### cp

**The United States should fund aquaponics greenhouse complexes to house air emissions from fossil fuel production sites.**

#### CP solves—greenhouse infrastructure prevents atmospheric warming and air pollution.

**Adams 13**. (Mike Adams, the "Health Ranger," is an outspoken consumer health advocate, award-winning investigative journalist, internet activist and science lab director. CO2 myth busted: Why we need more carbon dioxide to grow food and forests. March 31, 2013. [http://www.naturalnews.com/039720\_carbon\_dioxide\_myths\_plant\_nutrition.html#](http://www.naturalnews.com/039720_carbon_dioxide_myths_plant_nutrition.html))

As it turns out, CO2 is desperately needed by food crops, and **right now there is a severe shortage of CO2 on the planet** compared to what would be optimum for plants. Greenhouse operators are actually buying carbon dioxide and injecting it into their greenhouses in order to maximize plant growth. The science on this is irrefutable. As just one example, the Ontario Ministry of Agriculture and Food says: CO2 increases productivity through improved plant growth and vigour. Some ways in which productivity is increased by CO2 include earlier flowering, higher fruit yields, reduced bud abortion in roses, improved stem strength and flower size. Growers should regard CO2 as a nutrient. If you want to understand why CO2 is an essential nutrient for food crop growth, check out this informative slide show. It explains that "CO2 may be repidly depleted during crop production" daylight hours, because the plants pull all the CO2 out of the air and use it in photosynthesis. The CO2 found in modern-day atmosphere is 340ppm. But **food crops would grow far faster if the concentration of CO2 were closer to 1000ppm, or roughly 300% higher than current levels**. In fact, most greenhouse plant production causes a "CO2 depletion" to happen, shutting down photosynthesis and limiting food production. As the "Carbon Dioxide in Greenhouses" fact sheet explains: Ambient CO2 level in outside air is about 340 ppm by volume. All plants grow well at this level but as CO2 levels are raised by 1,000 ppm photosynthesis increases proportionately resulting in more sugars and carbohydrates available for plant growth. Any actively growing crop in a tightly clad greenhouse with little or no ventilation can readily reduce the CO2 level during the day to as low as 200 ppm. Thus, greenhouse plants are "running out" of CO2. They are starving for it. And when you add it to food crops, you get higher yields, improved taste, shorter flowering times, enhanced pest resistance and other benefits. **Why we should pump carbon dioxide into greenhouses** This brings up an **obvious answer** for what to do with all the CO2 produced by power plants, office buildings and even fitness centers where people exhale vast quantities of CO2. The answer is to **build adjacent greenhouses and pump the CO2 into the greenhouses.** Every coal-fired power plant, in other words, should have a vast array of greenhouses surrounding it. Most of what you see emitted from power plant smokestacks is water vapor and CO2, both essential nutrients for rapid growth of food crops. By diverting carbon dioxide and water into greenhouses, **the problem of emissions is instantly solved** because the plants update the CO2 and use it for photosynthesis, thus "sequestering" the CO2 while rapidly growing food crops. It also happens to produce oxygen as a "waste product" which can be released into the atmosphere, (slightly) upping the oxygen level of the air we breathe. **This is a brilliant solution because humans want to live on a world with low CO2 that supports frozen ice caps in order to keep ocean water levels low, but they want to eat a volume of food that requires high CO2 for production. The answer is to concentrate CO2 into greenhouses where food production is multiplied by CO2 nutrition.** I'll bet you've never heard Al Gore talk about CO2 as "nutrition." He declares it a pollutant and wants to tax you for producing it. But CO2 is actually a key nutritive gas for food crops. **Without carbon dioxide, we would all have starved to death by now**. Shutting down power plants to destroy America's power infrastructure The U.S. government's solution to power plant emissions, however, is to just shut down coal-fired power plants, causing rolling blackouts across the USA, especially during hot summer days. The EPA has forced hundreds of power plants to shut down across the USA, achieving a loss of power infrastructure that vastly exceeds what would even be possible by an enemy invasion of high-altitude warplanes dropping bombs. The EPA, under the excuse of "saving the planet," is destroying America's power infrastructure and leading our nation into a third-world scenario where power availability is dicey and unsustained. It seems to be just one **part of the overall plan to gut America's economy, offshore millions of jobs, put everybody on welfare and destroy small businesses**. But what if we harnessed coal-fired power plants instead of shutting them down? What if we used them as "CO2 generators" that fed CO2 into vast greenhouse operations that produced organic, high-growth foods that could feed the nation? Coal-fired power plants can produce both electricity and food nutrition at the same time. Better yet, if you combine this concept **with aquaponics**, you get simultaneous production of plants and fish while using no soil, no GMOs **and one-tenth the water of conventional agricultur**e. See, the solutions to all our problems already exist. The only reason we are suffering as a nation is because political puppets try to brainwash us into believing complete falsehoods like, "carbon dioxide is a dangerous pollutant" or "the people don't need healthy foods; they need medications and vaccines." When societies believe falsehoods, they crumble and collapse. That's where America is headed, of course. And it's all being accelerated by deceptive bureaucrats who want to convince you that growing real food is bad and we should all be punished for exhaling carbon dioxide, an essential nutrient for food crops. Carbon dioxide is not the enemy it's been made out to be. It's actually plant nutrition that helps regrow rainforests, food crops and wetlands. In fact, higher CO2 levels in the atmosphere would make the planet more lush and abundant in terms of plant life, forests, trees and food crops.

#### Fossil fuel energy is key to production of food, decreased dependence on climate, and innovation. Decrease is extinction.

**Goklany 12**. (Dr. Indur M. Goklany, PhD MSU, is a science and technology policy analyst for the United States Department of the Interior, where he holds the position of Assistant Director of Programs, Science and Technology Policy. Humanity Unbound How Fossil Fuels Saved Humanity from Nature and Nature from Humanity. Policy Analysis, No. 715. December 20, 2012)

Until the last quarter of a millennium, mankind depended on living nature for all its food and clothing, most of its energy, and much of its material and medicines. She dictated mankind’s numbers, well-being, and living standards. But she has never been constant. She would smile on some, but not on others. Her smiles, always temporary, would inevitably be replaced by frowns. Her Malthusian checks—hunger, famine, disease, or conflict—ensured that there was little or no progress in the human condition. Many people did not even survive into their 20s, populations grew very slowly, and living standards were generally constrained to subsistence levels. Gradually, with the accumulation of human capital, exchange of ideas, and hard work, mankind started to commandeer more land to meet its needs and develop technologies that, in some cases, amplified Nature’s bounty but, in other cases, bypassed her altogether. These led to higher food production, better health, longer lifespans, and larger populations with better living standards, which then reinforced human capital and the exchange of ideas, which begat yet more and better technologies. Thus was the cycle of progress born and set in motion. The cycle had been moving forward in fits and starts before fossil fuels—ancient nature’s bequest to humanity—became ubiquitous.121 But **fossil fuels assured progress. The cycle accelerated. Mankind’s dependence on nature declined. It became less vulnerable to weather, climate, disease, and other sources of natural disasters.** The Malthusian bonds that held mankind and its well-being in check started to stretch, until they were burst asunder. Today, fossil fuels are responsible for at least 60 percent of mankind’s food. They also provide **81 percent of mankind’s energy supply, while nature supplies only 10 percent**. Sixty percent of the fiber used globally for clothing and other textiles are synthetic, coming mainly from fossil fuels. Much (thirty percent) of the remaining—so-called natural fiber, relies heavily on fossil fuel– based fertilizers and pesticides. With respect to materials, although global estimates are unavailable, nature provides only 5 percent of U.S. materials (by weight). But even this 5 percent, just like the remaining 95 percent, cannot be processed, transported and used without energy inputs. **Without fossil fuels, humanity would be unable to feed itself, and what food there was would be costlier. There would be more hunger. There would be insufficient energy and materials available to sustain the economy at more than a fraction of its current level. Public health would suffer, living standards would plummet, human well-being would be drastically diminished, and the population would crash.** In the absence of the technologies that depend directly or indirectly on fossil fuels, humanity would have had to expand cropland by another 150 percent to meet the current demand for food. Even more land would have had to be annexed to satisfy existing requirements for energy, materials, clothing, and other textiles using nature’s products. Not only have these fossil fuel–dependent technologies ensured that humanity’s progress and well-being are no longer hostage to nature’s whims, but they saved nature herself from being devastated by the demands of a rapidly expanding and increasingly voracious human population. Progress today depends on technological change; economic development; trade in goods, services and ideas; and human capital. But technology is the product of ideas, and fossil fuels have been vital for the generation of ideas. Specifically, fossil fuels have helped give us—and not just the rich amongst us—illumination, which expands our time; machines that preserve our level of energy; better health and longer life expectancies; faster and more voluminous trade in goods and ideas; more rapid communications within a wider network; and a much larger population. Reinforcing each other, they increased the stock of human capital and created more opportunities for exchanging ideas, which spawned even more ideas and technologies. And **today humanity’s numbers, well-being, and living standards have never been higher.**

#### Food shortages are coming and cause extinction.

**FDI 12**, Future Directions International, a Research institute providing strategic analysis of Australia’s global interests; citing Lindsay Falvery, PhD in Agricultural Science and former Professor at the University of Melbourne’s Institute of Land and Environment, “Food and Water Insecurity: International Conflict Triggers & Potential Conflict Points,” <http://www.futuredirections.org.au/workshop-papers/537-international-conflict-triggers-and-potential-conflict-points-resulting-from-food-and-water-insecurity.html>

There is a growing appreciation that the **conflicts in the next century will most likely be fought over a lack of resources**.¶ Yet, in a sense, this is not new. Researchers point to the French and Russian revolutions as conflicts induced by a lack of food. More recently, Germany’s World War Two efforts are said to have been inspired, at least in part, by its perceived need to gain access to more food. Yet the general sense among those that attended FDI’s recent workshops, was that the scale of the problem in the future could be significantly greater as a result of population pressures, changing weather, urbanisation, migration, loss of arable land and other farm inputs, and increased affluence in the developing world.¶ In his book, Small Farmers Secure Food, Lindsay Falvey, a participant in FDI’s March 2012 workshop on the issue of food and conflict, clearly expresses the problem and why countries across the globe are starting to take note. .¶ He writes (p.36), “…**if people are hungry**, especially in cities, **the state is not stable** – riots, violence, breakdown of law and order and migration result.”¶ “Hunger feeds anarchy.”¶ This view is also shared by Julian Cribb, who in his book, The Coming Famine, writes that **if “large regions of the world run short of food**, land or water in the decades that lie ahead, then **wholesale, bloody wars are liable to follow.”** ¶ He continues: “An increasingly credible scenario for World War 3 is not so much a confrontation of super powers and their allies, as a festering, self-perpetuating chain of resource conflicts.” He also says: “The wars of the 21st Century are less likely to be global conflicts with sharply defined sides and huge armies, than a scrappy mass of failed states, rebellions, civil strife, insurgencies, terrorism and genocides, sparked by bloody competition over dwindling resources.”¶ As another workshop participant put it, people do not go to war to kill; they go to war over resources, either to protect or to gain the resources for themselves.¶ Another observed that hunger results in passivity not conflict. Conflict is over resources, not because people are going hungry.¶ A study by the International Peace Research Institute indicates that where food security is an issue, it is more likely to result in some form of conflict. Darfur, Rwanda, Eritrea and the Balkans experienced such wars. Governments, especially in developed countries, are increasingly aware of this phenomenon.¶ The UK Ministry of Defence, the CIA, the US Center for Strategic and International Studies and the Oslo Peace Research Institute, all identify **famine as a** potential **trigger for** conflicts and possibly even **nuclear war**

#### Water scarcity is coming and causes extinction.

**Barlow 8** (National chairperson of The Council of Canadians. Co-founder of the Blue Planet Project.  Chairs the board of Washington-based Food & Water Watch and is also an executive member of the San Francisco–based International Forum on Globalization and a Councillor with the Hamburg-based World Future Council. She is the recipient of eight honorary doctorates. Served as Senior Advisor on Water to the 63rd President of the United Nations General Assembly Maude, The Global Water Crisis and the Coming Battle for the Right to Water, 25 February 2008, http://www.fpif.org/articles/the\_global\_water\_crisis\_and\_the\_coming\_battle\_for\_the\_right\_to\_water)

The three water crises – dwindling freshwater supplies, inequitable access to water and the corporate control of water – pose the greatest threat of our time to the planet and to our survival. Together with impending climate change from fossil fuel emissions**, the water crises impose some life-or-death decisions on us all. Unless we collectively change our behavior, we are heading toward a world of deepening conflict and potential wars over the dwindling supplies of freshwater** – between nations, between rich and poor, between the public and the private interest, between rural and urban populations, and between the competing needs of the natural world and industrialized humans. **Water Is Becoming a Growing Source of Conflict Between Countries** Around the world, more that 215 major rivers and 300 groundwater basins and aquifers are shared by two or more countries, creating tensions over ownership and use of the precious waters they contain. Growing shortages and unequal distribution of water are causing disagreements, sometimes violent, and **becoming a security risk in many regions**. Britain’s former defense secretary, John Reid, warns of coming “water wars.” In a public statement on the eve of a 2006 summit on climate change, Reid predicted that **violence and political conflict would become more likely as watersheds turn to deserts, glaciers melt and water supplies are poisoned**. He went so far as to say that **the global water crisis was becoming a global security issue** and that Britain’s armed forces should be prepared to tackle conflicts, including warfare, over dwindling water sources. “Such changes make the emergence of violent conflict more, rather than less, likely,” former British prime minister Tony Blair told The Independent. “The blunt truth is that the lack of water and agricultural land is a significant contributory factor to the tragic conflict we see unfolding in Darfur. We should see this as a warning sign.” The Independent gave several other examples of regions of potential conflict. These include Israel, Jordan and Palestine, who all rely on the Jordan River, which is controlled by Israel; Turkey and Syria, where Turkish plans to build dams on the Euphrates River brought the country to the brink of war with Syria in 1998, and where Syria now accuses Turkey of deliberately meddling with its water supply; China and India, where the Brahmaputra River has caused tension between the two countries in the past, and where China’s proposal to divert the river is re-igniting the divisions; Angola, Botswana and Namibia, where disputes over the Okavango water basin that have flared in the past are now threatening to re-ignite as Namibia is proposing to build a threehundred- kilometer pipeline that will drain the delta; Ethiopia and Egypt, where population growth is threatening conflict along the Nile; and Bangladesh and India, where flooding in the Ganges caused by melting glaciers in the Himalayas is wreaking havoc in Bangladesh, leading to a rise in illegal, and unpopular, migration to India.

#### Econ solves warming—neg feedback loops.

**Goklany 11**. (Dr. Indur M. Goklany, PhD MSU, is a science and technology policy analyst for the United States Department of the Interior, where he holds the position of Assistant Director of Programs, Science and Technology Policy. Misled on Climate Change: How the UN IPCC (and others) Exaggerate the Impacts of Global Warming. December 2011. <http://reason.org/files/how_ipcc_misleads_on_climate_change_impacts.pdf>)

Partly due to increases in net primary productivity because of CO2 fertilization, the amount of habitat devoted to cropland would be halved by global warming under the A1FI scenario, at least through 2100.58 Since diversion of habitat to cropland is perhaps the single largest threat to species and ecosystems, 59 this means that **global warming could actually reduce pressures on biodiversity**.60 Thus, at least through 2085–2100, GW may relieve some of the problems that some poor countries face currently (e.g., water shortage and habitat loss), while in other instances, the contribution of GW to the overall problem (e.g., cumulative mortality from malaria, hunger and coastal flooding) would be substantially smaller than that of non-GW related factors. Notably, **economic development, one of the fundamental drivers of GW, would reduce mortality problems regardless of whether they are due to GW or non-GW related factors** (see Figure 4). Hence, **lack of economic development would be a greater problem than global warmin**g, at least through 2085–2100. This reaffirms the story told by Figure 6, which shows that notwithstanding global warming and despite egregiously overestimating the negative consequences of global warming while underestimating its positive impacts, future net GDP per capita will be much higher than it is today under each scenario through at least 2200. Note that Figure 6 also shows that through 2200, notwithstanding global warming, net GDP per capita will be highest under the warmest scenario, and lowest under the poorest scenario (A2). This suggests that **if humanity has a choice of which development path to take, it ought to strive to effect the scenario that has the highest economic growth, whether or not that exacerbates global warming**.61 The additional economic development would **more than offset** the cost of any warming. No less important, it is far cheaper for the world to advance economic development than mitigate climate change by a meaningful amount.62 This is consistent with the aforementioned analysis of various climate-sensitive infectious diseases, whose authors observe that: [D]eaths will first increase, because of population growth and climate change, but then fall, because of development … As climate can only be changed with a substantial delay, development is the preferred strategy to reduce infectious diseases even if they are exacerbated by climate change. Development can … increase the capacity to cope with projected increases in infectious diseases over the medium to long term.63 Thus, it is most unlikely that under the IPCC’s warmest scenario, global warming will overwhelm economic development in countries that are currently poor, regardless of the Stern Review’s upper bound damage estimates. Second, economic development should be given priority over reducing greenhouse gas emissions. It would enable poorer countries to cope not only with any negative impacts of climate change, but more importantly, other larger problems that they will face.64 This is most obvious from an examination of Figures 3 through 5, which indicate that malnutrition, infant mortality and life expectancy improve most rapidly with economic development at its lowest levels.

### 1NC

#### Unpredictable shifts ruin biz con AND overall growth

Sarah Chaney Cambon 21, Reporter on The Wall Street Journal's Economics Team, BA in Business Journalism from the University of North Carolina-Chapel Hill, “Capital-Spending Surge Further Lifts Economic Recovery”, Wall Street Journal, 6/27/2021, https://www.wsj.com/articles/capital-spending-surge-further-lifts-economic-recovery-11624798800

Business investment is emerging as a powerful source of U.S. economic growth that will likely help sustain the recovery.

Companies are ramping up orders for computers, machinery and software as they grow more confident in the outlook.

Nonresidential fixed investment, a proxy for business spending, rose at a seasonally adjusted annual rate of 11.7% in the first quarter, led by growth in software and tech-equipment spending, according to the Commerce Department. Business investment also logged double-digit gains in the third and fourth quarters last year after falling during pandemic-related shutdowns. It is now higher than its pre-pandemic peak.

Orders for nondefense capital goods excluding aircraft, another measure for business investment, are near the highest levels for records tracing back to the 1990s, separate Commerce Department figures show.

“Business investment has really been an important engine powering the U.S. economic recovery,” said Robert Rosener, senior U.S. economist at Morgan Stanley. “In our outlook for the economy, it’s certainly one of the bright spots.”

Consumer spending, which accounts for about two-thirds of economic output, is driving the early stages of the recovery. Americans, flush with savings and government stimulus checks, are spending more on goods and services, which they shunned for much of the pandemic.

Robust capital investment will be key to ensuring that the recovery maintains strength after the spending boost from fiscal stimulus and business reopenings eventually fades, according to some economists.

Rising business investment helps fuel economic output. It also lifts worker productivity, or output per hour. That metric grew at a sluggish pace throughout the last economic expansion but is now showing signs of resurgence.

The recovery in business investment is shaping up to be much stronger than in the years following the 2007-09 recession. “The events especially in late ’08, early ’09 put a lot of businesses really close to the edge,” said Phil Suttle, founder of Suttle Economics. “I think a lot of them said, ‘We’ve just got to be really cautious for a long while.’”

Businesses appear to be less risk-averse now, he said.

After the financial crisis, businesses grew by adding workers, rather than investing in capital. Hiring was more attractive than capital spending because labor was abundant and relatively cheap. Now the supply of workers is tight. Companies are raising pay to lure employees. As a result, many firms have more incentive to grow by investing in capital.

Economists at Morgan Stanley predict that U.S. capital spending will rise to 116% of prerecession levels after three years. By comparison, investment took 10 years to reach those levels once the 2007-09 recession hit.

Company executives are increasingly confident in the economy’s trajectory. The Business Roundtable’s economic-outlook index—a composite of large companies’ plans for hiring and spending, as well as sales projections—increased by nine points in the second quarter to 116, just below 2018’s record high, according to a survey conducted between May 25 and June 9. In the second quarter, the share of companies planning to boost capital investment increased to 59% from 57% in the first.

“We’re seeing really strong reopening demand, and a lot of times capital investment follows that,” said Joe Song, senior U.S. economist at BofA Securities.

Mr. Song added that less uncertainty regarding trade tensions between the U.S. and China should further underpin business confidence and investment. “At the very least, businesses will understand the strategy that the Biden administration is trying to follow and will be able to plan around that,” he said.

#### Decline cascades---nuclear war

Dr. Mathew Maavak 21, PhD in Risk Foresight from the Universiti Teknologi Malaysia, External Researcher (PLATBIDAFO) at the Kazimieras Simonavicius University, Expert and Regular Commentator on Risk-Related Geostrategic Issues at the Russian International Affairs Council, “Horizon 2030: Will Emerging Risks Unravel Our Global Systems?”, Salus Journal – The Australian Journal for Law Enforcement, Security and Intelligence Professionals, Volume 9, Number 1, p. 2-8

Various scholars and institutions regard global social instability as the greatest threat facing this decade. The catalyst has been postulated to be a Second Great Depression which, in turn, will have profound implications for global security and national integrity. This paper, written from a broad systems perspective, illustrates how emerging risks are getting more complex and intertwined; blurring boundaries between the economic, environmental, geopolitical, societal and technological taxonomy used by the World Economic Forum for its annual global risk forecasts. Tight couplings in our global systems have also enabled risks accrued in one area to snowball into a full-blown crisis elsewhere. The COVID-19 pandemic and its socioeconomic fallouts exemplify this systemic chain-reaction. Onceinexorable forces of globalization are rupturing as the current global system can no longer be sustained due to poor governance and runaway wealth fractionation. The coronavirus pandemic is also enabling Big Tech to expropriate the levers of governments and mass communications worldwide. This paper concludes by highlighting how this development poses a dilemma for security professionals.

Key Words: Global Systems, Emergence, VUCA, COVID-9, Social Instability, Big Tech, Great Reset

INTRODUCTION

The new decade is witnessing rising volatility across global systems. Pick any random “system” today and chart out its trajectory: Are our education systems becoming more robust and affordable? What about food security? Are our healthcare systems improving? Are our pension systems sound? Wherever one looks, there are dark clouds gathering on a global horizon marked by volatility, uncertainty, complexity and ambiguity (VUCA).

But what exactly is a global system? Our planet itself is an autonomous and selfsustaining mega-system, marked by periodic cycles and elemental vagaries. Human activities within however are not system isolates as our banking, utility, farming, healthcare and retail sectors etc. are increasingly entwined. Risks accrued in one system may cascade into an unforeseen crisis within and/or without (Choo, Smith & McCusker, 2007). Scholars call this phenomenon “emergence”; one where the behaviour of intersecting systems is determined by complex and largely invisible interactions at the substratum (Goldstein, 1999; Holland, 1998).

The ongoing COVID-19 pandemic is a case in point. While experts remain divided over the source and morphology of the virus, the contagion has ramified into a global health crisis and supply chain nightmare. It is also tilting the geopolitical balance. China is the largest exporter of intermediate products, and had generated nearly 20% of global imports in 2015 alone (Cousin, 2020). The pharmaceutical sector is particularly vulnerable. Nearly “85% of medicines in the U.S. strategic national stockpile” sources components from China (Owens, 2020).

An initial run on respiratory masks has now been eclipsed by rowdy queues at supermarkets and the bankruptcy of small businesses. The entire global population – save for major pockets such as Sweden, Belarus, Taiwan and Japan – have been subjected to cyclical lockdowns and quarantines. Never before in history have humans faced such a systemic, borderless calamity.

COVID-19 represents a classic emergent crisis that necessitates real-time response and adaptivity in a real-time world, particularly since the global Just-in-Time (JIT) production and delivery system serves as both an enabler and vector for transboundary risks. From a systems thinking perspective, emerging risk management should therefore address a whole spectrum of activity across the economic, environmental, geopolitical, societal and technological (EEGST) taxonomy. Every emerging threat can be slotted into this taxonomy – a reason why it is used by the World Economic Forum (WEF) for its annual global risk exercises (Maavak, 2019a). As traditional forces of globalization unravel, security professionals should take cognizance of emerging threats through a systems thinking approach.

METHODOLOGY

An EEGST sectional breakdown was adopted to illustrate a sampling of extreme risks facing the world for the 2020-2030 decade. The transcendental quality of emerging risks, as outlined on Figure 1, below, was primarily informed by the following pillars of systems thinking (Rickards, 2020):

• Diminishing diversity (or increasing homogeneity) of actors in the global system (Boli & Thomas, 1997; Meyer, 2000; Young et al, 2006);

• Interconnections in the global system (Homer-Dixon et al, 2015; Lee & Preston, 2012);

• Interactions of actors, events and components in the global system (Buldyrev et al, 2010; Bashan et al, 2013; Homer-Dixon et al, 2015); and

• Adaptive qualities in particular systems (Bodin & Norberg, 2005; Scheffer et al, 2012) Since scholastic material on this topic remains somewhat inchoate, this paper buttresses many of its contentions through secondary (i.e. news/institutional) sources.

ECONOMY

According to Professor Stanislaw Drozdz (2018) of the Polish Academy of Sciences, “a global financial crash of a previously unprecedented scale is highly probable” by the mid- 2020s. This will lead to a trickle-down meltdown, impacting all areas of human activity.

The economist John Mauldin (2018) similarly warns that the “2020s might be the worst decade in US history” and may lead to a Second Great Depression. Other forecasts are equally alarming. According to the International Institute of Finance, global debt may have surpassed $255 trillion by 2020 (IIF, 2019). Yet another study revealed that global debts and liabilities amounted to a staggering $2.5 quadrillion (Ausman, 2018). The reader should note that these figures were tabulated before the COVID-19 outbreak.

The IMF singles out widening income inequality as the trigger for the next Great Depression (Georgieva, 2020). The wealthiest 1% now own more than twice as much wealth as 6.9 billion people (Coffey et al, 2020) and this chasm is widening with each passing month. COVID-19 had, in fact, boosted global billionaire wealth to an unprecedented $10.2 trillion by July 2020 (UBS-PWC, 2020). Global GDP, worth $88 trillion in 2019, may have contracted by 5.2% in 2020 (World Bank, 2020).

As the Greek historian Plutarch warned in the 1st century AD: “An imbalance between rich and poor is the oldest and most fatal ailment of all republics” (Mauldin, 2014). The stability of a society, as Aristotle argued even earlier, depends on a robust middle element or middle class. At the rate the global middle class is facing catastrophic debt and unemployment levels, widespread social disaffection may morph into outright anarchy (Maavak, 2012; DCDC, 2007).

Economic stressors, in transcendent VUCA fashion, may also induce radical geopolitical realignments. Bullions now carry more weight than NATO’s security guarantees in Eastern Europe. After Poland repatriated 100 tons of gold from the Bank of England in 2019, Slovakia, Serbia and Hungary quickly followed suit.

According to former Slovak Premier Robert Fico, this erosion in regional trust was based on historical precedents – in particular the 1938 Munich Agreement which ceded Czechoslovakia’s Sudetenland to Nazi Germany. As Fico reiterated (Dudik & Tomek, 2019):

“You can hardly trust even the closest allies after the Munich Agreement… I guarantee that if something happens, we won’t see a single gram of this (offshore-held) gold. Let’s do it (repatriation) as quickly as possible.” (Parenthesis added by author).

President Aleksandar Vucic of Serbia (a non-NATO nation) justified his central bank’s gold-repatriation program by hinting at economic headwinds ahead: “We see in which direction the crisis in the world is moving” (Dudik & Tomek, 2019). Indeed, with two global Titanics – the United States and China – set on a collision course with a quadrillions-denominated iceberg in the middle, and a viral outbreak on its tip, the seismic ripples will be felt far, wide and for a considerable period.

A reality check is nonetheless needed here: Can additional bullions realistically circumvallate the economies of 80 million plus peoples in these Eastern European nations, worth a collective $1.8 trillion by purchasing power parity? Gold however is a potent psychological symbol as it represents national sovereignty and economic reassurance in a potentially hyperinflationary world. The portents are clear: The current global economic system will be weakened by rising nationalism and autarkic demands. Much uncertainty remains ahead. Mauldin (2018) proposes the introduction of Old Testament-style debt jubilees to facilitate gradual national recoveries. The World Economic Forum, on the other hand, has long proposed a “Great Reset” by 2030; a socialist utopia where “you’ll own nothing and you’ll be happy” (WEF, 2016).

In the final analysis, COVID-19 is not the root cause of the current global economic turmoil; it is merely an accelerant to a burning house of cards that was left smouldering since the 2008 Great Recession (Maavak, 2020a). We also see how the four main pillars of systems thinking (diversity, interconnectivity, interactivity and “adaptivity”) form the mise en scene in a VUCA decade.

ENVIRONMENTAL

What happens to the environment when our economies implode? Think of a debt-laden workforce at sensitive nuclear and chemical plants, along with a concomitant surge in industrial accidents? Economic stressors, workforce demoralization and rampant profiteering – rather than manmade climate change – arguably pose the biggest threats to the environment. In a WEF report, Buehler et al (2017) made the following pre-COVID-19 observation:

The ILO estimates that the annual cost to the global economy from accidents and work-related diseases alone is a staggering $3 trillion. Moreover, a recent report suggests the world’s 3.2 billion workers are increasingly unwell, with the vast majority facing significant economic insecurity: 77% work in part-time, temporary, “vulnerable” or unpaid jobs.

Shouldn’t this phenomenon be better categorized as a societal or economic risk rather than an environmental one? In line with the systems thinking approach, however, global risks can no longer be boxed into a taxonomical silo. Frazzled workforces may precipitate another Bhopal (1984), Chernobyl (1986), Deepwater Horizon (2010) or Flint water crisis (2014). These disasters were notably not the result of manmade climate change. Neither was the Fukushima nuclear disaster (2011) nor the Indian Ocean tsunami (2004). Indeed, the combustion of a long-overlooked cargo of 2,750 tonnes of ammonium nitrate had nearly levelled the city of Beirut, Lebanon, on Aug 4 2020. The explosion left 204 dead; 7,500 injured; US$15 billion in property damages; and an estimated 300,000 people homeless (Urbina, 2020). The environmental costs have yet to be adequately tabulated.

Environmental disasters are more attributable to Black Swan events, systems breakdowns and corporate greed rather than to mundane human activity.

Our JIT world aggravates the cascading potential of risks (Korowicz, 2012). Production and delivery delays, caused by the COVID-19 outbreak, will eventually require industrial overcompensation. This will further stress senior executives, workers, machines and a variety of computerized systems. The trickle-down effects will likely include substandard products, contaminated food and a general lowering in health and safety standards (Maavak, 2019a). Unpaid or demoralized sanitation workers may also resort to indiscriminate waste dumping. Many cities across the United States (and elsewhere in the world) are no longer recycling wastes due to prohibitive costs in the global corona-economy (Liacko, 2021).

Even in good times, strict protocols on waste disposals were routinely ignored. While Sweden championed the global climate change narrative, its clothing flagship H&M was busy covering up toxic effluences disgorged by vendors along the Citarum River in Java, Indonesia. As a result, countless children among 14 million Indonesians straddling the “world’s most polluted river” began to suffer from dermatitis, intestinal problems, developmental disorders, renal failure, chronic bronchitis and cancer (DW, 2020). It is also in cauldrons like the Citarum River where pathogens may mutate with emergent ramifications.

On an equally alarming note, depressed economic conditions have traditionally provided a waste disposal boon for organized crime elements. Throughout 1980s, the Calabriabased ‘Ndrangheta mafia – in collusion with governments in Europe and North America – began to dump radioactive wastes along the coast of Somalia. Reeling from pollution and revenue loss, Somali fisherman eventually resorted to mass piracy (Knaup, 2008).

The coast of Somalia is now a maritime hotspot, and exemplifies an entwined form of economic-environmental-geopolitical-societal emergence. In a VUCA world, indiscriminate waste dumping can unexpectedly morph into a Black Hawk Down incident. The laws of unintended consequences are governed by actors, interconnections, interactions and adaptations in a system under study – as outlined in the methodology section.

Environmentally-devastating industrial sabotages – whether by disgruntled workers, industrial competitors, ideological maniacs or terrorist groups – cannot be discounted in a VUCA world. Immiserated societies, in stark defiance of climate change diktats, may resort to dirty coal plants and wood stoves for survival. Interlinked ecosystems, particularly water resources, may be hijacked by nationalist sentiments. The environmental fallouts of critical infrastructure (CI) breakdowns loom like a Sword of Damocles over this decade.

GEOPOLITICAL

The primary catalyst behind WWII was the Great Depression. Since history often repeats itself, expect familiar bogeymen to reappear in societies roiling with impoverishment and ideological clefts. Anti-Semitism – a societal risk on its own – may reach alarming proportions in the West (Reuters, 2019), possibly forcing Israel to undertake reprisal operations inside allied nations. If that happens, how will affected nations react? Will security resources be reallocated to protect certain minorities (or the Top 1%) while larger segments of society are exposed to restive forces? Balloon effects like these present a classic VUCA problematic.

Contemporary geopolitical risks include a possible Iran-Israel war; US-China military confrontation over Taiwan or the South China Sea; North Korean proliferation of nuclear and missile technologies; an India-Pakistan nuclear war; an Iranian closure of the Straits of Hormuz; fundamentalist-driven implosion in the Islamic world; or a nuclear confrontation between NATO and Russia. Fears that the Jan 3 2020 assassination of Iranian Maj. Gen. Qasem Soleimani might lead to WWIII were grossly overblown. From a systems perspective, the killing of Soleimani did not fundamentally change the actor-interconnection-interaction adaptivity equation in the Middle East. Soleimani was simply a cog who got replaced.

### Case

#### Warming bad is political hype with unobserved impacts—stopping CO2 emissions would abruptly stop crucial habitat and agricultural production key to food security.

**Goklany 15**. (Dr. Indur M. Goklany, PhD MSU, is a science and technology policy analyst for the United States Department of the Interior, where he holds the position of Assistant Director of Programs, Science and Technology Policy. CARBON DIOXIDE The good news. <http://www.thegwpf.org/content/uploads/2015/10/benefits.pdf>)

Summary 1. This paper addresses the question of whether, and how much, increased carbon dioxide concentrations have benefited the biosphere and humanity by stimulating plant growth, warming the planet and increasing rainfall. 2. Empirical data confirms that the biosphere’s productivity has increased by about 14% since 1982, in large part as a result of rising carbon dioxide levels. 3. **Thousands of scientific experiments indicate that increasing carbon dioxide concentrations in the air have contributed to increases in crop yields.** 4. These increases in yield are very likely to have reduced the appropriation of land for farming by 11–17% compared with what it would otherwise be, resulting in more land being left wild. 5. Satellite evidence confirms that increasing carbon dioxide concentrations have also resulted in greater productivity of wild terrestrial ecosystems in all vegetation types. 6. Increasing carbon dioxide concentrations have also increased the productivity of many marine ecosystems. 7. In recent decades, trends in climate-sensitive indicators of human and environmental wellbeing have improved and continue to do so despite claims that they would deteriorate because of global warming. 8. Compared with the benefits from carbon dioxide on crop and biosphere productivity, the adverse impacts of carbon dioxide – on the frequency and intensity of extreme weather, on sea level, vector-borne disease prevalence and human health – have been **too small to measure or have been swamped by other factors**. 9. Models used to influence policy on climate change have overestimated the rate of warming, underestimated direct benefits of carbon dioxide, overestimated the harms from climate change and underestimated human capacity to adapt so as to capture the benefits while reducing the harms. 10. It is very likely that the impact of **rising carbon dioxide concentrations is currently net beneficial for both humanity and the biosphere generally. These benefits are real, whereas the costs of warming are uncertain. Halting the increase in carbon dioxide concentrations abruptly would deprive people and the planet of the benefits of carbon dioxide much sooner than they would reduce any costs of warming**.

#### Negative feedbacks check--Co2 key to forests, wetlands, and topsoil.

**Carter et al 14** (Dr. Craig D. Idso, Dr. Sherwood B. Idso, Center for the Study of Carbon Dioxide and Global Change, Dr. Robert M. Carter, Emeritus Fellow, Institute of Public Affairs and Dr. S. Fred Singer, Science and Environmental Policy Project, “Summary for Policymakers,” CLIMATE CHANGE RECONSIDERED II: BIOLOGICAL IMPACTS, 2014 Report of the Nongovernmental International Panel on Climate Change (NIPCC), 2014, p. 6.

Key Findings: CO2, Plants, and Soils • Results obtained under **3,586** separate sets of **experimental conditions** conducted on 549 plant species reveal nearly all plants experience increases in dry weight or biomass in response to atmospheric CO2 enrichment. Additional results obtained under **2,094** separate experimental conditions conducted on 472 plant species reveal nearly all plants experience increases in their rates of photosynthesis in response to atmospheric CO2 enrichment. • **Long-term** CO2 enrichment studies confirm the findings of shorter-term experiments, demonstrating that the growth-enhancing, water-conserving, and stress-alleviating effects of elevated atmospheric CO2 likely **persist throughout plant lifetimes**. • **Forest productivity** and growth rates throughout the world have increased gradually since the Industrial Revolution in concert with, and in response to, the historical increase in the air’s CO2 concentration. Therefore, as the atmosphere’s CO2 concentration continues to rise, forests will likely respond by exhibiting **significant increases in biomass** production and they likely will grow more robustly and **significantly expand their ranges**. • Modest increases in air temperature tend to increase carbon storage in forests and their soils. Thus, old-growth forests can be significant carbon sinks and their capacity to **sequester carbon** in the future will be enhanced as the air’s CO2 content continues to rise. • As the atmosphere’s CO2 concentration increases, the productivity of grassland species will increase even under unfavorable growing conditions characterized by less-than-adequate soil moisture, inadequate soil nutrition, elevated air temperature, and physical stress imposed by herbivory. • The thawing of permafrost caused by increases in air temperature will likely **not** transform peatlands from carbon sinks to carbon sources. Instead, rapid terrestrialization likely will act to intensify carbon-sink conditions. • Rising atmospheric CO2 concentrations likely will enhance the productivity and carbon sequestering ability of Earth’s wetlands. In addition, elevated CO2 may help some coastal wetlands counterbalance the negative impacts of rising seas. • Rising atmospheric CO2 concentrations likely will allow greater numbers of beneficial bacteria (that help sequester carbon and nitrogen) to exist within soils and anaerobic water environments, thereby benefitting both terrestrial and aquatic ecosystems. • The aerial fertilization effect of atmospheric CO2 enrichment likely will result in greater soil carbon stores due to increased carbon input to soils, even in nutrient-poor soils and in spite of predicted increases in temperature. The carbon-sequestering capability of Earth’s vegetation likely will act as a significant **brake** on the rate-of-rise of the air’s CO2 content and thereby help to **mute** the magnitude of any CO2-induced global warming. • The historical increase in the air’s CO2 content has **significantly reduced** the **erosion** of valuable topsoil over the past several decades; the continuing increase in atmospheric CO2 can maintain this trend and perhaps even **accelerate it for the foreseeable future**.

#### Ecosystems are resilient to climate change- but co2 is essential to food and biodiversity.

**Carter et al 14** (Dr. Craig D. Idso, Dr. Sherwood B. Idso, Center for the Study of Carbon Dioxide and Global Change, Dr. Robert M. Carter, Emeritus Fellow, Institute of Public Affairs and Dr. S. Fred Singer, Science and Environmental Policy Project, “Summary for Policymakers,” CLIMATE CHANGE RECONSIDERED II: BIOLOGICAL IMPACTS, 2014 Report of the Nongovernmental International Panel on Climate Change (NIPCC), 2014, p. 3.

Biological Impacts Summary • Atmospheric carbon dioxide is not a pollutant. It is a non-toxic, non-irritating, and natural component of the atmosphere. Long-term CO2 enrichment studies **confirm** the findings of shorter-term experiments, demonstrating numerous growth-enhancing, water-conserving, and stress-alleviating effects of elevated atmospheric CO2 on plants growing in both **terrestrial** and **aquatic** ecosystems. • The ongoing rise in the air’s CO2 content is causing a great **greening** of **the Earth**. All across the planet, the historical increase in the atmosphere’s CO2 concentration has stimulated vegetative productivity. This observed stimulation, or greening of the Earth, has occurred **in spite of** many real and imagined assaults on Earth’s vegetation, including fires, disease, pest outbreaks, deforestation, and climatic change. • There is little or **no risk** of increasing food insecurity due to global warming or rising atmospheric CO2 levels. Farmers and others who depend on rural livelihoods for income are benefitting from rising agricultural productivity **throughout the world**, including in parts of Asia and Africa where the need for increased food supplies is most critical. Rising temperatures and atmospheric CO2 levels play a **key role** in the realization of such benefits. • Terrestrial ecosystems have **thrived** throughout the world as a result of warming temperatures and rising levels of atmospheric CO2. Empirical data pertaining to numerous animal species, including amphibians, birds, butterflies, other insects, reptiles, and mammals, indicate global warming and its myriad ecological effects tend to foster the **expansion and proliferation** of animal habitats, ranges, and populations, or otherwise have no observable impacts one way or the other. Multiple lines of evidence indicate animal species are **adapting**, and in some cases evolving, to cope with climate change of the modern era. • Rising temperatures and atmospheric CO2 levels do not pose a significant threat to aquatic life. Many aquatic species have shown **considerable tolerance** to temperatures and CO2 values predicted for the next few centuries, and many have demonstrated a likelihood of **positive responses** in empirical studies. Any projected adverse impacts of rising temperatures or declining seawater and freshwater pH levels (“acidification”) will be largely mitigated through **phenotypic adaptation** or evolution during the many decades to centuries it is expected to take for pH levels to fall. • A modest warming of the planet will result in a net reduction of human mortality from temperature-related events. More lives are saved by global warming via the amelioration of cold-related deaths than those lost under excessive heat. Global warming will have a negligible influence on human morbidity and the spread of infectious diseases, a phenomenon observed in virtually all parts of the world.