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CONSULTING ENGINEERS, CHEMISTS & EXPERT WITNESSES

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

Risk Engineering & Project Controls Conference 2019
Sydney, Australia 15-17May2019

This study started during my research into the viability of vegetable oil fuels

entitled

An assessment of the feasibility of using vegetable oil fuels
in light of the impending fossil fuel dilemma

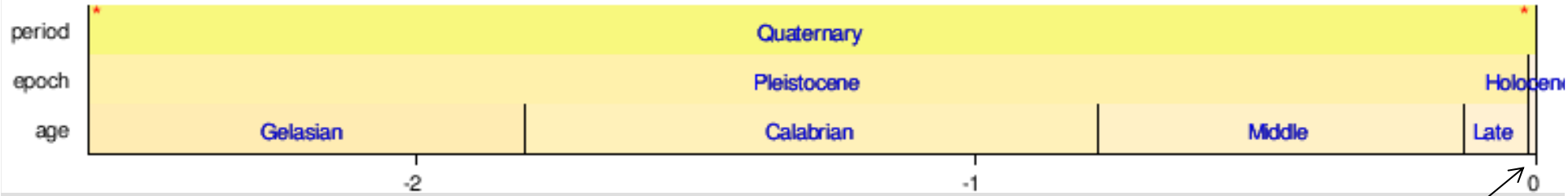
It addresses :-

Existential Risk

Population Degrowth, and

Economic Degrowth ……. but first …….

Geological time



The last 11,700 years is the Holocene Epoch

but many describe our period commencing in about 1900 as the Anthropocene Epoch because most of the changes which have occurred in this period are caused by us

We are also being described as the cause of the 6th Extinction

Climate Change and the Energy Crisis are but two consequences of our greed and growth driven existence

I urge you to seriously consider the underlying causes, not just the symptoms

The first three extinctions, the dinosaurs and two ice ages were externally caused

The next three we have caused, firstly as hunter gatherers

secondly when we developed agriculture

thirdly when we discovered fossil fuels and are now causing what is believed to be the highest extinction rate on record

The current rate has been described as being capable of halving the total number of species by 2100 (Whitty, 2007)

Others have described it as being 100 times the background rate estimate of 2 extinctions per million species per year (Ceballos, Ehrlich et al, 2015)

The IUCN Red List presently contains 661 species Presumed Extinct (PE) and Presumed Extinct in the Wild (PEW)

26,000 species are threatened ie > 27% of all those assessed

The way to avoid all these extinctions, to save ourselves and future generations, is to reduce Existential Risk (x-Risk)

not just for our own benefit, other species and the environment, but for all future generations

A very small reduction in existential risk will save countless future lives and is therefore more important than any other global public good (Bostrom, N)

Given that we are not yet able to develop human settlements elsewhere in the universe, we must first learn how to survive here

There are external (natural) risks but the most serious are those generated by us

Examples of both of these categories are:-

Existential Risk examples

External (Natural)

Major asteroid impact
Large-scale volcanism
Extra-terrestrial invasion
Natural ice age
Cosmic events
Mega-tsunami

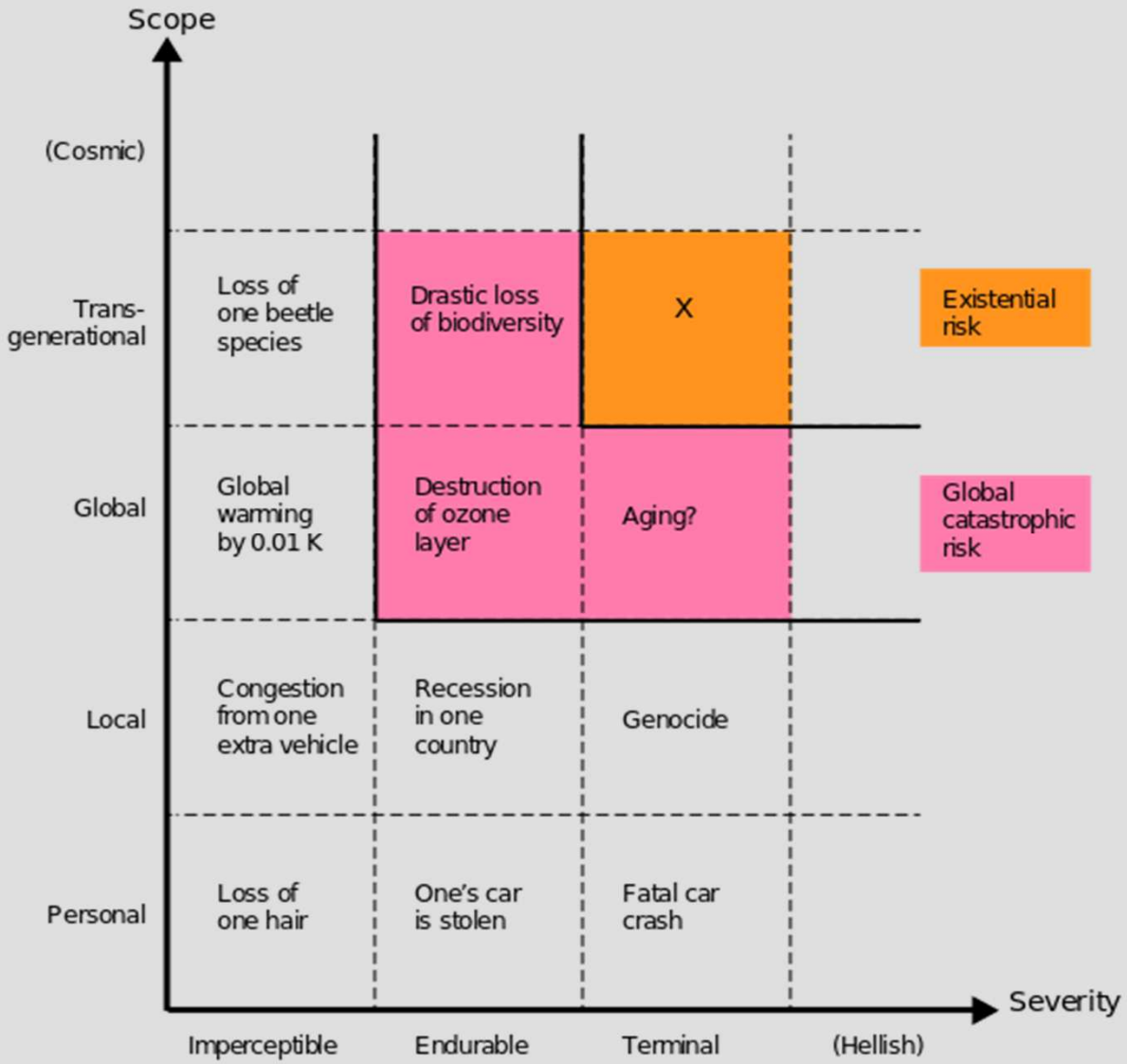
Human-caused

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

Economic Growth

Existential Risk and Global Catastrophic Risk – Scope vs Severity



Likelihood estimates established at the 2008 conference on

Global Catastrophic Risk hosted by the

Future of Humanity Institute at Oxford University

Risk	Likelihood
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
Overall probability	19%

Some organisations studying existential risk

Academic

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

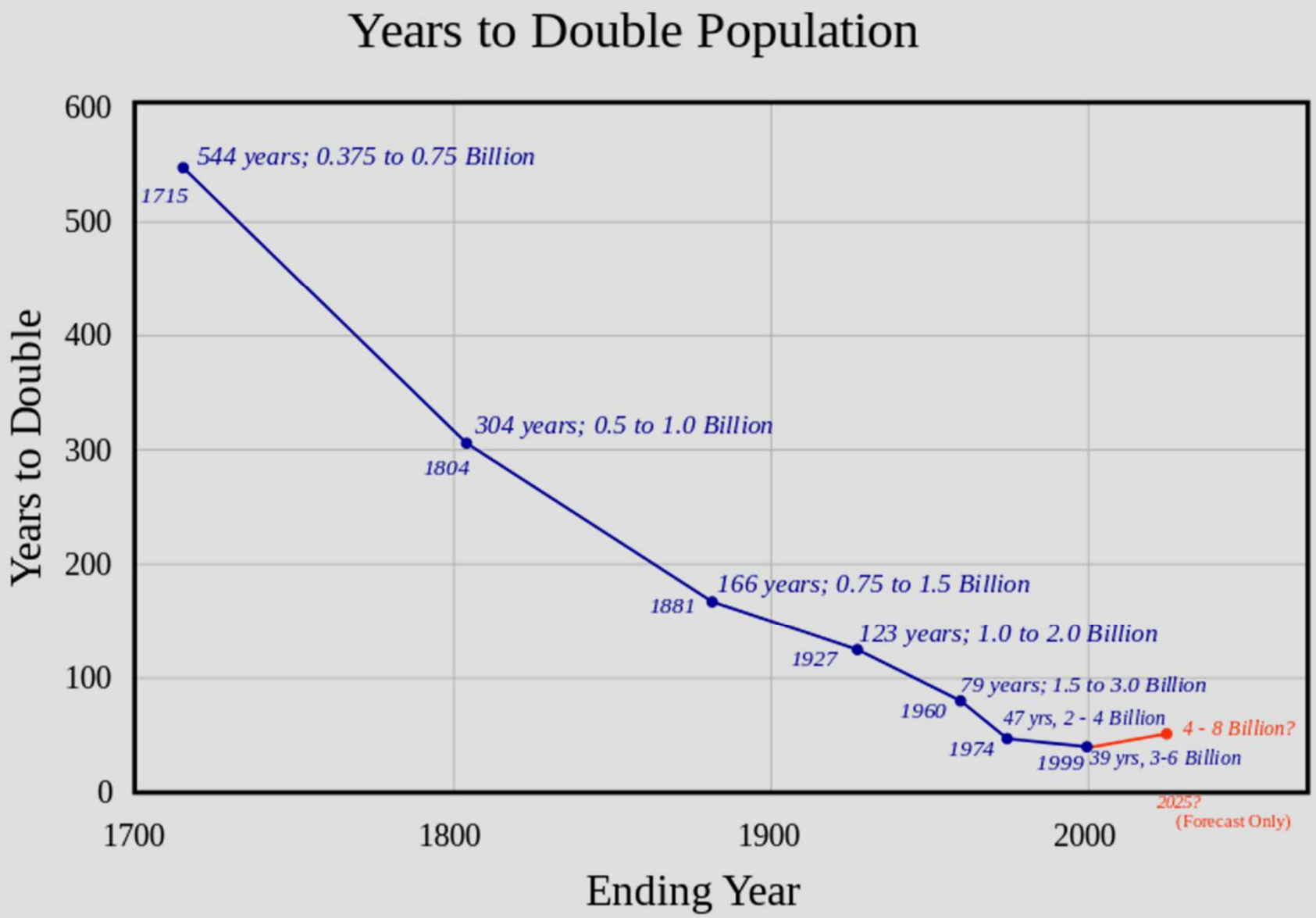
Government

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

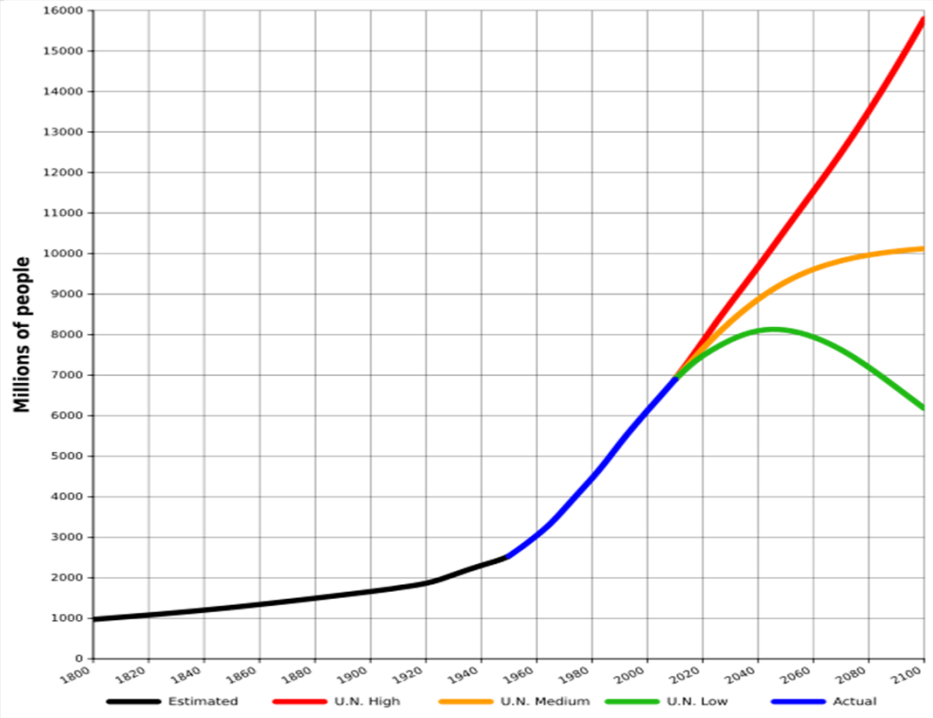
Private

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)

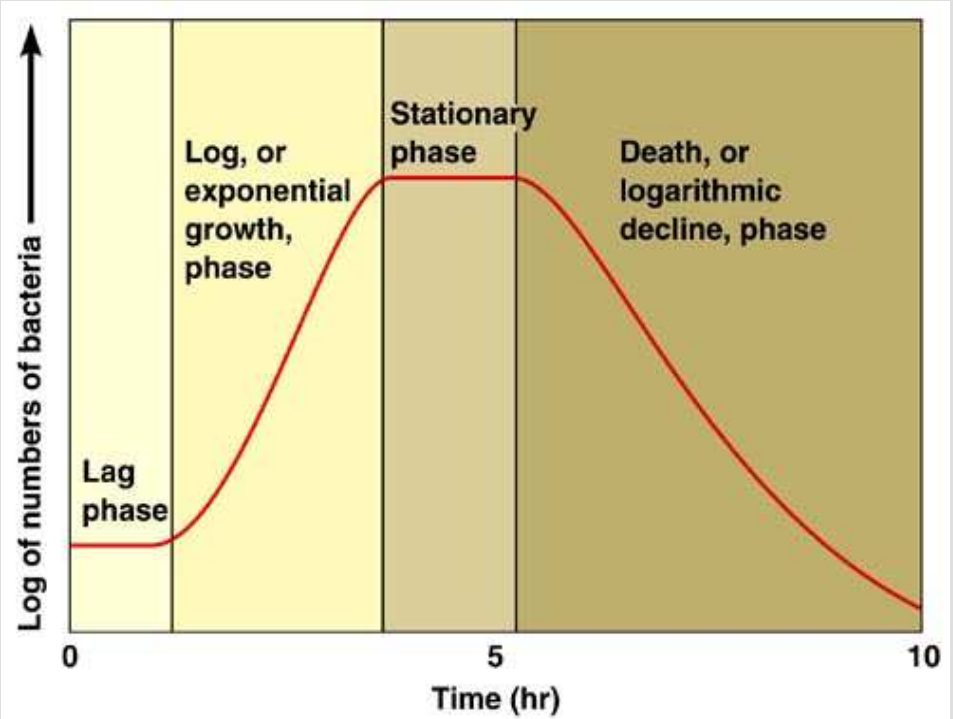
Population Degrowth



Human growth curve 1800-2100



Microbial growth curve 10 hours



We are still in the exponential growth phase

See what happens to bacteria after that. We and all living creatures are the same in this regard. But we just take no notice

Population literature review

Sharif, Mace, Karamouzian, Aloosh, Erfani, Borrie, Jones, Meier and Caldwell

Conclusions of the review are :-

Dismay in demographers not recognising the limitations of continuing economic growth

A need for demographers and environmental scientists to work together

A need for much more research to establish facts pertaining to appropriate levels of population

That there are no easy or quick solutions

Comments

The economy is a wholly owned subsidiary of the environment and not the other way round

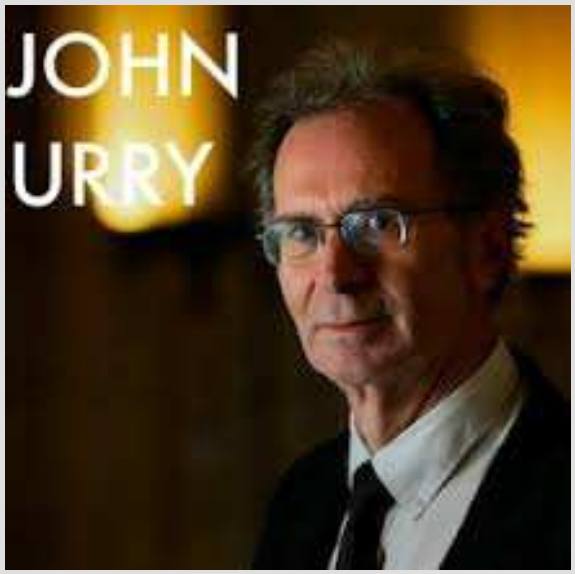
If all women in all countries were educated, empowered to plan their families, we would reduce world population to a sustainable level

Economic Degrowth

The late Professor John Urry (Lancaster University), says

When we discovered fossil fuels we should have either left them in the ground for the future or rationed them : we should certainly do so now.

Energy is not just another commodity, it is the pre-requisite of all commodities



The 7th International Conference on Economic Degrowth for Ecological Sustainability and Social Equity,

is planned for 2020; we can seek to host it here

Only mad men and economists believe that infinite growth is possible in a finite world (Kenneth Boulding)

And yet we hurtle along in our greedy growth-before-all style of living, on our way to what many consider to be a very serious demise.

To avoid the apocalypse we must gain wisdom and develop technological maturity with aims like :-

(i) *equality and sustainability for all people,*
(ii) *recognition of the rights of other species,*
(iii) *abandoning the objectives of accumulation and wealth*

Greed (chrematistics) must end and be replaced with Aristotle's oikonomia (Nicolas Georgescu-Roegen, founder of ecological economics)

To avoid the apocalypse, we need to voluntarily degrow (Georgescu-Roegen; Jan van Bavel) and depopulate (Herman Daly) or go extinct before reaching technological and moral maturity (Nick Bostrom)

The only way we can grow our population and our economy indefinitely is by populating other planets.

If we do this we should be OK.

If we do not gain wisdom and full international co-operation before colonising elsewhere, we will go prematurely extinct.

(Professor Nick Bostrom, Oxford University)

The 2nd International Conference on Economic Degrowth for Ecological Sustainability and Social Equity (Barcelona 2010), declared :-

An international elite and a "global middle class" are causing havoc to the environment through conspicuous consumption and excessive appropriation of human and natural resources.

anti-crisis measures that seek to boost economic growth will worsen inequalities and environmental conditions in the long-run.

"debt-fuelled growth", ie forcing the economy to grow in order to pay debt, is an illusion.

We need - restrictions to advertising, moratoria on infrastructure and resource sanctuaries,

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), introduction of a basic income and institutionalisation of an income ceiling,

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,

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

Some current degrowth practices

1. *Sharing of information via the internet*
2. *Open exchange of information via Peer-to-Peer (P2P) practices w/o copyright, patents etc*
3. *Creative Commons licencing*

Initiatives such as :-

4. 100 Resilient Cities
5. Tiny House movement
6. Voluntary Simplicity movement
7. Co-housing
8. Transition Towns

There are some 500 transition towns around the world, 200 in the UK. Totnes in Devon was the first

Thank you !

This powerpoint and the associated 14-page paper on which it is based, will be placed on the Risk/PCC conference website

The author and his wife Joan in the Transition Towns office in Totnes, Devon, UK