




# **CHAPTER 34**

## **DEFINING GOALS AND CONDITIONS FOR NURTURING THE PRESENT BIOSPHERE**


# **NURTURING THE BIOSPHERE WILL REQUIRE DEFINING BOTH GOALS AND CONDITIONS TO WHICH HUMANITY MUST BE FIRMLY COMMITTED OR THE QUEST WILL FAIL.**

-  **Previously defined goals and conditions<sup>1,2</sup> for achieving a sustainable world would, if practiced, nurture the Biosphere, but are alone not enough.**
-  **Ethics and sustainability ethics<sup>3,4</sup> furnish an ethical perspective essential to nurturing the Biosphere.**
-  **Although the Biosphere consists of a wide variety of ecoregions that require a regional approach, the unifying theme must be maintaining the integrity, health, and resilience of the Biosphere.**



**“FOR MOST OF THE LAST CENTURY, ECONOMIC GROWTH WAS FUELLED BY WHAT SEEMED TO BE A CERTAIN TRUTH: THE ABUNDANCE OF NATURAL RESOURCES. WE MINED OUR WAY TO GROWTH. WE BURNED OUR WAY TO PROSPERITY. WE BELIEVED IN CONSUMPTION WITHOUT CONSEQUENCES. THOSE DAYS ARE GONE . . . OVER TIME THAT MODEL IS A RECIPE FOR NATIONAL DISASTER. IT IS A GLOBAL SUICIDE PACT.”<sup>5</sup>**

- 🌍 A global paradigm change to a biospheric-centered worldview must occur now before it is too late.
- 🌍 Why now? A shift from one state to another in Earth’s Biosphere is possible because the collective global ecosystems are “. . . *approaching a planetary-scale critical transition as a result of human influence.*”<sup>6</sup>
- 🌍 “*Critical transitions lead to state shifts, which abruptly override trends and produce unanticipated biotic effects.*”<sup>6</sup>
- 🌍 Until forecasting the consequences of the state shifts improves, assuming that most or even any of the shifts would improve conditions for *Homo sapiens* is reckless.



***“IN BIOPHYSICAL TERMS,  
HUMANITY HAS NEVER BEEN  
MOVING FASTER NOR FURTHER  
FROM SUSTAINABILITY THAN IT IS  
NOW.”<sup>7</sup>***






# **GOAL #1: KEEP GLOBAL AND REGIONAL POPULATIONS FOR *HOMO SAPIENS* WITHIN LIMITS IMPOSED BY RESOURCE AVAILABILITY.**

## **ILLUSTRATIVE CONDITIONS**

- 🌍 **Although carrying capacity is difficult to determine, *Homo sapiens* clearly has been exceeding its limits since 1987 (first ecological overshoot).**
- 🌍 **If humanity does nothing about population size relative to resource availability, the universal laws of biology, chemistry, and physics will reduce the population size to or below carrying capacity through misery, starvation, disease, and death.**
- 🌍 **If the distribution of resources is vastly disproportionate between rich and poor, a partial equity will be restored by either political means or revolution.**
- 🌍 **Technology, however sophisticated, will not protect humanity from the universal laws.**

# **GOAL #2: STABILIZE GLOBAL CLIMATE BEFORE “RUNAWAY” CLIMATE CHANGE OCCURS BECAUSE AN UNSTABLE CLIMATE REDUCES RESOURCE PRODUCTIVITY.**

## **ILLUSTRATIVE CONDITIONS**

-  **A heavy carbon tax would stimulate a rapid transition from a carbon-intensive energy system to carbon-free energy system.**
-  **Stabilizing the climate is a necessary condition for leaving a habitable climate for humanity’s children and grandchildren.**
-  **Humanity must also remember that climate change affects the 30+ million other species with which it shares the planet and which, collectively, constitute the Biosphere.**







# GOAL #3: STOP HUMAN CAUSED BIOTIC IMPOVERISHMENT AND SPECIES EXTINCTION.

## ILLUSTRATIVE CONDITIONS

- Stop using economic justifications for harming other life forms with which *Homo sapiens* “shares” the planet.
- The “need” to burn fossil fuel by one species, *Homo sapiens*, does not justify drilling for oil in the Arctic, or anywhere, when burning it alters the pH of the world’s oceans and alters Earth’s climate.
- Although biotic impoverishment and species extinction are caused by overconsumption and economic growth, this condition is an ethical/moral dilemma.
- In hospital intensive care facilities, life support systems for individual patients are treated with great respect and are given regular maintenance. Humanity should do the same for its life support system — the sixth Biosphere.

# **GOAL #4: STOP APPROPRIATING NATURAL BIOSPHERIC HABITAT FOR AGRICULTURAL OR URBAN USE.**





## ILLUSTRATIVE CONDITIONS

-  “... about 43% of Earth’s land surface has been converted to agricultural or urban use ...”<sup>8</sup>
-  At present, predicting when the sixth Biosphere will collapse is not possible, but continuing “business as usual” has already badly damaged the Biosphere, which requires nurturing to avoid collapse and to continue the conditions under which *Homo sapiens* evolved and, at times, thrived.
-  The human economy is a subset of the present Biosphere —threats to the Biosphere are also threats to the human economy.
-  Ecological overshoot began in 1987 and cannot be sustained in the long term.



# **GOAL #5: DO NOT ALLOW HUMAN RESOURCE CONSUMPTION TO EXCEED THE REGENERATIVE ABILITY OF THE BIOSPHERE.**





## ILLUSTRATIVE CONDITONS


-  Excessive resource consumption produces misery, starvation, disease, and death for millions, even billions, of people.
-  Excessive consumption can only occur when natural capital (which provides the ecosystem services *Homo sapiens* needs to survive) is consumed.<sup>6</sup>
-  Advertising that leads to increased consumption beyond biospheric regenerative capacity damages Earth's life support system and endangers human lives and the lives of other species.
-  Limits to economic and population growth, when exceeded, result in damage to the Biosphere. Continuation of such growth will cause collapse of the sixth Biosphere.







# **GOAL #6: GO BEYOND MILITARY TERMS FOR HUMAN SECURITY AND INCLUDE NURTURING THE BIOSPHERE.**

## **ILLUSTRATIVE CONDITIONS**

-  ***“But the situation in which we find ourselves pushes us to redefine security in twenty-first century terms. The time when military forces were the prime threat to security has faded into the past. The threats now are climate volatility, spreading water shortages, continuing population growth, spreading hunger, and failing states.”<sup>9</sup>***
-  **Collapse of the present Biosphere will probably result in the collapse of human civilization.**
-  **For most of the time *Homo sapiens* has existed, the present Biosphere was self maintaining, but now human activities threaten it.**
-  **The Biosphere is finite and cannot supply enough resources and ecosystem services sufficient for an every growing economy and human population.**






 **GOAL #7: ACCEPT THAT THE SCIENTIFIC PROCESS IS THE BEST AND ONLY WAY TO BECOME INFORMED ABOUT THE UNIVERSAL LAWS OF BIOLOGY, CHEMISTRY, AND PHYSICS WHICH SHAPE BOTH THE BIOSPHERE AND HUMAN DESTINY.**

**ILLUSTRATIVE CONDITIONS**

-  **Attacking scientists and scientific evidence that displeases special interest groups without robust contrary scientific evidence must cease.**
-  **Labeling scientific evidence “bad news” when it reports on the consequences of the universal laws must cease.**
-  **Scientists accused of conspiracy or a hoax should be so charged if substantive evidence exists to support the accusation — otherwise, let them alone to continue their research.**
-  **The news media should abandon the use of “balance,” where both sides are given equal time, when the preponderance of evidence is on one side.**






# **GOAL #8: PAY ATTENTION TO “WARNINGS” FROM THE BIOSPHERE BASED ON SCIENTIFIC EVIDENCE.**

## ILLUSTRATIVE CONDITIONS

-  ***“The mysterious fall of the largest of the world’s earliest urban civilization nearly 4,000 years ago in what is now India, Pakistan, Nepal and Bangladesh now appears to have a key culprit — ancient climate change . . . ”*<sup>10</sup>**
-  **Global climate change and financial globalization have decreased human security.**
-  **Sea level rise is already causing some coastal residents to consider moving inland.<sup>11</sup> However, ecosystems will have trouble moving inland in many areas because the areas are already occupied.**
-  ***“The lower 48 [US] states set temperature records for the warmest spring, largest seasonal departure from average, warmest year-to-date, and warmest 12-month period, all new marks since records began in 1895.”*<sup>12</sup>**
-  **Not much systematic planning has resulted from this new evidence.**

# **GOAL #9: NURTURE THE BIOSPHERE BY DEVELOPING A SYSTEMS-LEVEL RISK AND MANAGEMENT-LEVEL WORLDVIEW.**

## ILLUSTRATIVE CONDITIONS

-  **Ecological overshoot must cease because it destroys natural capital and impairs the delivery of ecosystems services.**
-  **As sea level rises, inland areas must be allocated and prepared for colonization by wetland species displaced by sea level rise.**
-  **If climate change is too rapid for recolonization of new, now suitable areas, assisted recolonization may be essential.**
-  ***“ . . . the second Earth summit is a chance to take honest stock of the situation and present ways to break political deadlock and human progress on the ground, in the air and in the oceans.”<sup>13</sup>***
-  **Extinction is forever.**






# GOAL #10: BAN NO WORDS AND SUPPRESS NO SCIENTIFIC EVIDENCE IN THE ESSENTIAL, BUT STILL LACKING, PUBLIC DISCOURSE ON NURTURING THE BIOSPHERE.

## ILLUSTRATIVE CONDITIONS

- 🌍 Such sentiments as “*Obviously something needs to be done. About those damn scientists, of course. Not global warming*”<sup>14</sup> are true but shouldn’t be necessary.
- 🌍 “*Like-minded legislators and state officials . . . erase offending words and passages [on global warming]. They made it flat out illegal for state planners and zoning officials to refer to nettlesome scientific findings that might hurt coastal property values.*”<sup>14</sup>
- 🌍 Human laws have no effect on the universal laws that are the basis of scientific investigations.
- 🌍 Humanity is facing trying times at present and in the future. Scientific evidence will be essential to save civilization.

# **GOAL #11: REVERE THE PARTS OF THE BIOSPHERE THAT ARE STILL IN A NATURAL STATE AS SACRED, INVIOLETE PLACES — THE ONLY REMAINING WILD SYSTEMS OF WHAT EARTH WAS LIKE BEFORE HUMAN DEVELOPMENT TOOK OVER.**

## ILLUSTRATIVE CONDITIONS

-  ***“Now with tough times crimping cities’ budgets, parks advocates . . . are seeing increasing efforts to privatize parks funded under the [US] Land and Water Conservation Act.”<sup>15</sup>***
-  **Loss of species is dangerous. For example, “Evidence is mounting that extinctions are altering key processes important to the productivity and sustainability of Earth’s ecosystems. Further species loss will accelerate change in ecosystem processes . . .”<sup>16</sup>**
-  **Lurking behind these losses are the tipping points, which are usually known only in retrospect, that mean irreversible change.**



# **GOAL #12: ELIMINATE INTERNATIONAL TRADE IN SPECIES, WHICH IS “... THE UNDERLYING CAUSE OF 30% OF THREATENED ANIMAL SPECIES EXTINCTIONS.”<sup>17</sup>**

## **ILLUSTRATIVE CONDITIONS**







- 🌍 Losing species faster than they are being replaced is dangerous unless one is willing to wait for replacement in evolutionary time after biospheric collapse.**
- 🌍 This problem, as usual, is in human hands and could cease immediately if humanity had the will to do so.**
- 🌍 The solution is simple — species are the product of millions of years of evolution and should not be driven to extinction for short-term, or even long-term, profits.**









# **GOAL #13: JUDGE ALL HUMAN ACTIONS AND INACTIONS (FAILURE TO LIMIT ANTHROPOGENIC GREENHOUSE GAS EMISSIONS) IN THE CONTEXT OF THE COMMON GOOD.**

## **ILLUSTRATIVE CONDITIONS**

-  **The common good includes all species on Earth that collectively comprise the present Biosphere since their fates are closely linked.**
-  **The Biosphere is a functional system and all species are a part of it.**
-  **No species, including *Homo sapiens*, is apart from the Biosphere.**
-  **Damaging the Biosphere has deleterious effects upon all species, and nurturing it has beneficial effects on all component species.**
-  **Local and regional actions collectively affect the Biosphere and must be evaluated at local, regional, and biospheric levels.**
-  **The human economy is a subset of the Biosphere and must be judged in that context despite pleadings of special interest groups.**

 **SOME ACTIONS (E.G., MOUNTAIN TOP REMOVAL TO ACCESS COAL DEPOSITS) HARM THE BIOSPHERIC LIFE SUPPORT SYSTEM AND DO NOT ADVANCE THE COMMON GOOD.**

-  **Carbon free energy, insulating houses, and public transportation are a few examples of alternative options that do not harm the Biosphere.**
-  **Any action that destroys ecological habitat does not advance the common good.**
-  **With numerous energy alternatives that do not threaten the Biosphere, no ethical or economic justification exists for activities that threaten the Biosphere.**



# **SUPPRESSING SCIENCE AND REASON DOES NOT ADVANCE THE COMMON GOOD.**

- 🌐 **Hate mail, white powder in mail (“is it anthrax or not?”), name calling (“compulsive liar”), stress on climate scientists and their families, heckling during speeches, and other intimidation tactics by anonymous climate deniers<sup>18</sup> do not advance the common good.**
- 🌐 **The acceptance of, or indifference to, the relentless attacks on scientists and the impassioned dismissal of the preponderance of scientific evidence by the general public are very disturbing, especially when the United States is one of the world’s leading nations in the generation of scientific knowledge.**
- 🌐 **Nations that permitted, even encouraged, attacks on science have always paid a heavy price for doing so; however, now the entire planet is paying the price, and the cost is steadily increasing.**
- 🌐 **Survival of a complex, partially globalized society requires a continuous, substantial flow of scientific evidence ideally generated by scientists not distracted by an assault on science.**



***“WE FACE A CHOICE BETWEEN A SOCIETY WHERE PEOPLE ACCEPT MODEST SACRIFICES FOR A COMMON GOOD OR A MORE CONTENTIOUS SOCIETY WHERE GROUP(S) SELFISHLY PROTECT THEIR OWN BENEFITS.”<sup>19</sup>***

- ① ***“The common good is a notion that originated over two thousand years ago in the writings of Plato, Aristotle, and Cicero.”<sup>20</sup>***
- ① **Appeals for the common good sound utopian and naive in 2012 in an era of calls for “dynamic leadership,” rampant individualism, attacks on “free-loaders,” and calls FOR low taxes, but such a worldview should cause humanity to reflect on fundamental questions such as what kind of society humanity aspires to in the long term and what kind of relationship is most appropriate with the 30+ million other species that collectively compromise the Biosphere.**



***HOMO SAPIENS* EVOLVED IN THE SIXTH BIOSPHERE FOR WHICH NO “OPERATING MANUAL” WAS PROVIDED. AT THAT TIME, THE SPECIES WAS SPREAD THINLY OVER THE PLANET IN SMALL TRIBAL GROUPS AND WAS DOMINATED BY THE BIOSPHERE RATHER THAN HUMANS DOMINATING IT — THE SITUATION IN THE LAST PART OF THE 20<sup>TH</sup> CENTURY AND THE FIRST PART OF THE 21<sup>ST</sup> CENTURY. SINCE THE PRESENT BIOSPHERE IS BOTH A LIFE SUPPORT SYSTEM AND THE SOURCE OF RENEWABLE RESOURCES FOR THE HUMAN ECONOMY, IT IS ESSENTIAL TO NURTURE IT RATHER THAN EXPLOIT IT. HUMANITY MUST DEVELOP AN OPERATING MANUAL BASED ON THE GOAL OF DEVELOPING A HARMONIOUS, LONG-TERM RELATIONSHIP THAT WILL ENABLE HUMANITY TO USE THE PRESENT BIOSPHERE WITHOUT ABUSING IT. THIS WILL BE A LASTING GIFT TO POSTERITY.**

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