PLANNING FOR EXISTENTIAL RISK

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Abstract:

Can our civilization outlast the 21st Century? This is the biggest question facing humanity today as ten major existential threats (eco-collapse, resource depletion, WMD, climate change, global toxicity, food insecurity, population and urban expansion, pandemic disease, risky new technologies and self-delusion) combine to overshadow our future. This paper is a hard-hitting, evidence-based look at the challenges facing *H. sapiens* in the coming forty years and the solutions we must implement to assure our future.

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Slide 1: title

Slide 2: 10 threats

Human civilisation stands at the threshold of its greatest challenge in our million-year story.

But this isn't a single challenge, like famine or disease. It is a constellation of ten major risks combining to imperil our very existence.

We often think of these threats – like climate, water and food security or nuclear weapons – as separate issues.

But in reality they are deeply intertwined. Each affects the others.

This is the human complexity crisis. What science terms a 'wicked problem'.

In the 21st Century it overshadows all that we do – or plan to do.

Slide 3: Challenge

The important thing is that, in devising solutions for one form of risk, we do not at the same time make the others worse.

For example, current solutions to world food problems mostly involve emitting more greenhouse gases and toxins, which will in turn further destabilise food production and harm food quality.

And solutions to resource scarcity often end up creating other kinds of scarcity, and worse pollution.

So, the need is for cross-cutting solutions that address *all* the main existential risks.

Slide 4: Existential risk

People sometimes recoil in shock when presented with the scientific facts about the plight our civilisation is driving itself into – through overpopulation, overconsumption and over-pollution.

But being deaf to bad news is no way to avoid it.

Discussing existential risk is not 'scaremongering' or Malthusian doomsdayism, as some people may pretend.

It is a credible academic discipline internationally.

And it is the essential first step in devising workable solutions that will assure our survival and prosperity long into the future.

It is, in fact, what we humans do best: anticipate trouble, and plan how to avoid it.

Existential risk must become intrinsic to all planning, in every context.

Slide 5: Extinction

The science around extinction and environmental destruction is deeply disturbing.

As the world's greatest biologist, EO Wilson, puts it "We are tearing down the biosphere" – the very thing that supports life on this Planet.[i]

And that is not good for life or good for us.

While many people are concerned about their local environment, large-scale ecological collapse is still low on the Richter scale of public awareness as an issue that can bring down civilisation.

Yet, as Jared Diamond has shown [ii], many civilisations in the past have perished because of it, and we would be foolish to ignore the possibility even in our technologically accomplished age.

Slide 6: Solving extinction

The good news is that eco-collapse is easier to avert than many people assume.

But it requires making radical change in how we do the essential tasks we take for granted – for example how we produce food, metals and other materials.

A major concern is that economics invariably externalises the costs to the environment of human activity: it treats them as if they do not exist.

A century ago with a small population, this might have worked – but in a hot world of 10 billion people with resources running out, it harbours the seeds of disaster.

So it may become imperative to consider issues such an environmental levy on all products of extractive activity, to pay for the repair and regeneration of the environment that produces them.

This should be seen as nothing more than a sensible replenishment of environmental capital.

Slide 7: Resources

This slide illustrates your personal impost on the planet.

It takes 100,000 tonnes of fresh water, 750 tonnes of soil, 720 tonnes of metals, 5 billion energy units, 300 tonnes of greenhouse gas – just to support you! [iii]

It illustrates how blind we have all become to our own impact on the world.

How long global production chains have isolated us from the realities of consumer society.

By mid-century we will experience scarcity of many essential resources – water, timber, wild fish, nutrients, certain kinds of energy. And we will be inflicting vast damage on the biosphere with others.

For example, those trendy electronic devices we all carry are destroying the salt lakes of Bolivia, Chile and Peru and annihilating their flamingos and other wildlife. Yet who cares?

Slide 8: solutions

Yes, there is a solution. And it is a straightforward one to implement – though not always cheap.

It is to eliminate all waste.

Henceforward every material thing we produce or use must be recycled and re-used.

This includes all the food we grow and eat, or discard. If humanity is to survive long term, we have to recycle all our nutrients, not tip them into the ocean.

Smart approaches like “green manufacturing”[iv] “cradle-to-cradle”[v] and “industrial ecology”[vi] are already being developed to address this challenge.

They must become mandatory, not just options. And we need a crash global R&D program on them, as we do for renewable energy.

Slide 9: WMD

The latest estimates, based on climate science, are that it will only take the release of about 50-100 kilotonne-range nuclear devices to end civilisation in a nuclear winter. [vii]

On that calculus, eight nations now have the power to terminate most of humanity.

Nuclear materials are stolen, on average, every ten days, vastly increasing the risk of random nuclear terrorism.[viii]

And after decades of détente, a new nuclear technology arms race among the great powers has pushed the Doomsday Clock to three minutes to midnight – the most dangerous it has been since the height of the Cold War. [ix]

Slide 10: disarmament

There is only one solution to the existential danger posed by weapons of mass destruction.

It is for the citizens of the world to unite to demand their total abolition.[x]

Regrettably, it is human nature that we probably need to experience their full horror before wisdom prevails.

But let us hope it does not come to that – but let us also not delay in taking the steps needed to prevent it.

Slide 11: Climate

Climate is undoubtedly the most talked-about existential threat to humanity – yet it is astonishing how few people grasp the true peril in which we stand.

Put simply, the release of 2.9 gigatonnes of CO2 equivalent will project the Earth into a hyperthermal phase it has not seen for fifty million years. [xi]

We have already released 1.9 gigatonnes – and are adding an extra 50 billion tonnes a year.

However the most disturbing element is the release of frozen methane from the seabed and tundra, of which there is an estimated 5 gigatonnes. [xii]

If this occurs – and there is scientific evidence that it is already happening – warming will go into overdrive and global temperature increases of 9-10 degrees are likely. [xiii]

These would create a planet on which the vast majority of humans and larger animals could not survive.

Slide 12: by degrees

This slide illustrates what is expected to happen with only the release of human emissions, under ‘business as usual’. [xiv]

Even the recent Paris Agreement, if fully implemented, will potentially lower the Earth’s temperature by only one degree.

But global methane release could sweep all that away in the blink of an eye, to unleash what is known as runaway global warming.

Slide 13: climate solutions

We all know the answers. They are plain, and they are technically achievable.

We must end all burning of fossil fuels and clearing of land. [xv] And we must replant the planet.

What is missing is the sense of urgency, the institutional and societal will to save ourselves and our children from such a future.

As Ban Ki-Moon puts it: "We are the last generation that can fight climate change. We have a duty to act." [xvi]

Slide 14: chemical emissions

Every day, every child on our planet is being poisoned.

The whole of humanity and indeed, all life on Earth, is mired in a toxic swamp of 250 billion tonnes of chemical emissions from human activity.[xvii]

In our food, our water, the air we breathe, the furnishings and equipment of our homes, transport and workplaces, in wildlife, the oceans, in our bodies [xviii] and even in our genes

Humanity's chemical emissions are five times our carbon emissions (which is actually just one of them). They have spread around the entire planet and are to be found from pole to pole, from the highest mountains to the deepest ocean, from the remotest wilderness to the dirtiest city.

They are present in unborn babies,[xix] in mother's milk, [xx] in the global food supply where they damage intelligence, cause obesity, harm our ability to reproduce and even change people's genders. [xxi]

They kill on average 12.6 million people a year, according to the World Health Organisation.[xxii] One Chinese in six, for example, dies just from breathing polluted air.

Chemical pollution of the living environment is arguably the largest human impact on the planet, and the one least discussed by society and the media, and least acted on by governments or industry. So far we have banned just 21 out of 144,000 manufactured chemicals. [xxiii]

Slide 15: clean earth

Again, there are feasible solutions to this problem – which is a new threat having only really arisen in the past half century.

It can be reversed.

One is a declaration that, like all our ancestors through time, we have *a right not to be poisoned*.

Second is awareness on a global scale by consumers just how much toxic stuff they consume – and the exercise of their market power to push industry into safe, healthy products.

Third, since the worst toxins in our environment emanate from coal, oil and gas, the elimination of these fossil fuels for climate reasons will also go a long way to protecting our children's future health.

The replacement of mining with mineral recycling will eliminate another major source of toxicity.

But in future all planning must take account of the need to eliminate all toxins from our systems of production and living.

Slide 16: Food security

World food security is on a knife-edge - for the simple reason that demand is expanding, while the availability of the resources needed for production will contract.

Population and economic growth between them will drive a doubling in global food demand by the 2060s. [xxiv]

Meanwhile we are trashing 75 billion tonnes of topsoil a year,[xxv] running out of freshwater, [xxvi] fish [xxvii] and phosphorus [xxviii] and have extinguished the climate in which agriculture was born.[xxix]

The collision of these ten powerful forces on both sides of the supply/demand equation makes the future of food highly uncertain. [xxx]

Slide 17: Age of Food

Yet there are also grounds for optimism in what I term 'The Age of Food'.

If we transition half of world food production back into cities, end waste, recycle all water and all nutrients and use advanced urban farming methods to avoid climate impacts, we can overcome this problem.

Beyond that there are huge new opportunities in food, such as the 27,000 edible plants [xxxi] on our planet we do not, as yet, eat.

A week ago I outlined to the NZ Irrigation Conference in Oamaru ways this country can lead the coming world food revolution. [xxxii]

Currently humanity spends $1.8 trillion a year on new weapons [xxxiii] and only $50 billion on better ways to grow food.

An important element in reinventing food is to re-dedicate part of the world's military budgets to peace through food, as history consistently shows that wars break out most often in places which are hungry.

Slide 18: Techno risks

Other major existential risks include pandemic disease, the threat of which increases with each hectare of forest we cut down, with the growth in world travel and in antibiotic resistance.

In the coming forty years, emerging megacities of 30, 40 and even 120 million people will face real risks of collapse, from any failure of their attenuated food, water or energy supplies, from climate impacts and wars. [xxxiv]

The key to preventing this lies in sound planning and sharing of plans for sustainable urban development globally.

Advanced technologies such as artificial intelligence, autonomous killer robotics, biotechnology and quantum computing may also harbour unanticipated threats, as people like Stephen Hawking, Elon Musk and Bill Gates have warned. [xxxv]

The safe control of these ultra-powerful tools demands careful anticipation and planning – almost none of which is currently in place.

Slide 19: Planning for techno risk

All of these technology-based risks are avoidable – but the tools to prevent them are not yet in place, nor is there indeed a general recognition by governments and planners of the need for them.

So there is still a great deal to do by way of educating the public and officialdom about the nature and scale of these risks, and the necessity for avoiding them.

As with fossil fuels and the modern food supply, we are still infatuated with the promise of new technologies, rather than cautious about the risks it brings.

A salient example is the failure of society to develop new antibiotics in the face of a rising global death toll from antibiotic resistance. [xxxvi] This failure is based purely and simply on the fact that antibiotics, which cure disease, are not as profitable to large pharmaceutical companies as drugs which prolong disease, so they have a very low commercial priority. Public research and civic responsibility have failed to compensate for this deficit.

Again, this is a failure of planning. A failure to anticipate looming trouble, even when it is staring us in the face, and plan effective solutions or preventative measures.

Slide 20: Beliefs and delusion

In my forthcoming book "Surviving the 21st Century" I raise another issue at the heart of our continued existence – that of our belief systems.

Humans have four primary belief systems which are intrinsic to civilisation: money, politics, religion and the human narrative.

Where these beliefs are well-founded, based on sound moral values and on good scientific evidence, they are powerful forces for human survival.

Where our beliefs are delusory, based on a false or totally imaginary image of our situation, they may well prevent us from taking the actions essential to survival.

We see this, for instance, in our tendency to use money – an imaginary commodity – to destroy the real environment that supports all life.

Such thinking has to change.

Slide 21: reducing 'belief risk'

There are many practical ways to reduce the risk posed by delusional beliefs.

The International Resources Panel has shown how we can 'dematerialise' the world economy – or, in other words, achieve continued economic growth without running out of resources or devastating the environment. [xxxvii]

In his encyclical *Laudato Si*, Pope Francis showed that religious belief can be entirely compatible with the goal of human survival and with the science that alerts us to our situation. [xxxviii]

And worldwide the advent of green politics is pushing recalcitrant political belief systems to consider the future more fully than most do today.

Slide 22: Thinking as species

The key to our survival in the 21st Century may lie in our ability to think, not just as individuals but as a species.

Like the cells in our brain, humans are for the first time learning to communicate with one another real time and at lightspeed.

Through organisations like those in the slide, tens of millions of people are joining hands and sharing ideas around the planet.

We are creating, in effect, an Earth-sized mind. [xxxix]

This is the start of our ability to share knowledge universally, to understand the problems we face and to concert their solutions, globally and locally.

It will drive governments, corporations, economic and social institutions as nothing ever has in the past. It will be unstoppable.

Slide 23: The Age of Women

In writing my previous books on food and the chemical deluge, it became clear to me that all the destruction is essentially driven by males. [xl]

Males start wars, release carbon and toxic chemicals, cut down forests, empty oceans, create deserts, slaughter wildlife. Males like to solve their problems quickly – and to hell with the consequences.

Women on the other hand, tend to be more cautious. They often consider the next generation and beyond. They usually nurture, repair, preserve, heal, pacify and educate.

This isn't stereotyping. It's an observation about how different humans think.

To survive in the 21st Century, with ten billion people packed on a hot planet on which all resources and systems are stressed, we will all need to think more like women – and less like traditional males.

To secure our future, we need women to lead – in business, politics, religion, society.

This isn't about gender equity.

It's about the fundamental rules for survival in this new and threatening world we are creating.

Humanity now needs the Age of Women.

Slide 24: Survival metrics

Here I propose ten basic ways to measure whether humans are able to survive and surmount the challenges with which the 21st century undoubtedly faces us – or not.

These are all things in which our progress – or lack of it – can be measured, documented, and shared universally.

It is a report card based on sound scientific principles. [xli]

It should be on every news bulletin, alongside the weather report. On all social media and in every newspaper. On every cereal packet, billboard and milk carton.

So that every human being on the planet is fully informed just how well, or poorly, we are performing at securing our own future.

Slide 25: Message for NZ planners

Every good plan begins with a competent, factual analysis of the situation, and the opportunities and risks it presents.

The opportunity for NZ planners, as I see it, is to be first in the world to incorporate existential risk into every dimension of planning.

To ensure that every plan is resilient to existential shocks.

To ensure that no plan increases existential risk by emitting more carbon, soil or chemicals, damaging the natural world and our health or relying on unsound technology.

To ensure that all plans take a prosperous, sustainable, safe, peaceful and healthy long-term human future as their focal point.

Slide 26: close + book

Thank you. My book, which comes out in (month) lays out the situation and what we can do about it.

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