribution to quality food markets.
- Carbon taxes : New Zealand seeks to restrict carbon emissions from that tiny percentage of total global CO2 production represented by (humanly beneficial) carbon fuel combustion [17]. A conversion of the estimated cost of America meeting Kyoto's first (minimal) reduction [18] amounted to NZ$3.7 billion p.a., rather more than NZIER's estimate of $2 billion p.a. or 1.5% off our annual growth rate. Once all other nations have similarly reduced their reach for prosperity, each accounting accurately and honestly then claimed their refunds *(or paid their dues into a UN kitty?),* the world will still be faced with taming the entirely natural forces such as variations in solar radiation which have driven volatile climate change since time began. And all this on the basis of a set of hypotheses each of which involves assumptions large enough to encompass conclusions opposite to those driving Kyoto (and subsequent) protocols. .

[17] "Non-industrial" sources so far accounted are generally held to be of the order of 97% of total global CO2 emissions. Sources excluded from such accounting include fauna respiration (the average human exhales as much CO2 per year as the average car, quite apart from the respiration of domesticated animals), volcanic activity, and the global climatic, surface disturbance, and sea temperature effects on CO2 crossing the atmosphere/sea interface (the oceans contain 70,000 times as much CO2 as the atmosphere).
[18] Adler 1997

- Leaky building syndrome : radiata pine has always required treatment against rot and borer. Yet when enviro-NGOs objected to treatment, associated departments and the timber supply industry were supportive to their own (expected) advantage, despite studies by the (disbanded) Forest Research Institute demonstrating the folly of such a course. Government's own industry watchdog BRANZ (later disbanded and unavailable for civil action) failed in its duty of care. Apprenticeships were also previously disbanded, and Council inspectorates evidently could not attract people able and willing to challenge "established practice". The consequences are well known.
- School swimming pool and camping safety standards and procedures : these are so onerous that many schools have closed their pools and cancelled their camps, depriving children both of the joy and experiences those activities provided, and of the swimming and survival skills that could well prove vital in later life.
- "Sustainable cities" : as discussed in section 6, our "designer cities" target "environmental goods" where (on balance) they are minor or net-negative, yet impose major (finance, material resource and energy) costs on development and developers which are nowhere considered in documentation, far less accounted to respect RMA S.32.
- Rail transit : is an extraordinarily expensive inefficient and outdated transport mode (also discussed in section 6) costing tens of times as much per person-km delivered both to build and to run as the car-road combination, will attract only a tiny share of total daily traffic [19], and in Auckland would be about 1/5 as energy efficient as car use [20], yet is being funded from road taxes to the extent that no more local and regional arterial and expressway roadspace is planned for funding (other than buslanes) until after 2016 (inter-city state highways excepted) [21].

We can't do without government, and much of the regulation meets with the approval of SIGs if not necessarily the general public. But those genuinely interested in effectively sustainable development and management of environmental conditions to mutual advantage should be wary of United Nations agency and (national and local) government departments' "natural" operational motives and methods, their ability to achieve environmentally net-positive outcomes, their willingness to admit error and retract policies and regulations as unintended consequences become ever more apparent, and their tendency to select those suppliers of "information" who support the "vision" and ignore the suppliers of facts who don't, which "vision" necessarily conflicts with what would naturally happen in its absence as driven by major primeval social and economic forces for betterment which are not amenable to slogans and "moral" suasion unless they best satisfy individual wants and needs.

Some departmental outcomes further the general public interest in safe progress, perhaps as much by accident or as an unintended consequence as by design. But in general, government can't be relied on to achieve anything that does not correspond with departmental and SIG interests. This is not to say that departments or SIGs lack integrity, but employees today in intellectually-demanding professions can and do choose a working "culture" (including ideology) within which they feel comfortable, whereas sceptics are both predictable and best avoided. The resulting team-player loyalty to departmental ideology and inter-agency obligations reinforces and helps lock in departmental attitudes perspectives and goals.

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[19] Various authoritative sources, few more carefully sourced and presented in "Great (Urban transit) Rail (financial) Disasters" Centre for the American Dream Coalition, c/o Independence Institute i2i.org. (Note that some other sources indicate the opposite, but appear to refer to peak hour inward travel only, without making that clear. Other key sources : Demographia.com, NZIER 1974 study (T K McDonald) for the (then) UPTC

[20] eg US DoT FTA 2001 National Transit Databases as reported in Transport Energy Data Book Ed.23 2003

[21] Auckland Regional Land Transport Plan 2006-2016

10. SOCIETAL STABILITY AND SUSTAINABILITY

There is little point to humanly sustainable development if the society practicing it is itself not sustainable. Numbers of philosophers, specialist professionals and opinion editorialists are warning that western civilisation might not last the next century unless we pay a lot more attention to what is necessary for societal survival. And certainly, the Buchanan thesis invites questions as to the effects globalisation will have on national and potential forms of international governance. Other threats include :

- Decline in global population, from a high of 7.5 billion in 2040 (low variant) or 9.2 billion in 2070 (medium variant) [22] ; these UN projections have traditionally overestimated prospects [23]. More certain is the probability that a burgeoning retiree sector will depend on ever-fewer taxpayers for their welfare, and that the overseas demand for our young talent, businesses and investment will accelerate. For all our clean green environment, if our socio-economy isn't attractive enough to keep or attract such talent here, we might achieve sustainability as economic stagnation without even trying.
- The imminent creation by technology of robotic entities with greater than human intelligence, possibly within the next 20 years. This could portend the end of the human era [24].
- The social stresses within western societies, and between western and middle-eastern societies in particular, are creating a range of misanthropes [25] who, once mutually-reinforcing within likeminded groups, are capable of actively or passively tearing society apart. Prominent examples include animal "rightsists", political terrorists of various stripes, religious fanatics and deep-green environmentalists. But perhaps the greater danger is a society grown lethargically fatalistic in the "certain knowledge" as espoused by authoritative doomcasters that, with potentially catastrophic effects, eg (a) the world is about to run out of oil or (b) the world's climate is about to turn turtle
- Governmentalisation of society, [26] whereby basic freedoms and "rights" are lost in a morass of regulation and attitude controls imposed/enforced by a class of super-elites (government employees) who reduce the choices and quality of life of others to the point North's "stable state" recurs. Such could either destabilise society or lead to its abandonment in favour of more "vibrant" (enjoyable, fulfilling) societies elsewhere
- Development of a two-tier society where a growing "underclass" is unable to be satisfyingly employed, and becomes dependent on the goodwill of a "producer class".
- Major war, disease, pestilence, meteor hit, crustal shift, Yellowstone revisitation etc

There are already a selection of major problems on earth of which two panels, youth and educationally accomplished (including 3 Nobel prize-winners), were apprised by leading pro- and antagonists [27]. The ten problems considered ranged from Control of HIV/Aids, Targetting of malnutrition using food supplements, Trade liberalisation, Malaria control etc together with Action to avert climate change. The priorities established by both groups, both as individuals and as panels, without exception listed action on climate change at or very near the bottom of their lists. They agreed the climate change was not an issue which could be ignored, but considered that it did not warrant the high costs of action for insignificant effect.

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[22] United Nations Population Division – 2002 revision of "World Population Prospects". See also Dieoff.org
[23] The same projection expects New Zealand to peak at 4.16mill. in 2030 (low variant) or 4.5mill.in 2040 (med)
[24] VernorVinge (of Maths Dept of San Diego State U., at NASA-sponsored VISION-21 Symposium, Mar.1993
[25] Frank Furedi, op-ed article "Confronting the New Misanthropy"
[26] Mark Steyn op-ed article "The Century Ahead – It's the Demography, Stupid".
[27] As organised and recounted by Bjorn Lomborg in "Global Crises, Global Solutions".

PART C – ON SCIENCE

11. SCIENCE AS THE MEANS OF HUMAN PROGRESS

Since human societies first formed, progress has occurred through a trial and error process. As problems became apparent, they were addressed, solutions were found by trial and error, and civilisation moved onwards and upwards. The products of human curiosity, observation, analysis and logical synthesis are evident from the earliest traces of human habitation, and spectacularly in the likes of the pyramids, Stonehenge, and Greco-Roman architecture.

Half a millennium ago, the renaissance awoke Europe from centuries of "dark ages"; - enforced ideological and behavioural conformity, and associated serfdom. The new freedoms resulted in the 18th-19th century "Enlightenment" era, during which the re-emergent processes of questioning, logical experimentation and deduction, public proposition and open debate became formalised as "the scientific method". This provided a factual basis for understandings and innovations which greatly accelerated the rate of technological progress, vastly improving our standards of living and longevity today. Science is a humanly natural method of progress.

The Enlightenment developed those features of the "free, democratic" western world which we have widely taken for granted, but are now under considerable threat. These importantly include (i) the separation of church and state, and of both of those from scientific enquiry, (ii) equitable access to resources which can compound productivity (capital, thus capitalism). (iii) the bartering/marketing of goods and services to mutual advantage (profit) in the manner natural to us since time immemorial, (iv) ongoing science and technology-based innovation and progress, and (v) a presumption of government by and for the people.

All these aspects of science rely on public confidence in the power of reason, on belief in the impartiality of a scientist's selection of facts and their analysis and reporting, and on the existence and importance of personal free will, ie recognition that individuals can run their own lives better than governments, mostly to their own and society's best advantage. That confidence is being sorely tested. If lost, we lose the basis of 500 years of western progress.

12. RISK AS AN ESSENTIAL ASPECT OF SCIENCE

The potential for detrimental consequences of scientific endeavour multiply with technological complexity, and occasionally errors occur despite the best of intentions and safeguards. Hopefully, they always will, for without the freedom to take measured risks there can be no freedom of thought, thus innovation for improvement, thus progress to overcome such problems. The thalidomide disaster was one such accident, and many would have stopped the advance of medical science right there. Indeed, the "precautionary principle" [28] is interpreted by some as (effectively) precluding scientific enquiry except where the outcome is known for certain in advance! But if society is to continue to progress there will be more such errors, as there always have been in the past, in the overall march of human progress, for recovery from error to advantage is the very basis of the sustained progress of the human race to date.

Today, drug testing is far more rigorous, and thalidomide has become a useful heart drug. The alternative course, of abandoning medical progress, was not widely contemplated at that time, but today a livelihood-seeking industry has grown up around the concepts of "risk" and (absolute) "safety" (from risk). Animal rights-ists and some Enviro-NGOs apply this concept

[28] Refer eg Indur Goklany "The Precautionary Principle"

amongst their arsenal of weapons against their perception of "unsustainability", exhibiting and trading on fear of the unknown and a stop-the-worldist interpretation of the "precautionary principle" to attack scientific advance. The result is a very high costs for drugs which have been very extensively tested, keeping them off the market for many years until risk is reduced to very low levels. The delays and costs sometimes (as in the case of herceptin) make them unavailable to, or beyond the affordability of people who would gladly take any degree of risk to avoid the certainty of on-going ill-health and especially death.

13. CORRUPTION DENIGRATION AND DEMOTION OF SCIENCE/TECHNOLOGY

Scientific integrity is threatened by the incorporation of personal or client values, ie bias, which can corrupt the motivation and thus findings of would-be scientists, leading to a current rash of shonky science – and statistical analysis - purporting to support eg inherently values-based public "visions", when an impartial analysis would achieve no such outcome. Sloganised outcomes impress the public, and are difficult to refute, especially when the only funding available supports the (local) government viewpoint. Science requires individual effort, sometimes harnessed in small teams, but members of larger teams and professional societies can never achieve the expertise or impartiality possible within individuals. Governments seek support for their programmes from departments and associated institutions, almost invariably colouring and thus devaluing their reports, even rendering them counter-productive of scientific veracity. As governments grow and provide ever-larger shares of an institution's or company's income, the need to continue in employment can result in corruption of supposedly scientific findings. In an era when everyone is an "expert", qualifications are inadequate for the task and unstated, and/or reports appear without names, it is easiest to "go with the flow"

The post-modernist philosophical aberration, which seems to have attracted considerable support within many tertiary educational institutions, incorporates a presumption that facts, truth and reality are merely personal perceptions no more valuable than those of any other person. Such a perception completely devalues scientific findings, allowing the scientist's parentage, motives and client interests to be invoked in counteraction by opposers.
Another classic example is the denigration of project economic evaluations (quintessentially human values-centred, rather than opposed to human interests) on the grounds that they can not (adequately, as yet) incorporate environmental costs [29]. While true, projects have benefits which often overwhelm such costs, yet this important factor is often treated as irrelevant.

Together with the consultation process (which typically values expert inputs as one vote rather than as more useful than lay opinion), and the manipulation of an information-dependent media, these scientific difficulties have resulted in progressive disempowerment of science, technology, and associated impartiality-aspiring professions, eg :

- Government takeover of (previously free enterprise) science and its requirement to "succeed" (ie justify the funding of a predefined and demonstrably valuable solution) or lose funding, thus "democratising" science and removing a scientist's choice and ability to specialise as motivated by the potential for personal discovery,
- Replacement of impartial sci-tech advisers by (politically-attuned) managers who impose governmental and/or departmental ideologies and values on scientists and engineers inconsistent with professional impartiality (government job advertisements regularly seek "team players"; independent thinking is actively discouraged)

[29] Economic assessments and evaluations attempt to identify the public's economic interest(s) using market (ie human and general public) values, whereas environmental values are determined by the planner/regulator

- Displacement of sci-tech-based agencies such as the Ministry of Works & Development and City Engineer's departments by a monopolistically-empowered Ministry for the Environment and Conservation Department [30], for which absolutist ("intrinsic") environmental "values" and "qualities" transcend benefit/cost (value-for-money) evaluations and any consideration of feedback effects on society and its economy.
- The now-frequent resort by environmentalists to ad hominems – calling people with different views mobsters and Nazis – is becoming the hallmark of political thuggery [31]. Science is never certain, scientific debate can never be "closed". "A Guardian headline "Scientists offered cash to dispute climate study" fits a pattern, one that is part of a creeping climate of hostility to free enquiry over questions of science in public policy".

PART D : CONCLUSIONS

14. WHITHER SUSTAINABILITY?

Regardless of high-minded formal definitions of sustainability promoting sustainable process, the empowerment of government and local government to promote and secure "sustainable" environments/ecologies/cities has resulted primarily in stasism, ie resistance to development. This is because the benefits of development (even obviously beneficial works such as roads) are too easily discredited for the lay public by SIGs and departments promoting their own interests in outcomes of little comparative importance to those of workaday citizens dependent on urban productive efficiency and resilience to disruption. It may also be due to the difficulties (and often non-existence) of impartial enquiry and inputs as discussed above.

To retain the public's interest and support,especially over a 50-year planning horizon, sustainability practices must either conserve resources which are truly appreciated by the public better than alternative uses, or enable, even facilitate (as distinct from promote) their conversion for betterment and progress. This will require far more flexibility for change as better information, especially that of significant unintended and detrimental consequences, than many current policies and regulations allow. For example, most historic town planning regimes have lasted only half a generation until their commercial deficiencies become apparent, by which time the country can easily be brought to its economic knees – as in 1984.

The focus on sustainable ecologies is of particular interest to scientists and environmental engineers. Yet problems will always exist as to where the boundaries of the ecology are drawn, and what effects are significant or not. Both offer challenges which suggest that such problems will always be difficult to resolve, unless they are apparent to the public at large, and political support can be garnered for action. London's Thames River was cleaned up when it became polluted enough to arouse concern, and the costs of disestablishing industries became affordable. Similarly with Los Angeles air. Neither required a Resource Management Acvt.

Until recently, in the light of some previous bad experiences, international development banks emphasised the importance of "appropriate technology" for LCDs, which could be understood, managed and maintained by local people. Sustainability advocates need to return to project optimisation of that kind, rather than seeking impractical resource-intensive "gold-plating".

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[30] David Young's "Values as Law – the History and Efficacy of the Resource Management Act" documents the determination of values-driven environmentalists & planners well represented within government and its advisers to "target the Ministry of Works as having to go; - as long as Works exists the MfE will never have control"

[31] quote from Nick Schultz' essay on Richard Feynman "I want to demand this freedom for future generations"

15. WHITHER GOVERNMENT?

Sustainability has been spawned and addressed, if so far imperfectly, under current western governments. It is notable for its absence in LDCs except when imposed by lending agencies. Moral suasion of that kind will reduce, not increase, the ability for such struggling countries to emerge from their misery and join the west in our fuller enjoyment of the fruits of life. Internationalisation of sustainability is inappropriate; each country will seek it as and when able, even as we have. Our goverment should restrict its involvement and commitment to international agreements except those such as fishing in our case, and water rights in the case of those countries sharing a river, or any other significant resource or ecological niche.

Governments should also be very wary of occupying too large a proportion of an economy. We live in a competitive world, many government programs involve the coerced shifting of resources from one use to another (eg general taxation, and applied cross-subsidisation of transit projects from road-user taxes). However much socially desirable for a minority beneficiary group, such coercion rarely achieves economically efficient outcomes, ie is counterproductive of prosperity, which has consequences for national competitiveness such as those New Zealand has experienced compared with Australia over recent decades.

Above all, citizens should increase their awareness of the factors which destabilise established societies. (Claimed) climate change and oil exhaustion are by no means our greatest threats, as any impartial scientist can establish with a few hours on the internet. Others could ambush us if we focus overly on the claims of self-empowering international SIGs including UN agencies.

16. WHITHER SCIENCE?

If the present trend towards public indifference and even distruct continues, it si the writer's view that independent scientific enquiry and open discussion of findings will be severely and possibly terminally damaged within a generation. The consequences for society as we know it hardly bear consideration.

To regain public credibility and effectiveness, the sciences and associated (aspiring) values-impartial professions must divorce themselves from the shonkiness that passes for "scientific enquiry" in too many areas of public interest today. That involves their institutional bodies avoiding the prescription of moral codes except as regards behaviour between professionals and/or professionals and the public. In particular, "sustainability","intergenerational equity" and the "precautionary principle(?)" should be exposed for the anti-innovative, anti-science, anti-technology and anti-progressive. Qualifications should be rigorously monitored and publicised, and any report purporting to be fact-based should include the name(s) of the author and his/her qualifications. Scientific authors should be entitled, and supported by their institutions, to withhold their names from values-imbued reports, and to openly denounce them as biased if the client abuses his (unwarranted) powers. Several scientists involved in climate change reporting have publicly expressed dissatisfaction with its politicisation, most of them necessarily after retirement, or esconced safely (at least employment-wise) in Universities.

Finally, science and technology must reassert and re-establish their deserving place at the top table of advisers to government and local government. Governments are wont to seed monopolistically-empowered departments with compliant managers, and seek advice only when and where it suits them. As left-brain practitioners, scientists engineers etc have as big a contribution to make as the (right-brain-dominated) dreamers and artists – whom the public needs equally to promote values, but must harness with reality even as individuals must.

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