


# **CHAPTER 29**

## **WARNINGS FROM THE BIOSPHERE**


***“OFTEN IT TAKES SOME CALAMITY  
TO MAKE US LIVE IN THE  
PRESENT. THEN SUDDENLY WE  
WAKE UP AND SEE ALL THE  
MISTAKES WE HAVE MADE.”***




**Bill Watterson**






**THE DELETERIOUS CHANGES IN THE BIOSPHERE, WHICH ARE NOW OCCURRING WITH INCREASED RAPIDITY, SHOULD SERVE AS WARNINGS, UNLIKE THE FAIRLY STABLE, FAVORABLE CONDITIONS THAT HAVE EXISTED FOR THE PAST 10,000 YEARS.**

- 🌍 These warnings are detected and reported by research scientists who are increasingly under assault by the “merchants of doubt”<sup>1</sup> funded by special interest corporations.
- 🌍 *“Most people are concerned about climate change, but not enough to embrace it as reality. . . 12 percent of people are alarmed about climate change, 27 percent are concerned, 25 percent are cautious, 10 percent are disengaged, 13 percent are dismissive.”<sup>2</sup>*
- 🌍 These conditions are not encouraging for coping quickly and effectively with nine rapidly worsening interactive global crises.<sup>3</sup>

 **WARNINGS CAN MANIFEST THEMSELVES AT THE SPECIES LEVEL (E.G., POLAR BEARS). FOR EXAMPLE, “*RISING HUMAN CARBON DIOXIDE EMISSIONS MAY BE AFFECTING THE BRAINS AND CENTRAL NERVOUS SYSTEM OF SEA FISHES WITH SERIOUS CONSEQUENCES FOR THEIR SURVIVAL . . .*”<sup>4</sup>**

-  The responses of other life forms should persuade humans that dangerous changes are occurring on the planet that place *Homo sapiens* at risk either directly or indirectly.
-  One major conceptual obstacle to addressing such problems is the delusion that *Homo sapiens* is apart from nature rather than a part of nature (i.e., the Biosphere).
-  Charismatic species (e.g., tiger) are useful in focusing public attention on ecosystem damage.

# AT THE OTHER END OF THE COMPLEXITY SCALE (I.E., FROM SPECIES) IS THE COMPLEX BIOSPHERE, OF WHICH ABOUT 71 PERCENT OF EARTH'S SURFACE IS THE OCEANS.




-  *“Might a penguin’s next meal be affected by the exhaust from your tailpipe? The answer may be yes when you add your exhaust fumes to the total amount of carbon dioxide lofted into the atmosphere by humans since the industrial revolution. One-third of that carbon dioxide is absorbed by the world’s oceans making them acidic and affecting marine life.”<sup>5</sup>*
-  *“Although our primary guide to the future will remain the simulations carried out in coupled atmosphere ocean computer models, they have, as yet, proven incapable of replicating some important features of the paleo record. The reason is that they fail to properly represent powerful amplifiers and feedback mechanisms present in the real-world system, thus the interplay between these two ways of looking at the climate system has become an important aspect of our science.”<sup>6</sup>*
-  Abrupt climate change has happened in the past and could happen again, placing humanity at greatly increased risk.




# **THE AGRICULTURAL SYSTEM, WHICH IS PART OF THE BIOSPHERE, IS NOT PROVIDING THE FOOD SUPPLY SECURITY IT DID IN THE LAST CENTURY.<sup>7</sup>**




- ① ***“The world’s farmers produced more grain in 2011 than ever before. Estimates from the U.S. Department of Agriculture show the global grain harvest coming in at 2,295 million tons, up 53 million tons from the previous record in 2009. Consumption grew by 90 million tons over the same period to 2,280 million tons. Yet with global grain production actually falling short of consumption in 7 of the past 12 years, stocks remain worrying low, leaving the world vulnerable to food price shocks”***  
**([www.earth-policy.org/indicators/C54/grain/2012](http://www.earth-policy.org/indicators/C54/grain/2012)).**
- ① **The FAO<sup>8</sup> describes the results of food scarcity and insecurity: *“Under-nourishment is not merely a symptom of poverty but also one of its causes. Poverty is not simply a lack of income or consumption but includes deprivation in health, education, nutrition, safety, legal and political rights and many other areas. All these dimensions of deprivation interact with and reinforce each other.”***
- ① **Scientists gather evidence on biospheric warnings but are being attacked for doing so.**

# OFTEN LOST IN THE DISCOURTEOUS ATTACKS ON THE SCIENCE OF CLIMATE CHANGE IS THE NEED FOR ENLIGHTENED DISCOURSE ON INTERGENERATIONAL ETHICS.


-  Intergenerational ethics espouse leaving a habitable planet for future generations, nurturing the present Biosphere to make this bequest possible, avoiding both ecological tipping points and amplifying feedback loops that increase the probability of runaway climate change.
-  Living unsustainably damages the Biosphere and steals a quality future from subsequent generations, which is both unethical and immoral.
-  *“Maintaining a climate that resembles the Holocene, the world of stable shorelines in which civilization developed, requires rapidly reducing CO<sub>2</sub> emissions.”<sup>9</sup>*






# **ANTHROPOGENIC DAMAGE TO THE BIOSPHERE IS AN ETHICAL/MORAL ISSUE OF UNPRECEDENTED SCOPE IN HUMAN HISTORY WITH FREQUENT WARNINGS FROM COMPONENTS OF THE BIOSPHERE.**





-  For example, drought affects agricultural productivity and is evident in increased prices for staples (e.g., wheat), which consumers recognize quickly.
-  The dead zones in oceans reduce the harvest from fisheries.
-  Warming is a factor in increasing the range of human diseases and agricultural pests.



 **“THE TRAGEDY OF HUMAN-MADE CLIMATE CHANGE, SHOULD THE RUSH TO EXPLOIT ALL FOSSIL FUELS CONTINUE, IS THAT TRANSITION TO CLEAN ENERGIES AND ENERGY EFFICIENCY IS NOT ONLY FEASIBLE BUT ECONOMICALLY SENSIBLE. ASSERTIONS THAT PHASE-OUT OF FOSSIL FUELS WOULD BE UNACCEPTABLY COSTLY CAN BE TRACED TO BIASED ASSUMPTIONS THAT DO NOT ACCOUNT FOR THE COST OF FOSSIL FUELS TO SOCIETY OR INCLUDE THE BENEFITS OF TECHNOLOGY INNOVATIONS THAT WOULD EMERGE IN RESPONSE TO AN APPROPRIATE PRICE ON CARBON EMISSIONS.”<sup>9</sup>**

-  How can humanity be so indifferent to the effects on future generations? Biospheric collapse is not just possible — it is probable if “business as usual” continues.
-  Cumulative, irreversible changes will produce a planet quite different, almost certainly more hostile, than the planet on which *Homo sapiens* evolved and flourished.
-  “By 2100, global climate change will modify plant communities covering almost half of Earth’s land surface and will drive the conversion of nearly 40 percent of land-based ecosystems from one major community type — such as forest, grassland or tundra — toward another according to a new NASA and university computer modeling study.”<sup>10</sup>

# REGRETABLY, EVEN WHEN BIOSPHERIC DAMAGE IS ABUNDANTLY CLEAR AND THE SCIENTIFIC EVIDENCE VERY STRONG, DESTRUCTIVE AND UNSUSTAINABLE PRACTICES CONTINUE.

-  An example is “*A school of jack mackerel in the Southern Pacific. Stocks of fish, rich in oily protein, have declined from 30 million metric tons to less than a tenth of that in two decades.*”<sup>11</sup> The cause is overfishing.
-  Climate change induced water shortages are a global reality not yet squarely faced by humanity. For example, snow drought is occurring in Colorado<sup>12</sup> and the Peruvian Andes,<sup>13</sup> but not enough is being done to reduce anthropogenic carbon dioxide emissions.
-  Climatologist James “*Hansen argues that climate ‘loads the dice,’ . . . So, in an average year you might have a one in six chance of extraordinarily hot weather or a super-violent storm.*”<sup>12</sup>
-  However, the well funded campaign to cast doubt on scientific evidence has resulted in inaction.



# THE HUGE AMAZON RAINFOREST IS OFTEN CALLED “THE LUNGS OF THE WORLD,” BUT THE EFFORTS TO PROTECT THE FOREST HAVE BEEN WEAKENED RECENTLY.

- ① *“The fight over the [47-year-old] Forest Code [that protects the forest] has stoked the age-old struggle over development versus conservation in Brazil. . .”<sup>14</sup>*
- ① *“We have to reconcile the generation of income with sustainability”<sup>15</sup>*
- ① However, *“If people abide by the law — a big if — . . . The Brazilian Amazon has a chance by 2020 to become a ‘carbon sink,’ in which the amount of forest being replanted is larger than the amount being deforested.”<sup>14</sup>*
- ① Even so, young trees require extended growth periods to mature and may not survive in the deforested area. What then?



# OF THE NINE INTERACTIVE GLOBAL CRISES,<sup>3</sup> ARGUABLY THE ONE IN WHICH THE MERCHANTS OF DOUBT HAVE MISREPRESENTED SCIENTISTS AND SCIENTIFIC EVIDENCE MOST IS EXPONENTIAL POPULATION GROWTH.

- 🌍 To adapt to a rapidly changing world, scientific evidence is essential.
- 🌍 For example, “*The world is running out of time to make sure there is enough food, water and energy to meet the needs of a rapidly growing population and to avoid sending up to 3 billion people into poverty. . .*”<sup>16</sup>
- 🌍 Of course, stabilizing the human population is an option to solving this problem, but no one wants to talk about population stabilization.
- 🌍 “*A drought . . . called the most severe Mexico had ever faced has left two million people without access to water and, coupled with a cold snap, has devastated cropland in nearly half the country.*”<sup>17</sup>



# **JAPAN HAS BEEN OVERPOPULATED FOR THE PAST 100 YEARS, HAS A HIGH PERCENTAGE OF ELDERLY PEOPLE, A FOOD AND ENERGY SHORTAGE, AND LACKS NATURAL RESOURCES FOR 128 MILLION PEOPLE.<sup>18</sup>**

- 🌐 **Even with a stable population, Japan is facing resource shortages because of dependence on external sources.<sup>18</sup>**
- 🌐 ***“Without abundant cheap fuel and fertiliser, it is possible that if Japan reorganized most of its population into agricultural work units it [could] again feed the 30 million people it did in the Edo period in the 19<sup>th</sup> [century]. With abundant cheap fuel (and therefore fertiliser) it might feed half its present population.”<sup>18</sup>***
- 🌐 **In an era of resource scarcity/ecological overshoot, the entire population of Earth will face problems similar to Japan’s.**
- 🌐 **Global climate change may further diminish resource regeneration, which will necessitate “solving” resource scarcity; however, the probability of importing resources from other areas will diminish or disappear.**



**HUMANITY IS FACED WITH A SEVERE RESOURCE CRISIS BECAUSE IT IGNORED AND CONTINUES TO IGNORE “WARNINGS” FROM THE BIOSPHERE AND ALLOWS SPECIAL INTEREST GROUPS TO DENIGRATE THE SCIENTISTS WHO PROVIDE ROBUST SCIENTIFIC EVIDENCE.**

- ① **The longer humanity continues “business as usual,” the more difficult aspiring to sustainable use of the planet will be.**
- ② **Resource allocation is an ethical/moral issue and solutions must be framed in that context.**

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