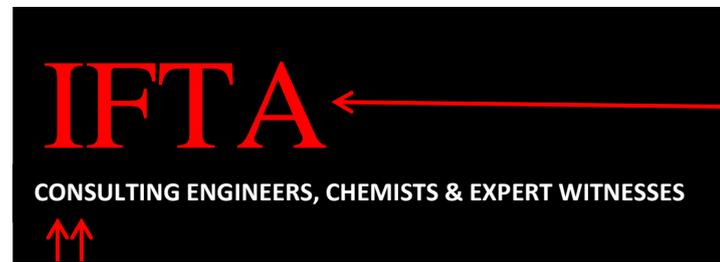




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Existential Risk - Why we urgently need our population and economy to degrow

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Abstract

Existential Risk is the likelihood of our species becoming prematurely extinct. A very small reduction in this risk will save countless future lives and is therefore more important than any other global public good. The author places this little understood risk into a two-dimensional matrix, describes examples and the fundamental changes needed to ensure the future of the human race. This paper is based in part on the author's current thesis entitled '*An assessment of the feasibility and benefits of using vegetable oil fuels with comments on more fundamental ways to offset the impending post fossil fuel dilemma*'. The thesis finds that vegetable oil is a viable alternative fuel, that there are numerous non-food oil-producing species available and that there is nowhere near enough land to make this or biofuels generally a stand-alone replacement for fossil fuels. It addresses the shortcomings and potentially safer forms of nuclear power production, deemed together with solar thermal power production as the only way that we could survive at the current energy consumption level post fossil fuels. Upon realising this, the author moves on in the thesis to address population control, economic degrowth and existential risk. We appear destined to catastrophe or even to premature extinction if we do not collectively address population control, climate change, species extinctions, equality for all people and elimination of greed with its associated mantra of '*growth at all costs*'. The latter should desist in favour of '*ecological and economic sustainability*'. A simple material balance shows that any entity which has fixed inputs and a rapidly reducing accumulation cannot increase its outputs indefinitely. To date, complete economic collapse has been averted by technological advances, by exploitation of the environment and by exploitation of developing nations. Instead of continuing to use technology in this way, we could use it to achieve equality for all, reversal of the greenhouse effect and the halting of extinctions. We have many alternative sources of energy if only there were less of us. The author addresses inequality of consumption between the developed world and developing nations. In particular, this involves '*land-grabbing*' in poorer countries by richer countries to meet their greater consumption needs without regard to the human and other populations it displaces. He cites learned works on existential risk reduction by authors such as Nick Bostrom, Tonn & Stiefel, Freeman Dyson, Sir Martin Rees, Karim Jebari and Osborn, Cutter & Ullah. Although greed (self-preservation) is natural for all species, the difference between humans and other species perhaps is that we realise that change is needed and we have the ability to make it happen. This in the author's view is our collective moral obligation.

Authors of other works cited in this paper are contained within the text. A full list of references used in this part of the author's thesis is present at the end of the paper.

Keywords: Existential risk, x-Risk, Population control; Economic degrowth.

1 Existential Risk

1.1 Introduction

Existential Risk (x-Risk) is described by Nick Bostrom, Head of the Future of Humanity Institute at Oxford University as comprising four categories which indicate both immediacy and in-part, likelihood. They are Bangs, Crunches, Shrieks and Whimpers. Bangs are for example, broad-scale nuclear war, bio-engineered plague and large asteroid strike. Some Crunches are resource depletion and technological arrest. Shrieks are for example, world domination by a machine-assisted human consciousness and an artificial intelligence-assisted totalitarian regime. Some Whimpers are humanity colliding with limitations on expansion and being taken over by an alien civilisation.

Existential Risk at the lower risk levels, is analogous to Global Catastrophic Risk, the former having the capacity to lead to human extinction while the latter leads only to destruction of humanity in its present form. We should also view existential risk as comprising two fundamental categories, those for which we are not responsible (externalities) and those for which we are responsible (anthropogenic). Examples of externalities are asteroid impact and changes in our solar system, galaxy or universe

Examples of anthropogenic risks are misuse of nanotechnology, nuclear holocaust, physics disasters and the creation of an artificial super-intelligence which replaces us.

Here following is an attempt at an x-risk matrix (Figure 1), an x-risk listing, some notional likelihoods of x-risk, global catastrophic risk (Figure 2) and a list of organisations taking this seriously. The problem is therefore not our lack of understanding or knowledge about this risk but the fact that few of us are doing anything about it. First, it is necessary for us all to learn about our potential collective demise so that we can then pressurise governments to act. We need to bring into being a global organisation with the power to act.

1.2 Severity of consequences vs scale of effect – the ‘risk’ matrix

Unlike other kinds of risk where probability can be determined with reasonable accuracy as the multiplicand of severity of consequences and likelihood of occurrence, existential risks are almost impossible to assign likelihoods to. If a previous existence was eliminated, there could be no record of it and therefore no case-history or precedent to follow. Instead, a risk matrix comprising severity of consequences and scope of impact can be constructed where ‘scope’ refers to the broad number of people affected (Figure 1)

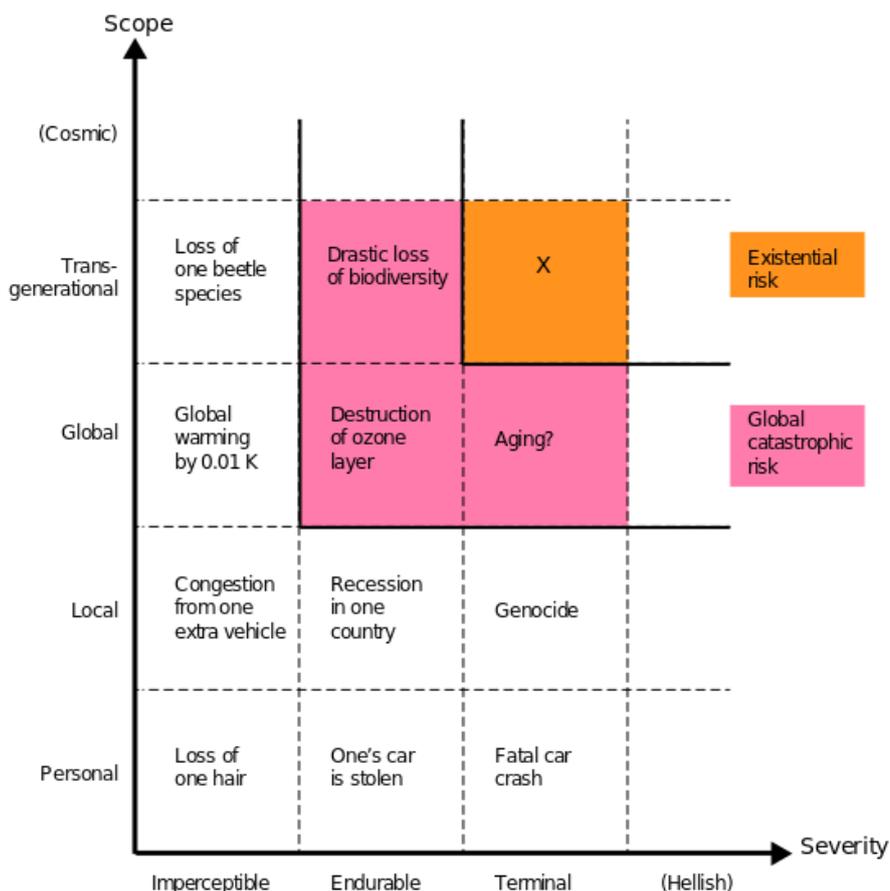


Figure 1: Existential risk matrix; https://en.wikipedia.org/wiki/Global_catastrophic_risk

1.3 Examples of x-risk and global catastrophic risk

External (not caused by us)

- Major asteroid impact
- Large-scale volcanism
- Extra-terrestrial invasion
- Natural ice age
- Cosmic events
- Mega-tsunami
- We, the world and the known universe are an experiment or simulation by higher beings and they switch us off.

Anthropogenic (caused by us)

- Global nuclear annihilation
- Dysgenics (perpetuation of defective genes)
- Biological warfare
- Chemical warfare

Total war
 Rogue biotechnology
 Release of a pandemic causing agent
 Ecological collapse
 Global warming
 Hostile artificial intelligence
 Nanotechnology weapons
 Plague in ever denser populations
 Cessation of the advancement of technology
 Over-population

1.4 Likelihood of x-risk and global catastrophic risk

Risk	Conference delegate estimates of likelihood
Overall probability	19%
Molecular nanotechnology weapons	5%
Super-intelligent Artificial Intelligence	5%
Non-nuclear wars	4%
Engineered pandemic	2%
Nuclear wars	1%
Nanotechnology accident	0.5%
Natural pandemic	0.05%
Nuclear terrorism	0.03%

Figure 2: Some likelihoods of extinction from a workshop at the 2008 Future of Humanity conference; <http://www.webcitation.org/6YxiCAV0p?url=http://www.fhi.ox.ac.uk/gcr-report.pdf>

1.5 Organisations which are studying existential risk

Private – (established)

The Bulletin of the Atomic Scientists of Chicago (1945)
 The Doomsday Clock (1947)
 The Foresight Institute (1986)
 The Machine Intelligence Research Institute (2000)
 The Lifeboat Foundation (2009)
 The Global Catastrophic Risk Institute (2011)
 The Global Challenges Foundation (2012)
 The Future of Life Institute (2014)

Academic – (established)

The Future of Humanity Institute, Oxford University (2005)
 The Centre for the Study of Existential Risk, Cambridge University (2012)
 The Millenium Alliance for Humanity and the Biosphere, Stanford University

Government

World Health Organisation – Global Alert and Response
 The United States Agency for International Development – Emerging Pandemic Threats Program
 The Lawrence Livermore National Laboratory – Global Security Principal Directorate

1.6 Conclusions on x-Risk

Many theorists such as Tom Lewis (*renowned scientist says global collapse likely, 28Jan2013*) believe that the threat of collapse and even of extinction of the human race is so great that there is nothing we can do to mitigate against it in the time available. The author prefers to think positively and regards exponential population growth and unabated economic growth as the most obvious and immediate threats to our existence, ahead of all other risks postulated above. Consequently the author addresses these in some detail.

2 Population

2.1 Introduction

Human population has been growing exponentially over nearly all of recorded time. Clearly this cannot continue. Therefore the solution to the current food plight, overcrowding, competition for resources, the fuel dilemma, impacts on climate, impacts on biodiversity and species extinctions, is for our population to stabilise. Current world population occupying 244 countries is 7.6 billion people. The population is predicted to increase by 22% from 1999 to 2030 (*UN Food & Agriculture Organisation*). Nine hundred and twenty three million people are presently 'food insecure' (*Future Bioenergy and Sustainable Land Use; Earthscan, German Advisory Council on Global Change (WBGU), October 2008; FAOSTAT new pilot version*) and China with 1300 million people will more than double its energy use by 2030. The rate of world population growth and the extent to which it is accelerating (exponentially) is indicated by the time taken to double the population. This is shown in Figure 3.

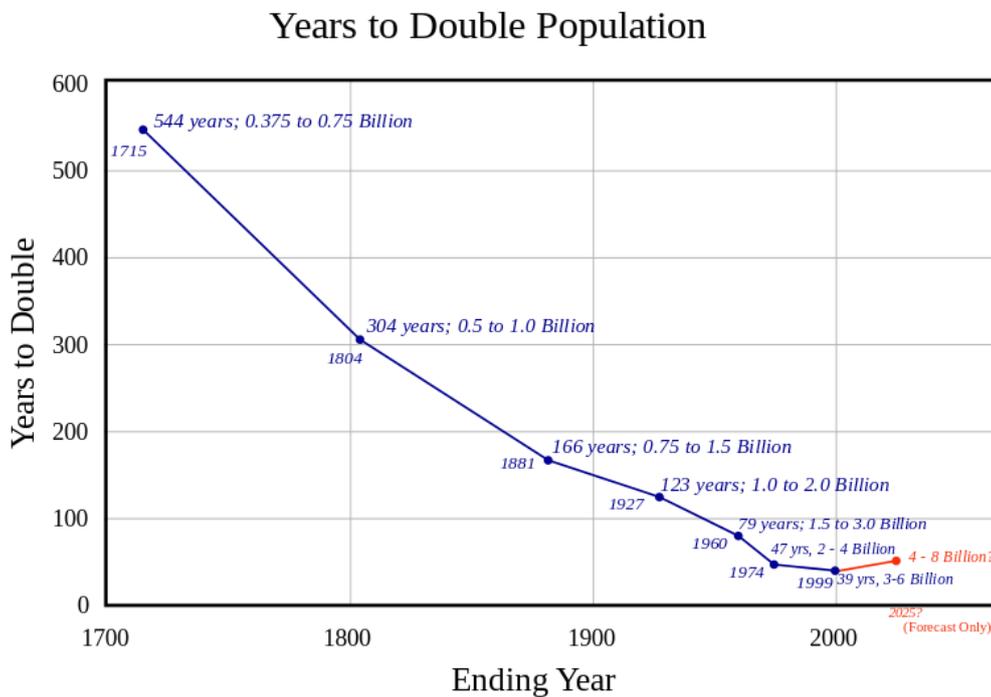


Figure 3 : Population doubling times: Nicguaro: <http://en.wikipedia.org/wiki/File:Population->

Figure 3 shows that doubling time in 1715 (from 0.38 to 0.75 billion) was 544 years, in 1804 it was 304 years, in 1881 it was 166 years, in 1927 the population doubling time was 123 years, in 1960 it was 79 years, in 1974 it was 47 years and in 1999 it was 39 years.

Figures 4 and 5 show the rates of growth of the human population and the generalised microbial growth curve respectively. The issue is one of appropriate sharing of the world's resources and of whether a stabilisation should it occur, will be at or above a sustainable level. The level which is sustainable will vary in different parts of the world; arid countries for example may have large areas but little productive capacity.

The similarity between the linear scale black estimated and blue measured section in Figure 4 and the yellow log scale part of Figure 5 apart from the time scale, is self-evident. It has been known for a very long time that microbial growth exerts a pattern of constant population - the lag phase, followed by an exponential phase, by the stationary phase, and finally by the death phase. Because microorganisms grow so rapidly compared with ourselves, we are able to see what happens especially in instances where the total environment is finite for example in a rain puddle or a petri-dish (in this context our planet is essentially a larger puddle or petri-dish). A sign of hope is that the orange human growth curve predicted for the future in Figure 4 shows a levelling off and the green curve shows a declining population. It is the author's view that most of the problems the world presently faces aside from natural events, could be solved by some form of population control. This has been known for a very long time but is rarely talked about and even more rarely acted upon.

A considered wiser and broader way of viewing this would follow the reasoning of philosopher Nick Bostrom (*Existential risk prevention as global priority, Global Policy 2013*). He advocates that for humanity to avoid existential catastrophe, we need to develop a sustainable trajectory rather than a sustainable state. He suggests for example, that before we adopt new technology without fully understanding its consequences, we develop intelligently, wisely and with world-body co-ordination. Then we might responsibly adopt new technologies selectively and for the greater good.

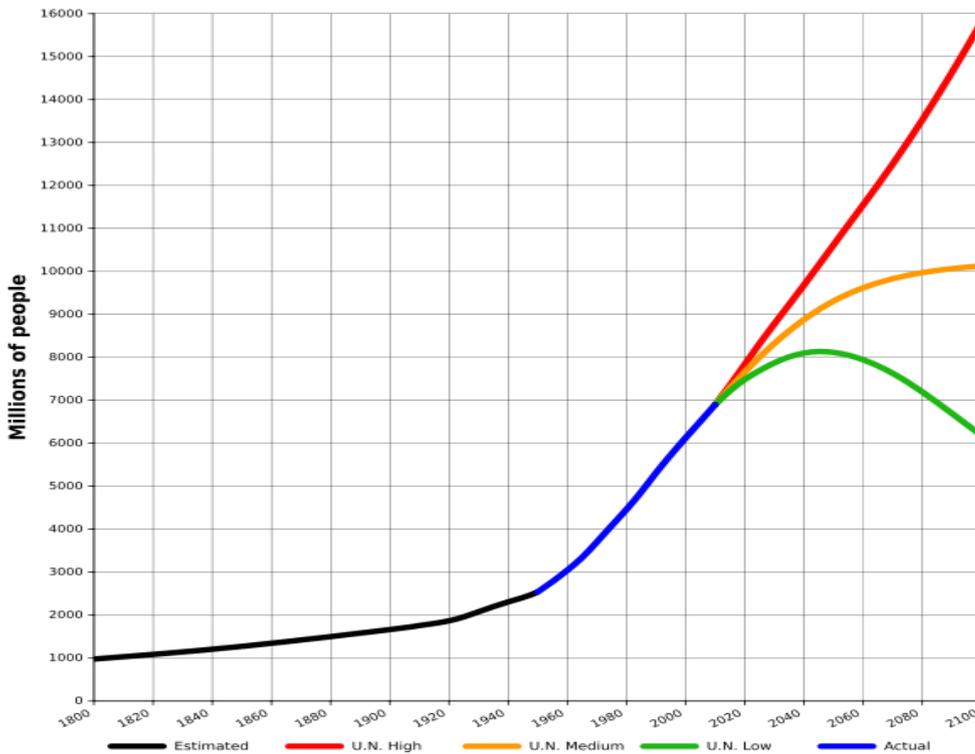


Figure 4 : Human population growth curve: Tga.D: <http://en.wikipedia.org/wiki/File:World-Population-1800-2100.svg>

Framing this in terms of sociologist the late John Urry's thinking (*The Problem of Energy, Energy & Society; Special Issue: Theory, Culture & Society; 2014*) we should not have immediately rushed in to consume fossil fuels once they were discovered but rather, we should have rationed this resource so that amongst other things, it effectively never runs out.

In 2008 for the first time, there were more of us in cities than in the country. In 1975 there were three megacities in the world with a population above 10 million people. In 2011 the National Geographic reported that there were 21 megacities and predicted that by 2050, 70% of us will live in urban areas. The somewhat crass comment was made that if all 7 billion of us stand shoulder to shoulder, we will only fill Los Angeles (*National Geographic, 30Oct2011*). This was by way of illustration of the fact that it is not space that we need but balance.

Presently 5% of us consume 23% of the world's energy, 13% of us do not have clean drinking water and 38% of us lack adequate sanitation. Our water tables are falling, soil is eroding, glaciers are melting and fish are dying.

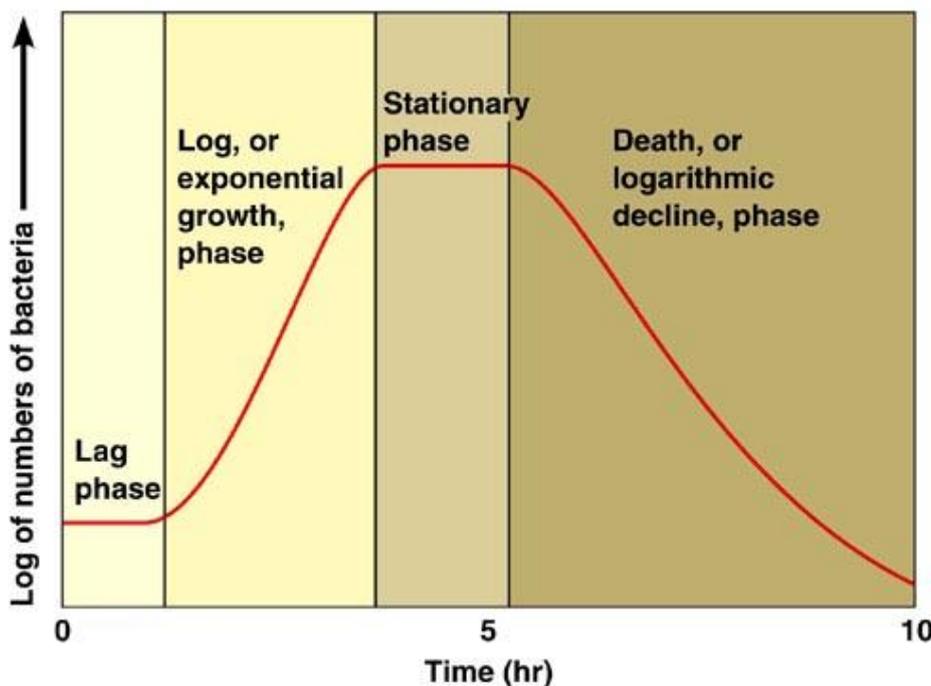


Figure 5: Microbial population growth curve: Christine L Case, Skyline College, Biology 230: <http://www.skylinecollege.edu/case/biol230/growth/index.html>

2.2 Literature review in summary (source I F Thomas thesis)

Sharif presents a valuable insight into how we might responsibly control the global population by recognising that people in poor countries and in particular, women in poor countries, are just as able to make wise choices as we are despite their circumstances. Out of this he advocates providing resources for poor countries and educating their people as a way to stabilise the world's population. The author agrees with the wisdom of this but suggests that the task is too difficult to achieve quickly and that therefore we need also to consider other means.

Mace indicates that all women given the opportunity, would have fewer children spaced further apart. She abhors suggestions that poorer country populations need to quell their high birth rates before it becomes *'bothersome for the rest of us'*. Rather she says, it is we in the developed world who need to curb our massive usage of the commons in order that all people have a reasonable share of them. The author accepts that we should do something about this, not the poorer people, for example by becoming demonstrably frugal with natural resources and learning to be satisfied with less.

Taagapera establishes a mathematical model which appears reasonably capable of predicting population changes, called the *'tamed quasi-hyperbolic function'* and that any improvement of this model must include the exponential growth potential of any biological species, Earth's limited carrying capacity, and the impact of technological change. He also suggests that wide-scale colonisation of space beyond Earth would boost ultimate carrying capacity. The author applauds this modelling effort in particular because it accords with the UN prediction of 10 billion by 2100 (2016, 7.6 billion). The author is also in agreement with his suggestion that populating other extra-terrestrial locations will assist our current demise but has the view that this is not presently practical. The author also suggests that given that we know that our exponentially growing population is on the brink of collapse, we should just get on and start to control it.

Karamouzi favours the recent shift in Iranian population control away from the post-1989 Rafsanjani-led reintroduction of family planning, again banning or severely repressing it. He claims that this is showing a reduction in population and that notwithstanding the new stricter policy, he claims that contraception is still available and that the new policy does not create health concerns. **Aloosh** claims conversely that the Iranian birth rate decline started well before the recent policy change*, that contraception is not now available and that there are penalties for anyone offering it. Consequently there are major health concerns associated with the new policy. He also says that the population figures have been manipulated to support the change.

Erfani shows that the principal cause of the success of Iran's former family planning policy is attributed to increased demand for fertility reduction produced by the rapid socio-economic change which followed the 1989 re-introduction of family planning after the 1979 revolution** banned it. The author tends to agree with the views expressed in support of the earlier, 1989 population program and like the World Health Organisation and others, regards Iran as an important country to watch.

Borrie suggested that the doomsayers have been proved wrong as a result of technological advances on the one hand and our continuing exploitation of the environment and other species that is the commons, on the other. **Meier** presents a first class appraisal of past impacts on population and is enlightening regarding the near complete extinction of a number of former indigenous peoples such as North American Indians, Maoris, Dominicans and Tasmanians. He does not mention the indigenous Australian people which is surprising. Estimates of their pre-settlement numbers range from 315,000 to 750,000 and by the 1920s, they were reduced to between 50,000 and 90,000. As **Jones** indicates, the wiping out of an estimated 90% of the Australian indigenous people by 1900 was caused principally by diseases such as smallpox, chickenpox, influenza, measles and venereal disease, although it is known that violence and poisonings were significant as was driving the people from their lands, from their water supply and from their known habitats.

The author considers **Meier's** overview a worthy starting point for students wishing to understand population science (demography) and population control. The author also adds that **Caldwell** despite his eminence as a demographer like **Borrie**, claims that Australia has the potential to significantly increase its current population. At his time (1963), this may have appeared to be the case.

The more recent, Australia-specific studies by **Jones** and **Butler** emphasise the unique situation in this country in that 66% of the population is located in five large, dispersed cities occupying 3% of the land mass and that much of the remainder is close to being uninhabitable. Jones reports that in a study of 270 submissions, 90% favoured stabilising or reducing the Australian population which at the time of the study (2004), was 20 million and is currently 24 million. Jones also suggests that the real driver for post-war population increase and workforce increase, was related to the military threat from countries to the north. He suggests that these threats are now less. The author recalls in the early 1980s during his training with the Royal Australian Electrical and Mechanical Engineers (RAEME), how the army described the threat as being from 'Musoria' and the people of that country as being the 'Musorians'. Military policy at that time was to defend Australia only as far north as a horizontal line drawn centrally across the continent and to let the northern half go. This was clearly not well understood by the general public at that time and indeed, it is not known whether this remains our country's defence policy.

* *banning family planning under Ahmadinejad "Westerners have got problems. Because their population growth is negative, they fear that if our population increases, we will triumph over them."*

** *replacement of the pro-western Shah Pahlavi regime with that of Ayatollah Khomeini*

2.3 Conclusions on population

Generalised feelings throughout these works are of (a) dismay in demographers not recognising the limitations of continuing economic growth, (b) a need for demographers and environmental scientists to work together, (c) a need for much more research to establish facts pertaining to appropriate levels of population, and (d) that there are no easy or quick solutions. The author

ahead of studying of these learned works, had the view that enough is known to demonstrate that we globally, are already at an unsustainable population level, that we collectively need to stop destroying the environment including species other than ourselves and that we need to care for all members of our own species as well as reproducing ourselves sustainably. Nothing in these works points any differently to this view and many of the above workers and seven others not cited here recognise this for example, in the following quotes :-

- *The 'Irrational fertility behaviour hypothesis' (that women in poor countries do not behave rationally) is fundamentally flawed and should be replaced with the 'Rational fertility behaviour hypothesis'.*
- *All women including those in poverty would prefer to start having children later, to finish having them earlier and to space them further apart.*
- *The World Health Organisation has commended Iran for its former birth control program.*
- *Present and prospective growth rates cannot be maintained indefinitely.*
- *The way to ensure that your children don't starve to death is not to have so many; unfortunately this alone will not work. The way to ensure that your children don't starve to death is to make sure everyone else doesn't have so many. This is the epitome of the 'Tragedy of the Commons'.*
- *Demographic growth rates of today are a reflection of the triumph of man over environment through the application of science. Author's comment ... This 'triumph' will only be complete when fertility is brought into line with low mortality rates and more particularly, when a sustainable fertility level is achieved. Such a level also needs us to realise equal rights for all flora and fauna – not just we humans, collective Jainism perhaps.*
- *In 1971 Borrie predicted a world population in 2000 of 7.5 billion (currently 7.6 billion).*
- *In 1816 Thomas Malthus described our losing battle between exponential population growth and arithmetically increasing food production.*
- *To provide everyone with at least a basic form of living requires richer countries to reduce their level of affluence, something which will not be easy.*
- *Australia explicitly supported the position at the 1994 United Nations International Conference on World Population and Development in Cairo that all countries have a responsibility to stabilise their populations.*
- *Humanity is exhausting its stock of easily recoverable coal, oil and gas (sources of compressed portable energy that have made the industrial revolution and modern civilisation possible) and is greatly reducing stocks of easily available fresh water, fertile soil, fish and pollution sinks. Author's comment ... the low hanging fruit is nearly all gone.*
- *Optimum populations exist for any given set of technology and resources.*
- *Like most mainstream demographers, conventional economists pay little attention to potential environmental and social constraints upon future population scenarios.*
- *The economy is a wholly owned subsidiary of the environment and not the other way round.*
- *Describing the demise of Easter Island as 'ecocide' may be little more than a modern myth.*

Perhaps it is relatively unqualified, highly intelligent and very active individuals who are best equipped to get the population message across to the general public. Academia clearly has its place but the front-people are the likes of entrepreneur and adventurer Dick Smith who is doing the job so well. May there be more of both.

3 Economic degrowth

3.1 Introduction

Most fear this as being a reversion back to cave man living. Although it might involve less hours of employment per individual and greater sharing of 'the commons', it is fairer and also less traumatic than the inevitable global collapse if we keep on the way we are. Sharing of the commons needs to be equal among all human beings and all other species. When most people consider it important to protect flora, and fauna species other than humans, they are driven by the potential good which may result for humans by doing so. What we need to do is to share and protect all of the commons because it is morally right to do so. How often do we consider the deaths of birds when a jet aircraft strikes them - we usually only think of the demise of the aircraft and of its occupants. Similarly, we see the solution to the rapidly growing suburban kangaroo population as being to 'cull' them. We see road-kill as unfortunate rather than we being the sole cause of it – we care only about the impact on our cars and ourselves.

Although there are indications of collapse in our economy such as the current fuel crisis and exponentially growing population, complete economic collapse has to-date been averted by technological advances and by exploitation of the environment. It is likely that this cannot continue. Instead of using our advanced technology in this way, with careful application and sufficient wisdom, we can use it to achieve equality and sustainability for all people, reversal of the greenhouse effect and the halting of extinctions of other species. To achieve this, the mantra of 'economic growth' needs to desist in favour of, for example, 'ecological sustainability'.in conjunction with selective 'economic degrowth'.

Current advocates of sustainable growth are really growth economists attempting to disguise themselves as caring for the environment. The two terms 'sustainable' and 'growth' placed together is an oxymoron.

Degrowth is already underway in the developed world consequent upon the internet. Other individual actions are happening such as the 100 Resilient Cities movement, Tiny House Movement, Voluntary Simplicity Movement, Transition Towns movement, Creative Commons, Cohousing and free and open exchange of information in the form of Peer-to-Peer (P2P) practices. Further, advocates of degrowth suggest that developing countries should be allowed to continue growing. Unfair as it may seem, even this could lead to catastrophe. Regardless of how we achieve it, degrowth needs to be an action voluntarily entered into rather than

being imposed upon us – a consequence of collective realisation (source: *Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue François Schneider, Giorgos Kallis, Joan Martinez-Alier*).

3.2 The economic degrowth declaration of 2008

Formalisation of the expression ‘economic degrowth’ occurred in a workshop at a conference held in Paris in 2008. In it a declaration was formulated as follows :-

“We, participants in the Economic Degrowth for Ecological Sustainability and Social Equity Conference held in Paris on April 18–19, 2008 make the following declaration:

- 1. Economic growth (as indicated by increasing real GDP or GNP) represents an increase in production, consumption and investment in the pursuit of economic surplus, inevitably leading to increased use of materials, energy and land.*
- 2. Despite improvements in the ecological efficiency of the production and consumption of goods and services, global economic growth has resulted in increased extraction of natural resources and increased waste and emissions.*
- 3. Global economic growth has not succeeded in reducing poverty substantially, due to unequal exchange in trade and financial markets, which has increased inequality between countries.*
- 4. As the established principles of physics and ecology demonstrate, there is an eventual limit to the scale of global production and consumption and to the scale national economies can attain without imposing environmental and social costs on others elsewhere or on future generations.*
- 5. The best available scientific evidence indicates that the global economy has grown beyond ecologically sustainable limits, as have many national economies, especially those of the wealthiest countries (primarily industrialised countries in the Global North).*
- 6. There is also mounting evidence that global growth in production and consumption is socially unsustainable and uneconomic (in the sense that its costs outweigh its benefits).*
- 7. By using more than their legitimate share of global environmental resources, the wealthiest nations are effectively reducing the environmental space available to poorer nations, and imposing adverse environmental impacts on them.*
- 8. If we do not respond to this situation by bringing global economic activity into line with the capacity of our ecosystems, and redistributing wealth and income globally so that they meet our societal needs, the result will be a process of involuntary and uncontrolled economic decline or collapse, with potentially serious social impacts, especially for the most disadvantaged.*

We therefore call for a paradigm shift from the general and unlimited pursuit of economic growth to a concept of “right-sizing” the global and national economies.

- 1. At the global level, “right-sizing” means reducing the global ecological footprint (including the carbon footprint) to a sustainable level.*
- 2. In countries where the per capita footprint is greater than the sustainable global level, right-sizing implies a reduction to this level within a reasonable time-frame.*
- 3. In countries where severe poverty remains, right-sizing implies increasing consumption by those in poverty as quickly as possible, in a sustainable way, to a level adequate for a decent life, following locally determined poverty-reduction paths rather than externally imposed development policies.*
- 4. This will require increasing economic activity in some cases; but redistribution of income and wealth both within and between countries is a more essential part of this process.*

The paradigm shift involves degrowth in wealthy parts of the world.

- 1. The process by which right-sizing may be achieved in the wealthiest countries, and in the global economy as a whole, is “degrowth”.*
- 2. We define degrowth as a voluntary transition towards a just, participatory, and ecologically sustainable society.*
- 3. The objectives of degrowth are to meet basic human needs and ensure a high quality of life, while reducing the ecological impact of the global economy to a sustainable level, equitably distributed between nations. This will not be achieved by involuntary economic contraction.*

4. *Degrowth requires a transformation of the global economic system and of the policies promoted and pursued at the national level, to allow the reduction and ultimate eradication of absolute poverty to proceed as the global economy and unsustainable national economies degrow.*
5. *Once right-sizing has been achieved through the process of degrowth, the aim should be to maintain a “steady state economy” with a relatively stable, mildly fluctuating level of consumption.*
6. *In general, the process of degrowth is characterised by:*
 - *an emphasis on quality of life rather than quantity of consumption;*
 - *the fulfilment of basic human needs for all;*
 - *societal change based on a range of diverse individual and collective actions and policies;*
 - *substantially reduced dependence on economic activity, and an increase in free time, unremunerated activity, conviviality, sense of community, and individual and collective health;*
 - *encouragement of self-reflection, balance, creativity, flexibility, diversity, good citizenship, generosity, and non-materialism;*
 - *observation of the principles of equity, participatory democracy, respect for human rights, and respect for cultural differences.*
7. *Progress towards degrowth requires immediate steps towards efforts to mainstream the concept of degrowth into parliamentary and public debate and economic institutions; the development of policies and tools for the practical implementation of degrowth; and development of new, non-monetary indicators (including subjective indicators) to identify, measure and compare the benefits and costs of economic activity, in order to assess whether changes in economic activity contribute to or undermine the fulfilment of social and environmental objectives”.*

3.3 The economic degrowth declaration of 2010

The conference held in Barcelona also prepared a declaration as follows -

“In the midst of an international crisis more than four hundred researchers, practitioners and civil society members from forty countries gathered in Barcelona in March 2010 for the Second International Conference on Degrowth. The Declaration of the First International Conference in Paris in 2008 noted the looming multidimensional crisis, which was not just financial, but also economic, social, cultural, energetic, political and ecological. The crisis is a result of the failure of an economic model based on growth.

An international elite and a “global middle class” are causing havoc to the environment through conspicuous consumption and the excessive appropriation of human and natural resources. Their consumption patterns lead to further environmental and social damage when imitated by the rest of society in a vicious circle of status-seeking through the accumulation of material possessions. While irresponsible financial institutions, multi-national corporations and governments are rightly at the forefront of public criticism, this crisis has deeper structural causes. So-called anti-crisis measures that seek to boost economic growth will worsen inequalities and environmental conditions in the long-run. The illusion of a “debt-fuelled growth”, ie forcing the economy to grow in order to pay debt, will end in social disaster, passing on economic and ecological debts to future generations and to the poor. A process of degrowth of the world economy is inevitable and will ultimately benefit the environment, but the challenge is how to manage the process so that it is socially equitable at national and global scales. This is the challenge of the Degrowth movement, originating in rich countries in Europe and elsewhere, where the change must start from.

Academics, activists and practitioners met in Barcelona to structure proposals toward an alternative, ecologically sustainable and socially equitable degrowth society. The conference was conducted in an inclusive and participatory way. In addition to standard scientific presentations, some 29 working groups discussed hands-on policies for degrowth and defined research questions, bringing together economic, social and environmental concerns. New ideas and issues absent from mainstream dialogue on sustainable development were put on the table: currencies and financial institutions, social security and working hours, population and resource consumption, restrictions to advertising, moratoria on infrastructure and resource sanctuaries, and many others. A wealth of new proposals evolved, including: facilitation of local currencies; gradual elimination of fiat money and reforms of interest; promotion of small scale, self-managed not-for-profit companies; defence and expansion of local commons and establishment of new jurisdictions for global commons; establishment of integrated policies of reduced working hours (work-sharing) and introduction of a basic income; institutionalization of an income ceiling based on maximum-minimum ratios; discouragement of overconsumption of non-durable goods and under-use of durables by regulation, taxation or bottom-up approaches; abandonment of large-scale infrastructure such as nuclear plants, dams, incinerators, high-speed transportation; conversion of car-based infrastructure to walking, biking and open common spaces; taxation of excessive advertising and its prohibition from public spaces; support for environmental justice movements of the South that struggle against resource extraction; introduction of global extractive moratoria in areas with high biodiversity and cultural value, and compensation for leaving resources in the ground; denouncement of top-down population control measures and support of women’s reproductive rights, conscious procreation and the right to free migration while welcoming a decrease in world birth rates; and decommericalisation of politics and enhancement of direct participation in decision-making.

We assert that these proposals are not utopian: new redistributive taxes will address income inequality and finance social investments and discourage consumption and environmental damage, while reduced working hours with a reinforced social

security system will manage unemployment. As the economy of wealthy parts of the world quietly contracts and our damage to the environment through new infrastructures and extraction activities is constrained, well-being will increase through public investments in low-cost social and relational goods.

Every new proposal generates several new objections and questions. We do not claim to have a recipe for the future, but we can no longer pretend that we can keep growing as if nothing has happened. The folly of growth has come to an end. The challenge now is how to transform, and the debate has just begun."

3.4 Conclusions on economic degrowth

Four other conferences on economic degrowth for ecological sustainability and social equity have been held since Paris 2008 and Barcelona 2010 namely, Montreal 2012, Venice 2014, Leipzig 2014 and Budapest 2016. The 6th conference will be in Malmö, Sweden in August of this year. The author suggests that Australia should be considered for a future degrowth conference. With this kind of growing academic pressure and publicity favouring degrowth, we will avoid global catastrophe and extinction provided we as a species unite to cause it to happen quickly enough. The author adopts the positive as epitomised by Sam Alexander at the Melbourne Sustainable Society Institute at the University of Melbourne (Life in a degrowth economy and why you might actually enjoy it, 02Oct2014) and quotes him for example :-

- (i) *When one first hears calls for degrowth, it is easy to think that this new economic vision must be about hardship and deprivation; that it means going back to the stone age, resigning ourselves to a stagnant culture, or being anti-progress. Not so.*
- (ii) *Degrowth would liberate us from the burden of pursuing material excess. We simply don't need so much stuff – certainly not if it comes at the cost of planetary health, social justice, and personal well-being. Consumerism is a gross failure of imagination, a debilitating addiction that degrades nature and doesn't even satisfy the universal human craving for meaning.*
- (iii) *In a degrowth society we would aspire to localise our economies as far and as appropriately as possible. This would assist with reducing carbon-intensive global trade, while also building resilience in the face of an uncertain and turbulent future.*
- (iv) *Through forms of direct or participatory democracy we would organise our economies to ensure that everyone's basic needs are met, and then redirect our energies away from economic expansion. This would be a relatively low-energy mode of living that ran primarily on renewable energy systems.*
- (v) *Renewable energy cannot sustain an energy-intensive global society of high-end consumers. A degrowth society embraces the necessity of "energy descent", turning our energy crises into an opportunity for civilisational renewal.*
- (vi) *We would tend to reduce our working hours in the formal economy in exchange for more home-production and leisure. We would have less income, but more freedom. Thus, in our simplicity, we would be rich.*
- (vii) *A degrowth transition to a steady-state economy could happen in a variety of ways. But the nature of this alternative vision suggests that the changes will need to be driven from the "bottom up", rather than imposed from the "top down".*

4 Conclusions overall

There is insufficient land available on Earth to provide for our current energy consumption level (550 EJ/yr) from biofuels alone such that drastic measures are needed to offset against the 'post fossil fuel dilemma'.

Nuclear power could provide a larger part of this but with fundamental flaws such as potential for serious accident, the lack of means for disposal of long-lasting radioactive waste and the potential for plutonium-239 to be used in nuclear weapons. Safer nuclear power is available by using the thorium cycle and perhaps by about 2030, by the use of nuclear fusion. Ample feedstocks are available for both. Solar-voltaic and solar-thermal power generation together with these safer nuclear power options may suffice but the problem is that we are consuming ever more energy – we are not static and we are not sustainable.

To survive nominally beyond 2100 therefore, it is evident that we need to depopulate and to degrow economically. Richer nations need to voluntarily reduce consumption to allow people of poorer nations to at least have sufficient to survive. A much more drastic reduction in use of 'the commons' by developed countries must be achieved if we are also to sustain the environment and avoid further extinctions of fauna and flora.

5 Recommendations

- that a global agency addressing stabilising the human population be formed
- that a global agency addressing future fuel production be formed

- that The German Advisory Council on Global Change (WBGU) proposals to apply a series of guardrails for example - that food production comes first, that a minimum per capita daily calorie intake be adopted and that a minimum annual per capita energy level be adopted - should be enacted in legislation in all countries.
- that no additional wilderness or marginal land be used for fuel crop production without completion of a thorough sociological and environmental impact study
- that the work of the International Coalition to eradicate hunger and poverty and to monitor and 'control' land acquisitions by other countries for potentially adverse purposes, be supported.
- That we participants in Risk PCC 2019 actively pursue offering Australia for a future degrowth conference for example, in 2020.

6 Some terms explained

WBGU	Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (German Advisory Council on Global Change); <i>literally</i> - Scientific Advisory Committee of the (German) Federal Government on Environmental Changes
The commons	The environment; all of nature; all of that part of the environment which is not held for a specific purpose; the commons as in England in Medieval times
Fiat money	Valueless currency given a value arbitrarily by a state (from the Latin fiat = it shall be)
EJ	Exajoule = 10^{18} Joules

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