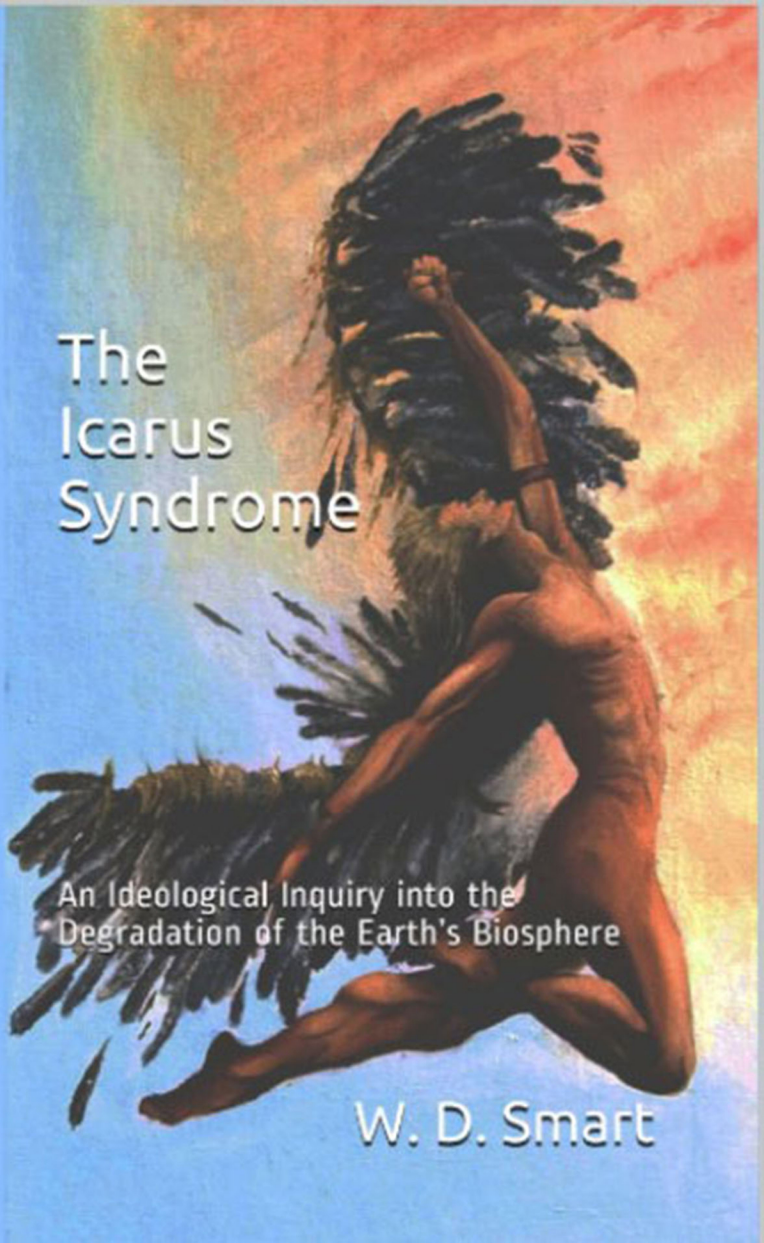
The
Icarus
Syndrome
An Ideological Inquiry into the
Degradation of the Earth's Biosphere
W. D. Smart

The Icarus Syndrome

An Ideological Inquiry into the Degradation of the Earth's Biosphere

W. D. Smart

In collaboration with DeVona Lahrman

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Dedication

…for my family around the world

Books by W. D. Smart

Fiction

Cap'n Billy – 2014

Kepler-438b – 2015

Jihadi – 2015

The Gliese Project – 2019

Book 1 – *Helios*
Book 2 – *Kronos*
Book 3 – *Aeolus*
Book 4 – *Demeter*

The Gliese Project – 2020
Single, Consolidated Book

Non-fiction

The Icarus Syndrome – 2020

Epigraph

”Don't it always seem to go
That you don't know what you've got
'Till it's gone?
They paved paradise
And put up a parking lot”

(Mitchell, 1970)

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Acknowledgements

I want to acknowledge the assistance of my personal friend and fellow author, Robert Smith, for all his efforts helping with the finalization of this book, and to thank all my family, friends, colleagues, and readers for their support and encouragement.

Also, a special acknowledgement and thanks goes out to my daughter and Earth advocate, DeVona Lahrman, who contributed to much of the research and contents of this book.

Author's Note

I wrote this series to bring to everyone's attention our obsession with technology, which is destroying our planet's biosphere and will eventually, in my opinion, bring about the extinction of most species on Earth, both plant and animal, including, of course, our own.
Clinging onto the belief that we will soon develop some new technology that will provide us with a free and unlimited source of energy and "save" us is just pure folly. Technology cannot be the solution to our environmental problems – it is the cause.

In the meantime, we should not even consider venturing too far into outer space. Until we learn to live both socially and environmentally

compatible with the Earth, any attempt to spread our species to other worlds should not be called "colonizing." It would more accurately be termed "metastasizing."

Introduction

The title of this book is ***The Icarus Syndrome.*** The story of Icarus is a simple tale in Greek mythology of the dangers of hubris and is summarized in Wikipedia.com:

> Icarus and his father, Daedalus, attempt to escape from Crete by means of wings that his father constructed from feathers and wax. Icarus' father warns him first of complacency and then of hubris, asking that he fly neither too low nor too high, so the sea's dampness would not clog his wings or the sun's heat melt them. Icarus ignored his father's instructions not to fly too close to the sun; when the wax in his wings melted he tumbled out of the sky and fell into the sea where he drowned (Icarus, 2017).

This Greek myth has been interpreted in many ways. It is generally accepted as an example of the warning that failure is often the result of hubris — excessive pride. It also has been associated with the often abbreviated and misquoted verse from the Bible carrying the same warning: “Pride goeth before destruction, and an haughty spirit before a fall (Book of Proverbs 16).”

These interpretations also all fit the purpose of the title of this book, but the author has gleaned an additional aphorism from of the story that also applies. This is the observation that the very quality that seems to give an individual (or species) their greatest advantage often also proves to lead to their downfall. In the story, it was the advantage of the wax wings that enabled Icarus to escape from his imprisonment in the tower in Crete. Without this ability, he could not have succeeded in seizing a chance for his freedom. But, because of his hubris, he misused his advantage by pushing it to do things it was not, in the end, able to sustain. This led to his literal downfall.

The author sees a parallel between this story and the historical record of evolution. It seems that in many cases an evolutionary advantage is so successful that, over time, it becomes exaggerated to the point of giving such a great advantage that a tipping point seems to be reached, as in the form of overpopulation. An obvious example of this is the size of the dinosaurs. The clade *Dinosauria* was so successful that it overcame a lot of the natural checks and balances which would otherwise limit its ability to increase its numbers. But when that tipping point was reached, the evolutionary advantages of the species which have pushed its

population to this point become one of the primary causes of the extinction of the entire clade.

Humans are approaching that tipping point right now. Martin Gladwell has proposed the year 2050 (Gladwell, Tipping Point, 2011) Some scientists believe we have already passed it.

The subtitle of this book is *An Ideological Inquiry into the Degradation of the Earth's Biosphere* and needs a more detailed explanation. Below, the subtitle's three key terms: "Ideological Inquiry", "Degradation", and "Biosphere" are explained in more detail.

"**Ideological Inquiry**" is a "…process that has the aim of augmenting knowledge, resolving doubt, or solving a problem" (Inquiry, 2017). This book focuses primarily on the ideological aspects of the knowledge, doubts, and searches for solutions. It is not itself a scientific paper, although it does document and make use of some previously published scientific information. Sources of any such information will be cited. This book also contains a fair amount of scientifically based projections, all of which the author hopes you will find rational and well-founded. Any sources for these will also be cited. The lines of reasoning and subsequent conclusions offered to support the author's

ideology are based, as are all ideologies, primarily on the author's own personal thinking and beliefs. These are especially prevalent in the closing chapters in which the author explores both popular and alternative responses, attempts at ameliorations, proposed solutions to the problem, and finally offers conclusions.

"**Degradation**" is the continuing and accelerating alteration of the Earth's environment which presents threats to the very sustenance of life, not just to existing species, but life in general. This word is used instead of the word "destruction" which is often used in the same context. "Degradation," however, was chosen because the author believes the degradation will not continue to the point of complete destruction.

"**Biosphere**" is primarily a combination of those attributes of the total environment that are necessary to sustain life, all life — both animal and plant, current and future — and not just human life. (Biosphere, 2017)

This book is written in six sections in the following sequence:

Section I defines the problem, the continuing degradation of the Earth's environment. This section documents examples and evidence but does not attempt to present a complete, robust

argument to support the theory of Climate Change or one of its corollaries, Global Warming.

Section II identifies the most apparent and obvious cause, but only the proximate cause, of this degradation — human technology.

Section III reveals the actual causes of the degradation, and the two driving forces behind the destructive force of technology — human hubris and overpopulation.

Section IV explores ways the continuing and accelerating damage done by the proximate and primary causes can be ameliorated and slowed down and explores various solutions which are now being suggested.

Section V, the final section, presents the author's conclusions.

The Icarus Syndrome

An Ideological Inquiry into the Degradation of the Earth's Biosphere

W. D. Smart

I – The Problem

Figure 1 - Habitat Depletion

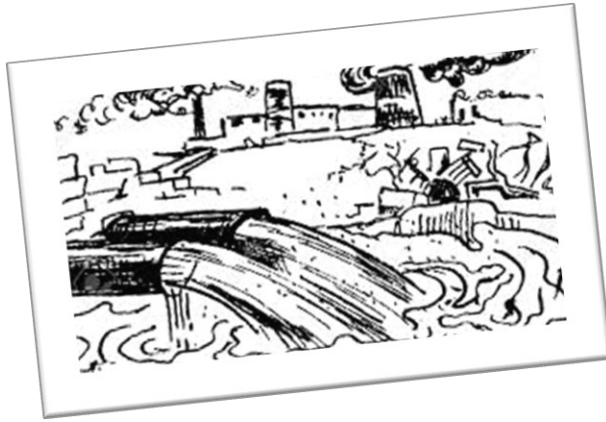
The problem, which is the subject of this book, is the continuing and accelerating degradation of the Earth's biosphere. The degradation of our biosphere can be put into two broad but tightly coupled classifications: pollution and climate change.

The evidence for these two classifications of degradation can also be further divided into two types: anecdotal and scientific. Each type of evidence has its merits and each its drawbacks.

Below the author will further define the two categories of degradation, present the two types of evidence for each, and document the evidence's merits and drawbacks.

Pollution

Figure 2 – Pollution



Wikipedia defines "pollution" as:

> Pollution is the usually unintentional introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of chemical substances or energy, such as noise, heat, or light. Pollutants, the components of pollution, can be either foreign

substances/energies or naturally occurring contaminants. Pollution is often classed as point source or nonpoint source pollution (Pollution, 2017).

There is already a plethora of information available to anyone who is interested. Some of it is anecdotal and some scientifically based, but all indicate that the human-caused degradation of the Earth's habitat, the very biosphere that provides a support platform for all life, is continuing at a horrendous pace.

The purpose of this book is not to convince the reader of this fact, but to support the other arguments put forward here, a brief summary of these destructive activities and their ramifications is presented below:

Environmental Degradation Facts

- Every year, we extract an estimated 55 billion tons of fossil energy, minerals, metals and biomass from the Earth.
- The world has already lost 80% of its forests and we are continually losing them at a rate of 375 km2 per day!
- At the current rate of deforestation, 5-10% of tropical forest species will become extinct every decade.
- Every hour, 1,692 acres of productive

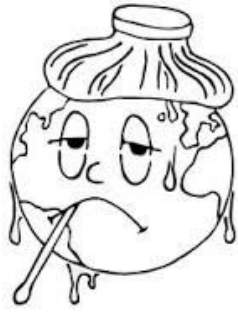
dry land become desert.

- 27% of our coral reefs have been destroyed. If the rate continues, remaining 60% will be gone in 30 years. More: Threats on Coral Reefs
- We have a garbage island floating in our ocean, mostly comprised of plastics - the size of India, Europe and Mexico combined!
- We are using up 50% more natural resources than the Earth can provide.
- At our current population, we need 1.5 Earths, which we do not have.

(The World Counts, 2019)

Climate Change

Figure 3 – Global Warming



Wikipedia defines “climate change” as:

> Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). Climate change may refer to a change in average weather conditions, or in the time variation of weather around longer-term average conditions (i.e., more or fewer extreme weather events). Climate change is caused by factors such as biotic processes, variations in solar radiation received by the Earth, plate tectonics, and volcanic eruptions. Certain human activities have been identified as primary causes of ongoing climate change, often referred to as global warming (Climate change, 2017).

As with the Habitat Destruction subsection above, it is not the purpose of this book to convince the reader that Climate Change is really happening. And, also, there are many sources of information the reader can access to learn more about this subject.

Below, I have included a summary of the evidence and links to more sources for those who what to read about this subject in more detail.

Climate change facts and figures Overall situation

- Climate change is increasing the risk of extreme weather events with more intense hurricanes, cyclones and typhoons, heavier rain and snowfall, more frequent and intense heat waves, and longer droughts. These lead to more disasters and have dramatic impacts on food security.
- In the past 100 years, the global average temperature has risen by about 0.74 degrees Celsius.
- The rate of temperature increase accelerated over the course of the 20th century. There have been 14 of the hottest years on record in the last 16 years. Projections in temperature rise for the 21st century range from 2 to 4 degrees Celsius, which would have catastrophic consequences. According to an Intergovernmental Panel on Climate Change (IPCC) report, island states such as the Maldives will suffer major storm surges and rising sea level could cause many of the islands to disappear. This poses a tremendous threat to the lives, property and livelihoods of people living there. Millions more people could

experience coastal flooding each year. Some kinds of food productivity will decrease in low latitudes and rise in mid to high latitudes. Ecosystems will change. Growing numbers of people in the poorest countries will suffer from malnutrition and from diarrhoeal, cardio-respiratory and infectious diseases. Globally, up to 30 per cent of species will be at increasing risk of extinction.

- It is very likely that the emission of greenhouse gases is the main cause of this temperature rise. Greenhouse gases are increasing due to the burning of fossil fuels including coal, gas and oil, changes in land use and deforestation.
- All over the world, glaciers are melting at a very fast rate. On average, glaciers have thinned by over 10 metres since 1980.
- Changing rainfall patterns and the melting of glaciers will jeopardize water supplies to hundreds of millions of people.
- It is projected that sea level will rise anywhere between 20 and 90cm globally by the end of this century.
- In summer 2009, the minimum level of

ice cover in the Arctic was 24 per cent below the 1979– 2000 average. Scientists expect the melting to continue in coming decades.

- Today the concentration of CO2 is 380 ppm (parts per million). This is a very sharp increase from the pre-industrial level value of about 280 ppm. It also far exceeds the natural range over the past 650,000 years (180 to 300 ppm). There has been a clear correlation between the highest concentrations of CO2 and the warmest climate.

(Climate Change Conference, 2010)

To read the full report, go to the Climate Centre webpage at:

http://www.climatecentre.org/downloads/files/conferences/COP-16/Fact%20and%20Figures.pdf.

Another good link to some good, detailed information is the World Ocean Network website at:

https://www.worldoceannetwork.org/won-part-6/carem-wod-2014-4/thematic-resources-climate-change/facts-and-figures/.

Owen Dyer writes in his article for BMJ Publishing:

Humanity is heading for ecological disaster if instead of foreseeing and preventing environmental degradation we just react to it. This is the conclusion of a United Nations report compiled by 1300 leading scientists from 95 countries.

The *Millennium Ecosystem Assessment Synthesis Report* previews the ecological state of the world in 2050. It lists 24 essential "ecosystem services," such as timber, clean air, and fresh water, and finds that 60% of them are being degraded or used unsustainably.

This degradation obstructs the UN Millennium Development Goals, set in 2000, the most ambitious of which was a halving of the world's population existing on less than a $1 (£0.53; €0.78) a day or threatened by hunger or lack of clean water. Among the gravest threats to the environment are excessive "nutrient loading" from agricultural fertilisers and the progressive disappearance of biodiversity. The extinction rate of species is already a thousand times higher than the average rate shown by the fossil record and is set to increase 10-fold in the next 50 years.

"Humans are fundamentally and to a significant extent irreversibly changing the diversity of life on earth," says the report,

noting that this could harm pharmaceutical research and development.

The scientists warn of possible "accelerating, abrupt, and potentially irreversible changes." These include the collapse of fish stocks, such as North Sea cod; rapid growth of marine algae, creating oxygen depleted dead zones in the sea; and emergence of disease.

In Africa, growing pressure on water supplies combined with regional climate change has the potential to greatly enlarge the areas in which cholera is a threat. The range of malaria bearing mosquitoes is also likely to increase.

The release of carbon into the atmosphere and the leaching of nitrogen based fertilisers into water pose serious risks for chronic disease, the report finds. Increases in ultraviolet B radiation, ozone and other air pollution, and pollen production are also predicted.

The report gives four sets of predictions for 2050, based on the approach currently adopted to counter ecosystem degradation. "The scenario we are closest to now is the one we call order from strength," said Dr Reid. This describes a world in which international cooperation is lacking, economic competition is fierce, and environmental threats are faced

only after they emerge. This is likely to deliver the fastest population growth, the lowest economic growth, and the most environmental damage of the four scenarios, he said (Dyer, 2005).

And, following are just three of the many, many charts showing the ever-accelerating human-caused climate changes:

Figure 4 – Global Temperature Change

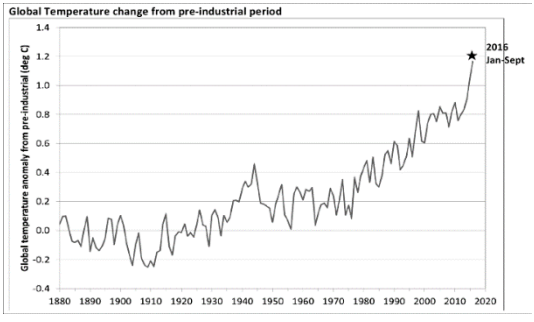


Figure 5 – CO_2 Level Change

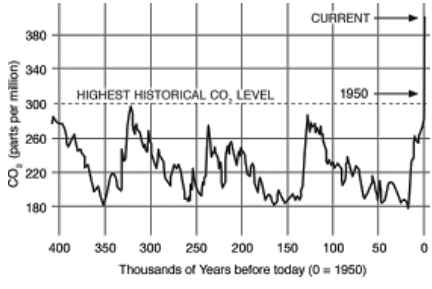
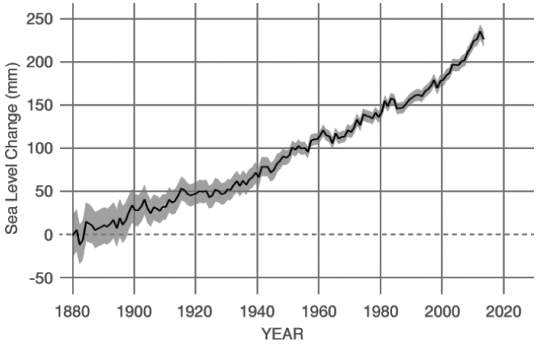


Figure 6 – Sea Level Change



By now, you should have no reason to doubt there is a problem that is having a devesting effect on the Earth's biosphere. The question, however, is not "What?" – but "Why?".

II – The Proximate Cause

The Legal Information Institute of Cornell University defines "proximate cause" as:

> An [type of] actual cause that is also legally sufficient to support liability. … The likelihood of calling something a proximate cause increases as the cause becomes more direct and more necessary for the injury to occur. (Proximate cause, 2017)

Technology

Technology is the proximate cause of the current pervasive and rapidly increasing degradation of the Earth's environment.

Technology is the physical instantiation of the human intellect. This instantiation usually takes the form of machines, both simple and complex.

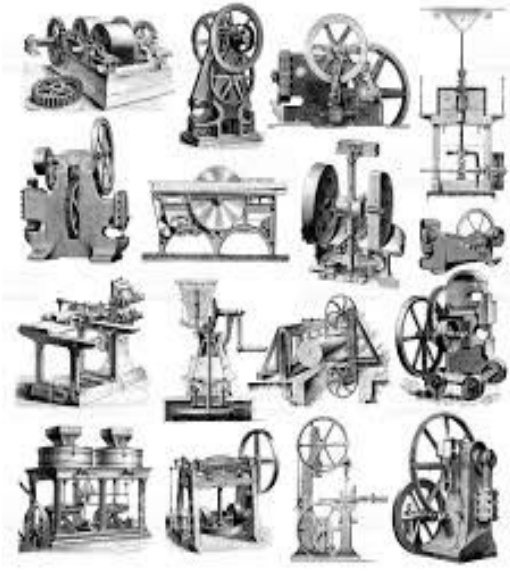
All technologies need energy to operate, but there are two general types of technologies: machinery and energy:

- Machinery, which includes simple tools;

- Energy Technologies

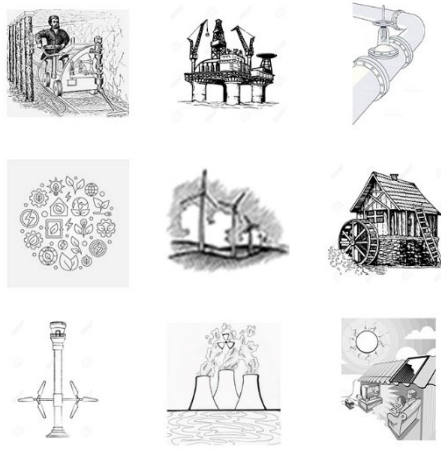
Machinery is a class of technology that produces goods or services but must be supplied with energy from an external source to operate. Since they do require an external energy source, it is easier to understand why they are a cause of the continuing degradation of the Earth's biosphere.

Figure 7 – Machinery



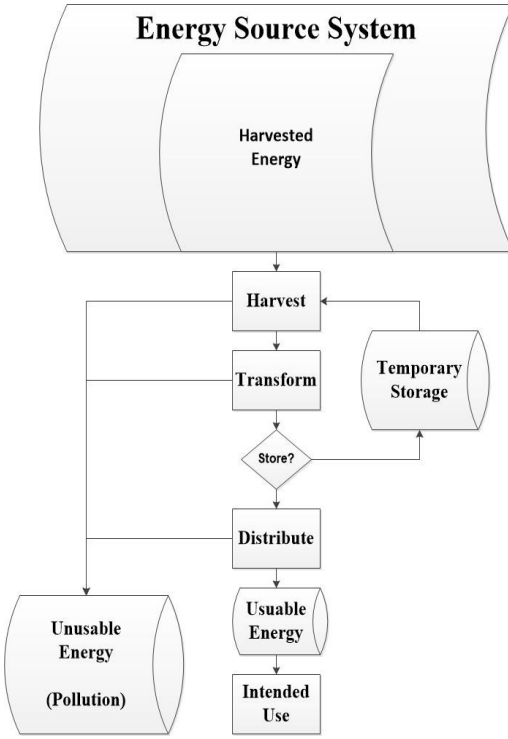
Energy Technologies are a class of technologies that are used to harvest energy. These include fossil fuels (coal, oil, gas), biomass, wind, flowing water, tidal, geothermal, nuclear, and even solar-energy systems.

Figure 8 – Energy Technologies



The most efficient technologies, energy-wise, are those that are developed and used to directly harvest energy from a source system, and after a series of operations, deliver the harvested energy to a target system which then makes it available for use by humans. Here is an overview of this general process:

Figure 9 – Energy Harvesting



The reasons technology is the proximate cause of the degradation of the environment is multifold. The major ones are discussed below.

All technology operates at a net loss in usable energy.[1]

This means that all technology requires more usable energy and resources to operate than it delivers. This energy loss, or unusable energy,2 is called pollution.

All energy sources now in use or even planned for, are energy-harvesting technologies that harvest existing energy from energy sources already existing on the Earth. These include fossil fuels (coal, oil, natural gas), biomass, wind, tidal, geothermal, nuclear, and even solar-energy systems. All energy harvested by any of these does not provide any additional energy than that which is not already present on the Earth.[3]

Below, the process depicted by the flowchart in Figure 9 – Energy Harvesting, is described in more detail using solar panels as a specific example, since may consider them to be the most efficient energy technology.

Energy Source System

According to the first law of thermodynamics, also known as "Law of Conservation of Energy,"

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[1] Energy usable to humans. See Figure 9 – Energy Harvesting.

[2] Energy that us not usable to humans. Ibid.

[3] Or, in the case of solar panels, even orbiting solar arrays, the interception of energy bound for the Earth.

energy can neither be created nor destroyed. Energy can only be transferred or changed from one form to another.[4] So, energy has to already exist in an energy source system somewhere, and in the example of the solar power energy technology, that source system is the Sun. Of course the source of the Sun's energy is a local nuclear fusion, but that is not a direct part of solar power technology, so we will begin with the results of that process that is able to be harvested on Earth – sunlight that reaches the Earth – as the "Harvested Energy" source.

Harvest[5]

This little process box represents the energy technologies themselves. In the case of solar energy harvesting, it is the solar panels. However, the solar panels just did not appear out of nowhere. To properly evaluate the energy required in this entire process, all the energy spent in creating the solar panels must be accounted for. This is an important step when accessing any energy technology and is one that is never included when advocates of solar panels extoll their virtues implying that the energy coming from them is "free" energy. It is decidedly not.

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[4] https://courses.lumenlearning.com/boundless-chemistry/chapter/the-laws-of-thermodynamics/.

[5] All of these steps create Unusable Energy (Pollution) as depicted in Figure 9 – Energy Harvesting.

Below is a list of just some of the activities which have to be done by machines which require energy to operate to create, maintain, and eventually dispose of solar panels. All the energy spent here has to be added to the energy cost of solar panels in order to more accurately access their effectiveness in harvesting the energy of the Sun.

Most solar panels consist of a series of silicon crystalline cells sandwiched between a front glass plate and a rear polymer plastic back-sheet supported within an aluminum frame.[6]

Create[7]

Each of these four components are made up of raw materials that must be:

- Mined, which requires digging machinery;
- Transported from the mine to a processing plant;
- Processed into a usable form, which varies among the four materials, but is especially complex for the silicon crystalline cells;[8]
- Transported to a factory which will

[6] https://www.cleanenergyreviews.info/blog/solar-panel-components-construction.

[7] All of these steps create Unusable Energy (Pollution) as depicted in Figure 9 – Energy Harvesting

[8] http://www.madehow.com/Volume-1/Solar-Cell.html.

format the processed components into a form which can be used to assemble the panel;
- Assembly of the panel;
- Packaging of the panel;
- Transportation of the panel to a warehouse or retail store;
- Transportation of the panel to the harvesting site. This could be very costly if the panel were to be used in an orbiting solar array.[9]
- Installation and setting up of the panel arrays;

Maintain[10]
- Clean
- Adjust
- Repair
- Replace

Disposal[11]
- Remove
- Replace or Shut Down
- Transport
- Dissemble

[9] For more information on Orbiting Solar Arrays, including a fictional account of a lab test, see *The Gliese Project: Helios*. W.D. Smart. 2019.
[10] Each of the following steps creates Unusable Energy (Pollution) as depicted in Figure 9 – Energy Harvesting.
[11] Ibid.

- Reuse, Recycle, or Discard

And all of these activities are, at this point, only for the actual solar panels themselves. This entire list will also apply to every component used in the complete solar energy system, the major parts of which are shown on the flowchart in Figure 9 – Energy Harvesting and described in more detail below.

Transform[12]

After collecting the energy from the energy source system, that energy usually has to be transformed into some other form, and, that transformation can involve several, successive levels of transformation. An example of that would be a windmill where the energy taken from the wind is first transformed into mechanical energy by the spinning blades, and then to electrical energy by a generator.

In the case of solar panels, the series of transformations begins with just one: transforming light into direct current (DC) electricity. In solar panels, this is done by the silicon crystalline cells , a.k.a "photovoltaic cells."[13]

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[12] Ibid.

[13] For more information on how photovoltaic cells work, see https://en.wikipedia.org/wiki/Photovoltaic_effect.

Most use of electricity is done using alternating current (AC) electricity, so somewhere along the line after the transformation of light to DC electricity, it has to be transformed again into AC electricity. This step, like all steps, requires machinery such as inverters, which are subject to all the steps in the **Harvest** section above: *Create, Maintain, Disposal*; and each of these activities is not 100% efficient, so produces unusable energy (pollution), usually in the form of heat.

Store[14]

Some energy technologies, after first harvesting the energy from the energy source system, have to store it somewhere before it can be distributed to place where it will actually be used.

In the case of solar energy, this is usually a set of batteries. Batteries store DC electricity. If the solar planes are located near the battery banks, the DC electricity they produce can be directly delivered to the batteries. If the battery bank is far away from the solar panels, the DC electricity is usually converted to AC for transmission to the site of the batteries, then inverted back to DC, then stored in the batteries. Of course, when the electricity stored in the batteries is extracted to be delivered to other locations and for most usages,

[14] All of these steps create Unusable Energy (Pollution) as depicted in Figure 9 – Energy Harvesting.

it has to be converted to AC again. Each of these convert/invert transformations requires machinery, so are subject to all the steps in the **Harvest** section above: *Create, Maintain, Disposal*; and each of these activities is not 100% efficient, so produces unusable energy (pollution), usually in the form of heat.

Distribute[15]

In some, but very few, cases, the energy harvesting technology is located at the same site as the intended use of the energy. But in most cases, the energy harvesting technology is located far from the location of intended use, and in many cases, the energy is intended to be distributed to many, different sites.

In the case of terrestrial solar panels, the distribution could be as simple and compact as an array of solar panels on the roof of a house, or could be as complicated and diverse as a complete electrical distribution network to all houses and buildings in an entire community. Extraterrestrial, orbiting solar arrays would require the transmission of the energy from orbit to a ground station, and then perhaps a storage facility, and finally to the targets of intended use.

In either case, the distribution requires either electrical wires or microwaves, both of which

[15] Ibid.

require machinery and components which are subject to all the steps in the **Harvest** section above: *Create, Maintain, Disposal*; and each of these activities is not 100% efficient, so produces unusable energy (pollution), usually in the form of heat.

Usable Energy

This is one side of the end result of the entire energy harvesting process. It is the actual , useable energy delivered in a form and to a site that can be accessed by humans.

In the case of solar panels, and most other energy technologies, that form is electricity.

Intended Use[16]

Finally! The energy has been harvested from the source system, transformed a number of times, usually stored one or more places, delivered to the site of intended use and is available for us.

Its actual use is also usually dependent upon machinery, such as microwaves, blenders, refrigerators, light bulbs, etc. And each of these machines are subject to all the steps in the **Harvest** section above: *Create, Maintain, Disposal*; and each of these activities is not 100% efficient, so produces unusable energy (pollution), usually in the form of heat.

[16] Ibid.

Unusable Energy (Pollution)

In all cases, the harvested energy is divided into that which is usable by humans and that which is unusable (a.k.a "pollution"). In all cases and in all energy technologies, this category far exceeds its associated category, usable energy.

All technology is detrimental to the environment,[17] even to humans in the long-term.

All technology is a detriment to the environment itself, and therefore to all lifeforms, both human and non-human and both in the short- and long-term. This is because all machinery and energy technologies are not 100% efficient and cast off unusable energy (pollution). The degree of inefficiency varies, but none are above 50%, which means they all operate at a net energy loss.

All technology provides only short-term benefit,[18] and then, only to humans.[19]

There is no such thing as "green technologies" or "renewable energy." These are marketing hype used to "sell" the idea and expectations that technologies can be built that are not harmful to

[17] A threat to the general biosphere.
[18] Perceived value.
[19] "Usable Energy," Figure 9 – Energy Harvesting.

the environment, and that some sources of energy are infinite. Both concepts are false.

"Green" implies they are good for the environment, and they are not. They operate at a net energy loss, and the unusable energy the produce has to be absorbed by the environment.

"Renewable" implies that energy is somehow being created somewhere, and that is just not the case. No one or nothing is "renewing" them. Energy sources, like the Sun, is constantly transforming matter into energy by fusion, but this is not "creating" or "renewing" energy. It is just harvesting it from one source, matter, and transforming it into another energy type, radiation.

Although it could be said the energy from the Sun is "infinite," of course, it is not. It will not run out anytime soon, but it's not infinite. That kind of thinking is the same kind of thinking as we used to apply to the Earth's oceans. We thought they were so big, that we could just discard all our waste into them, and they would never fill up.

They are now.

III – The Actual Causes

The Legal Information Institute of Cornell University defines "actual cause" as "A factor without which the result in question could not happen. The but-for test is often used to determine actual causation" (Actual cause, 2017).

Figure 10 – Pogo Cartoon – First Earth Day

(Kelly, 1970)

Yes, the actual cause of the continuing degradation of the world's biosphere is "us" —

humans. There are two reasons for this, hubris and overpopulation. One, the author fears, is probably not manageable, but the other, the author believes, is.

Human Hubris

Hubris is defined by Wikipedia.com as:

> "…describes a personality quality of extreme or foolish pride or dangerous overconfidence. In its ancient Greek context, it typically describes behavior that defies the norms of behavior or challenges the gods, and which in turn brings about the downfall, or nemesis, of the perpetrator of hubris" (Hubris, 2017).

Human hubris is exemplified in the virtually universal belief that humans are the most important life form on the Earth. The author realizes that most species exhibit this tendency to a point, and in that respect, humans are no different than any other life form. However, humans, enabled by technology, have taken this tendency to a point to where we see the purpose or value of other life forms only I the context of how they can benefit them. This is easily seen by the way humans not only raise other life forms for food, which is understandable, but the conditions in which these life forms are kept. Also, humans

think nothing of torturing, maiming, and killing other life form in the name of "science" or "medicine," the purpose of which in to provide a more comfortable life for humans. Also, humans capture, imprison, torture, maim, and kill other life forms for "sport," for amusement.

Figure 11 – Human Hubris

This perception of other life forms as just "objects" to be used to make human life more comfortable is reinforced by almost all religions, and particularly the Judeo-Christian religions which both believe in the writings of a "holy book" that teaches them:

> Then God said, "Let us make mankind in our image, in our likeness, so that they may rule over the fish in the sea and the birds in the sky, over the livestock and all the wild animals, and over all the creatures that move along the ground." (Genesis 1: 26)

"Rule over" is the operative phrase here. Whether humans are Christians, Jews, Muslims, or most any other religion, this domination is considered to be either their God-given right their right because they are superior to these other life forms.

The result of this attitude is evident in not only the way humans treat other animals and plants, but also the environment as a whole. All else on the planet is seen as their food source, objects to make their lives more comfortable, objects of amusement, and a dumping ground for all the waste they create.

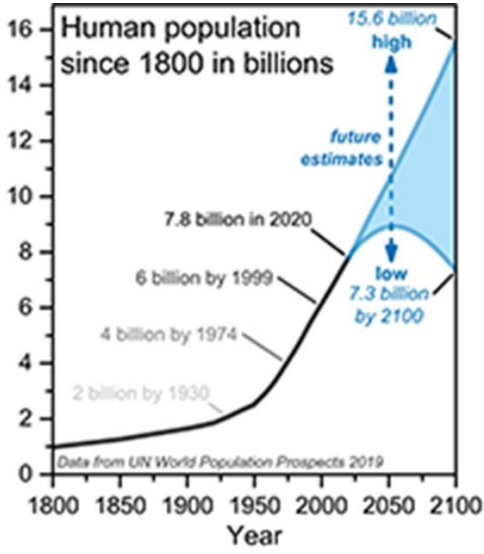
The author believes this trait in human nature is so ingrained that it can never be overcome.

The other basic cause of humans' continuing degradation of the biosphere, however, may be.

Human Overpopulation

Wikipedia, on one of its pages dealing with population, indicates that at the time of the writing of this book in 2020, the world's population was estimated to be about 7.8 billion and could more than double by 2100.

Figure 12 – Human Population Growth[20]



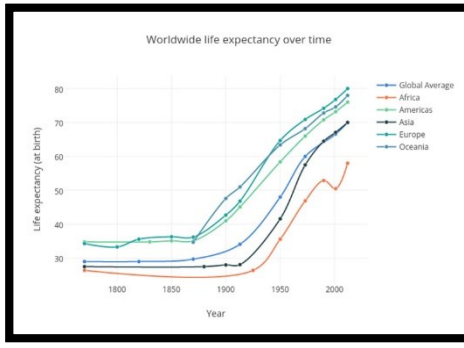
No matter which estimate you accept, the low estimate which "caps" human population at just over 7 billion, or the high estimate that

[20] By Bdm25 - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=89215845

projects over 15 billion , the number are just too high. They are too high because of the two other causes previously discussed: technology and hubris.

Technology enables this population growth by providing humans with more comfortable living conditions, and also increasingly better medical resources which reduce deaths in childbirth and increase life span. The human life span, over the past 300 years, has more than doubled, from the mid-30s to around 70.

Figure 13 – Worldwide Life Expectancy[21]



Human hubris also enables this uncontrolled population growth by reinforcing the idea that

[21] https://plotly.com/~amatelin/320.embed

humans are the most important thing on this planet. That results in two things.

The first is the unfettered use of all resources, both living and material, the Earth has to offer to make human life more comfortable – no matter what the cost. Humans are not concerned what pain and terror they cause other lifeforms, or what destruction and pollution they inflict upon the environment itself. Plastic is convenient and cheap, and it is easy to dispose of – just throw it in the sea.

Figure 14 - Plastic in the Ocean

The author is of the opinion that hubris is just part of human nature, and in spite of the world's

religions, compassionate-based movements, and benevolent philosophies, this basic trait will never be completely wiped out, and probably, for the majority of humans, even reduced significantly. Because of that, the author does not include any efforts to reduce hubris as part of possible solutions to this human-caused degradation of the biosphere.

That leaves only three, all of which will be discussed in the next section.

IV – Ameliorations and Solutions

More Efficient Technologies

Yes, we can invent more efficient technologies, but all technologies operate at a net loss of usable energy as was discussed in **Section II – The Proximate Cause**.

"Savior" Technologies

There are some theoretical (some might say "delusional conspiracy theories") energy technologies that make the promise of, or close to, a zero-net loss, and some, even a net gain. Following, is a closer look at three of them.

Magnet Pulse Motor Generator[22]

A Magnet Pulse Motor Generator, or "MPMG," basically consists of a flywheel fitted with magnets and a stationary solenoid that also acts as an inductor. As the rotating magnets pass by the solenoid, three things happen.

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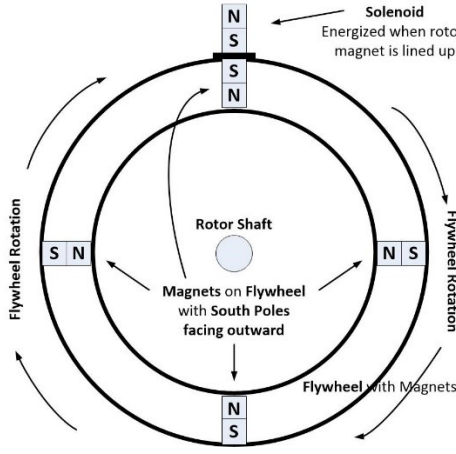
[22] For more information on Magnet Pulse Motor Generator, including a fictional account of a lab test, see *The Gliese Project: Kratos*. W.D. Smart. 2019.

The first is when the magnet on the flywheel lines up with the coils in the solenoid, the coils are magnetized. The second is the solenoid is timed to deliver a short, electrical pulse that repulses the magnet on the flywheel promoting the continued rotation of the flywheel. The third is when the magnet departs, and the magnetic field surrounding the solenoid collapses, an electrical current is produced in the coil. This current is called an "electromotive force," or "back EMF," for short. It is this "back EMF" that is proposed to be "free energy," or energy that is produced at, or close to, a net-zero cost.

Figure 15 - Magnet Pulse Motor Generator



This "energy technology" has been around for a while and was patented by Harold Aspden of the U.K. and Robert George Adams of New Zealand in 1999.

Although the tests run on this technology by reputable labs have never come close to duplicating the claims of the inventors, because of its simple construction, it remains a popular technology for people to explore, and you can find may references to it on the World Wide Web.

Electrogravitics[23]

Electrogravitics is a proposed energy technology associated with propulsion and a more accepted technology called "electrokinetics." Electrokinetics, however, is based on electrohydrodynamics which requires the process to take place in a fluid. Electrogravitics, however, has been claimed to be able to take place in a vacuum, which would imply a generation of "free" energy at, or close to, a net-zero cost.

The claim of electrogravitics being able to operate in a vacuum would also imply it could be a propulsion technology suitable for use in crafts operation in outer space.

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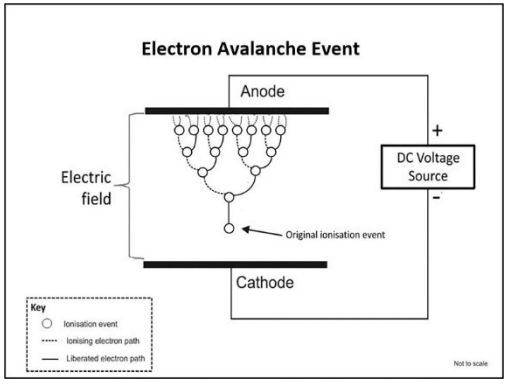
[23] For more information on Electrogravitics, including a fictional account of a lab test, see *The Gliese Project: Aeolus*. W.D. Smart. 2019.

The basis of this energy technology is the "Electron Avalanche."

Figure 16 - Electrogravitics Electron Avalanche



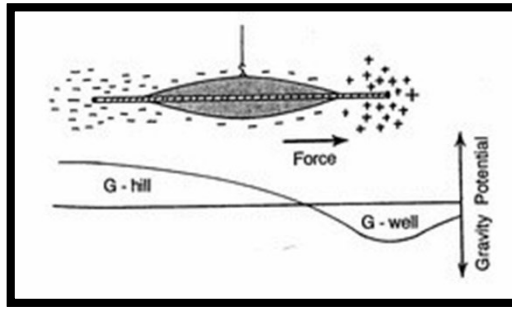
Also called the "Townsend Avalanche," after one of its first proponents, John Sealy Townsend circa 1900, it is a "…gas ionization process where free electrons are accelerated by an electric field, collide with gas molecules, and consequently free additional electrons. Those electrons are in turn accelerated and free additional electrons."[24]

As stated above, although the propulsion effect could be harvested, transformed, and used by machinery to perform work, the main purpose proposed for this energy technology is propulsion

[24] https://en.wikipedia.org/wiki/Townsend_discharge.

in outer space by creating "G-hills" and "G-wells" (gravity-hills and gravity-wells), which would provide the propulsion.

Figure 17 - Proposed Electrogravitics Propulsion



Electrokinetics in a fluid or gas has been tested and is accepted as a legitimate energy technology, however its energy return is nowhere near the zero-net energy target, and the belief that it would work in a vacuum as described by electrogravitic is still considered fantasy by most scientists.

Zero-Point Electromagnetic Generators[25]

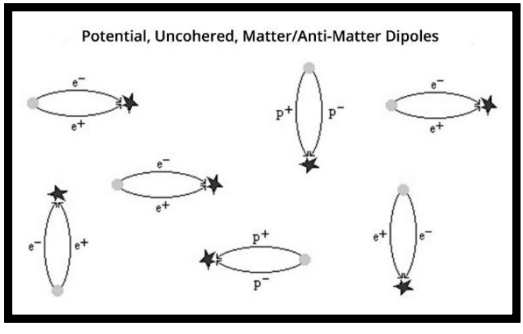
The vacuum of space was for a long time considered to be just that – a complete vacuum, devoid of all matter, all charges, energy, all

[25] For more information on Zero-Point Electromagnetic Generators, including a fictional account of a lab test, see *The Gliese Project: Demeter*. W.D. Smart. 2019.

everything. Then, Albert Einstein published his *General Theory of Relativity* in 1916. This completely disrupted the entire world's physics community and led to a lot more theories including, in 1927, German physicist Werner Heisenberg proposing his now-famous "Heisenberg Uncertainty Principle" which has led us into the brave new world of quantum mechanics.

From that point on, the "vacuum of space" was no longer assumed to be a complete vacuum, devoid of everything. It was not devoid of potentialities, and specifically, was theorized to be full of potential, and even "uncohered" matter and energy.

Figure 18 - Quantum Vacuum



"Uncohered" generally means "unorganized," but it is easier to explain by first defining the root word, "coherent." "Coherence," is the term used

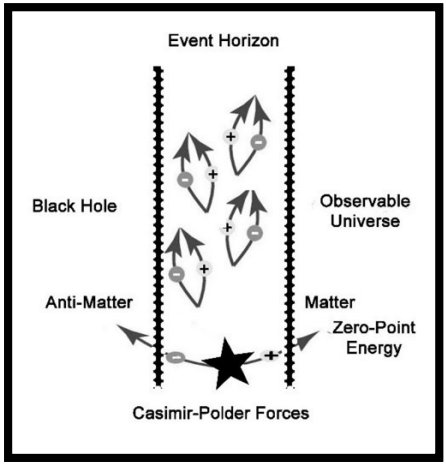
to describe two primordial particles/waveforms that have the same frequency and amplitudes. This produces "interference" which is when the waves are coupled and superimposed. In this case, the two waves are combined, or "cohered," and their energies are either canceled out or combined. When they are canceled out, the potentiality of the two cohered, quantum entities never reach their potential and return to the quantum vacuum. Their brief coherence, however, can be measured as faint energy in the quantum vacuum which was first measured by Dutch physicist Hendrik Casimir and is called the "Casimir Effect." The aggregate of all the latent energy in the potential, cohered, quantum entities in any given vacuum is called the "Casimir-Polder forces."

The quantum vacuum exists in an "event horizon." The potential, matter/anti-matter diploes appear, cohere, interfere, usually cancel each other out, and then disappear. But occasionally, the interference is such that the two potential dipoles are combined and produce a pair of diametrically opposed particles/waves that are then observed as matter/anti-matter, or as a force like gravity/anti-gravity, or matter and "dark" matter (a.k.a. "black hole"). The reason for all this is, as explained by Einstein's theorem, that matter/energy cannot be created or destroyed, and

so the total of all the matter/energy in these potential and actualized particles/waveforms has to remain constant.

Occasionally, however, the Casimir-Polder forces cause the potential, matter/anti-matter dipoles to cohere, and to cohere in an interference that causes them to produce, or "actualize" a particle/waveform that can be harvested, transformed, stored, and then delivered for use as a source of energy."

Figure 19 - Zero Point Electromagnetic Generation



This is the process called "zero-point electromagnetic generation." It is also considered

a "theoretical" energy technology, although it is now being actively researched.

One aspect of this technology that has not yet been considered, at least to the author's knowledge at present, is what would be the long-term consequences of the "anti-matter" cohered and subsequently delivered to the black hole side of the event horizon.

Reduction of Energy Use

Human energy use is the result of three factors:

- **Efficiency of Technologies** – This factor has been discussed in **Section II – The Proximate Cause**, and above in this section.
- **Degree of Comfort Desired –** This factor is a function of hubris and was discussed in **Section III – The Actual Causes**, and the author's conclusion was that it was, for the most part, unchangeable.
- **Size of Population** – This factor was also discussed in **Section III – Actual Causes but** will be discussed in more detail in the next subsection just below.

Population Growth Reduction

Even though the human population keeps increasing, it is not thought that this will go on forever. It is anticipated there will be a gradual slowing of global birth rates causing a corresponding reduction of the current number of people, and this will, eventually, level off into an equilibrium.

Just as for population growth rate, there are models used to project a cap on population growth: [26]

> Most populations do not grow exponentially; rather they follow a logistic model. Once the population has reached its carrying capacity, it will stabilize and the exponential curve will level off towards the carrying capacity, which is usually when a population has depleted most its natural resources (Population growth, 2017).

Using this model, or one like it, many agencies have projected when the growth will cease. All models predict a ceiling, but just how high and when that ceiling will be reached varies immensely. Most of the models, however, predict

[26] See **Appendix I** and **Appendix II** for model details.

a peak of 9 to 10 billion, at dates ranging from the late 2020s to the 2050s.

That could be seen as good news, however a leveling-off will just mean there will not be an ever-increasing number of people, but there still will be an overpopulation of people (the actual cause) who will continue to consume the Earth's resources at the then present, destructive rate. Also, even if the human population ceases to grow, or even begins to shrink slightly, there is no guarantee there will ever be an end to the ever-increasing human demands for a more comfortable lifestyle, less disease, and a longer lifespan. These demands, of course, are met by more use of technology (the proximate cause) requiring more energy-harvesting which will produce more pollution.

Planned Population Reduction

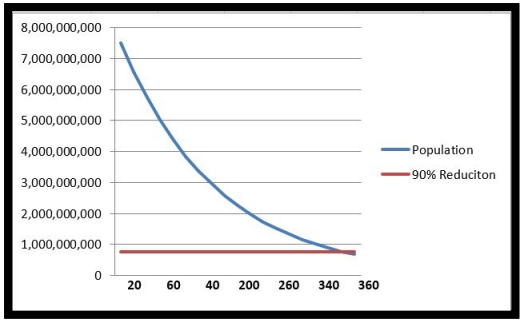
Instead of just waiting and hoping for a spontaneous population reduction, the author thinks a better approach would be a planned one.

One approach would be a One-Woman, One-Child program. I have created a model of that which makes a lot of assumptions,[27] and even if strictly followed, it would be 350 years before the world's human population could be reduced by 90%, the level the author believes is necessary

[27] See **Appendix III** for complete model details.

assuming neither of the other two causes, use of technology and hubris, are reduced.

Figure 20 - One Woman, One Child Projection



The author believes this will be too little, too late. This is all discussed in more detail in the next section, **V –Conclusions.**

V – Conclusions

This section begins with a quote from an Earth advocate, DeVona Lahrman:

> The idea that scientific discoveries will save humanity from the continued threat of climate change disaster is a circular argument, one currently used by our government in every area of environmental, economic, and social rupture – human innovation creating a problem that human innovation will fix. Our species seems to be a combustion engine itself, running on what it can consume and creating more avenues of consumption through its industrial revolution, straight into the technological one, more necessity coming with every new invention. Plans of saving the planet are turning into more theory now than practice.
>
> As the United States leaves the Paris Accord, its global leaders like Bill Gates sink

money into bringing scientific minds together to talk about how to suck carbon dioxide out of the atmosphere once it gets to a critical level, but not before. We ignite the public's imagination with possible giant air scrubbers, seeding the atmosphere and water with reflective chemicals. The irony of fixing a poisoning problem of the atmosphere with yet more poisons is not lost here, I hope. There have also been suggestions of shielding our planet home with reflective balloons to save it from the Sun's rays. At times it all sounds like a wistful children's fantasy novel; at other times, the ramblings of a diagnosed narcissist.

We are not going to leave the problems of climate and social inequality of consumption of its proponents to the owners and operators of them and expect to see changes happen fast enough to prevent the coming disasters of global warming that will reduce Greenland's ice sheet to a cocktail cube and flood our coastlines, giving waterfront property to the interior, while scorching already more arid areas of the Earth into uninhabitable wasteland. By more arid places, I am not talking about the Mohave Desert, but Wenatchee, Washington, the "Apple Capital" of the United States, and its rising summer temperatures that will soon make healthy

apple production impossible as it goes from high plains desert to scrub land. Thousand Oaks, California may very well be able to boast only of having 1,000 oaks if the temperatures there continue to climb. Alaska has hit 90-degree summer temperatures in July of 2019. Perhaps a moment of time in the Sun over the 4th of July will be remembered as ideal, but any continuation of this trend will undoubtedly upset salmon runs and population and increase waterborne parasites that infest them at higher water temperatures. Cold-water crab fishermen are not going to see such continued increases in temperature as a return in the already sliming counts in their pots either. On the other side of the climate-change coin, Indiana's and Ohio's monsoon season in the spring of 2019 has left the Midwest with an impending bailout of the corn and soybean crop for the season because of its swamped fields that could never be planted, or crops that went in so late that any harvest now is a gamble considering the tariffed soybean market collapse with China. Perhaps providence is wise here.

Any proof of our unnecessary role as stewards of the clean-up of the environment we have unbalanced is powerfully discussed in the recent article "The Pandemic Is Turning

the Natural World Upside Down" by Marina Korin (Korin, 2020). Social distancing is affecting how quiet the Earth has become during the Covid-19 Pandemic. Recent results observed by Seismologist Paula Koelemeijer coming from her seismometer show less rumbling on the Earth's surface as trains, planes, and automobiles cease to run unless falling in the "essential-only" category Britain has enforced. Less humanity, less noise, water, and air pollution from our modes of transportation and manufacturing has resulted in more animals returning to daylight activity and expanding their territory back into previously held roaming quarters encroached on by us. We are not the "savior" nature requires to come to the planet's rescue. We are the cancer that, once removed, allows Mother Nature to heal herself.

The most frightening statistics about the change in the Earth's atmosphere are those pertaining to the species genocide it is creating. In the second expulsion from Eden, man throws himself out of the Garden for a second time, taking the knowledge, then building a global Pandora's Box, only to be opened and finding the same result – loss of Paradise.

There is a saying popularized by recovery

groups, “Insanity is doing the same thing over and over and expecting different results.”

Welcome to the global asylum. (Lahrman, 2019)

Too Little, Too Late

The author’s conclusions in as concerns all the suggested ameliorations and solutions proposed to slow down, stop, much less repair all the damage humans have already done to the Earth’s biosphere is that they are all too little, too late. We are already “over the cliff.”

Proximate Cause – Technology

All technology is harmful to the environment and the biosphere because all technologies, even the most “green” and “renewable” energy technologies, operate at a net loss of usable energy. The “lost” energy is distributed to the environment and the biosphere in the form of pollution.

Believing that humans are so smart that they will be able to develop technologies in the future that are able to produce “free” energy is just fantasy. The only approaches that could help here are to eliminate or at least reduce the use of technologies, and that, the author believes, is just not going to happen. In fact, the author believes

the opposite will happen – more technology and more pollution.

Actual Cause – Human Hubris

Hubris is fault in human nature that is the basis for the title of this book. In the myth of Daedalus and Icarus, it was hubris that prompted Icarus to feel so liberated and powerful, that he believed he was invincible and indestructible. He was wrong.

Humans now believe that their superior intellect, which is the source of technology, makes them superior to all other life forms on this planet, and makes them feel invincible and indestructible. They are wrong.

This human trait, which, in actuality, is probably a trait in all living beings, will, if left unchecked, lead to our downfall just as it did Icarus.

The author believes that although some small percentage of human populations have tried to bring this trait into check and to live compatibly with everything else on Earth, the basic trait is too well established and most humans have no interest in trying to reduce its effects. So, like Icarus, the author believes we too will strive to overcome nature rather than learn to live compatibly with nature. And then, we too, will eventually fail and fall to our, and many other life form's, end.

Actual Cause – Human Overpopulation

Most experts in this field predict a leveling off of human population at some point. But, since human population is now much too high, and especially so with the use of so much technology, a leveling off or a slight reduction in population will not help much. It might slow down the inevitable fall, but it will not prevent it.

The author has proposed a program of One-Woman, One-Child which could, without any human-induced reduction in numbers, reduce the human population by 90% in about 350 years. But the author also believes this is not a viable solution for two reasons. One is that humans are very unlikely to accept a one-woman, one-child edict from some consortium of global authorities, and the enforcement of such a program would be very problematic if not impossible. The second reason this the author believes this is not viable solution is because the author does not believe we have the luxury of 350 years to do this. The author believes under the current conditions, which are accelerating, even with a deceleration, 100 to 200 years is probably all the time we have before the upcoming mass extinction even, which will be caused mainly by humans.

In fact, it is this upcoming mass extinction event that is, in the author's opinion, the only chance some of Earth's life forms have at being able to survive.

Will humans be one of the surviving life forms? Probably the best answer for the rest of the Earth and even the universe, is…no.

What Now?

The author has presented conclusions above that he believes are realistic, but also understands the conclusions above can be seen as being very negative and pessimistic. They are all three, but that does not mean that the author is advocating that all efforts at the amelioration or slowing down of the pace of degradation of the biosphere are useless and should be abandoned.

The very idea that any action is "useless" is a function of hubris. It is an evaluation of an action based on whether or not it can benefit the actor, or in this case, humans. Actions are just actions and should be done whether or not an individual believes they will reap a benefit from them.

This is best illustrated in a story, like the myth of Daedalus and Icarus, of acting spontaneously without regard to a hope for a reward or even the ultimate "success" of the action. This story has many forms, and each form tells the story in a little different way using different characters. Here is an example:

> Once upon a time, there was an old man who used to go to the ocean to do his writing. He

had a habit of walking on the beach every morning before he began his work. Early one morning, he was walking along the shore after a big storm had passed and found the vast beach littered with starfish as far as the eye could see, stretching in both directions.

Off in the distance, the old man noticed a small boy approaching. As the boy walked, he paused every so often and as he grew closer, the man could see that he was occasionally bending down to pick up an object and throw it into the sea. The boy came closer still and the man called out, "Good morning! May I ask what it is that you are doing?"

The young boy paused, looked up, and replied "Throwing starfish into the ocean. The tide has washed them up onto the beach and they can't return to the sea by themselves," the youth replied. "When the sun gets high, they will die, unless I throw them back into the water."

The old man replied, "But there must be tens of thousands of starfish on this beach. I'm afraid you won't really be able to make much of a difference."

The boy bent down, picked up yet another starfish and threw it as far as he could into the ocean. Then he turned, smiled and said, "It

made a difference to that one!" (Straube, 2011)

That is acting without motive, with compassion, and without the expectation of an overall "success."

That is the answer to the question, "**What Now?"**

Epilogue

"This is the way the world ends,
Not with a bang but a whimper."

(Elliot, 1909)

Appendix I

Population Growth Model

This model gives a percent of growth over a period of time.

$$\frac{P(t_2) - P(t_1)}{P(t_1)(t_2 - t_1)}$$

Where,

P = population
t_1 = time one
t_2 = time two

(Population growth, 2017).

Appendix II

Population Limit Logistic Model

$$\frac{dP}{dt} = kP(1 - \frac{P}{K})$$

Where,

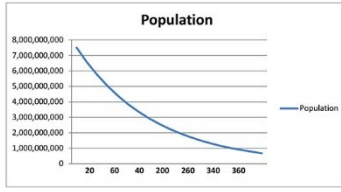
P = the population after time t
t = time a population grows
k = relative growth rate coefficient
K = carrying capacity of the population; defined by ecologists as the maximum population size that a particular environment can sustain.

(Population growth, 2017)

Appendix III

One-Woman, One-Child Spreadsheet

Year Period	Population	1 to 20	21 to 40	41 to 60	61 to 100	% of Starting Population
0	7,500,000,000	1,875,000,000	1,875,000,000	1,875,000,000	1,875,000,000	
20	6,562,500,000	1,640,625,000	1,640,625,000	1,640,625,000	1,640,625,000	87.50
40	5,742,187,500	1,435,546,875	1,435,546,875	1,435,546,875	1,435,546,875	76.56
60	5,024,414,063	1,256,103,516	1,256,103,516	1,256,103,516	1,256,103,516	66.99
80	4,396,362,305	1,099,090,576	1,099,090,576	1,099,090,576	1,099,090,576	58.62
100	3,846,817,017	961,704,254	961,704,254	961,704,254	961,704,254	51.29
120	3,365,964,890	841,491,222	841,491,222	841,491,222	841,491,222	44.88
140	2,945,219,278	736,304,820	736,304,820	736,304,820	736,304,820	39.27
160	2,577,066,869	644,266,717	644,266,717	644,266,717	644,266,717	34.36
180	2,254,933,510	563,733,377	563,733,377	563,733,377	563,733,377	30.07
200	1,973,066,821	493,266,705	493,266,705	493,266,705	493,266,705	26.31
220	1,726,433,469	431,608,367	431,608,367	431,608,367	431,608,367	23.02
240	1,510,629,285	377,657,321	377,657,321	377,657,321	377,657,321	20.14
260	1,321,800,624	330,450,156	330,450,156	330,450,156	330,450,156	17.62
280	1,156,575,546	289,143,887	289,143,887	289,143,887	289,143,887	15.42
300	1,012,003,603	253,000,901	253,000,901	253,000,901	253,000,901	13.49
320	885,503,153	221,375,788	221,375,788	221,375,788	221,375,788	11.81
340	**774,815,259**	**193,703,815**	**193,703,815**	**193,703,815**	**193,703,815**	**10.33**
360	**677,963,351**	**169,490,838**	**169,490,838**	**169,490,838**	**169,490,838**	**9.04**



Column Name	Description
Year Period	All are 20-year periods
Population	Total population at the beginning of that period
1 to 20	Age-range
21 to 40	Age-range
41 to 60	Age-range
60 to 100	Age-range
% of Starting Population	Percent of starting population. Ten percent occurs at about 350 years

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About the Author

W. D. Smart was born and raised in the United States Midwest and later lived in various cities on the West Coast and the Deep South. He has eight adult children and fifteen grandchildren. His education includes undergraduate degrees in Liberal Arts and Computer Science and Engineering, and he holds a Master's in Business Administration.

Mr. Smart's professional focus has been working as an information-technology consultant designing data-based business solutions and building descriptive and predictive analytic models for companies all over the world. His work has allowed him to travel broadly and spend significant time living and working in North and South America, Europe, Africa, India, Australia, and Asia. He also holds a USCG Master Captain's License, has worked captaining oil rig supply boats in the Gulf of Mexico, sailed extensively, and has studied and practiced zen for over fifty years.

Mr. Smart is now semi-retired and lives in the mountains of Central Thailand where he writes; tends a small farm with his wife on which they grow tamarinds, mangoes, bananas, limes, tapioca, and pepper; and helps manage their rice fields in a nearby valley.

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