IF EARTH COULD SPEAK

Kirk Hylan

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This has been no small task. It's quite a process to write your first book. It's an entirely more difficult process when that book is nonfiction and proposes a complete change in the course of civilization. I am, and will forever remain, grateful to all.

www.ifearthcouldspeak.org

To those who will shape our future.
Specifically the young and the youth, both living and unborn.

Inside:

INTRODUCTION:..... 8
Change is the Only Constant in the Universe, Whether We Like It or Not 8
If Earth were a Corporation 11
What's the Hurry?..... 12
Part I..... 15
The Business Plan for Planet Earth..... 15
Every Moment is Precious 16
Dubai Has Shown Us the Way 17
Water Always Seeks Its Own Level 22
Part II..... 26
The Survival of Business or the Business of Survival 26
Water: Too Much or Too Little? 27
Desalinated Water: Our Survival Depends On It..... 28
Here's the Hurry! 30
We Can See the Future for the First Time in History..... 31
Part III..... 32
The Irrigation Solution: The First Step is the Biggest One..... 32
Let's Have a Drink Together! 33
The Earth's Largest Processing Plant is Itself 34
We Like Greenhouse Gases 35
Hunger Disappears and is Never Heard from Again..... 37
Drought Evaporates and its Effects are Never Felt Again 38
Dust Storms Still Occur on Other Planets, but Not Ours..... 38
Dead Zones are a Signpost of Our Times 40
Bee Populations Feed Us..... 41
Alternative Fuels: The Long Awaited Severance of Our Dependence on Oil..... 42
Who is Going to Manage the Process of Cleansing the Atmosphere? 44
Pass the Salt, Please..... 45
Without the Gulf Stream, The Old World Becomes The Cold World 46
Ice Ages Come and Go 47
Volcanoes: First it is Hot Then it is Cold..... 49
The State of Electricity isn't All That State of the Art 51
Part IV 52
Let's Take a Planetary Walkabout 52
The Best Solutions are the Simplest Ones..... 53
Tuvalu: The First Line of Defense..... 53
Who Knew the Sahara is Really an Oasis? 54
Why is the Bay of Bengal like Los Angeles? 55

Africa: An Unnecessary Paradox 55
What China Does Will Impact What Others Do 57
Australia: The Sunburnt Country 58
Afghanistan: The End of Struggles 59
The Caspian and Aral Seas: Asia's Keystones 60
Iran: Your Problems Are Our Problems 61
Venice: You're Not Leaving Us 62
London is in a Sticky Wicket 63
Moscow Can Breathe Easy 63
Naples Sits in a Vice Grip 64
A Jaunt through the United States is in Order 64
The Time of the United Nations has Finally Arrived 73
Part V 74
ECONOMICS: 74
Resetting our Global Priorities, From Maximizing Profit to Maximizing our Species' Survival 74
We Make It Harder Than It Has To Be 75
The Time of the Benevolent Business Has Arrived 77
A Cure for the Economic Flu 78
The Energy Economy: a Stepping Stone 79
How to Close the Gap of a Two Class Society 81
The Premise for Terrorism and Gangs Fades Away 82
Options for Displaced Former Homeowners 83
The Concept of Survival 83
Zero Unemployment and the Bull Economy 84
Last Call for the Baby Boomer Generation 85
Conclusion 87
Evolution or Revolution 88
How Quickly Can We Make these Changes? 88

INTRODUCTION:

Change is the Only Constant in the Universe, Whether We Like It or Not

"Only those who attempt the absurd will achieve the impossible." *M.C. Escher*

"Before the beginning of great brilliance, there must be chaos. Before a brilliant person begins something great, they must look foolish to the crowd." *I Ching*

For more than 35 years, I have been working in the area of information technology, solving problems with the future as priority one. Yet, until now, I have never had such a solution unveil itself to me with more simplicity and elegance.

My late, beloved black Labrador Retriever, Mystery, was with me ten years ago when this solution came to me one night at 3am. I turned on the lights, startling him awake. I began to pace the floor. Sweat poured out as ideas rushed in. He watched my every move with intensity. He knew. There was something very different about this night and my behavior, something urgent.

This sense of urgency that I wish to instill upon you would be done an injustice if viewed as a call for revolution. Rather, this book urges evolution. Yet we can only evolve in a managed fashion by reframing our collective efforts upon the fundamental concept of our joint survival. At present, survival and profiteering are discrete endeavors. This will remain true as long as the current economic and political systems remain. That is why I am proposing no less than a complete paradigm shift.

Presently, we do not have an action plan. With this book, I will propose one, a strategy from which we can realize a series of solutions to many of the largest issues our civilization faces.

Consider the following major points:

- the elimination of water stresses and shortages
- the complete elimination of worldwide hunger
- the complete eradication of the need for the terms "poverty level" and "poverty line"
- a measured response for the eruption of volcanos
- prevention of Dust Bowl and top soil losses
- the elimination of sinking land masses due to water table extraction
- the reversal of expanding deserts, (which is China's biggest problem)
- the halting of water contamination
- the reversal of bee colony collapse
- the elimination of the jellyfish infestation and proliferation problem
- feasible protection of the Gulf Stream
- the elimination of dead zones along our coasts due to river runoff from pesticides and fertilizers
- the elimination of many carcinogenic substances in our air, water, and food

- the restoration of natural plant growth, eliminating the rationale for GMOs
- global economic stability
- the underlying premises and causes of terrorism
- the global rising of sea levels
- countermeasures for cities vulnerable to rising sea levels, such as Venice and New York City.
- the current state of electricity
- a new global economic model for the future generations to implement
- the moderation or complete stoppage of the rising of global temperature
- and most importantly: the transformation of Earth into the largest carbon processing plant that we could ever hope to have, (one which serves multiple items aforementioned)

Simply put, all of the above can be provided by ecologically-appropriate, massive desalination on a global basis.

Certainly, if we are a species with the power to reason, enabled with faculties that helped us to adapt to and survive at this place in time, we can meet the requirements of such a grand technological feat.

In earnest effort to propel this goal forward, this book proposes a long-term, sustainable strategy for the business of managing the planet, its resources, its continuing changes, and the survival of our species. Right now, every insect, every reptile, every fish, every coral reef, and every mammal is dependent upon us to make critical and time-sensitive decisions during this generation and no later. Likewise, our survival is tethered to the continued existence of these other species. Indeed, whether naturally-occurring or man-made, it is paramount that we take actions either to prevent or prepare for imminent environmental changes.

First of all, I will outline an entire action plan, the foundation of which is based on the development of core technology involving the exponential expansion of our water supply. The base tenets of this action plan, and the rationale behind them, will be articulated at the outset. After this presentation of our text's fundamental concept, we will see in the following section how this could positively impact the geology of the Earth. Next, we will show what benefits could be realized if we applied the plan to specific locations across the globe. Our final task will be to connect this plan to our current economic and political landscape, the last major section of this book.

Addressed in this action plan are multiple examples of the most pressing exigencies that could impact our civilization's continued existence on the planet. Success hinges upon the global acceptance of fresh, bold concepts and the implementation of core technologies that could render saltwater useable. Indeed, all of this would entail the largest global works projects ever to be undertaken in our planet's history.

This plan is comprised of extremely broad concepts, a macro-view approach. Our vantage point is the future, from which we will look back upon our present-day issues. Where and when possible, we will pay some attention to the micro-view.

To be clear, this is a 'feet to the street,' highly streamlined, no nonsense, accelerated action plan that can be implemented immediately. It will aggressively propel progress if applied to the most pressing issues that we face in our quest for continued survival.

Of course it is important to remember that the proposals of this text are offered without any guarantees. Preparation is the keyword. In business, we buy insurance. In life, we prepare. Thus, if we are in the business of living, preparation is our closest form of insurance. Our mandate is to prepare for every possibility without political or economic agendas.

If Earth were a Corporation

Imagine, if you will, that Earth is a corporation and that all of the world's nations are departments within that corporation. Without manipulating any of the inputs, let's take a quick overview. It is apparent that there is no long-term, master plan in place, no sustainable strategy for the continued existence of this corporation. It merely exists and perpetuates without direction, in spite of its directors (politicians) and employees (citizens).

Digging deeper, we see that each department is operating autonomously without consideration for the others. This is analogous to, say, having a sales department that does not communicate or coordinate with the manufacturing department. But that's not all. Each department's agenda is the same: to maximize output, more often than not to the detriment of other departments. It's even evident that the prime directive of certain departments is to have a negative impact on others.

Investors purchase ownership positions in companies where there is a possibility of increased value. Investors take an opposite position on their investment when they believe that the value will decline. What about the corporation's stock? Would any of the major stock exchanges allow it to be traded on its boards? Would anyone even consider investing in it? Which position would *you* take on your investment in Earth Inc.?

The prime directive of a successful business is to create a long-term, sustainable strategy of profitability. Yet the absence of a viable business plan for our Earth signifies that, without a change in course, business activities will close and operations will cease.

What's the Hurry?

We have hit a flashpoint in our existence, a plausible bookend to our timeline. We are at a tipping point, where dialogue regarding our covenant, our cradle, and our home must be accelerated.

We have already known for some time that various human species have been in existence over 3 million years, and 'modern,' recorded history began somewhere between 6,500 and 13,000 years ago[1], depending on who you ask. However, this is the first time that we have been able to see, with almost absolute clarity, what our future with our beautiful blue planet looks like. We have never faced anything like this current convergence of global, social, political, economic, and environmental challenges. Therefore, our response as a collective requires an even more evolved, solution-oriented mindset, one superior to and more effective than those of previous milestones along our phenomenal history.

Repeatedly, it has been said that history repeats itself. This has always been true - until now. What is happening presently has never happened before. Read on and I'll explain.

We have lived as sentient civilizations throughout history - as Sumerians, Babylonians, and Egyptians, in the Golden Age of Greece, the Roman Empire, the Middle Ages, the Gilded Age, the Industrial Revolution, and now in the Electronic Age. What human beings have accomplished over the course of history has been nothing short of magnificent. Our engineering feats have always been breathtaking. Can you think of an engineering problem that we failed to solve once we set our minds to it?

[1] Anderson, T.L. & Simmons, R.T. (1993). *The Political Economy of Customs and Culture*. Rowman & Littlefield Publishers, Inc.

Aside from the tasks we now hold before us, I cannot think of a single instance.

Regardless, in my view, we are no more sophisticated socially or psychologically now than our descendants were 6,500 years ago, or even, dare I say, 65,000 years ago. As a result, the economic landscape is on the verge of upheaval in one form or another. Even worse, the planet is exhibiting indisputable environmental changes while opposing parties argue as to what the cause is or, even more concerning, who is responsible.

Of course we cannot be bothered with details because we're so busy living our lives. But Earth's not going to email us her calendar. She may have a different agenda, one that we would consider inconvenient.

This book will not even attempt to address the arguments concerning what is causing environmental changes. These questions are crucial, but not part of our discussion here. What's important is this very moment in time is unique to our civilization's experience. First of all, there are more people living off the land now than ever. Secondly, in this context we are staring down the barrel of glaciers and icecaps melting at an accelerated rate, the highest concentration of carbon dioxide in the atmosphere in the last 5,000,000 years, rising sea levels, and fresh water sources that will no longer be able to service our increasing global population in the not too distant future. So what is important is that we do everything that we can possibly do to prepare for any and all outcomes.

Now we are starting to squirm, having arrived at a precipice. Never before have the current set of factors and conditions presented themselves. This mandates that we adopt new decision-making processes that we have not yet explored. Consider the following quote:

> "We cannot solve the problems we have created with the same thinking that created them." *Albert Einstein*

Our discussion is really not about the current generation. We have been able to live pretty well without much interaction with or interference from our respective environments or climates, and we will probably leave this world in relative comfort.

But things will change soon after. It seems likely that the next generation will probably not be as comfortable. And what about the generation after that? Without taking profound actions now, I believe that they will have to

address these issues in a reactive mode versus a proactive one. This calls another quote to mind:

> "We do not influence the course of events by persuading people that we are right when we make what they regard as radical proposals. Rather, we exert influence by keeping options available when something has to be done at a time of crisis." *Milton Friedman*

Are we willing to take the risk of being wrong if we decide not to take action, not to prepare for probable events? Would it make sense to take those risks if we have the ability to change our destiny ahead of time?

In my vocation of information technology, I work in the corporate world. I cannot afford to be wrong, as executives simply cannot leave their businesses open to risk. They prepare for unforeseen events that could impact continued operations. Likewise, as global citizens we cannot expect that we can be ill-prepared for the future and also expect to perpetuate in the long term. We need to actively engage in this discussion and talk about things that are difficult.

The Native Americans took a pragmatic approach to future generations:

> "In every deliberation, we must consider the impact of our decision on the next seven generations." *Great Law of the Hau de no sau nee (Iroquois Nation)*

Throughout our presence on Earth, civilization has innovated and delivered things never before seen. The Egyptians and the Romans conceived of and accomplished engineering feats that were incomprehensible to the wildest imaginations of those that existed before them. Likewise, this generation is going to have to set a new standard. True, it won't help us much. We'll be gone by the time our hard work begins to make a difference. It's the next generation and the generations after that who will benefit.

Self-interests are not viable in a world with a growing population and diminishing resources. We are the last survivors of the homo species that have evolved over millions of years. Those earlier human species did not or could not adapt and perished. Can we provide enough options for future generations and adapt to our planet's pervasive changes in order to survive? This is our challenge. What follows is my proposal for meeting that challenge.

Part I

The Business Plan for Planet Earth

"If we could ever competitively, at a cheap rate, get fresh water from salt water, that would be in the long range interest of humanity, which would really dwarf any other scientific accomplishments." *John F. Kennedy*

Every Moment is Precious

The topics we'll be discussing are the biggest that could possibly be presented to the human race. Hence, to do so in book form is a great challenge for sure. I have mentally and physically struggled with creating this text for nearly a decade, rewriting it dozens and dozens of times. My hope is to provide you, the reader, with the entire presentation in as clear, concise, and compelling of a manner as I can possibly muster. So let's ride the intellectual bullet train. Let's have a conversation about solution-oriented concepts.

One morning, I read that we have too much water in our oceans, and later that same day the radio told me that we have too little fresh water. That paradox irked me. Instead of being a bystander, part of the problem, relying on our political leaders for the solution, I determined that I should contribute.

What happened subsequently has never happened before in all of my years of problem-solving. You see, I've spent 35 plus years in the dynamically changing field of corporate information technologies, taking on large problems. These I break down into smaller, individual problem units, solving each in turn. In other words, typically, by solving a core problem, a slew of other problems subsequently present themselves, along with their respective solutions.

What was unusual this time around regarding the water question was that I had discovered other solutions I had not even sought in the first place. They just appeared. In essence, once I saw the solution to the initial hurdle, an entire portfolio of our civilization's greatest challenges consequently resolved themselves as well.

This all begins with water. Without water we and the millions of other diverse biological species do not continue to exist. At some inevitable juncture, our limited, naturally-occurring fresh water sources will be unable to support the global population.

This is why, at some point in the near future, we must desalinate water on a global basis.

Dubai Has Shown Us the Way

Before you balk, look at Dubai, an absolutely magnificent, breathtaking testament to what innovative engineering can achieve in the area of desalination.

A few years ago, after desalinating water in large volumes, purified water was added to the water table near the town of Al Ain via a distribution system[2]. Wonderfully, a new lake unexpectedly appeared in desert land 150 miles from the Persian Gulf as a result![3] [4]

The level of this new lake rose to 35 feet in 2012.[5] New species of birds have lived and bred there. Herons brought fish eggs with them, populating the lake with fish. All of this is a prime example of how desalination with a distribution system can create temperate climates, enhance biodiversity, recharge depleted water tables, and eliminate water stresses.

Of course, nothing is perfect. There are problems to be addressed along this path, such as determining the best way to preserve existing species. For example, the moist sand near the Al Ain Lake has created a detrimental issue for the Mydas Fly, which needs to lay its eggs in loose sand.[6]

Regardless, the positives that we see from Dubai's example outweigh the negatives by a longshot. What has been done there is *exactly* what I am suggesting we do on a global basis if we are to have any hope of survival.

The best method for Dubai to preserve all that it has built is to keep sea levels at or just below where they are currently. But Dubai is just one of so very many examples of this sort of predicament. All of us, in each of our respective corners of the globe, will see a similar fate, our investments and havens sunk like cities of Atlantis, submerged forever. Indeed, we all need to campaign for all nations worldwide to employ desalination on a massive global scale.

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[2] Hutchinson, C.B. (2013). Simulation of aquifer storage recovery of excess desalinated seawater, Al Ain area, Abu Dhabi emirate: USGS open-file report 98-410. Bibliogov.
[3] Daniel, A. (2012). What's a lake doing in the middle of the desert? *NPR.org*
[4] Unfortunately, the lake has since receded. http://www.thenational.ae/news/uae-news/environment/the-al-ain-lake-that-came-and-went
[5] Laylin, T. (2012). New lake rose 35 feet in the Arabian Desert this past year alone. NPR. GreenProphet.com
[6] Daniel, A. (2012). Ibid.

Of course, going forward there are giant, substantial problems inherent in implementing global desalination. Two major issues are distributing the desalinated water and neutralizing the negative impacts desalination can bring to the environment. Nonetheless, I assert that accomplishing such a daunting undertaking is actually viable.

With respect to the negative environmental impacts, obviously our present technology isn't there yet. Many brilliant people are making fantastic strides, but we're not quite ready for high-volume induction of ocean water. Still, it is fair to assume though that the required technology is coming in the future. Why? Because we have always succeeded in solving technological and engineering hurdles. So let's just assume that the solution is on its way.

That leaves the distribution of the desalinated water. Now this is where the conversation becomes absolutely compelling. Consider the Roman Empire, who built engineering marvels called aqueducts. Wherever they delivered water, they subsequently built towns.[7] Now, in order to distribute our desalinated water, we must duplicate what the Romans did 2,000 years ago. The trick is that, instead of relying on gravity to deliver the fresh water, we are now required to move it against those forces.

A worldwide distribution network would take many years to create. We will need to build a vast global network of aqueducts, canals and pipelines to enable all peoples of the Earth, entitled regardless of who they are, to reap the benefits. In the immediate future that means that we need to conceive of and create the architectural and engineering layout for the first global water works project since the Romans.

This time we must operate without an army of invaders. Rather, we must become a peaceful army of architects, engineers, biologists, chemists, construction crews, and more. In fact, we already have the technology for construction purposes, so new innovations are not needed there. We can initiate the building of this distribution network in the short-term. Truly, there is no impediment to beginning the process.

When we initiate our global water works project, we will change the entire dynamic of economies worldwide. A fundamental project of this nature and magnitude could assure that virtually every person able and willing to work will have the opportunity to do so.

[7] www.pbs.org/wgbh/nova/ancient/roman-aqueducts.html

Indeed, every person should be able to benefit from global desalination. This means that every nation will need water distribution infrastructure. This will firmly stabilize local, national, and global economies. This will facilitate the stabilization of political environments currently in upheaval due to the inability of people to find work and feed their families.

To be clear, it is not currently prudent to wait until an acceptable desalination method arrives before we start building our water distribution network. Locations need to be identified now for near future construction. It will take a long time to construct and complete. What makes sense is to prepare now for the day in which we finally do have our desalination plants. That way, when viable desalination technology is finally available to us, precious time will not have been wasted and the subsequent phase of the project can commence without interruption. Ideally, with careful and efficient coordination, the entire planet will go to work on expansive fundamental projects, stabilizing no longer delicate economies, while easing political pressures. That's just the beginning of the benefits that we would realize by adopting global desalination.

Let's travel to a point in the future where we have already completed the project.

Now we have an almost limitless supply of purified water. What can we do with this embarrassment of liquid riches?

For one, we can boost agriculture on an exponential scale worldwide. We can irrigate virtually anywhere on the entire planet. Naturally, we had to overcome the historically problematic issue of salinity in the soil. Wisely, this was addressed during the same timeframe that we built our water distribution networks.

How do we benefit from an increase in global farming? Most importantly, hunger is a problem of our past. There will never be a shortage of food due to the shortage of water anywhere on the planet ever again. Droughts still continue to occur, but we do not experience their effects, and we never will again. We always have abundant supplies of water, so weather cycles can no longer impact our food or water requirements.

And there's more good news. Topsoil erosion and dust storms have been eradicated. When the wind picks up topsoil and carries it over distances, it isn't good for farms, ranches, even towns and cities. It impacts machinery and other technologies. Having reliable, consistent, and constant access to water allows us to moisten arid lands and prevent precious topsoil from being blown away.

In turn, having increased the amount of plants growing on the planet, we are significantly increasing the amounts of carbon dioxide that can be processed out of our atmosphere. After all, what CO2 processing plant could we ever construct bigger than the Earth itself? If we hope to experience a true reduction in carbon dioxide concentration from our atmosphere, this is the quickest, most efficient, most sustainable, and most attainable method at our disposal.

What's more, our mass scale farming is engineered without chemical fertilization. The elimination of chemicals in our fertilizers resolves two huge problems: contamination of natural fresh water sources and runoff finding its way into our oceans. The introduction of chemicals into our fresh water sources has been linked to many of our modern day physical ailments and diseases.[8] Contamination has shown to remain present for hundreds to thousands of years.[9] Chemicals that are not absorbed into our water tables end up running through creeks and rivers, eventually arriving in our oceans.[10]

The elimination of chemicals helps us combat a condition known as a 'Dead Zone,' in which chemicals eliminate the presence of oxygen.[11] Sea life needs oxygen and vacates areas where it is not present. However, jellyfish are impacted by neither the chemicals in the runoff nor the lack of oxygen. Instead, they mutate and infest areas wherever dead zones exist.[12] [13] [14]

These significant problems have been eradicated by the cessation of chemical use in our agricultural processes via the adoption of global desalination. Incidentally, the by-product of desalination is brine,[15] small sea animals mixed in with sea salt. Maybe there is a possibility of separating the brine from the sea salt with the aim of using the former as fertilizer. Similarly, earlier civilizations used fish as fertilizer.

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[8] www.who.int/globalchange/ecosystems/ecosys.pdf
[9] www.planetagenda.com/chemicals.htm
[10] education.nationalgeographic.com/education/encyclopedia/pollution/?ar_a=1
[11] Boesch, D.F. (2008). Global warming and coastal dead zones. *National Wetlands Newsletter*. 30(4), 11-21.
[12] Blumenthal, L. (2010). Growing low oxygen zones in oceans worry scientists. *McClatchy Newspapers*, mcclatchydc.com
[13] Roth, Z. (2011) Jellyfish hordes crash Florida beach parties. The Lookout, http://www.lookoutnewspaper.com/
[14] West, J. (2014) What you need to know about the coming Jellyfish apocalypse. Motherjones.com
[15] Water Reuse Association. (2011). Seawater concentrate management. Waterreuse.org

Surely though the specific origins of bee population collapse, or colony collapse disorder (CCD), has not yet been clearly identified, taking the chemical pesticides variable out of their overall health equation is an endeavor worth embracing. It has been said that one-third of our food is pollinated by bees.[16] Yet the global populations of bees have been in severe decline, so much so that the European Union has outlawed the use of specific types of pesticides for a temporary period of 2 years.[17] However, if we are farming in a significantly more prolific way, we do not need to be concerned with maximizing every square foot of agriculturally-productive land. Then it also follows that we can stop using chemical pesticides entirely.

But that's not all. Now, what were once called alternative fuels have now become preferred. True, at times in the past, the redirection of corn, soybeans, and other agricultural production for engine fuels has negatively impacted food supplies. But never again will we need to be concerned about how much agricultural product is used for ethanol because we will never have a shortage of food.

Additionally, we focus on the production of the wonder plant: Algae. This plant needs a large amount of carbon dioxide to grow and it produces a very impressive fuel when distilled for that purpose.[18] [19] In short, our surplus carbon dioxide is fed to a plant that thrives on it, a plant that in turn provides us with our entire fuel supply.

Let's now return to the present day.

Consider sea salt, a by-product of the desalination process (along with brine). As it turns out, salt is a superior insulator. If we develop a way to neutralize both its corrosive and dissolution properties, possibly we can use it as a construction material. Homes and commercial buildings could have insulation layers that are superior to what we use presently.

If we are successful with this modification for use in construction, then we can build roads with it. These roads would maintain much more even

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[16] www.bbka.org.uk/kids/importance_of_bees

[17] Greenpeace Media Offering. (2013). Entry into force of EU restrictions on the use of neonicotinoid insecticides imidacloprid, thiamethoxam and clothianidin. Greenpeace.org

[18] Mascarelli, A.L. (2009). Algae: fuel of the future? *Environmental Science and Technology*, 43(19), 7160-7161.

[19] Hossain, A.B.M.S., Salleh, A.; Boyce, A.N., Chowdhury, P., & Naqiuddin, M. (2008) *Biodiesel fuel production from algae as renewable energy. American Journal of Biochemistry and Biotechnology*, 4 (3), 250-254.

temperature ranges than pure concrete or asphalt. It stands to reason that these roads would be safer in cold temperatures and cause less wear on our tires due to heat.

If you are still unmoved, consider the fact that we currently strip-mine for cement and concrete, scarring our landscapes in the process. Moreover, concrete exacerbates global temperatures due to heat that radiates from it after absorbing that of the Sun's. By reducing its use, we could reduce the heat pulsing from the surface of the planet itself. Additionally, we could reduce our mining activities, a practice that also adds to our carbon dioxide output.

Also, iodized salt could be in plentiful enough supply to resolve the issue of some nations' populations suffering from iodine deficiencies in their diets.[20]

Water Always Seeks Its Own Level

It is estimated that approximately 50% of the world's population lives within 100 miles of a coastline.[21] With rising sea levels, the populace and infrastructure of low-lying areas are vulnerable to the sea overtaking their homes and businesses. This is but one reason why a global pledge to consume only desalinated water is so important, as it would provide an opportunity for sea levels to stabilize and prevent their continued rise.

Cities like Venice, Tokyo, New York, and London would not have to engage in desperate attempts to prevent the loss of land. Islands that are low-lying, such as the island nation of Tuvalu in the South Pacific, would not slip slowly into the ocean.

Large inland lakes and seas, such as the Aral Sea and Oroumieh Lake in Iran, have been drained by human consumption. This has caused economic hardships, dire health issues, and negative environmental consequences.[22] [23] These bodies of water can be completely refilled and restored. In fact, if we do not do so, then the world's largest inland body of water, the Caspian Sea, will suffer the same fate.

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[20] emedicine.medscape.com/article/122714-overview

[21] science.nasa.gov/earth-science/oceanography/living-ocean/

[22] Erdbrink, T. (2014). It's great lake shriveled, Iran confronts crisis of water supply. *NY Times*.

[23] Howard, B.C. (2014). Aral Sea's eastern basin is dry for first time in 600 years: Once thriving, the vast Asian lake was drained for irrigation. *National Geographic*.

None of this happens without a collective change of heart. In fact, not one of these proposed solutions will come to fruition without changes in the ways humans interact across this globe.

Presently, our efforts are too fractured and splintered to change the destiny of our civilization's survival. Today, our predominant economic model is based on labor extracted from segregated specializations. That's what businesses provide: specialized products and services. However, through clever marketing, we are convinced that we are consumers of what we want. I believe that many of the products and services that we purchase are not what we necessarily need or are even good for us. There are alternatives, but none that intrigue us so strongly that we make a consumer migration and embrace it en masse.

So then, the question becomes: what is more important, the survival of business, or the business of survival? Presently these are discrete activities, one based in profiteering and the other based on securing the future of our descendants. The only way that our survival becomes the preeminent endeavor of all is to decide that profiteering is not a long-term, sustainable strategy.

From here forward we are headed for the eventuality of a single monolith corporation that has long since swallowed all other companies whole. The capitalist economy is analogous to a casino, house rules rigged in its own favor. Human survival does not have a seat at this table.

Therefore, just as we have determined that our fresh water supplies have an expiration date, so it is with global economics. How far can consumer exploitation go until there is an upheaval like we've never seen? In essence, when there are no jobs and people cannot feed their families, revolution occurs. But this book proposes a migration from our current economic model to one in which the prime directive is our survival. This is evolution versus revolution, mature decision-making by sophisticated intellectuals for our sustainable future versus blood-letting over contrived profits to obtain wealth.

With all of the global works projects proposed above, we can stabilize our financial woes while advancing the security of the next several generations. There will be no unemployment to cause further political upheaval.

If those at the top of the power pyramid recognize that they love their children and grandchildren, then we will have peaceful evolution. If they

believe that they can maintain their grip over a growing populace with diminishing resources, then we can be assured of revolution.

This generation is the pivot point for all future generations. 100 years from now or less the Earth's climate might tip past the juncture at which we can prepare a response. This book suggests that we prepare for each and every possible situation. Why? Because I believe that we only have one shot at making the world's most prolific changes in human history in a proactive mode versus a reactive one. We cannot afford to fail. From my perspective, there is nothing that takes a higher priority than the destiny of our descendants.

Note to the Reader:

You have just completed reading Part I, which is a presentation of all of the concepts in a rapid concise format. The remainder of the book is intended to present all of these same concepts in-depth. The concepts that have just been presented are repeated for continuity in the presentation. Please indulge me to recognize that this was done intentionally as the next sections provide much greater detail.

Part II

The Survival of Business or the Business of Survival

"If at first the idea is not absurd, then there is no hope for it." *Albert Einstein*

"The Frog does not drink up the pond in which it lives." *Native American Proverb*

Water: Too Much or Too Little?

On our planet we have a certain number of resources, some of them renewable, some of them finite. These are our gifts and tools, but also our impediments. We are currently facing an issue that has come to a tipping point in regards to water, the preeminent resource, and the giver of life.

What's worse, while we are running out of fresh water in many areas we will soon experience a rise in sea levels worldwide, due to the melting of ice caps. The latter will cause billions of people to have to be relocated.

So I suggest that we address the issues specifically surrounding water first, both fresh and sea. First is the key question: How can we have too much water and not enough water at the same time?

The impending rise in the oceans' levels cannot be denied, yet there does not seem to be any plan regarding what to do about it. Well, in my humble opinion, If we have an increasing shortage of fresh water to adequately support our ever accelerating needs, yet also have oceans that are rising, it seems obvious that we require a large scale purification of ocean water.

Whether this occurs in the present or the future, it seems clear that, at some point we will be left with no other alternative than to adopt that course of action. President John F. Kennedy himself said that it would be the single most important scientific achievement in the history of humankind.[24]

With the current trajectory of projected population increases and their imminent impact on fresh water sources, we can easily see exactly what our future looks like. But the future is not fixed. If we prepare for this forecasted shortage we'll see a domino effect of magnificent benefits.

Globally our goal should be to achieve the ability to end the use of our precious natural fresh water. Which presently is becoming increasingly scarce in many nations. Alternatively turning to our oceans for our water demands would provide us with an opportunity to allow our original, natural fresh water sources to restore naturally and still have enough for what we require.

[24] www.foresthistory.org/ASPNET/Places/GreyTowers/JFK_speech.pdf

True, even with worldwide consumption we may not be able to equalize the amount of the rise in sea levels. I still believe that we can slow the problem down at the very least, and solve a majority of the world's problems while doing so. Remember, one solution often begets another.

This brings us back to the question that began this section: Is there too much water or too little? The answer is 'Yes.'

Desalinated Water: Our Survival Depends On It

The keystone of this entire plan is a mandate to develop high-throughput, energy-efficient desalination plants. In essence, this is the basis from which most of the subsequent proposals of this text will be drawn. Thus, the entire blueprint hinges upon overcoming this one engineering impediment. So, you might be wondering, what is the plan for getting the water out of the oceans exactly?

With your kind indulgence, allow me to respond to that concern in the form of a historical analogy. On May 25th of 1961, John F. Kennedy stood up in front of the world and said that we're going to the moon.[25] Essentially, he said that we're going to land and walk on the moon because it's there and we're going to accomplish this within 10 years. At that point in time we barely had the technology to shoot a rocket into space successfully. But under President Kennedy's mandate we started innovating and creating new technologies at a breakneck pace.

The point is, historically speaking we have never been deterred when confronted with problems that required new technologies for their solutions. We have simply overcome. That's who we are. Therefore, the fact that we do not presently have the technologies to implement desalination, effectively should not be a concern. If we push the pace of innovation like we did in our 10 year rush to walk on the moon, we can accomplish this, perhaps even inside of one generation.

An individual nation acting alone will not succeed in an endeavor such as this. I propose that we forge an international, bipartisan agreement to accelerate the pace of innovation in the pursuit of mega, high-volume desalination technologies. In doing so we could possibly create engineering marvels beyond what might have otherwise been created. Taken further by pushing the envelope, it is highly likely we will discover wonderful, important things unexpectedly along the way.

[25] www.jfklibrary.org/Asset-Viewer/xzw1gaeeES6khED14P1Iw.aspx

However, it is prudent for us to mobilize now, simultaneous with the push for groundbreaking technologies. Specifically, we need to begin constructing infrastructure. The minimum requirements for our desalination plants should be:

- carbon neutrality
- zero footprint
- ecological invisibility
- engine self-perpetuation
- mega high volume

Carbon Neutrality – We should not exacerbate an existing problem while solving another one. It would be imprudent to build a desalination plant that increases the output of carbon. The global implementation of desalination will present an opportunity to reduce the concentration of carbon dioxide in the atmosphere. We have demonstrated repeatedly throughout history that we can achieve whatever we set our minds to. It seems feasible that we are capable of designing a desalination plant that is clean with respect to the output of carbon dioxide.

Zero Footprint - I firmly believe that the energy required to operate these desalination plants should require no drainage of the power grid (in its current form, that is). Otherwise, the carbon dioxide equation will be impacted negatively. Optimally, the plants would be operated with natural or renewable energy sources of power.

Ecological Invisibility – A considerable measure of the opposition to the establishment of desalination plants has been centered on the negative impact it could have on the marine environment. A specific environmental issue regarding desalination plants that has been hypothesized is the induction of plankton and krill,[26] millions of tons of which could harm the sea life that depends on its presence for survival. Certainly, a primary goal would be the extraction of water without disrupting the marine environment in doing so.

Here is one very simplified solution to this issue. Consider a perfect filtration mechanism for plankton and krill: the food filtering physical feature of the whale known as baleen.[27] If we design a filter that emulates the functionality of the baleen, we can possibly solve that issue. While we're

[26] Danoun, R. (2007). Desalination plants: Potential impacts of brine discharge on marine life. *The Ocean Technology Group*, University of Sydney, Australia.
[27] Lewis, T. (2013). Whales trap dinner with mouthful of swirling bristles. LiveSciene.com

at it, why not design it so that the filter operates like a rolling screen, with a water jet to 'rinse' the plankton and krill off of the filter after it has passed over the induction port opening? (I hope that it goes without saying that I'm quite sure there's an engineer that could come up with a better design concept).

Self-Perpetuation - I envision the engines operating these desalination plants being of an innovative design that would allow them to run in perpetuity. Conceptually, the design would be similar to a diesel motor: once it gets started, it just keeps running. Essentially, the desalination plants should be self-perpetuating motion engines of new efficient designs.

Mega High Volume - The throughput rates for the current desalination technologies are not adequate enough to address our needs as a global society. As well, we could not implement such high volume without causing a negative impact on the environment.

To embark upon and complete this global imperative, we have to be economically and socially conscious. Our goal is to bring this water inland to our cities, ranches, and farms, to replenish aquifers, rivers, and lakes.

One idea to consider is taking a different approach to the concepts that the Romans have already developed and expand upon them with the aim of building a worldwide network of aqueducts. They employed aqueducts that used gravity to deliver water. Essentially, we could take this system and reverse engineer it. Instead of letting gravity bring precious, naturally occurring fresh water to us downhill, we could pump desalinated water up from the oceans, against gravity, to all areas of the planet.

Here's the Hurry!

Building the distribution network for a global water system will take many years. Thus I am suggesting that we begin by identifying locations where we could build desalination plants now. I propose that on a global basis, we simultaneously begin constructing both desalination plant sites and an aqueduct distribution network. Therefore, by the time we do possess the technology to effectively desalinate water, the aqueduct distribution network will already be in place to take advantage of it.

Once we do succeed at drawing water out of the oceans properly, we should stop the use of naturally-occurring fresh water sources entirely. Subsequently, environmental systems that have been reduced by our over extraction would be afforded respite to heal and reinvigorate.

Ideally, we would encourage private citizens, businesses, and governments to use desalinated water exclusively and without restriction. We would promote and encourage the water's use in every conceivable way. This would certainly include drinking, farming, manufacturing, medical procedures, and agriculture.

If we can pump oil across continents then we could certainly pump water to them as well. The desalinated water carried through aqueducts could refill lakes, streams, and aquifers once depleted from over extraction. These aqueducts could be powered by pumps serviced by solar panels and wind power generators. As well, this project would surely relieve water stress on nations located in typically arid regions, as approximately one-third of the world's population lives in countries with moderate to high water stress.

We Can See the Future for the First Time in History

We have stated that we are going to run out of naturally occurring fresh sources eventually, maybe in the not too distant future. We have proposed one single, prominent global action to completely resolve this issue. We have highlighted some of our planet's most significant major issues that could be elegantly solved after mobilizing global desalination. We will see further what and where we can achieve resolution to a number of other major issues. These are all problems for which, as far as I know, long-term, sustainable solutions have yet to be proposed.

With respect to our liquid needs in the face of global water shortages, excuses won't solve the problem, much less buy us more time. Mother Earth dictates our destiny. Our prime directive is to survive.

Part III

The Irrigation Solution: The First Step is the Biggest One

"Anything else you're interested in is not going to happen if you can't breathe the air and drink the water. Don't sit this one out. Do something. You are by accident of fate alive at an absolutely critical moment in the history of our planet" *Carl Sagan*

Let's Have a Drink Together!

Irrigation is the most important application of desalinated water. It is the reason why it is so important to increase substantially the throughput and efficiency of desalination plants. Distribution of desalinated water via the aqueduct system will provide us the option of irrigating virtually anywhere on the entire surface of the planet.

The process of photosynthesis is how plants create their energy. This process is triggered by light from the sun. Plants combine carbon dioxide from the atmosphere with water to create sugars that in turn become their fuel. The release of oxygen into our atmosphere happens to be their waste product from this process.[28]

Over the course of the last century, the impact of the steadily increasing population of the Earth on local fresh water supplies has caused the planet to become more arid. The overall temperature of the Earth becomes higher as bodies of water that once helped to keep temperatures moderate disappear. More importantly is the impact on the atmosphere. As fresh water becomes increasingly scarce, there is less plant life on our planet's surface to process carbon dioxide. Temperatures increase further and the land becomes all the more barren and arid. With less plant life performing the photosynthetic process, the concentration of carbon dioxide in the atmosphere increases and we observe an increased greenhouse effect on Earth.[29]

If we have the ability not only to pump desalinated water to every region of the planet but also to irrigate those regions, especially where fresh water is in short supply, then we could plant crops that would naturally process tons of carbon dioxide from the atmosphere. Besides that, don't forget that we would also realize the additional benefits of drawing down rising oceanic sea levels and relieving over-extraction of limited natural fresh water sources.

Our new water source, desalinated water from the oceans could return arid lands to lush, green, verdant areas. By refilling bodies of water, such as large inland seas like the Aral and Caspian, we could both regulate the temperatures of those regions and turn them into carbon dioxide processing areas. We could also relieve many health concerns due to

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[28] Gust, D. (1996). Why study photosynthesis? Center for Bioenergy and Photosynthesis/ Dept. of Chemistry and Biochemistry: Arizona State University. Bioenergy.asu.edu

[29] McMichael, A.J., et al. (2003). *Climate Change and Human Health: Risks and Responses*. www.who.int/globalchange/publications/climchange.pdf

shortages of purified water for sanitation purposes and agricultural production.

We should fully irrigate as much of the planet's surface that we determine geologically appropriate. We could replenish the once lush, green characteristic of most continents via mass irrigation. We could fully irrigate arid areas of Mexico and New Mexico. We could fully irrigate countries such as Afghanistan and Kenya. We could turn the planet's arid and desert regions into highly productive, agricultural, carbon processing sites.

There are problems to overcome, as there always have been and always will be. For one, the by-product of desalination plants would be brine, not pure salt. Additionally, the water cannot just be put into the ground, as there's an inherent saline quality in the ground itself already. And there is the aspect of additional salt being drawn up from below as water evaporates.

So the stakes are even higher than one might have imagined, as we have to resolve these issues with salt, water, and soil. History has seen civilizations disappear because of their inability to sustain food cultivation and soil management successfully. I think that it is now time that we meet this challenge head-on and resolve it. The solution will ameliorate our destiny.

The Earth's Largest Processing Plant is Itself

We have arrived at a time in which we live with the constant reminder that the Earth is warming up. We hear warnings that the world's delicate balance has been negatively affected because of the increased concentration of CO2 in the atmosphere. At the least, it is undeniable that this planet has been changing, and there are strong indicators that our pervasive presence here is impacting our water and atmosphere.

Truly, the Earth is the only possible mechanism large or efficient enough to cleanse the atmosphere. What could be a more environmentally conscious solution than to turn the Earth into its own healing mechanism? As stated in the previous section, increasing the amount of plant life across the planet could transform our world into a massive carbon dioxide processing plant. Essentially the entire Earth could become the largest, self-sustainable and self-healing mechanism we could ever hope to have.

Did you know that the atmospheric concentration of CO2 in our atmosphere is at its highest level in over 2 million years? This information was published by The United States National Oceanic Atmospheric Administration, also known as NOAA, in 2009.[30] The Earth can heal itself and we have photographic proof of that. NOAA took infrared satellite pictures of the Earth during the winter, spring, and summer to gauge how the changing seasons affect CO2 concentrations in our atmosphere. The pictures clearly indicate that, during the winter, CO2 levels increase because plants are covered with snow and ice.[31]

When the snow melts, CO2 levels fall because plants are processing much more of it via photosynthesis, consequently taking the burden off of the oceans. However, it seems likely that we're currently introducing too much CO2 into the atmosphere at too prolific a rate. It appears that the Earth can't keep up with us.

We Like Greenhouse Gases

The greenhouse effect is important and our survival depends on its existence. The greenhouse effect is the phenomenon whereby heat from the Earth is absorbed by our atmospheric gases. Part of this heat is radiated back to the Earth's surface, creating a higher elevation in temperature than if those gases were not present. If it were not for the greenhouse effect, we would not enjoy the mild temperatures that support the millions of species on our planet.

However, a constantly rising rate and higher concentration of CO2 creates a significant rise in the Earth's temperature over time. This increase in temperature has been shown to adversely affect plants, animals, marine life, insects, and even some reptiles. This is why we need to slow and stop the increase of global temperatures.[32] [33] We need these Earthly neighbors to remain alive, as our survival is tethered to theirs. So we're not only making decisions for ourselves. We're making decisions for every single inhabitant.

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[30] National Science Foundation. (2009). Solving the puzzle: Researching the impacts of climate change around the world. Editor Melissa Summers, *NSF Office of Legislative and Public Affairs*.
[31] De Angelo, L. (2012). Climate change facts. *The Encyclopedia of Earth*. Eoearth.org
[32] www.learner.org/courses/envsci/unit/pdfs/textbook.pdf
[33] www.overpopulation.org/consumption.html

Biologically, it would be unrealistic to believe that so many species, including ourselves, could adapt to a planet of higher temperatures within a generation. As clearly shown by the infrared photographs published by NOAA, the amount of plants growing across the planet precipitates the amount of carbon dioxide that can be processed from the Earth's atmosphere. If we employ desalination on a global scale, we can implement the Irrigation Solution. In turn, plants that can process CO2 and aid our survival can be grown wherever we determine to irrigate and provide water.

Of course, it is important to remember that soil and salinity has been one of the major hurdles that humanity has still to overcome, as entire civilizations have collapsed due to this issue. Scientists must help us determine how to prepare and manage the soil correctly and designate the right types of plants to be planted. They will also have to figure out how we balance the number and types of plants so that we don't tip the Earth's temperature in another direction.

The Earth's atmosphere has and receives a considerable amount of carbon dioxide, measured in tonnage.[34] If we are to remove excess carbon dioxide from the atmosphere, then we must multiply the Earth's ability to absorb and process it exponentially. To do so, we could allow the Earth to cleanse its own atmosphere via the global redistribution of desalinated water.

The water from the oceans could be extracted, purified, and distributed across each continent. Consequently, we could grow plants by irrigating them virtually anywhere, thereby processing substantial quantities of existing atmospheric CO2. This could either stop the proliferation of rising global temperatures or bring it back to previous levels.

The Irrigation Solution suggests a healthier Earth where we could realize a reduction of the greenhouse effect. The Irrigation Solution would allow us to reverse the advancement of the Earth's deserts and observe global agricultural proliferation. The continents would no longer appear brown from space, but green with plant life.

Right now, the burden is on the oceans to do most of the CO2 processing. However the ocean's abilities to process CO2 is becoming reduced as they become more acidic. If the land masses were helping out, it is possible that the Earth could process more CO2 out of the atmosphere.

[34] www.ucsusa.org/global_warming/science_and_impacts/science/global-warming-faq.html#.VFzl0PldXqs

What impact could that have on leveling the rise of global temperatures? We won't know that unless we try to do it. This is a concept that is worth investigating. Let's start that dialogue.

Hunger Disappears and is Never Heard from Again

We can address any preexisting issues associated with food shortages by implementing the Irrigation Solution outlined above. Prolific, worldwide farming would permanently end food shortages on a global basis. In most cases, we could grow all of the food for a given nation/society within that nation/society itself.

It also follows that we would not have the supply and demand issues with importing and exporting food. Ideally, every sovereign nation will have enough agricultural production to service their own population's needs. We would have a new food industry, one that would not have the currency arbitrage mechanism that gives agricultural supplier nations a perpetual advantage over nations that must buy food since they cannot produce it themselves.

There's a gentleman from Senegal by the name of Dr. Jacques Diouf who served as the United Nations Director General of Food and Agriculture. In 2009 he made a request to the United Nations for a financial allocation of $44 billion annually to help deal with starvation around the world. Dr. Diouf's words to representatives to The United Nations were:

"Every 6 Seconds a child dies of hunger. This enormous tragedy is not only a moral outrage and an economic absurdity, but also presents a serious threat to our collective peace and security."[35]

He left empty handed, but I have something to offer him, along with the rest of the world: the Irrigation Solution. This would provide a way for every single person to have as much fresh water as she or he could possibly need and as much food as they could possibly eat. I would suggest that we plant the appropriate grains, fruits, and vegetables that suit each unique climate and geography, as well as plant those that can be grown successfully in most regions of the world. With bold, logical action we can change the entire course of human destiny. There could be a permanent end to hunger worldwide, the suffering associated with it forever vanquished.

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[35] Household Food Security. (2009). Module 2: Participatory facilitation for household food Security. *South African Institute for Distance Education*, University of South Africa.

Drought Evaporates and its Effects are Never Felt Again

Insulation from drought will also be realized via implementation of the Irrigation Solution. Presently, as we continue to pump fresh water for human consumption from underground sources, we are causing other issues to arise, such as sinking cities and sinking agricultural areas.

If we irrigate by using water supplied from large scale desalination, natural fresh water sources could begin the process of recharging and start to replenish, thus reversing the process of draining water tables worldwide.

Most importantly, with a virtually limitless supply of water, we could insulate ourselves from the negative impacts of prolonged dry weather cycles. In fact, we would preclude those impacts entirely and become completely immune to them.

We have naturally occurring dry weather cycles. We cannot control those geological events. Nevertheless, those places that have been affected by drought will be serviced by the water systems that we create via our desalination technologies. Therefore, I propose to you that we would no longer face the possibility of starvation or limited food supplies due to naturally occurring dry weather patterns that cause drought to occur.

Dust Storms Still Occur on Other Planets, but Not Ours

In a dust storm, the wind carries away topsoil that is so valuable to farm production, leaving a parched landscape. The Dust Bowl days of the Great Depression in the United States presented a very bleak picture of the hardships of life without rain. Similar dust storms happen with some degree of frequency in the countries of The United Arab Emirates, where the occurrence of these dust storms is somewhat commonplace,[36] and their neighbors. They have also happened in Australia.

The current threat of such a condition is real in many places. In Australia's case, red topsoil from the outback gets carried all the way to the ocean on its eastern coast. These storms block the sun, affecting crop production

[36] Todorova, V. (2013). Rise of dust storm hitting UAE 'big problem for next generation. TheNational.ae

while the dust permeates virtually everything and subsequently impacts life in the ocean itself.[37] [38]

Indeed, there have been some signs in the recent past of the Dust Bowl Days returning to Oklahoma and Texas.[39] [40] As well, the presence of protracted drought conditions can bring about these dust storms in many places where they may not have even been anticipated before. Once an event like this takes place, there are very few options available to us as a civilization.

Now, imagine if the entire occurrence of dust storms were to be essentially eliminated from our lives. If we could irrigate according to the plan outlined in this book, then droughts and dust storms might become events of our past. By keeping the topsoil moist with a limitless supply of water for planting and irrigation, we will be preventing the topsoil from being carried away in large quantities. In other words, when the irrigated topsoil is no longer arid and dusty, it will no longer be prone to blowing away in a wind storm.

Now, the possibility of Dust Bowl type storms increases as land masses permanently dry out due to our continued extraction of fresh water. That's why it is reasonable to assume that these dust storms will continue to occur without a response on our part. Still, naturally occurring fresh water could continue to be very useful to us. However, we should very sparingly direct its use for human or animal consumption. If we could allow the fresh water to refill creeks, streams and rivers, then in turn habitats that enhance the survival of other Earthly inhabitants could be restored. This would also allow us to restore the water tables.

This proposal of applications for desalinated water is a very realistic, attainable, and viable option and could possibly eradicate these 'Dust Bowl' forever.

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[37] McGhee, K. (2010). When dust storms descend. *Australian Geographic*.
[38] Kuruvilla, C. (2013), Freakish dust storm causes 'red wave' on Australia's west coast. *New York Daily News*.
[39] Associated Press. (2012). Dust storm shuts down interstate in Oklahoma. www.usatoday.com/story/weather/2012/10/19/dust-storm-shuts-down-interstate-in-northern-okla/1643851/
[40] Austin, H. (2014). West Texas hit with 1000-foot-high dust storm. NBCnews.com

Dead Zones are a Signpost of Our Times

The runoff from fertilizers, insecticides and other chemicals results in a complete absence of oxygen in our rivers and tributaries. This creates a condition known as 'Dead Zones.'[41] [42]

These dead zones are prolific. They're everywhere rivers empty into larger bodies of water. The dead zone in the Gulf of Mexico is approximately the size of Connecticut and extends out 100 miles from the coastline[43]. Additionally, these chemicals contaminate our fresh water sources via runoff. We must consider that groundwater that is contaminated will stay that way for several thousand years.[44] There have been countless studies showing that the health of humans, mammals, and insects - specifically bees - has been adversely affected by these chemicals.[45]

Now we are seeing an influx of jellyfish like never before in these dead zones. Scientists believe that the chemicals that are contained in the runoff affect almost all sea life adversely, except for jellyfish. Apparently it is changing their spawning mechanism. Now they spawn spuriously whereas they used to spawn predictably and less frequently.

Their gestation and incubation periods have been modified as well. The nutrients and fertilizers that enhanced their proliferation have also served to drive or kill off their natural enemies. Consequently, the explosion of their population has gotten out of control.[46] [47] What's worse, the scientific community has not yet determined how to fix this.

If we had the ability to stop the use of these chemicals, then nature may return to its natural balance and coastlines may no longer have dead zones. If there are no dead zones it is probable that the jellyfish's natural predators would repopulate jellyfish habitats.

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[41] education.nationalgeographic.com/education/encyclopedia/dead-zone/?ar_a=1
[42] oceanservice.noaa.gov/facts/deadzone.html
[43] Smith, M. & Hannah, J. (2014). Gulf of Mexico 'dead zone' is the size of Connecticut. www.cnn.com/2014/08/05/tech/gulf-of-mexico-dead-zone/
[44] www.epa.gov/superfund/students/clas_act/haz-ed/ff_05.htm
[45] Mundt, B. (2013). Are honey bees our proverbial canaries in the coal mine? www.greenmedinfo.com/blog/are-honey-bees-our-proverbial-canaries-coal-mine
[46] Guilford, G. (2013). Jellyfish are taking over the seas, and it might be too late to stop them. QZ.com
[47] There is an ongoing, scientific debate about whether this is happening and, if so, how, why, and what it implies. We encourage your input.

In summary, if we stop the use of fertilizers and pesticides via the Irrigation Solution, we can reset the balance of nature, (albeit with no guarantees toward the outcome). We would not only stop the pollution of groundwater, rivers, lakes, wetlands, and oceans, but would also prevent the creation of dangerous dead zones along our coastlines.

Bee Populations Feed Us

One-third of our food production is realized by bee pollination.[48] Many species of the plant life that process carbon dioxide rely on bees for their pollination and proliferation. Consequently, the survival of bees is paramount, as it is linked to ours.

Since 2006, beekeepers have seen their hives collapse 30% to 90% annually.[49] With regard to our discussion of insecticides and pesticides, it is possible that these agents could be responsible for this currently unresolved collapse of populations.[50] Their decline has also been linked to climate change, various types of mites, radiation from cell towers, and a parasitic fungus.[51] It may prove that all of these are true and more.

We have discussed above a proposal whereby fertilizers, pesticides and insecticides would be no longer needed. This would indeed be beneficial, as studies have suggested that, in instances where pesticides did not kill bees outright, they were shown to modify bee behavior.[52] [53]

A European study has triggered a call for a complete ban on this entire class of chemicals[54]. An American study calls for the EPA to suspend use

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[48] Jakuboski, S. (2013). Global crisis: Honeybee population on the decline. Nature.com
[49] United States Department of Agriculture Agricultural Research Service. (2014). Honey bees and colony collapse disorder. ARS.USDA.gov
[50] Spector, D. (2014). Scientists may have finally pinpointed what's killing all the honeybees. *Business Insider*. www.businessinsider.com/harvard-study-links-pesticides-to-colony-collapse-disorder-2014-5
[51] Helman, S. (2013). The bee keepers: How a Harvard scientist, a sixth-generation bee whisperer, and a retired entrepreneur joined forces to rescue an embattled insect and save the American food supply. TheBostonGlobe.com
[52] University of Guelph. (2014). Bee foraging chronically impaired by pesticide exposure: Study. ScienceDaily.com.
[53] Staff Reporter. (2013). Even low levels of pesticides affect bees' behavior. NatureWorldNews.com
[54] Carrington, D. (2014). Honeybees abandoning hives and dying due to insecticide use, research finds: Harvard study shows neonicotionoids are devastating colonies by triggering colony collapse disorder. TheGuardian.com

of those products.[55] Both studies are calling for alternative types of pesticides.

Likewise, the Business Plan for Planet Earth proposes that we completely eliminate the use of chemicals in agricultural production. If we can increase the amount of land employable for agriculture by adopting the Irrigation Solution, then it stands to reason that our agricultural output would increase as well. If we have abundant food output, we will no longer have to worry about maximizing agricultural yields by employing chemical-based fertilizers or insecticides.

This directly addresses the changes that are happening in both Europe and the United States regarding the safety of bee populations. In December of 2013, the European Union issued a 2-year ban on the use of neonicotinoid pesticides, which have been shown to contribute to the decrease in bee populations.

Also in 2013, two US Representatives introduced a bill to be voted on in Congress: the Saving American's Pollinators Act. This was designed to direct the US Environmental Protection Agency to suspend the use of this pesticide in the United States until it can be proven safe for humans and bees. US Representative John Conyers said that "One of every 3 bites of food we eat is from crops pollinated by honey bees."[56] Certainly we can eliminate one major variable in the efforts to neutralize their population decline by adopting the Irrigation Solution.

Alternative Fuels: The Long Awaited Severance of Our Dependence on Oil

Presently, as we search for alternatives to fossil fuels, we also create food shortages by diverting grains toward ethanol production to be used as fuel. By employing the Irrigation Solution and increasing the production of grains worldwide, we can safely continue to allocate it for ethanol or other uses without making a negative impact on food supplies globally.

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[55] Environmental Protection Agency. (2014). www2.epa.gov/pesticide-reevaluation/suspension-registrations-under-fifra

[56] Conyers, J. (2013). Conyers and Blumenauer Introduce legislation protecting pollinators and America's food system. Conyers.house.gov/index.cfm/2013/7/conyers-and-blumenauer-introduce-legislation-protecting-pollinators-and-america-s-food-system

Ethanol could be produced in local or regional facilities from grains grown in near proximity to each and every respective community. If supplies of these alternative fuels are grown locally, then it will also be easy to deliver it to local automobile fueling stations, reducing the cost of production and delivery.

Additionally, our existing, worldwide inventory of internal combustion engines can be modified relatively easily to burn ethanol. Performing the required modifications would virtually sever our dependence on fossil-based petroleum in the shortest possible time. Additionally, we could grow switch grass, or better yet, algae for use as alternative fuels which would not impact global food supplies.

Our leaders have told us that they will have the energy problem solved by 2059 because they'll be able to fully tap into the vast oil reserves in the Northwest Passage.[57] This assumption is based on their assertion that polar and pack ice will have disappeared by that time due to rising global temperatures, so the oil reserves in the Northwest Passage will be exposed and accessible. I object to this concept and propose that we eschew the oligopoly and grow our own fuel. The key point here is that I'm not suggesting we stop using oil entirely. What I am suggesting is that we sever our total dependence on it. We can do this handily.

If we had an overabundance of agricultural production, we could very easily substitute fossil-based petroleum for plant-synthesized fuel. True, it would be pretty difficult to replace all the combustion engine cars on the planet. I happen to enjoy driving my old sports car around. However, I'd have no problem having an automotive shop replace core components of my engine so that I could burn a different type of fuel. I'd have even more incentive to do so if this fuel were less expensive, less impactful regarding emissions, able to provide me with better engine performance, and had longer engine life. How about you?

Which reminds me: Did you know that the United States Air Force has test flown F-15s and F-16s on algae-based fuel? Reportedly, the jets actually exhibit better performance and the components within the jet engines remain cleaner.[58] The United States Navy has also successfully tested flying

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[57] Dobransky, S. (2012). Military security, energy resources, and the emergence of the Northwest Passage: Canada's arctic dilemma. UNC.edu

[58] Carrico, Y. (2009). The USAF and alternative jet fuel: How to fuel the future of airpower. Air Command and Staff College, Air University.

A-10 Thunderbolt and F-18 jets with fuels that are purified from algae.[59] The Royal Netherlands Air Force has done the same with a Boeing AH-64D Apache Helicopter.[60]

Conceivably, the entire commercial aviation industry of the United States could be supported for one year by fields of algae the size of Rhode Island. Better than that, guess what algae likes? Algae thrives where there is a super concentration of CO2.[61] The pieces of this puzzle just keep falling into place. Algae wants to be super-injected with CO2. We happen to have a major problem with an overabundance of CO2. Consequently our Algae fields provide us with our future fuel supply and also helps us significantly with our problem of too much CO2 in our atmosphere.

Let's say that we're not going to use this 'super fuel' Algae. Let's just say that instead we're going to use other sources in abundant supply, such as soy beans and corn. We could burn soy bean or corn ethanol in our cars and we still wouldn't need fertilizers or pesticides to maximize agricultural output any longer.

To summarize and to be clear on what has been presented, we can allow plants to grow naturally without the aid of chemicals. We can experience a global overabundance of agricultural yield based on the Irrigation Solution. By its implementation we will see agricultural surpluses in virtually every corner of the globe. Based on that accomplishment, we could direct a portion of our production toward fuel without adversely impacting food supplies.

Who is Going to Manage the Process of Cleansing the Atmosphere?

With a global consensus, we can start building this aqueduct system. With the sun providing free power, we'll have infinite supplies of water that can be pumped to the remote reaches of the Earth. We could let the wind and the sun power our lives as they provide us with a virtually limitless supply of water via desalination. We could continue our development of practical vertical access wind vane generators instead of propeller vane wind generators in order to protect wildlife. When the skies are cloudy we

[59] CALYX Bio-Ventures Inc. (2013). The top 200 moments in aviation biofuels, 2006-2013. CALYBio.com
[60] Nusca, A. (2010). Honeywell UOPS's 'green jet fuel' successfully powered a Boeing ah-64d apache helicopter flown by the royal Netherlands air force. SmartPlanet.com
[61] Power Plant CCS Report. (2010). powerplantccs.com

can tap into our existing 'legacy,' electrical sources. We could manage this process individually and locally with a global net positive effect. Everyone would become a responsible global citizen in that respect, managing the process together.

Pass the Salt, Please

What can we do with all the salt, the byproduct of the desalination process? First of all, it is my understanding that the actual, initial byproduct would be brine, not pure salt. However, we could refine it further while it's still in the water until it is pure, or maybe leave it as brine. If it were indeed refined into pure salt, there are several applications for which it could be used. Here are just a few examples:

Seven of the top ten countries that have populations suffering from nutritional deficiencies because of a severe lack of iodized salt in their diet are in Africa.[62] We could solve this problem for them by obtaining substantial amounts of salt via desalination.

Or consider this idea. Salt has some of the best insulation properties of any material on Earth. Nuclear waste is commonly stored in salt mines.[63] As well, salt is used in the manufacture of plastics. Possibly, via chemical engineering or nanotechnology, we could modify the properties of salt in combination with some other material substance. The goal would be to change its corrosive properties, or even change its tendency to dissolve when wet. If those properties could be controlled then maybe it is possible to enhance its use as an insulation agent.

If so, then we could possibly use salt as a component of concrete and other construction materials. After all, one of the contributors to the problem of global temperature rise is the heat radiated from concrete, structures. This heat is released due to the heat that is absorbed by the concrete that we use.[64] If we use salt as a component of concrete, maybe the R-Factor, (the thermal resistance factor), would increase, thereby reducing heat absorption and better insulating buildings against the sun as well as the cold.

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[62] Jooste, P., et al. (2013). Iodine nutrition in Africa: An update for 2014. SightandLife.org
[63] Palmquist, M. (2009). The salt mine solution. PSmag.com
[64] Talukdar, S. & Banthia, N. (2012). Carbonation in concrete infrastructure in the context of global climate change: Development of a service lifespan model. *Department of Civil Engineering*, University of British Columbia, Vancouver, Canada.

Moreover, if salt could be successfully applied to concrete, then one could surmise that it could possibly be combined with asphalt as well. Subsequently, we could use it to build roads with surface temperatures that would also be less susceptible to temperature changes. Possibly even tires would last longer and conversely ice would take longer to form on roads.

If we could reduce the amount of concrete needed to function as a society, then possibly we could reduce the quarry mining activities used to obtain its raw materials to a large degree. In turn, the negative environmental impact caused by quarries and mining could be reduced.

Returning to the discussion on the byproduct of desalination, brine might be used as a replacement for chemical fertilizers that have been shown to affect virtually everything on Earth. Again, it has been suggested that the use of these chemicals in agriculture is directly related to contamination of fresh water sources, could be contributing to colony collapse disorder, has been linked to cancers,[65] and is the main cause of dead zones along our coastlines where there is runoff from river systems.[66]

In summary, we may be able to solve a myriad of problems by making use of salt and/or brine in construction materials. Maybe it becomes the best insulator for our buildings. Maybe we could use it in our roads. Possibly brine could be used as a fertilizer. Remember, these are just ideas, broad stroke concepts. There are brilliant minds that could figure out whether these concepts are viable.

Without the Gulf Stream, The Old World Becomes The Cold World

The Gulf Stream could turn out to be a major problem. It is a saline river conveyer belt that runs inside the Atlantic Ocean. It is also the major contributor to warm temperatures in the Northern Hemisphere. If the Greenland Ice Sheet melts, a significant amount of fresh water will be introduced into the North Atlantic.

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[65] Corriher, C.T. (2014). How chemical fertilizers are destroying your body, the soil, and your food. healthwyze.org/index.php/component/content/article/100-how-chemical-fertilizers-are-destroying-your-body-the-soil-and-your-food.html

[66] SCheer, R. & Moss D. (2012). What causes ocean 'dead zones?' *Scientific American*. www.scientificamerican.com/article/ocean-dead-zones/

Because it is lighter, fresh water sits like a cap on top of salt water in the Northern Atlantic. If melted ice from Greenland enters the North Atlantic in high enough volumes, the Gulf Stream mechanism will be prevented from reaching the surface and absorbing the CO2. This is what makes it heavier and causes it to sink where it is colder, subsequently moving towards the equator. It also dilutes the saline mixture at the Gulf Stream's northern turnaround point. Both of these occurrences could slow down or disrupt the engine that maintains the stability of the current.[67]

How can we maintain the balance so the flow doesn't slow down or stop?

Remember: If we adopt the global use of alternative fuels as proposed earlier, then we will no longer be required to ship petroleum-based oil around the world. Should the Greenland ice continue to melt while we desalinate water on a global scale, I propose we redeploy what would become an underutilized flotilla of oil tankers formerly used for shipping petroleum products. Those oil tankers could go into dry dock and be cleansed, to then become salt tankers. These could then transport the salt/brine by-product from the desalination plants to the North Atlantic, near Greenland. There they would deliver the salt/brine at the top of the Gulf Stream and dump it into places where we need the saline balance, which requires calibration. In doing so we could protect the Gulf Stream from failing to exist.

At any rate, we truly cannot afford to be wrong by trying to second guess whether or not probable natural catastrophes will occur. If there is evidence that points to the Gulf Stream being at risk, then we should ask ourselves: where could we get enough salt to maintain the saline balance?

To summarize, currently there is no explicit, worldwide commitment to respond to any direction of climate change. If we want to be proactive to anticipate all possible climate scenarios then there should be. Rather than pointing fingers, we must prepare for the welfare of our future generations.

Ice Ages Come and Go

The coming of another Ice Age appears to be inevitable. This is a mere statement of fact. Historically, there have been periodic Ice Ages and

[67] Ballman, M., et al. (2010). *World Ocean Review: Living with the Oceans*. Future Ocean/ KIEL Marine Sciences. WorldOceanReview.com

there have been periods when the Ice has receded, such as now. The warmer times are known as interglacial periods. A good-sized volcanic eruption could possibly cool planetary temperatures and trigger another Ice Age. Also fundamental is the fact that, 10,000 years ago, a majority of the planet's populace wasn't mostly dependent on agricultural production in regions north of the equator. Now it is.

Recent analysis of mud and ice cores have shown that the Earth is only warm for about 10,000 years out of every 100,000 years and that an Ice Age can come on suddenly, taking only months or a few years to happen. This is contrary to our previously accepted perceptions that Ice Ages occur slowly over long periods of time.[68]

The Earth has exhibited repetitive cycles or warm and cold periods. Around 12,800 years ago, an Ice Age occurred due to a rapid freezing known as the 'Big Freeze.' That freeze was caused by a large influx of fresh water in the North Atlantic that originated from the Great Lakes region. The Big Freeze lasted approximately 1,300 years. Temperatures were significantly colder within a matter of months.[69] [70]

The newfound evidence that a rapid Ice Age could occur is significant. Earth scientist Henry Mullins of Syracuse University was not a participant in the studies of the mud cores, but said two very profound things in response to the new information: "That the climate system can turn on and off that quickly is extremely important," and "Once the tipping point is reached, there would be essentially no opportunity for humans to react."[71]

My response to Mr. Mullins astute observations is that we do not wait to react, since that would indeed be futile. We prepare. We respond by being proactive, not reactive. Data shows that the interglacial periods lasted 10,000 years yet this current one has lasted over 12,000. That means that at some point in the future, the occurrence of another Ice Age will be upon us. If so, wouldn't it make sense to prepare for it with the hope that we may survive with the least negative impact on our lives?

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[68] Pearce, F. (2007). *With Speed and Violence: Why Scientists Fear Tipping Points in Climate Change*. Beacon Press: Boston, Mass.
[69] Choi, C.Q. (2009). Big freeze: Earth could plunge into sudden ice age. /www.livescience.com/7981-big-freeze-earth-plunge-sudden-ice-age.html
[70] European Science Foundation. (2009). Big freeze plunged Europe into ice age in months. ScienceDaily.com
[71] Ibid. 67

If an Ice Age were to occur, where would you suggest the populations of Europe, Russia, Asia, Japan, and North America move to? How are they going to be fed? With the Irrigation Solution, we have that answer. We could establish the entire agricultural and residential infrastructure necessary to move entire populations closer to the equator, at the same time establishing new agricultural regions. We will proactively reclaim deserts such as the Sahara, making them fertile and inhabitable. (Interestingly, the Sahara is almost equal in size to Europe and Western Russia).

From our vantage point in time, one could deem the occurrence of an Ice Age to be completely far-fetched. It could also be asserted that there is so much distrust amongst nations that it is impossible for seemingly ambitious projects such as these to take place. In fact, you might be surprised to know that I too concur with these assessments, and plan to address them in due time.

To recount, we are certain that our planet has warm and cold periods in cycles. Based on geological data, we are at the end of a warm interglacial period. Currently, there are indicators that a cold period could be triggered in the Northern Hemisphere. The main indicator has been the melting of Greenland's fresh water ice, which could affect the ability of the Gulf Stream to keep the Northern Hemisphere warm. Our response should be to irrigate using desalinated water to create a new agricultural zone in the Sahara, as well as prepare to relocate populations from the Northern Hemisphere closer to the equator.

Volcanoes: First it is Hot Then it is Cold

When the volcanoes in Iceland got a little bit disruptive in 2011/12, combustion engine jet airplanes could not fly in Northern Europe due to the volcanic ash in the atmosphere.[72] Yet, when I heard the news, I didn't consider it to be a problem that major transportation systems had been disrupted. I considered it an opportunity.

Still, no one has proposed a comprehensive plan for addressing the effects of a major volcanic explosion. If that event does occur, we might experience a volcanic winter due to ash blocking sunlight from passing through our atmosphere. This could affect agricultural production in all

[72] ABC7 Eyewitness News. (2011). Iceland volcanic ash cancels European flight. abc7.com/archive/8149776/

areas of the globe. As well, it would spew gases that we cannot and should not be exposed to.

To what degree is it worth taking the risk of being wrong if we decide it's not important enough to prepare? I am suggesting that we figure out ways to vent volcanic cauldrons in an attempt to prevent eruptions. This would put people to work, virtually guaranteeing a positive impact on unemployment while we prepare for the unforeseen.

What's more, adopting the Irrigation Solution will provide a benefit that could help in preparation for future volcanic activity. In the event of a cataclysmic volcanic eruption, we could pump massively high volumes of water into fertile and productive agricultural lands and desert areas. When the volcanic ash does fall down out of the sky and lands on the fields that feed us, we can employ the use of our virtually unlimited supplies of water to wash the ash off of the leaves. We could run pumps to irrigate those fields 24 hours a day if necessary. One thing is for sure: We will not be able to do this with our presently limited supplies of naturally occurring fresh water because we are steadily running out it.

Relieving internal pressures by venting volcanic cauldrons is very challenging technologically, requiring capabilities that we do not yet possess. But it would seem that it would be much better to meter out the amount of gases released than to stand by and let it all explode uncontrollably. Maybe we could even capture the gases as they escape and employ them for our benefit. If we went ahead and set a goal toward preventing some volcanoes from exploding, then why wouldn't we also go forward with the development of technologies that could vent them?

Not only could we pump water into the cone or cauldron itself, but we could also essentially create a 'wall of water' to slow down dangerous magma flows. This idea is based on the fact that, if the front edge of an advancing lava flow is met with water and cooled, it hardens.[73] A water wall could slow the advance of subsequent lava flows.

Mixing magma and water creates CO2, which is a major issue that calls to be addressed. Maybe there is some other ingredient that can be used to overcome this impediment. What if we could create a protective wall with our surplus of salt? Would salt and magma interact in such a way? Maybe we could gain control in active volcanic areas, such as the Ring of Fire, Yellowstone, or Campi Flegrei near Naples, Italy.

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[73] Brown, T. (2014). How do you stop the flow of lava? BBCNews.com

Of course, these are obviously just very rough, broad concepts on offer here. It's food for thought, crumbs tossed here and there in an effort to establish a trail of inquiry and analysis.

The State of Electricity isn't All That State of the Art

Why discuss electricity? Because I do not believe that we can continue to use it in its current form and hope to survive. We are generating and distributing electricity in basically the exact same fashion as when it was first designed and implemented over 100 years ago, according to concepts not all that dissimilar to those brought to us by Edison and Tesla.

This is why it is no wonder that the entire structure of generation and distribution is quite fallible as well as vulnerable. Therefore, I happen to think that it's time for us to determine whether we should even consider electricity as our de facto source of power any longer.

To be fair, what we've already done with electricity engineering-wise is nothing short of magnificent. But in recent years we can't really say that we've been all that innovative in the avenues of generation and delivery, with antiquated, flimsy wires and cables from substations.

What amazes me the most is that we have wagered our entire existence on this most frail technology. In essence, we have not planned for an extended power outage at all. This is a technology that is vulnerable to water, ice, heat, wind, magnetic influences and powerful solar storms. Without it, we cannot communicate, charge our electronics, operate computers that control our commercial transactions, or have generalized access to heat or air conditioning. Yet we continue on without any attention to this glaring exposure to danger. The Earth's other inhabitants can survive easily without electricity, but what about humans? Essentially, we've bet that our antiquated, frail implementation of power will not fail.

Robust solutions for the creation of new power sources for light, heat, cooling, and other energy forms may not resemble anything that we've ever conceived before. We should assume that, based on its frailty, our electrical systems cannot and will not serve us forever. Therefore, I suggest we get working on solutions that are both efficient and able to stand up to what the universe will throw at us.

Part IV

Let's Take a Planetary Walkabout

"The chief obstacle to the progress of the human race is the human race." *Don Marquis*

The Best Solutions are the Simplest Ones

Consider that there's between seven and ten billion people on the Earth presently, and one third of these populations live in countries with moderate to high water stress.[74] One third!

If no action is taken, exponential scales of strife are guaranteed to be experienced in all areas of the planet at some point in the future. Unless we take actions to gain access to additional water via desalination, we're all going to share this water stress. What's worse, environmental and social stresses have always had a disproportionately high impact on the poor.

However, when everyone, regardless of net worth or geographic locale, has her and his fundamental food and water needs met, the historical tendencies that exacerbate social gaps can come to an end. We can prevent strife by taking water from the oceans in massively high quantities, desalinating it, then distributing it to irrigate crops and plants. We could refill lakes & rivers. Eventually the Earth could have an abundance of water resources wherever required.

In turn, we could extract enough water from the oceans toward desalination to arrest or even reverse current trends of sea level rise. This would be good news for the people of New York City, whose subway tunnels would be saved from mass flooding. Likewise, other internationally loved cities such as Venice, London, and Tokyo would be rescued from being submerged underwater.

Keeping all of this in mind, let us begin our walkabout…

Tuvalu: The First Line of Defense

Let's take a look at the country of Tuvalu. It's a small island nation with a population that fluctuates above or below 10,000 people.[75] The citizens have been making preparations to move away and leave their beloved native homeland due to the continual rise of sea levels, which has in fact already managed to impact some of the existing infrastructure near

[74] World Health Organization.(2014). Water, health, and ecosystems. www.who.int/heli/risks/water/water/en/
[75] 2014 CIA World Fact Book. (2014). CIA.gov

Tuvalu's shorelines.[76] Soon, if this trend continues, the entire island will be engulfed.

For this reason, the entire world should involve itself in Tuvalu's fate, as it has unfortunately become the barometer for how well we are performing in our efforts to alter the effects of climate change. Certainly, if we can save this sovereign country from slipping underwater, then we can possibly save ourselves the imminent necessity of relocating approximately 50% of the world's population. If we fail in our endeavors on behalf of Tuvalu, then we must also talk about the certainty of massive global, personal, and economic strife. Consequently, I would like to propose that we declare this island nation 'ground zero,' the measure of our abilities to respond.

Who Knew the Sahara is Really an Oasis?

The Sahara is the largest desert in the world and has been so for thousands of years. But it wasn't always a desert. There is geological evidence that 6,000 to 10,000 years ago it was a wet environment with a bounty of swamps. There were networks of flowing rivers and lakes filled with fish.[77] Most of that evidence is now covered by the shifting sands of the Sahara.

The cycles of wet and dry periods in the Sahara happen to coincide with changes in the tilt of the Earth. The next wet period is due in 15,000 years.[78] I propose that we cannot wait for the next wet period. It is imperative that we methodically reclaim the Sahara, turning it back into the tropical garden spot that it once was. Of course, this cannot happen instantaneously, so many will obtain gainful, long-lasting work throughout the planning, problem-solving, engineering, and execution phases of turning the Sahara into the most prolific agricultural region on Earth.

There is another compelling reason to make the Sahara mostly habitable: it is the only geographic location large enough to absorb a majority of the populations in the Northern Hemisphere.

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[76] Astaiza, R. (2012). 11 islands that will vanish when sea levels rise. BusinessInsider.com
[77] Solomon, S. (2010). *Water: The epic struggle for wealth, power, and civilization*. Harper Collins.
[78] McMichael, A.J. (2003). Climate change and human health: Risks and responses. World Health Organization. www.who.int/globalchange/publications/climchange.pdf

The magnitude of this suggestion is only surpassed by the glaring mistrust between nations across the spectrum of our current political paradigm. Indeed, to embark without resistance on innovative projects that can assuage climate change, we need a new social climate. This will require a radical realignment of how nations interact. We will discuss these issues in the final section of this book.

Why is the Bay of Bengal like Los Angeles?

Imagine an entire population equal in size to that of the greater metropolitan area of Los Angeles having to be relocated. Picture the details and logistics of such a project. An effort of that magnitude has never been undertaken in the history of humankind.

Now consider the fact that over thirty-five million people live in the lands that surround the Bay of Bengal. 12 million of these people live in close proximity, which means they could possibly be displaced due to rising ocean levels, which are incidentally further exacerbated by massive rain runoff from the Ganges River and other sources.[79] Regardless, it is predicted that, if the levels were to rise a few feet, all of those people would have to be relocated, tantamount to a massive human migration.

Africa: An Unnecessary Paradox

In November of 2006, The United Nations Environment Programme with the World Agroforestry Center, concluded that "Africa is not water scarce."[80] The report delineated that rainfall contribution is more than adequate to meet the needs of the current population several times over. However, in stark contrast, 14 of Africa's 53 countries have been classified as 'water stressed.' This is due to a lack of rainwater collection and storage activities which, appropriately administered, could be relieved.[81]

Yet where could such relief come from? Wonderfully, there is a very specific answer to that question. It has been recently discovered that there are huge groundwater reserves in some of the driest parts of

[79] National Aeronautics & Space Administration. (2013). Salinity. science.nasa.gov/earth-science/oceanography/physical-ocean/salinity/
[80] United Nations Environment Programme. (2006). Harvesting rainfall a key climate adaptation opportunity for Africa. UNEP.org
[81] Pachauri, R.K., et al. (2009). *Facing global environmental change: Environmental, human, energy, food, health, and water*. Hans Gunter AFES-PRESS. Springer.com

Africa.[82] True, there are a couple of major issues concerning extraction. Much of it is at deeper depths, which occludes the use of hand pumps while adding complexities and costs.

Yet, no matter how difficult these hurdles are, they must be solved. Over 300 million persons in Africa do not have access to safe drinking water.[83] On top of that, over 600 hectares of the continent's arable land – which, by the way, amounts to about 60% of the world's total - is uncultivated.[84] For example, within Ethiopia only 38% of the population has access to domestic water supplies[85] and 70% of adults have suffered from stunting due to malnutrition as children.[86]

So it is paramount that we prevent strife in Africa with the Irrigation Solution. A fully developed aqueduct distribution network covering the entire continent and fed by desalinated water could provide new water systems that could transform Africa's land into fertile and productive agricultural areas.

Citizens of every African nation could have unlimited access to purified water, which means they could also have access to an abundant supply of food. Additionally, the native wildlife in Africa would never be threatened by the shortage of water or the drying out of the continent.

As we assess what we can achieve, it becomes clear that we can raise the standard of living in Africa to a stability on par with other regions of the world. I am not talking about nice clothes here, wealth in terms of material consumerism, but in terms of health, which more privileged societies take for granted.

Presently, there are many dedicated, concerned people and organizations working feverishly to provide safe drinking water and sanitation for inhabitants all over Africa. Yet we could do so much more and be so much more effective. By virtue of the adoption of The Irrigation Plan, the future of Africa could provide:

- adequate agriculture production to feed the entire continent

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[82] McDonald, A. (2012). British geological survey. University College, London.
[83] United Nations Educational Scientific and Cultural Organization. (2013). Facts & figures. Unwater.org.
[84] Obasanjo, O. (2012). How Africa could feed the world. *CNN World*. globalpublicsquare.blogs.cnn.com/2012/11/06/how-africa-could-feed-the-world/
[85] Hendrix, M. (2012). Water in Ethiopia: Drought, disease, and death. *Global Majority E-Journal*, 3(2), 110-120.
[86] Schlein, L. (2013). Hunger costs Ethiopian economy billions if of dollars. VOAnews.com.

- abundant purified drinking water for everyone
- sanitation systems that are equal to current technologies
- replenishment of lakes and rivers
- refilling of watering holes for native wildlife
- increase and stabilization of overall quality of human health
- eradication of hunger
- elimination of the societal effects of droughts

What China Does Will Impact What Others Do

Did you know China has declared its number one domestic issue to be desertification, announcing to the world that it does not have enough fresh water to support its population?[87] China is truly drying up, its deserts advancing and encroaching upon its cities.[88]

The people in both rural and urban areas are panicked. Those that used to farm can no longer cultivate the land due to limited access to water.[89] The government has recognized the magnitude of this, as it has instituted responses to the stresses placed upon its populace. However, these responses have essentially treated the symptoms and not purposefully addressed creating a cure for the dire conditions of current and future water shortages.

As well, did you know that the city of Beijing has been sinking steadily due to massive ground water extraction?[90] [91] At some point a decision must be made whether to continue to weaken the city's foundation or to systemically address the cause of the problem.

Another very important point is that groundwater can stay polluted for several thousand years. Unfortunately, runoff from manufacturing and public services has polluted many fresh water sources. Yet if we were to employ purified water from desalination, we could protect people whose health could be at risk due to consumption of contaminated water. All of us, as global citizens, have to hold ourselves accountable for seeing that solution to fruition.

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[87] Yingqi, C. (2013). Desert land set to be reclaimed. USA.ChinaDaily.com.cn/china/2013-03/21/content_16326136.htm
[88] Carlson, B. (2013). Waterless world: China's ever-expanding desert wasteland. GlobalPost.com
[89] Calow,R. (2014). China's water dilemma between farming and growing population. TheGuardian.com
[90] china-wire.org/?p=19055
[91] www.china.org.cn/china/2011-11/02/content_23792980.htm

Why China? Because the message must originate from a major world power other than the West.[92] China must step forward and set a shining example by expanding their already laudable efforts in medical, educational, and economic outreach, as established by the Forum for China-Africa Cooperation[93]. If its intention is genuine, China is one country that many others are going to listen to and follow.

If China is courageous enough to step forward and campaign for an adherence to trust and a majority of countries agree, we will then take a major step in human evolution. It is then that we will have the opportunity to participate in a universal society, one that doesn't merely serve the selfish interests of philosophically segregated nations. We would then evolve emotionally and psychologically to become global citizens with our sights reoriented on our continued presence in the universe.

Australia: The Sunburnt Country

Did you know that Australia is in the throes of over thirteen years of severe drought?[94] Unfortunately, this is not a new occurrence for the people in The Land of Oz. Dorothea MacKellar's poem from the prior century, 'My Country' says: "We're not called the land of droughts and flooding rains, the Sunburnt Country, for nothing."[95]

One late night, my dear friend who lives in the lovely town of Oberon in the hills near Sydney came back from traveling the west coast. While she slept that night, a large portion of eastern Australia, specifically Brisbane and Sydney, became covered in a red dust. This was due to a storm that actually lifted the red topsoil from Western Australia and carried it across the continent, coating their cities.[96] [97] She said that in all of her years she had never seen that happen before. China has been experiencing these same conditions. By the way, that red dust isn't helping the coral reefs as it drops into the ocean.

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[92] Frimpong, P. (2014). Food insecurity in Africa: Can we feed the world. ModernGhana.com

.[93] Embassy of the People's Republic of China in the Republic of Botswana. bw.china-embassy.org/eng/zt/zfhz/t380909.htm

[94] Australian Government Bureau of Meteorology. (2010). www.bom.gov.au/climate/drought/archive/20100408.shtml

[95] www.dorotheamackellar.com.au/archive/mycountry.htm

[96] www.abc.net.au/news/2009-09-23/dust-storm-chokes-sydney/1438510

[97] Shears, R. (2009). Visible from space: The wall of dust marching across the Australian outback to turn the skies over Sydney blood red. DailyMail.co.uk

Remember, Australia is already parched. An increase in average temperatures will exacerbate a problem that is severe already. In 2013, Australia was devastated by fires that ravaged its eastern states.[98] High temperatures and drought created conditions for this catastrophic event.

If we have access to a virtually limitless supply of desalinated water via the Irrigation Solution, then we can irrigate lands in Western and Central Australia that are susceptible to topsoil erosion caused by drought and wind. We can select optimal areas to develop, allowing other exhausted sites to mend and lay fallow. The topsoil erosion and dust storm issues could be fully addressed and those problems would become issues of our past.

There is another dangerous phenomenon in the Outback. These are flash firestorms. They spread quickly and can consume thousands of acres while trapping animals, homeowners, and even travelers on roadways.[99] Just maybe, though it is a huge geographic feature, the Outback doesn't have to remain dry and parched any longer. The availability of virtually limitless water sources via desalination could possibly stop the firestorms.

Better still, perhaps these storms would not occur if the landscape could be instilled with more moisture. In an ecologically correct fashion, the arid areas of Australia could be systematically moistened via irrigation. This is because refilling lakes would lower the ambient temperatures in adjacent vicinities during the summer months and keep temperatures from dropping as quickly during the colder months.

All in all, by irrigating the entire continent of Australia, we could eliminate the conditions caused by droughts. The land would become cooler. The topsoil would be substantially less prone to erosion. The opportunity for fires to ignite would be reduced. Additionally, the availability for massive quantities of water to extinguish fires when they do occur would prevent the catastrophic loss of life and property.

Afghanistan: The End of Struggles

At the beginning of the latest war in Afghanistan, some reporters from the BBC went to a village north of Kabul and interviewed a few of the

[98] News Corp Australian Network. (2013). Nation on high alert as bush fires spread across three states. HeralsSun.com
[99] www.sciencedaily.com/articles/f/firestorm.htm

residents. They asked them how they felt about their situation. A few years later those same reporters went back and found the exact same people. They asked them things like, "It's now four years into this war. Things have changed. The United States is here. How are things for you now?"

One gentleman reached down and grabbed a clump of dirt, held it up, and let it sift through his fingers. He said, "We have these wonderful grape seed products. We could, in fact, produce income from this grape seed and produce a variety of items. But we can't. We have no water. So we're destitute and a little bit desperate. There's no end in sight."[100]

With virtually unlimited supplies of desalinated water, we could provide more than ample supplies to Afghanistan. Access to purified water could elevate the overall quality of living throughout the entire country. Afghanistan would not have to be mostly barren, arid desert. It could be lush and provide agricultural produce commensurate with the size of its population. They would not be constricted to merely planting seeds of hearty plants that can grow with very little water. They could develop their agriculture to secure stable, nutritious diets.

If the countryside of Afghanistan were to change from brown, arid dirt to green, lush vegetation, what would that mean for extremist, special interests groups like the Taliban? I believe that such an amelioration would embolden the people of Afghanistan to stand firm against anyone that would seek to take their newfound abundance away. In other words, the Business Plan for Planet Earth holds the precious potential of solving a number of social problems, even some very complex ones.

The Caspian and Aral Seas: Asia's Keystones

Sixty percent of the world's population lives in Asia,[101] yet the continent has only 36% of the world's water resources.[102] Moreover, the Aral Sea, which used to be the world's fourth largest inland sea, has completely dried up.[103] The United Nations surveyed this loss. The UN told the people in

[100] BBC News South Asia. (2011). Afghanistan war: Ten years, six stories. www.bbc.co.uk/news/world-south-asia-15206249
[101] National Geographic. (2009). A giant population. events.nationalgeographic.com/media/files/AGiantPopulationAsia.pdf
[102] UN.org. (2014). www.un.org/waterforlifedecade/asia.shtml
[103] CBS News. (2014). Satellite photos show one of the world's largest lakes disappearing. CBSnews.com

the countries that had once bordered the Aral Sea to come up with solutions.[104]

Yet there is no possibility for a solution under the current paradigm, as the extraction of water has had far-reaching implications in this region. The Aral Sea is a lifeline for so many reasons, including being a major provider of transportation. Because of the climate patterns around Uzbekistan, Kazakhstan, Turkmenistan, Kyrgyzstan, and Tajikistan, there is no possibility of refilling a body of water of that size.

Changes to the climate due to the loss of the water have included an increase in temperatures. This increase has impacted the ice that used to form during the winter and feed the Aral Sea as it melted during the summers.[105] Indeed, unless something is done, the same fate will come to the Caspian Sea, the world's largest inland body of water.

A virtually unlimited supply of desalinated and purified water would allow us to refill these bodies to their previous levels as well as maintain them. Returning both the Caspian and Aral Sea's water levels to their previous state should hopefully reverse the environmental effects that have had a negative impact on the entire region. It would also provide all of the other positive benefits aforementioned. In turn, the positive effect to be had on all of the human and animal life in the entire Asia Minor region is immeasurable.

Iran: Your Problems Are Our Problems

Remember our previous discussion about Dubai showing us the way? Now consider Iran's largest lake, Oroumieh. It is, or was, the third largest saltwater lake on Earth. As of 2011, over 60% of the lake's area has shrunk due to drought, irrigation, development, and dams on the rivers that feed into it.[106] The areas where the water has receded have turned into salt beds. The salt is a possible threat to productive agricultural areas, as the salt 'dust' becomes airborne due to winds.[107]

With a high degree of certainty, I assert that the Irrigation Solution could recharge this lake. It occurs to me that, since Oroumieh Lake is already a

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[104] We are Water Foundation. (2014). www.wearewater.org/en/news_67499?category=75053&page=3&year=2011
[105] Global Water System Project. (2012). *River Basins and Change*. GWSP.org
[106] Victoria, L. (2011). Oroumieh Lake, Iran's largest, turning to salt. PeakWater.org
[107] FAO Corporate Document Repository. www.fao.org/docrep/t0389e/t0389e02.htm

saltwater body, desalination infrastructure can be constructed while the lake levels are still low. The desalinated water can then be distributed regionally in response to both irrigation demands and drought conditions. This can create a condition whereby the dams on the rivers that feed Oroumieh Lake could be completely opened or even removed.

Incidentally, Syria, Israel, and Jordan have all contributed to the drainage of 98% of the Jordan River's volume, for the same causes that Oroumieh Lake has retreated.[108]

Venice: You're Not Leaving Us

Almost within a week of the flooding of New York City in late October of 2012, the city of Venice experienced its worst flooding in over 100 years.[109] True, flooding has been somewhat commonplace for Venice, as it has been slowly sinking for some time. The problem now is that the frequency is accelerating as sea levels continue to rise. New York City and London face a similar situation.

There has been no small amount of effort expended in attempting to save Venice. This is appropriate, as it is unlike anywhere else on Earth. There are artifacts and artwork that would be tragically lost should it succumb to the sea. Governmental and philanthropic groups are attempting to protect Venice via walls rising from the sea floor.[110] But what would happen should the sea continue to rise? Could these walls keep the sea from working its way around and continuing to fill the city? Speaking for myself, I consider the efforts to build walls a futile exercise. We saw what happened to New Orleans. Water will always find a way through or around any barrier eventually.

The only way that Venice can be saved is by having its neighbors consume purified ocean water. Only then would it be possible to prevent sea levels from rising. Indeed, maybe it would even be possible to bring sea levels back to levels previous and St. Mark's Square would stop flooding.

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[108] Estrin, D. (2011). cnsnews.com/news/article/dead-sea-threatened-both-shrinking-and-flooding

[109] Associated Press. (2013). Global warming threatens coastal cities. GlobalNation.Inquirer.net

[110] The Daily Telegraph. (2013). Can this steel flood wall save Venice from the waters? skift.com/2013/10/14/can-this-steel-flood-wall-save-venice-from-the-waters/

Of course, it is much less costly, both in human and financial impact, to have sea levels recede slowly over time than to have them wash into our cities and surge over our coastlines. There would be an undetermined environmental impact should Venice or New York City become overrun with water - possibly nominal, possibly enormous. Chemicals could leach into the seas and oceans for decades or centuries.

The solution to save Venice? You're correct: global adoption of desalination on a massive, planetary basis.

London is in a Sticky Wicket

London is basically in the same predicament as Venice and New York. The British Government is considering a plan very similar to the one that Venice has proposed to implement: building walls to block the sea from moving up the Thames River.

Again, I must insist that anything that can be made can be broken. It's my belief that eventually water will find its way through, underneath, or around these stopgap measures and London would eventually succumb. By expending every effort to promote and practice the consumption of only desalinated, purified water worldwide, this expensive, ill-conceived, panicked response by Britain will be rendered unnecessary.

Moscow Can Breathe Easy

In the summer of 2010, Moscow was engulfed in a toxic smoke cloud.[111] This cloud was produced by forest fires that ignited peat, which grows on the floor of their forests. Once the peat started to burn, it proved extremely difficult to extinguish, releasing noxious smoke that caused the fatalities of over 55,000 persons.[112]

As far as I can tell, there isn't another available option other than the Irrigation Solution should this happen again. If we implement it, we could flood the forest floors and extinguish the peat fires in short order. The only question is, If we have the capability to prevent the suffering and mortality

[111] Boy, A. (2010). Russia's wildfire disaster: Fury grows over Moscow's failures and mounting deaths. SPIEGEL.de
[112] Feifer, G. (2011). Heat and fire return to Russia as questions linger over deaths in 2010. RFERL.org

of tens of thousands, not to mention wildlife, then shouldn't we pursue that endeavor?

Naples Sits in a Vice Grip

A super-cauldron called Campi Flegrei exists in a regional park near Naples. The Italians have been monitoring it. It could erupt again and at least 3 million people live nearby, two million of these living in fatal proximity.[113] Without advance notice, there's no way we're going to be able to evacuate that many people if the cauldron explodes.

We discussed the solution earlier in the book in the section on volcanoes. If we had the availability of a limitless supplies of water, maybe we could slow down the lava flows long enough to save two million people from death.

A Jaunt through the United States is in Order

In the U.S. forty percent of rivers and forty six percent of lakes are too polluted for fishing, swimming, or aquatic life.[114] Even worse, in June of 2008, an article in *The American Prospect* stated that, within five years, 36 of our 50 United States would be under water stress.[115] That means that they are going to have a shortage of supplies of water relative to their needs.

Atlanta

Did you know that a few years ago the Atlanta Metropolitan Area was literally hours away from running out of water, creating a possible human emergency like we have never seen? The rains came at the 11th hour.[116] Nevertheless, can we truly be assured that that the problem has been addressed and taken care of for the city? Could it happen again should

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[113] Robinson, P. (2011). Vesuvius's big daddy: The Super Volcano that threatens all life in Europe. *The Daily Mail*.
[114] Environmental Protection Agency. (2014). Nonpoint source pollution. The nation's largest water quality problem. EPA.gov
[115] Barlow, M. (2008). Where has all the water gone? Prospect.org
[116] Black, B.C., et al. (2013). Climate change: An encyclopedia of science and history. ABC-CLIO, LLC: Santa Barbara, CA.

they experience another drought of similar magnitude? Could this happen in other major cities around the globe?

Ogallala Aquifer

The Ogallala Aquifer is underneath the Great Plain states of South Dakota, Nebraska, Kansas, Colorado, Oklahoma, Texas, New Mexico and Wyoming. These states are among the most productive agricultural regions on the entire planet. Basically, a considerable proportion of the water needed to support the agricultural requirements of these states comes out of this massive aquifer which is about the size of Alaska.[117]

Scientists estimate that the Ogallala Aquifer is more than 30% used up.[118] What is the plan for when it is completely consumed? If we have the opportunity to preserve the Aquifer and allow it to naturally recharge itself, then we wouldn't have to use it up. We could terminate our draining of the Aquifer and obtain purified water via ocean desalination. Because this supply of water would be virtually limitless, we could then irrigate everywhere as much as is required, or dare I even say desired, to obtain our designated yield goals.

Oklahoma and Texas

Oklahoma, Texas, Colorado, and New Mexico were the unfortunate recipients of the massive and tragic loss of topsoil known as 'the Dust Bowl Days' in the mid-1930s. The combination of severe drought and incorrect farming practices served to create and amplify the problems. Now fast forward to the present, where indicators for the return of Dust Bowl conditions have recently occurred in Oklahoma and Texas.[119] [120]

Recently, Texas experienced not only a very severe period of drought but also extremely high temperatures.[121] Conditions were so severe that in

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[117] Gurdak, J.J., et al. (2009). Water quality in the high plains aquifer, Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming. United States Dept. of the Interior, U.S. Geological Survey. USGS.gov
[118] Chow, D. (2013). Water woes: Vast US aquifer is being tapped out. LiveScience.com
[119] Shukman, D. (2014). Oklahoma drought kindles spectre of 1930s 'dust bowl.' www.bbc.com/news/science-environment-27986425
[120] Parker, L. (2014). Parched: A new dust bowl forms in the heartland. NationalGeographic.com
[121] State Impact. (2014). Everything you need to know about the Texas drought. stateimpact.npr.org/texas/tag/drought/

certain areas crop production was almost completely wiped out.[122] Temperatures were so high that, in certain lakes, tragic numbers of fish died.[123] With vast supplies of purified, desalinated water, we could have kept the agricultural production intact, secured the livestock and population, and even added water to those particular lakes to regulate the increase in temperatures.

Again, if we do nothing, then our options are very limited. However, if we mobilize and maximize our ingenuity with the resources that we have been given, then our options to respond to nature's changes greatly expand.

New York City is Directly in the Crosshairs

In 2012, Hurricane Sandy showed us how vulnerable our assets are to rising sea levels. Our national and international financial markets were under siege by both wind and water. As the confluence of weather events materialized, we saw a demonstration of just how unprepared we, and our fragile systems are.

Wall Street sits in a low-lying area at the southern tip of Manhattan Island. A rise in sea level somewhere in the range of 11-13 feet was enough to allow water to cover the streets and pour into buildings. The New York subway system was shut down for a short period of time after the stations in Lower Manhattan flooded.[124]

This is an issue that is going to have to be addressed sooner or later. According to our present needs our electrical delivery systems are antiquated, with switches of a design dating back over 100 years. Even so, new electrical systems would be just as vulnerable to water exposure. This is therefore a prime example of the urgent need for another type of power source, one that would have to come from technologies that we have not developed yet. Indeed, the ability to provide power for transportation, lighting, and heating/cooling systems in a manner that would insure no disruption due to contact with water would be a major engineering coup.

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[122] Sherman, C. & Blaney, B. (2013). Farmers scuffle through record South Texas drought. NBCDFW.com
[123] CBSDFW.com. (2011). Higher water temperatures killing North Texas fish. Cbslocal.com
[124] Kluger, J. (2012). The lessons from New York's flooded subways. Science,Time.com

As aforementioned, a large segment of our global population lives in close proximity to the oceans. If we put our focus on employing only desalinated water for our entire global water requirements, we could treat the cause of the problems presented by hurricanes like Sandy. Only if we consume purified ocean water can we rightfully claim to be working on preventing the rise in sea levels.

Yellowstone Park is No Longer a Tourist Destination

Did you know that one of the largest volcanic super-cauldrons on the planet is underneath Yellowstone Park?[125] This volcanic cauldron is a deadly monster, absolutely massive in size. In fact, it has been determined recently that it is even larger than originally estimated.[126] The entire Yellowstone Valley floor is actually changing in size, moving rapidly in short increments.[127] I don't know about you, but it makes me uncomfortable to know the ground is moving like that.

The United States is a significant exporter of food, and this volcano is sitting in close proximity to some of the most fertile agricultural areas on the surface of the planet.[128] If this super cauldron under Yellowstone Park were to erupt, most certainly the ash fallout would affect not only citizens but also major agricultural regions. This appears to be a formula for disaster. If the ash from the volcano were to coat all of our plants, then most likely the majority of those food sources will die. That would exacerbate suffering on a global scale all the more. Thus, I am suggesting that we do not let the cauldron explode.

In my opinion, we should close Yellowstone National Park. It had a nice long run as a tourist destination, but now it needs to be shuttered permanently. Once we close the park, we can get to work figuring out how to open up vents in order to allow some of the pressure to alleviate. Also, with an unlimited supply of desalinated water, we could attempt to wash the volcanic ash off the leaves of our agricultural produce.

Again, this involves technologies that we do not have at the moment. A project of this magnitude and complexity could require years and possibly

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[125] Achenbach, J. (2009). When Yellowstone explodes. NGM.NationalGeographic.com
[126] Preston, P. (2014). Scientists report Yellowstone Super Volcano bigger than previously thought. NBCMontana.com
[127] volcanoes.usgs.gov/volcanoes/yellowstone/yellowstone_monitoring_51.html
[128] Newitz, A. (2013). What will really happen when the Yellowstone Super Volcano erupts. io9.com/what-will-really-happen-when-yellowstone-volcano-has-a-508274690

decades of advance planning. This is why it is prudent to take actions now in anticipation of the arrival of those technologies. Presently, we are doing nothing with regards to this monumentally dangerous, geological powder keg.

California is Always a Trendsetter

The water problems in California cannot be solved by the governor. We as global citizens must solve the problems for California because of its connection to the oceans.

In 2009, farmers located in areas with dry water tables were told by the federal and state government that they would receive 15% of the water that they had received the previous year. Not 15% less, but 15% thereof.[129] In 2014 The State Water Resources Board said that there would be no water distribution at all due to serious drought conditions.[130] The response of many farmers was to close down their precious farms and orchards and sell them to investment speculators, who in turn intended to build solar farms.[131]

Nevertheless, to take critically productive agricultural land out of circulation due to a lack of water is to markedly reduce the availability of food resources. But to sell the land to speculators that intend to build solar farms is an insult to our intelligence. It makes absolutely no sense to have a company collect solar energy and sell it to us when the sun is giving its energy away for free. If there is a genuine interest in alleviating financial stresses on the global economy, then wouldn't the elimination of power expenses for both individuals and businesses take a major step towards that aim?

In Northern California there's phenomena known as the Geysers. These are actually problems that contribute to the water shortage issue in California. This area has a unique environment where, underneath the surface, the Earth's heat provides a cistern stuffed full of water which produces steam that can electrify the San Francisco Bay area. This is power technology known as geothermal.

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[129] Yi, M. (2008). State prepared to slash water deliveries. www.sfgate.com/news/article/State-prepared-to-slash-water-deliveries-3187241.php
[130] Alexander, K. (2014). Drought. Feds cut water to central valley farmers to zero. www.sfgate.com/news/article/Drought-Feds-cut-water-to-Central-Valley-farmers-5256131.php
[131] Cart, J., et al. (2012). Land speculators see silver lining in solar projects. www.progress.org/2012/solarsit.htm

It is a significant source of power but fraught with problems, like depletion of fresh water sources and creation of earthquakes. This is because, using current technologies, extracting geothermal energy requires massive quantities of water. This extraction process is like a voracious animal, depleting fresh water sources at a prolific rate in an effort to get at steam. Consequently, energy companies have been hunting for additional supplies.[132]

Since the extraction of geothermal energy requires massive input of water, this is another avenue in which we should instead employ desalinated water unceasingly, simultaneously obtaining power while lowering sea levels. Wouldn't it make sense to get water from desalination sources, the likes of which could not be depleted, and stop depleting our natural fresh water sources?

Owens Lake and the Salton Sea

When we build a distribution network to distribute water that has been desalinated and purified from the ocean, we can replenish places where water used to be plentiful but desert conditions have since advanced. In California, two examples of such are the Owens River Valley, where Owens Lake used to be, and the Salton Sea.

Owens Lake has dried up. This is due to its geography and the fragile balance of the tributaries that once fed it. When Los Angeles needed to quench its thirst 100 years ago, the process of draining the lake tipped that balance. Now the lakebed is almost always arid and dry.[133]

The Salton Sea – (actually a rift lake) - was created in 1905 when a Colorado River levee broke and caused flooding into the Salton Sink Basin for about 18 months.[134] The Salton Sea is 50 percent saltier than the Pacific Ocean.[135] The lake sits 235 feet below sea level[136] and is losing water.

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[132] Sanyal, S. & Enedy, S. (2011). Fifty years of power generation at the geysers geothermal field, California – the lessons learned. *Proceedings, Thirty-sixth Workshop on Geothermal Reservoir Engineering*. Stanford University: Stanford, California.
[133] Reheis, M. (2014). Owens (dry) Lake, California: A human-induced dust problem. U.S. Geological Survey. geochange.er.usgs.gov/sw/impacts/geology/owens/
[134] Dulaney, J. (2012). A snapshot of life from the shores of the Salton Sea. *San Jose Mercury News*. www.mercurynews.com/ci_21551508
[135] Simon, M. (2012). The Salton Sea: Death and politics in the great American water wars. *Wired*. www.wired.com/2012/09/salton-sea-saga/all/
[136] Anderson, K. (2011). *The Salton Sea*. Arcadia Publishing

Now, it is sustained by drainage and wastewater from irrigated farmland in surrounding valleys.[137] [138]

The Salton Sea used to be a resort area. But now the lake has become a victim of natural and economic disaster.[139] Like The Aral Sea, there is evidence of receding water levels everywhere. As the water levels recede, so do the oxygen levels in the lake. This is due to the higher concentrations of salt and chemicals.[140] Quite unfortunately, the lake has been home to more than 400 bird species that migrate through the Pacific Flyway.[141] Reduced oxygen levels often result in large amounts of fish, such as tilapia, to die off.[142] Bird species that rely on fish for food could be at risk as fish continue to die.

The receding shoreline threatens the area's environmental and economic health. Water is evaporating from the lake faster than irrigation runoff can replenish it. This situation is extremely similar to the situation in Iran with respect to Oroumieh Lake. In fact, the Salton Sea Authority has projected that plagues of powdery airborne dust are destined to descend upon the residents of Southern California as the lake recedes.[143] The lake water levels must be stabilized or the safety risks will continue to grow.

Also, why couldn't we design a project which uses a deposit area to purify chemicals and reduce the salt content to match that of the ocean? This would create a significantly healthier environment for fish, birds, and humans. It would also reduce exposure to harmful dust particles for residents of Southern California and allow the Salton Sea to be supplied with gradually reduced saltwater content. This would stabilize the entire region.

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[137] www.waterboards.ca.gov/rwqcb7/water_issues/programs/wmi/docs/section2.pdf
[138] www.dot.ca.gov/dist11/news/brawley/chapters/Chapter3.pdf
[139] Lost America. lostamerica.com/photo-items/the-salton-sea/
[140] Morrison, P. (2014). A persuasive case for saving the Salton Sea, California's biggest lake. LATimes.com
[141] Northern Prairie Wildlife Research System. (2013). Bird checklists of the United States. www.npwrc.usgs.gov/resource/birds/chekbird/r1/salton.htm
[142] Flaccus, G. (2012). Salton Sea fish die-off eyed as culprit of horrible stench in Southern California. HuffingtonPost.com
[143] Than, K. (2014). Can California farmers save water and the dying Salton Sea? NationalGeographic.com

San Joaquin/Central Valley Defines California's Destiny

The San Joaquin Valley in Central California is responsible for approximately 10% of the agricultural production of the United States. It is also the largest human alteration of the Earth's surface. 700,000 years ago, as land masses rose due to tectonic shifts, the valley was a fresh water lake supplied by receding ice sheets. As recently as two hundred years ago, there were several large lakes remaining. From this supply water diversion for agricultural irrigation began in the late 19th century and continues to this day.[144]

Now, the lakes themselves have dried up and their tributaries have been redirected for other uses. Due to the increasing withdrawal of water from aquifers underneath the valley, the land has exhibited subsidence, (or sinking), on a scale like no other on Earth.[145] Recent estimates have been a sinking rate of one foot per year.[146]

The evaporation of water in irrigated farming fields leaves behind minerals and salts. Additionally, the evaporation draws salts up from below the surface to add to the salinity of the soil.[147] This is why, through overuse of land for farming purposes, entire civilizations have disappeared. For example, the civilizations of Mesopotamia and the Mayans collapsed due to the increase of salinity in the soil as a result of irrigation.[148] [149]

What is fascinating is that we have not learned from these ill-gotten gifts that are the lessons of our past. We are going to experience the same conditions in the San Joaquin Valley eventually. At some point in the future it will become necessary to allow the land to recover. We need to finally overcome this biological hurdle and learn how to manage the properties of the soil's salinity. For example, we could consider the use of

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[144] Galloway, D. and Riley, F. pubs.usgs.gov/circ/circ1182/pdf/06SanJoaquinValley.pdf
[145] Krieger, L. (2014). California drought: San Joaquin valley sinking as farmers race to tap aquifer. MercuryNews.com
[146] Kahn, D. (2014). California: Central valley sinks as parched farms wrong more water from aquifers. www.eenews.net/stories/1059992379
[147] The American Geological Institute. (2009). *Environmental Science: Understanding Our Changing Earth*. Cengaged Learning.
[148] Paulette, T. (2011). Domination and resilience in Bronze Age Mesopotamia. Faculty.Washington.edu
[149] Seccarelli, S., et al. (2004). Breeding for drought resistance in a changing climate. *Challenges and Strategies of Dry Land Culture*. Crop Science Society of America and American Society of Agronomy, 167-190

enzymes, microbes, bacteria, and fungi to 'eat' oil spills.[150] [151]Maybe we could eradicate salinity in the soil in a similar fashion.

The Sacramento River Delta is Expendable According to California's Government

In California, they're considering a major water movement project called The Peripheral Canal. It is designed to redirect some of the fresh water from the Sacramento River to Los Angeles.[152] [153] [154] The Sacramento River Delta is a rich, diverse ecosystem that is maintained by the flow of fresh water from the Sacramento River, which displaces the encroachment of salt water from the ocean via the San Francisco Bay.[155]

Recently, the fresh water/salt water demarcation line has moved inland as fresh water is pumped to Central and Southern California.[156] This is not a long-term solution. This is a temporary stopgap measure that is once again, tantamount to treating the symptoms of a disease without treating the cause.

Minimally speaking, the Peripheral Canal will adversely affect a natural phenomenon that has enhanced the livelihood of the San Francisco Bay Area. If we employ the Business Plan of Planet Earth, then billion dollar projects such as the Peripheral Canal would no longer be necessary and we could redeploy those dollars in some other way. As the world's eighth most prolific economy,[157] [158] [159] California, which always tends to break with convention and set new trends, could show the rest of the world how

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[150] www.dfo-mpo.gc.ca/science/publications/microbes/index-eng.html
[151] Biello, D. (2010). Slick solution: How microbes will clean up the deep water horizon oil spill. ScientificAmerican.com
[152] www.allgov.com/usa/ca/departments/natural-resources-agency/delta_conservancy?agencyid=165
[153] Freeman, P. (2012). California's delta – saving a diminishing water supply. TheLosAngelesPost.org
[154] Shigley, P. (2012). The delta is in the delta. American Planning Association. www.planning.org/planning/2012/jan/waterwarriorsside1.htm
[155] pubs.usgs.gov/circ/circ1182/pdf/11Delta.pdf
[156] Bay Delta Conservation Plan. (2013). Primer on the delta and California water delivery systems. BayDeltaConservationPlan.com
[157] Shwarz, H. (2014). California's economy is large enough it could be admitted into G-8. TheWashingtonPost.com
[158] Young, A. (2014). California regains ranking as world's eighth largest economy. *Sacramento Business Journal*. BizJournals.com
[159] Sharma, A. (2014). California ranks as world's eighth largest economy, overtaking Russia and Italy. KPBS.org

to get it done by adopting the Irrigation Solution in earnest. The state's actions alone could set an example which every nation could follow.

The Time of the United Nations has Finally Arrived

The concept of unity among nations is fundamental to attaining the goals proposed in this book. This is why the United Nations, or an organization like it, must become the guidepost for our future proliferation. It's true that the UN has been slowly growing in strength and uniformity since 1947, but its original dream and concept has never been quite fully realized. We still go to war over resources, pride, and distrust. At least a couple of triggers that cause conflict must be neutralized if we want to continue to survive and progress.

In another section I will discuss the parameters for neutralizing distrust amongst nations, even individual persons. That leaves pride. We simply cannot permit another power-crazed person to impact the globe negatively with another conflict. Even regional conflicts have become global exigencies in recent history.

It is my contention that the next mad person that will attempt to engulf the world in conflict has already been born. That gives us precious little time to build an immovable, unbreakable bond between all of us in order to focus on our continued presence here on Earth.

In order to finally have The United Nations fulfill its charter, each and every nation is going to have to give up some of the power it so willfully flexes when it suits its special interests and agendas. The Eurozone has blazed a trail for us and has been working hard to make this new order a reality. With little or no help, it has proven that it is a fine example of the next step toward how we should conduct ourselves globally.

In short, if all nations were on an even par in terms of quality of life, then jealousy over resources would no longer be catalysts for aggression between nations.

Part V

ECONOMICS:

Resetting our Global Priorities, From Maximizing Profit to Maximizing our Species' Survival

"Man did not weave thy web of life. He is merely a strand in it. Whatever he does to the Web, he does to himself." *Chief Seattle of the Suquamish*

"The Universe is not required to be in perfect harmony with human ambition." *Carl Sagan*

We Make It Harder Than It Has To Be

We live in a violent universe. Yet we still have been given the chance to share in the ultimate gift of life. This is what we choose to do with it? Does the prospect of our civilization's disappearance from this universe because of our obsession with the maximization of profits feel hideous and ironic to you? This strategy is fundamentally not sustainable for the long-term, maybe even the short-term as well. I think we should reset our priorities from maximizing earnings per share per quarter to the more noble and practical concept of survival.

Resetting our priorities is not a delusional pipedream. Consider If I were to ask: "Do you think we could just continue doing what we are and have been doing for the next 50 or even 10 years?" I believe that most people would answer "No way."

The current economic model, this rigged parlor game as I view it, is what we have invested our entire civilization's existence upon. As a result, we can see fissures in almost every aspect of our lives. However, I sense that the collective consciousness of the world's citizens is set for change, the only constant in this universe. In our world, on our planet, we have the opportunity to define, to a large degree, what changes will take place and prepare for them at the same time.

To quietly become extinct, to pass into darkness because we have mismanaged our planet feels incongruent with our core desires of security for ourselves and our families. The current planetary directive of profit maximization, a mantra that we have embraced since our inception hundreds of thousands of years ago, is contrived.

In the early stages of human development, we constantly reached just beyond our biological program in order to adapt and survive. Consequently, a strategy of segmenting specializations amongst our species rose to the fore. Certain individuals bore babies while others hunted. Still others manufactured tools and weapons.

Indeed, the economic model under which we currently operate is a logical extension of this early behavior. Specializations are what businesses provide. A macro view shows that almost every aspect of our society now depends on specializations. And it is these specializations and subsequent segmentations of society which are also the basis of the political

constructs that define each nation. But this economic model has run to its completion.

There are two basics that I think we need to get back to: agriculture and manufacturing. I think that avoidance of contrived services, specifically financial speculative vehicles, is paramount to establishing a stable, long-term, migratory strategy. These have always been fundamental activities, as opposed to imaginary financial service mechanisms created to sustain falsified growth rates based on other financial vehicles that do not really exist.

The question is who decides what works? We will fail if we put the decision making in the hands of the few. According to the heretofore excessively adhered to model, those that choose to dominate will rise to the top and inflict pain on those that do not choose to take such a path.

Consider this poignant quote:

"From time to time, we have been tempted to believe that society has become too complex to be managed by self-rule, that government by an elite group is superior to government for, by, and of the people. But if no one among us is capable of governing himself, then who among us has the capacity to govern someone else?" *Ronald Reagan, 1981 Inaugural Address*[160]

The current economic system is a debt-based model that was designed by Alexander Hamilton and his cronies in the late 1700s.[161] [162]We have not remodeled that house in 225 plus years. With no true checks and balances whatsoever, our lawmakers compel citizens to pay back contrived debts. We need to reacquire a sense of responsibility to our fellows In place of our currently weathered, destructive, myopic approach.

[160] Hammond, S.J., et al. (2007). *Classics of American Political and Constitutional Thought: Origins Through the Civil War*. Hackett Publishing.
[161] Gordon, J.S. (2008). Past and present: Alexander Hamilton and the start of the national debt. USNews.com
[162] www.ushistory.org/us/18b.asp

The Time of the Benevolent Business Has Arrived

During the banking crisis of 2009, our TARP (Troubled Asset Relief Program) funds in the United States totaled approximately $37,000 per capita.[163] We could have taken all of those funds and used them to purchase solar collectors for all of our structures and replaced all of the light bulbs in the entire United States with LED bulbs.

Now imagine the massive reduction in spending that both businesses and consumers would benefit from with efficient lighting powered for free by our sun every day. Such an endeavor would actualize a grand and sweeping reduction of the national debt instead of the short term monetary fixes that caused it to swell in the first place. As well, from an environmental standpoint, just imagine the massive reduction of the production of CO2 alone.

As for myself, I've wanted to replace all the Halogen Light Bulbs in my home with LED Light Bulbs for some time now. But LED Bulbs are very expensive. This is because LED manufacturers find themselves in an economic paradox. LED bulbs will run twelve hours a day for eleven years. They are 70% more efficient than incandescent.[164] But if they run that long and they only break once every eleven years, how are LED manufacturing companies going to make money?

Consequently, Phillips finds itself in the business of making profit but not in the business of being socially responsible. The company has spent billions of dollars toward taking a dominant position in the LED production marketplace, purchasing every technology, manufacturer, and patent associated with LED Light Bulb technologies that it could acquire.[165] This strategy is why the price of LED Lighting has been elevated above that of other forms of illumination. In turn, Phillips need not be concerned about external free-market forces impacting their pricing mechanism.

Therefore I propose adoption of what I call 'benevolent business.' While the profiteering-based model still resides and presides, we should embrace companies that engage in profitable enterprise without exploitation. We, collectively as consumers, can decide to conduct trade

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[163] Congressional Record. (2009). www.gpo.gov/fdsys/pkg/CREC-2009-07-21/pdf/CREC-2009-07-21-pt1-PgH8441.pdf
[164] Nunez, C. (2012). Led holiday lights boost the season's energy efficiency. NationalGeographic.com
[165] Lacey, S. (2013). The path to 80 percent market share for led lights. GreenTechMedia.com

with those businesses that show a propensity toward understanding their larger role in our evolution.

A Cure for the Economic Flu

I have suggested we innovate at a much higher pace than we are now. That will create problems. I say bring them on. Problems are what we want. Problems are how we make our money. Resolving problems is how our economy gets fueled. In fact, I submit to you that, from the beginning of our existence, the only thing that we human beings have strived to do when push comes to shove is solve problems.

Earlier we established that the byproduct of desalination would not be salt but brine. We have also said that we cannot just put the water into the ground, as there's an inherent saline quality in the ground itself. That's a problem. But we've never been stopped by problems before. We cannot disapprove or shelve an entire project of this significance and magnitude just because there are problems. By embracing problems, we can work to invent innovative solutions.

So let's encourage the genius in all of us to come out and play. This is how we bolster the economy while focusing on designing a long-term, sustainable strategy for the future. This is how the world gets healthy economically.

We can no longer service the military-industrial complex. And during the evolution from profiteering to survival, everyone can make money. Everyone will be able to have jobs creating and building the infrastructure for the Business Plan for Planet Earth. We should all do this together. We know this is our future anyway, so let's be proactive at this most critical point in our civilization's timeline.

If you look back at history and look at what and who the Romans were, Americans are almost their exact duplicate. The Romans brought technology to other nations. As just one of numerous examples, Britain didn't have hot baths, aqueducts or latrines until the Romans were through with them.[166] [167]But the Romans also overextended themselves by expanding too much and leaving their home situation at risk.

[166] www.historylearningsite.co.uk/roman_baths.htm
[167] www.sacred-destinations.com/england/bath-roman-baths

But now our new call to action begins with water. And fortunately, the need to develop an entire network of aqueducts and pipelines to distribute the water to places where it doesn't normally flow to is going to mean jobs. Right now, there are countries that have 20-30% unemployment.[168] The age group from 18-35 years old in Greece has recently been designated as having over 50% unemployment.[169] Cities like Detroit or Flint, Michigan are just devastated due to idle workforces.[170] [171]

This would be a fundamental economic shot in the arm, a massive, global project that would set the stage for success that could span generations, the first of its scope in history not driven by a standing or invading military force.

There are a lot of people who are out of work who would love to go back to it building this distribution network in anticipation of a desalination technology. We will require concrete to build the needed aqueducts and pipelines. We will require engineers and architects, workers and laborers. We will require steel. We won't just do it in the United States. We will need to do it in Kazakhstan, and Afghanistan as well. We need to do it in Iran, China, and Greece, too.

The Energy Economy: a Stepping Stone

We are headed towards an innovative energy economy. I think it can be catapulted forward by a quantum leap by implementing the proposals within this book. Building an aqueduct distribution network would mandate the need for pumps as well as wind or solar-powered equipment to be manufactured in order to push desalinated water uphill, through the aqueducts, to inland locations above sea-level.

Quite simply, we need to stimulate the economy by creating demand for 'energy economy production.' In addition to pumps for aqueducts, we will also need to manufacture solar energy products on a massive scale. This global works project would require industrial and consumer-sized solar collectors to be in close proximity to aqueducts and pipelines, along with environmentally-appropriate wind generators. In short, the massive

[168] www.economist.com/news/international/21576657-around-world-almost-300m-15-24-year-olds-are-not-working-what-has-caused
[169] Michaletos, I. (2011). Organized crime in Greece: Statistics, trends, and police countermeasures in 2011. BankAnalysis.com
[170] milmi.org/admin/uploadedPublications/2090_MI_Econ_Ind_Winter2014.pdf
[171] mic.com/articles/45563/detroit-bankrupt-to-see-detroit-s-decline-look-at-40-years-of-federal-policy

demand to fulfill the requirements of the Irrigation Solution will propel our global economy toward a better evolved incarnation.

Countries worldwide could manufacture their own pumps, solar collectors, and wind generators with their own manufacturing facilities within their own boundaries. Countries where unemployment is significant could turn their plight around almost instantly.

I'm sure that there are manufacturing facilities in every country that are sitting idle due to one reason or another. In the United States there are some prime examples of this sad phenomenon. Industrial cities like Detroit, Bellevue, and Flint are places where manufacturing facilities have been shut down. The people left residing in those cities now face the challenge of locating employment.[172] With their eager assistance, we could re-engineer and re-orient those manufacturing facilities for the manufacture of consumer-sized solar collectors and wind vertical access generators.

Were we to manufacture collectors on a grand scale, the cost would become so accessible that virtually every person who wanted one could afford to have it. Thus, not only will we be putting people to work, but also they will save money as they enjoy free power in their homes provided by affordable solar collectors.

To be clear, I do not concur with the suggestion of energy companies, energy speculators, or even our government that we need to build corporate sized, massively aggregated solar farms. I feel that something is unequal in the equation if we have to pay a power company for something that the sun provides without submitting a bill.

You can't say that the level of innovation isn't here yet. We even have the technology to install photovoltaic solar collectors onto paper.[173] [174] We could leap into this energy economy as quickly as we decide we want to. We've shown that we can mobilize for war at breakneck speed. We could certainly muster the will to assure that change happens for peaceful reasons.

[172] McCormick, R. (2009). The plight of American manufacturing. Prospect.org
[173] Chandler, D. (2011). While you're up, print me a solar cell. newsoffice.mit.edu/2011/printable-solar-cells-0711
[174] Thean, T. (2011). Hit 'print' for solar panels. Science.Time.com

How to Close the Gap of a Two Class Society

How has the current economic model created a two class society?

As a result of the economic doldrums triggered by the banking and real estate crisis, the rich have gotten richer and distanced themselves from the commoners by a massive degree. There is no middle anymore. We're all lower class except for those few that are the beneficiaries of wealth accumulation.

That is not a sustainable socio-economic model. We don't have to look very far to see examples that illustrate the truth of that statement. All we have to do is look in our history books and see that time after time after time this construct always gets turned over and broken apart.

If we are to survive as a species, we will have to resolve not to be directed by the select few any more. In turn, the upper class is going to have to decide to be part of the long-term solution or be brushed aside. We're going to have to be a single class society if we want to survive.

In business, the prime directive is to define a long-term, sustainable strategy and then execute it according to a logical, efficient, long-term plan. So is there a way that we can both profit from and support a single class system while we transform into the next era economically? My answer is yes. Do we know what that looks like right now? Not completely yet. It will be a constantly changing process as we move through it. However, we can certainly set some goals within reasonable timeframes.

We have arrived at a point in time in which we must face the inevitability of significant changes in many facets of our existence. The current economic model has run its natural course to perfection. The consolidation of wealth and power is almost complete. The two class system is no longer acceptable because the suffering has become too great.

Political systems have always been turned over by revolution, usually with bloodshed. Nonetheless, they are replaced by similar systems because the attainment of resources and power has heretofore remained the prime directive of societies. Even worse, there is still no new direction in which to travel once the current political structure has been turned over.

So how do we get to an economic engine in which people can still feed their families and pay their bills as part of a single class society? A major

first step would be to expand on the concept of the Euro and make a single, worldwide currency, (perhaps called the "globo" for the sake of argument). Naturally, such a system would mean that currency arbitrage and manipulation would be eliminated, so exploitation of others would not come so easily.

Of course, I'm sure those with something to lose financially would say that we couldn't do that. We would be required to create some trust amongst our global neighbors, wouldn't we? That would create an equal footing for every single company and country on the planet. No longer would an industry, country, or - worse yet - individual have an unfair advantage via a rigged parlor game. It will require considerable planning and courage. Our descendants are counting on us.

The Premise for Terrorism and Gangs Fades Away

The origins of gangs and terrorism are economic exploitation and human strife. Most of the time, tribal fighting is about resources. If everyone possessed ample amounts of resources then the rationale for war and terrorism would be neutralized.

Incidentally, there is no actual shortage of resources. There is only a shortage of what we are convinced we must buy. Our leaders tell us about austerity, saying: "We're going to have to conserve. We're going to have to scrimp." But when the economy was going strong, they weren't talking about being economically conservative.

Those of countries where suffering is prevalent want to feed their families and to do so with dignity. They would greatly enjoy living in the comfort of growing their own food and experiencing the prosperity of having the things they need. I am suggesting that, with the right engineering and thought processes, dignity can be restored. If the people could grow their own fuel and dietary staples, if there were no shortage of water, any group that sought to disrupt prosperity would no longer be able to live among those they would attempt to control.

But sometimes wars have been created by the distorted desires of a single figure. Across our long violent history, there has always been a bully. However, things could and can be different. We don't have to perpetuate such behavioral cycles any longer.

Options for Displaced Former Homeowners

Did you know that right now more people live in urban areas versus rural areas for the first time in history?[175] [176] [177] Yet to implement the planting and irrigation components of the Irrigation Solution, it is essential that there be people to farm the areas that will undergo these changes. Thus, a 'rural exodus' is required to occur.

Many families have lost their homes, so allowing people that would choose to do so, to relocate to these future farms would solve a number of issues. People could start over again on land that they could call their own via this program. All they would need to do is make a commitment to farming and working the land.

Moreover, if we distributed water via the Irrigation Solution, we could also create an agrarian extension of our industrial society. We could build farm and ranch communities where everyone can have a home. Though these homes would be rural-based, they would of course also have access to technologies such as the Internet and satellite.

In essence, we would create neighborhoods of farms for those that would have them. Everyone wants a home of her or his own. Maybe the quality of life would offer a desirable way to raise children. At any rate, such a program would be a vehicle geared toward the restoration of dignity to displaced homeowners. We would create a network of rural areas. It might be cool to live out in the country again!

The Concept of Survival

In my vocation, I'm a purveyor of change. I live for it. For example, I would love to redefine what strife is. If we can take a look and assess what we do, how we inflict pain upon ourselves, and how we decide that one person has less value than another person, then we can change the dynamics of how we treat our own kind.

In my opinion, our current, worldwide economic crisis is a self-inflicted, manufactured pain that it is completely unnecessary. It's an artificially

[175] www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/
[176] www.bloomberg.com/news/2012-01-17/china-urban-population-exceeds-rural.html
[177] www.unfpa.org/pds/urbanization.htm

created infliction, a restriction based on profiteering. As a result, we are allowing people to starve though there's no shortage of resources. By taking all those self-created, self-inflicted things off the table, we can redefine what strife is, most likely as something far less frequent.

Our Earth is going to change with or without our fear. We need to let go of it and embrace change because this world is a violent one, in a violent solar system, in a violent galaxy, in a violent universe.

Tragically, in spite of our species' possession of situational awareness, we are running a course parallel to the dinosaurs. They are extinct because they were unable to adapt to changes in their environment. We are able to yet we choose not to do so. In my opinion, that decision makes us even less evolved than they were.

This is why this book was written. This is why I am sounding the alarm. If we want to perpetuate as a species, we need to put our stamp on this universe and say, "We're not going away, we're not going quietly, and we're going to survive."

Simply put, there are too many people making too profound of an impact on the fabric of civilization and the Earth. We cannot afford to behave as we have any longer. Now is the time to realign our priorities if we want to prevent the unnecessary suffering of billions of our generation and of our descendants. There is so much meaningful and practical work to be done. We could reduce unemployment to zero while tackling scores of environmental exigencies.

If we are intelligent about it, we can design evolutionary change versus allowing abrupt change to occur via revolution. It all can change peacefully as long as we all agree to agree, as long as we all agree to trust.

Zero Unemployment and the Bull Economy

Dr. Stephen Hawking has said that our prime directive is to colonize other planets if we want to perpetuate as a species. He believes that the Earth is not always going to be a friendly place environmentally for us to inhabit.[178] I happen to agree with that. Our time here is limited.

[178] Mick, J. (2010). Stephen hawking says aliens probably out there, will want to conquer us. DailyTech.com

Still, let's stay as long as we can. Let's pick up the pace of innovation.

Hawking has something to say about that as well:

> "We thought space was worth a big effort in the '60s. In 1962, President Kennedy committed the U.S. to landing a man on the Moon by the end of the decade. This was achieved just in time by the Apollo 11 mission in 1969. The space race helped to create a fascination with science and led to great advances in technology, including the first large-scale integrated circuits which are the basis of all modern computers."[179]

So if we hadn't been pressed by JFK to pick up the pace of innovation, we most likely wouldn't have created the catalysts for our barnstorming entrance into the Electronic Age.

Last Call for the Baby Boomer Generation

Based on the track record of corporate pathology, it would appear to be unlikely that those who are at the top of the power/wealth pyramid are going to be concerned about the conditions of those that are on the bottom. This is why the proposals contained in this book suggest a different course to arrive at a different outcome, one that can completely flatten and eliminate that tyrannical pyramid permanently.

A person once told me that none of what I suggest is ever going to happen because there's no economic incentive to do so. That is exactly what the problem is. The survival of business does not promote and is not congruent with the business of survival. We need to support and change our premise from maximizing profits and earnings per share per quarter to the survival and support of civilization as a whole.

Before us, there hasn't been a single generation that has truly faced the endpoint of this economic simulation. We, the tail end of the Baby Boomer generation - (Baby Boomers 2.0, as I like to call us) - can now see its conclusion approach.

What makes me think that we could get individuals to change on a personal level now? We don't have any choice. It's not a point of whether I think we could change. We are going to change whether we want to or not. If we don't prepare for this now, we are handing off a

[179] NASA Office of Public Affairs. (2008). Why we should go into space. *NASA's 50th Anniversary Lecture Series*. www.nasa.gov/pdf/224052main_HAWKING.pdf

problem that we could have fixed to the next generation. But by the time they get their fingers on it, it'll be too late to respond. Indeed, for us to avoid change would be the height of irresponsibility, both collectively and individually.

If we want our systems to change, then we need to change what we spend money on. Essentially, we tend to buy what those at the top of the wealth/power pyramid want us to. To change economics, we need to change the way that we view our resources. The 'Consumer' is the largest and most powerful army on Earth. We have the ultimate determination on our destiny and that of our future descendants. At present, most people feel helpless against the trajectory provided by sovereign governments and corporations. The sooner we realize that we have much greater control than we're told that we have then the sooner that change can happen. Our fear-based responses are the product of the pathology created by the profiteering paradigm. If consumers change their purchasing habits then our political, social, environmental and economic destiny changes just as quickly as the decision to change.

This would of course shake things up politically, socially, and economically. Fear is only going to continue to occlude our efforts toward success. Allowing fear to enter into our minds segments us and splits us apart. So take heed: this is not our darkest hour but it is our finest. This moment in time is the new age of the Earth, the fresh epoch in which we think collectively.

Conclusion

"I have no doubt that both parties will criticize portions of this plan, and I welcome that debate. But it's not a legitimate criticism until you have a plan of your own."
Senator Tom Coburn of Oklahoma presenting to the US Congress on July 18, 2011[180]

[180] www.arkansasonline.com/news/2011/jul/19/nation-brief-20110719/

Evolution or Revolution

We can replace the systems that dictate our global policies via one of two options: evolution or revolution. Let's try the former and eschew the latter.

I propose maturity and sophistication over bloodshed, hope over fear, abundance over scarcity, equality over exploitation. However, if we cannot make wise and practical decisions that affect billions of persons in a way that does not cause or exacerbate strife, I fear revolution will continue to be viewed as the only prescription. If we continue on our current trajectory, it is likely that the suffering will become so great, the distance between classes so wide, the exploitation of the masses so extreme, that all will explode and implode simultaneously.

True evolution is daunting, as it entails emotional transcendence, to be gleamed regardless of which respective continent one was born on or how close to the equator one lives.

Change need not derive from an angry mob.

How Quickly Can We Make these Changes?

Can you sit there and honestly say that we as a civilization are really busting our tails and living up to our potential? I say no. I say we're like an engine that's sitting at idle. We're not really achieving at full throttle. We could be accomplishing so much more if people weren't worried about protecting their interests.

Fortunately, for most of us the experience of severe pain commands change. When the impact is so severe that we cannot bear for it to get any worse, innovation occurs. Now is no exception to this truism. And working together towards a common goal will give us the comfort of safety in numbers, the solace of the fact that we are working hard and giving it all that we have.

Alas, we can change as quickly as we wish to. So the purpose of this book is to push people out of their comfort zones. The purpose of this book is to say there is no dismay, no fear, only hope and opportunity. We have the opportunity to set the table for our success. We'll feel good about doing it, we'll make money while we're doing it, and we'll innovate like no other generation in history. This is our obligation: to flee comfort zones.

How quickly can we make these changes? Trust, hope, and belief in the outcome is what everything hinges upon. We can expedite things by aggregating a global consortium working in all areas of desalination and other breakthrough technologies instead of competing with each other in less practical, less sustainable, less viable sectors.

If it hasn't already been made obvious by my global rhetoric, though I happen to live in the United States, this book was not written for only for other U.S. citizens. This book was written for citizens of the globe. This is a planetary issue.

What wonders we could achieve if we hammered out an economic model that promotes innovation rather than restricts it to a profit-taking enterprise. If we could figure out a way to create a single class society and readjust how the new economics could actually work, then we could be fruitful without being oppressive.

My hope is that this book creates a worldwide conversation. If that occurs, then my core hope has been realized. If that global conversation unveils a better plan than this one, then another one of my goals will have been achieved.

"Many ideas grow better when they are transplanted into another mind than the one where they sprang up." *Oliver Wendell Holmes*

This is not about me and my plan. It's about you and what you feel is the correct direction to take. This is all about seeing if we can prevent the suffering and strife of billions.

Indeed, I would be grateful to hear the conversation about the topics discussed in this book get real loud, both for and against. That would mean that my calls to action have had actual resonance.

Sometimes the simplest solutions are the best ones. Sometimes we make it harder on ourselves than it has to be.

I propose that there is another possible way of conducting our behavior on this planet other than a profit-oriented economic society. I believe that we are capable of so much more than we accomplish presently. We are only efficient in limited ways. What wonders could we accomplish if we worked together on projects that are important to our civilization as opposed to those that define contrived markets?

To summarize what has been presented in this book, there are a finite and limited number of inputs to the equation called Earth. The stepping stones articulated here are countermeasures to the threats to our survival as a species. These steps will become inevitable at some point in the future, based on our current priorities. Setting our prime directive on survival will become the first time in human history that the exchange of goods and services for profit will no longer dictate our emotional pathology. Evolution via a sophisticated thoughtful plan for our future generations can avoid the bloodshed that occurs when political or economic exploitation reaches an expiration date.

How will we pay for all of this? That is the chapter that has been written but has not been included in this edition of the book. Why, you might ask? Because it is imperative that we galvanize our voices as a single voice of persons, citizens and consumers. The unpublished chapter will be unveiled after a global consortium has done so. It will provide a powerfully illuminating alternative. One that can finance our future survival.

If you feel that what has been proposed in this book makes sense to you then drink a cup of courage.

"Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius -- and a lot of courage -- to move in the opposite direction." *Albert Einstein*

If you want to see these changes move forward and you want to have your voice heard then contribute alongside people who aim to modulate and modify these concepts into executable plans that truly, actually come to fruition. Please add your name at www.ifearthcouldspeak.org .

If you feel that we are capable of achieving and being so much more as a civilization then add your name. In doing so you are telling your family, friends and fellow humans that you feel in your heart that our future can look different and better than our past. Please give us a way to get back in touch with you and we will contact you. Or, better yet, state how you would like to be involved to 'Be the change that you wish to see'. We will make sure that everyone has an equal voice in these projects as we proceed. We will keep you informed and ask for your participation, if you are so inclined. We will all share in shaping the future as equals for our descendants.

"The work of the individual remains the spark that moves humankind forward." *Igor Sikorsky*

Studies on the human decision-making process have shown that the decision that you make within the first 30 seconds is the same decision that you will make in 30 minutes, hours, days, weeks, months or years. The decision point is now. There is no rationale to postpone, or even worse, to procrastinate. As Steve Jobs says in his quote that follows, your heart already knows what it wants instantly. Follow your instincts as to what you feel is right.

"Your time is limited, so don't waste it living someone else's life. Don't be trapped by dogma – which is living with the results of other people's thinking. Don't let the noise of other's opinions drown out your own inner voice and most important, have the courage to follow your heart and intuition. They somehow already know what you truly want to become. Everything else is secondary." *Steve Jobs June 12, 2005*[181]

[181] news.stanford.edu/news/2005/june15/jobs-061505.html

If Earth Could Speak, what do you think that she would say to you?