

Emulating Life's Economics within the Ecosphere of

Mother Earth: A Whiteheadian Interpretation

“The only way we can truly change our trajectory is by approaching society’s problems from the foundation of an alternative worldview – one that affirms life...and exhalts the primacy of life through its entire value system.” (Jeremy Lent, The Web of Meaning, p. 362)

Introduction

In her 2017 reformulation of economics for the 21st century, Kate Raworth honestly and clearly addresses the issue of the immense advantages given to “...the extraordinary influence wielded by those who determine how we begin.” **[fn1]** That means that whoever floats the first sail boat in a burgeoning field of knowledge gets to set the standard to which all others must follow. Raworth references Joseph Schumpeter who acknowledges that “preanalytical cognitive acts” precede the analytical efforts involved in conceptualizing and verbalizing an explanation of the vision, picture, or schema involved. **[fn2]** So, the first boat floated involves some “pre-analytic vision” or “worldview” that is often and mostly un verbalized such as its physics, ontology, or relations with the ‘natural world’.

Usually, modifications are to the original boat's rigging, not as often the rudder, and certainly even more rare is a new boat floated with a different hull or with a different source of power. Raworth has floated a new boat because she has changed the rudder, the hull, and the source of power. The rudder is no longer "unlimited growth" in some version of "circular flow" within a "house" powered by fossil fueled electricity. Her new rudder is growth-agnostic in the "Embedded Economy", the hull is now the "donut", and the source of embedded economic power is solar in the living world. With all of these Raworth has provided diagrams which set out novel pictures to identify her assumptions. [fn3] Hers is an honest, clear, and impressive reformulation of economic theory, but my effort here is not to critique her articulation of "Donut Economics". I am offering the hull, the rudder, and some rigging for another boat.

In part I of this paper, I have articulated my most fundamental pre-analytic "notions" by proposing two assumptions and then eleven corollaries that comprise the "hull" of a new economics that is embedded in and mimics the 'economics' of Mother Earth, her "Ecosphere". Although the two assumptions and Corollaries 1-5 form my transparent and coherent pre-analytical bases, in Corollaries 6-9, I introduce a new kind of Earth-based economics, "ecosphere-onomics", which are founded in the "Ecosphere" and self-organized by communities of "ecopersons". Restoration of the ecosphere's ecosystems and re-stabilization of climate regularity are the local and eco-bioregional goals of each "truly sustainable community" (TSC).

Each local form of ecosphere-onomics mimics the ‘Earthonomic’ economics characteristic of the Ecosphere of Mother Earth in that particular ‘place’.

Part II lists and elaborates certain propositions, originally outlined by Ellen LaConte, that follow from the 11 corollaries in Part I that form the hull of the fundamentally new boat. All of the propositions depict generic themes that characterize the ecosphere-onomics engendered by ecopersons wherever they are embedded on-in the Ecosphere of Mother Earth.

In part III, again based in Ellen LaConte’s suggestions, I offer activities for revisioning and transforming the lifeways of truly sustainable communities that are designed to live within the carrying capacity of Mother Earth’s “means”. What we might name this period of great turning away from “Critical Mass” and toward climate re-stabilization is the topic of part IV. Lastly in part V, I offer some known formulations, some diagrams and charts, for beginning engagement in mitigation and adaptation.

The crucial question that Raworth asks at the end of her book about a new economy embedded in the “donut” is, “Since people need something to “aspire to”, what else might that be besides more wealth and possessions?” **[fn4]** I am suggesting that an individual’s aspiration could be at a holistically healthy life in a holistically healthy community of eco-person communities embedded within the holistically healthy community of communities of lifeforms within the Ecosphere of Mother Earth.

I. Pre-Analytic Assumptions-Presuppositions Utilizing Whitehead's Process-Relational Metaphysics and Ontology [fn5]

A. ASSUMPTIONS Presupposed:

1. Quanta of **Energy** comprise all "events", all "actual entities", and all "actual occasions" (which are 3 equivalent terms), of **living and non-living** organisms, throughout the whole, vast cosmos.

2. **All living and non-living** "actual occasions" and "actual entities" are self-organizing "**energy events**", each organically [fn6] composed of some quanta of energy, and persist successively. [fn7]

These assumptions together comprise a metaphysical alternative to any form of modern atomistic, materialistic physics and its largely unexamined and presupposed cosmic view of what's objectively real. In addition, these assumptions also do not contain reductionistic nor mechanistic elements as in the field of "quantum mechanics". In fact, these are better

called the bases for a “quantum organics”, as per the first assumption’s inclusion of “...**living and non-living** organisms, throughout the whole, vast cosmos.” The first corollary that follows establishes the understanding of Whiteheadian ontology underlying the Earth’s System Science which follows from these quantum organic presuppositions. The reason it’s a corollary is that other forms of “process” or Whitehead’s “concrecence” could be proposed.

B. COROLLARIES using my own conception of a Whiteheadian “Earth’s System Science” (ESS) approach:

Subsequently assumptions and corollaries are to be harmonized and woven into prose as one possible version of “Life’s **economics**” within the Ecopshere of Mother Earth. [fn8]

1. All **energy events** ‘*are*’ “subjecting”, ‘organic’ processes of becoming that, by integrating the actual relations felt in **each** becoming, self-harmonize the feeling-relations of their past actual world into a unified whole constituted by these relations.

These simple physical feeling-relations are mutually implicative and-or dipolar ‘acts of causation’. These causal feeling-relations *are reciprocally interrelating and interdependent mutualisms and symbioses of interpenetration*, so that one feeling-relation is literally immanent ‘in’ the other. Thus, all **energy events** self-organize their relations-feelings for singular, unique outcomes, especially living occasions-events (**Life**), resisting entropy. [fn9]

2. **Life** is **beauty** and living events create patterns of *beauty from which “meaning” emerges*. Life and living entities thrive within atmospheric, climatic, oceanic, and terra firma conditions coordinated by **Mother Earth** or **GAIA**.

3. **Actual** occasions of **Mother Earth**, or **GAIA**, self-organize organically to promote conditions (of regularity) for Life and communities of living entities **in** watersheds, ecosystems, and eco-bioregions [fn10] ✖ within her **womb** and its “amniotic fluid”, **water**.

4. Mother Earth’s **womb** is the totality of the “**Ecosphere**” encompassing the “**waters**”, the compassionate lifeblood of her womb, of-for Life’s thriving through her hydrological cycle from

the ocean waters providing life-giving precipitation to and for the creation of all terrestrial and subterranean lifeforms.

Propelling this amniotic fluid through her womb is the solar flow of energy throughout her **Ecosphere** including the energy flow in every ecosystem's organisms and back to space or recycled again. Radiant energy makes possible the production of lifeforms throughout the **Ecosphere** in all ecosystems and the circulation of the hydrosphere through every living organism and many inanimate entities. Her **Ecosphere** is a "water world" animated by solar energy.

5. The conceptuality of-for the Earth's unity of "*system of systems*", the **Ecosphere**, is totally inclusive and distinct from "biosphere". As I am employing it in this narrative, the Ecosphere not only encompasses the four "spheres" - lithosphere, atmosphere, hydrosphere, biosphere -, but also solar energy, the earth's geomagnetic spheres, the biogeochemical cycles, the upper-most atmosphere "itself", as well as the deepest oceans waters "themselves" and their circulatory currents, the total lithosphere - from the inner core

to the crust, ~~and~~ all **ecosystems, and all** lifeforms. Just as the non-living occasions relationally effect the living entities, the living events relationally impact the non-living throughout the Ecosphere. Thus, the four “spheres” are a unity and can only be discussed abstractly, there is no “actual” separation. All of these “parts” of the Earth system are continuously, reciprocally interrelating, interpenetrating and interdependent via causal feeling-relations and ~~that~~ all together form one “system of systems” – the **Ecosphere** of **Mother Earth** or **GAIA**, her “economic system”. [fn11]

6. The **Ecosphere**, the unified continuously, reciprocally interrelating, interpenetrating, and interdependent feeling-relations of all the ecospheric entities, ‘is’ **Mother Earth’s** “economy” and constitutes her “**Earthonomics**” of-for Life, or “Life’s economics”. [fn12]

7. Sustainable participation in **Earthonomics** would be the “**ecosphere-nomics**” designed and implemented by eco-persons (see #11 p. 10) for an **Ecospheric Civilization (EcoCiv)** that aims to **restore** the Earth’s daily energy balance and to re-

stabilize the atmospheric, oceanic, climatic, and terra firma systems through a new regularity of the hydrological cycle.

Restoration and **re-stabilization** are the local and eco-bioregional goals of each “**truly sustainable community**” (TSC) [fn13] and the collective, planetary goal of every TSC.

8. These many diverse **Ecospheric Civilizations** organically self-organize in adjacent latitudes or longitudes globally, creating thriving human forms of **earthonomics**, called **ecosphere-nomics**, that each mimic the processes of the Ecosphere in their place-location. Each is organically embedded [fn14] in and organically interrelated into their watershed and eco-bioregion and, with the whole Ecosphere as an “organic, biocentric democracy”, **they** are synchronized with energy systems of surrounding watersheds and eco-bioregions. (cf p. 3 #4)

9. Human **ecosphere-nomics** are place-based, globally diverse instances of **earthonomics** and denote humans, as **eco-persons**, living within Earth’s “means” - the quality and kinds of natural supplies available in Mother Earth’s Ecosphere – whose goal is to create **truly sustainable communities** (TSC) who act for the

Restoration and Re-Stabilization of Earth's Ecosphere. TSC's are also "biocentric", or "Lifelike", embedded in and "organically" integrated to their 'place', watershed and eco-bioregion.

10. Acting for the **Restoration and Re-Stabilization** of Ecosphere, Mother Earth, and "Life": Whether acting for Earth's Ecosphere, Mother Earth, or Life, **eco-persons** of Lifelike **TSC's** have the same 3 "dreams" as co-priorities: 1) Devotion to the holistic health [fn15] of Mother Earth, 2) devotional (economic and ecospheric) activities of restoration and re-stabilization of- for the holistic health of Mother Earth's womb, the Ecosphere, and the complex systems of Life she nourishes, AND 3) creation, development, and implementation of human economic structures, ecosphere-nomics, that facilitate and secure the holistic health, both physical and mental "wellbeing", of all eco-persons as individuals-in-community and whose ecosphere-nomics are benignly *embedded in and* conscientiously *harmonized* [fn16] *with* the ecosystems of which they are a part. TSC's are designed by **eco-persons** to be *organically sustainable* and function within the 'means' of the Ecosphere at

that location-place and *synchronized* [fn17], to the extent possible, *with* surrounding energy systems in their watershed, eco-bioregion, and atmosphere.

11. Outlined in charts at **after** the end**notes** are five modes of **Eco-self** ↔ **Eco-person**: Nature, Environment, Earthist, GAIA, and Life. An “eco-person”, as a person-in-community, can act intermittently from among these five value systems. This paper has been envisioned from the *mutualisms and symbioses of interpenetration among the last three- Earthist, GAIA-Mother Earth, and Life* – eco-persons. That is, the supreme value, the common good, is the holistic health of the Ecosphere associated with an Earthist perspective. But Mother Earth, as a sentient entity, desires her lifeforms to thrive and so GAIA-persons would wish for and seek the same. Obviously, a Life-person would value the flourishing of all lifeforms in the ecosphere as well as the holistic health of Mother Earth as she coordinates the regularity of conditions for Life to proliferate. Each of these three would seek the holistic health of the ecosphere, though for perhaps diverse purposes.

II. Ecosphere-onomic Elements of a Lifelike Economic, Earthological, Survival Protocol because “Life Rules”

In her seminal Earthist economics, Life Rules, Ellen LaConte intuits the concepts critical to her “*Earthonomic*” Survival Protocol. Most importantly she declares:

“Since Life’s aim is to live within Earth’s means, Life’s survival protocol can be understood as an economic protocol. Earth’s means — the quantity and kinds of resources Earth has and makes available or holds in its planetary accounts — determine how and how well living things can live. So, Life’s survival protocol can be even better understood as an *Earthonomic* survival protocol. *The rules that comprise it are rules for surviving ecologically in an Earth-based economy...the rules that comprise Life’s survival protocol are rules for surviving and even thriving “Earthologically” on this finite planet by living, as other-than-human species do, within Earth’s means.”* [fn18]
(emphases mine)

“We stand alone as a species determined to break those rules. We have succeeded over the past 6,000 years — since the adoption of large-scale agriculture and the establishment of the first walled cities, warring empires and civilizations — in creating an economic system that does not mimic Life’s sustaining behaviors but instead mimics the behaviors of one of Earth’s most virulent diseases. Life rules. We don’t.” [fn19]

“Life rules”: PROPOSITIONS From Corollaries (see p. 2f.)

“Above all, an ecological civilization would be based on an all-encompassing *symbiosis* between human society and the natural world. Human activity would be organized not merely to avoid harm to the living Earth but to actively regenerate and sustain its health.” (Jeremy Lent, The Web of Meaning, p. 366)

We must quickly heed LaConte’s admonition that we do not make the ‘rules’, Life does! As she says, Life’s “survival” protocol ‘is’ an economics that she names as “Earthological”. I have suggested we call the human forms of implementation by TSC’s of these protocols by eco-persons “ecosphere-onomics”. (see #’s 7-9)

I must clearly state that I am beginning my economics of-for Mother Earth from Corollary #7 and develop aspects of Corollaries #7-11 in this paper. But to be ‘totally’ transparent and clearly outline **all** my assumptions and prior logical corollaries, I have enumerated all of them I am aware of for all readers to assess their adequacy and coherence. (c.f. 4-11)

The ‘rules’ outlined by LaConte, as the basic elements of “Life’s Economic (Earthonomic) Survival Protocol”, have been rearranged and modified below to be appropriate for this version of “Life’s **economics**” articulated in a Whiteheadian way [fn20]. Without specifics, part II (p. 11-28) proposes hypotheses about the general ecosphere-onomic characteristics of TSC’s. The specifics must be “place based” and in each instantiation depend on the ecosphere’s total geographical characteristics in which that TSC is embedded. Taken together these are some of the sustainable bases for an “ecosphere-nomics” of-for Eco-spheric Civilization (see part I, especially #’s 6-9, p. 7-9 above):

TSC’S “LIFEWAYS” to Avoid “Critical Mass”

Eco-persons will investigate how to implement the following procedural tactics that constitute some TSC’s “life ways”. These tactics mimic “Lifeways” so as to confront “Critical Mass”, the mega collection of crises destroying Life on Mother Earth.

[fn21]

- **Long-term truly sustainable communities (TSC's)** fall in love with Mother Earth, her ecospheric womb, and all their kindred lifeforms. Therefore, they are "*biocentric*": (see 8 & 9 above) They are embedded in *organically* and harmonized *organically* with the ecosystems of which they are a part; they are partners with or sponsors of natural communities with which they share those ecosystems. This implies they do not over use *renewable supplies* or extract, *unless absolutely necessary*, the *non-renewable supply* available in their watershed and-or bioregions. [*"Natural supply", "renewable supply", and "non-renewable supply" will be used in this paper for the economic terms "natural resources", "renewable resources", and "non-renewable resources"!*]

- **TSC's** "self"-organize, regulate and govern themselves democratically within limits set by their environments and by the needs of the larger ecospheric commons and by the restoration and re-stabilization needs of the local ecosystem and eco-bioregion of which they are a part. *Regional economic coalitions and networks* are politically subsidiary to local and

eco-bioregional communities except when the activities of any of those communities threaten the well-being or sustainability of the coalitions and networks of which they are a part.

Regional economic coalitions and networks are collectively operated by participating communities. [fn22]

- **TSC's "ecosphere-onomies"** are based in the sustainability of natural supplies, whether renewable supply or non-renewable supply, rather than an extractive monetary economy. Their size, scope, content and cycles of production are determined 1) by the kinds and quantity of natural supplies that are available to them in their eco-bioregion or that can be made available without over harvesting the surrounding natural communities in the regional ecosystems or harming ecosystems when extracting non-renewable supplies, 2) by the kind and quality of other regional ecosystem services to TSC's that are available or can be encouraged without degrading those ecosystems. Much of the growth in 'production' of TSC services is grounded in ecosphere-nomic activities that focus on restoration and preserving of local ecosystems and the constant monitoring of

them to safeguard their holistic health. The production of consumer goods is dependent on the health of those same systems, especially human food. [fn23]

- **Truly sustainable, Lifelike communities** are communities of *place, partnership and purpose* creating a kind of harmony *with* the natural communities in which they are located. [fn24]

Communities of place: Like the Earth's earthological economies wherein they are embedded, eco-persons in TSC's are 'ecosphere-nomically' forming cooperative, stable relationships with all species and are also locally and eco-bioregionally self-reliant! The natural supplies have to be readily accessible or seasonally available in the "place" where the TSC is located plus they can not exceed the carrying capacity of that eco-bioregional "place". Thus, the ecosphere-nomical economies of TSC's are subsistence based in the watersheds of the eco-bioregions in which they are embedded. [fn25]

Communities of partnership: Eco-persons living in any 'place' in the ecosphere must collaborate and then cooperate to form the necessary specialized functions for the local ecosystem and eco-

bioregion's survival and healthy thriving. This is interdependence and mutual support which fashions symbiotic and life-sustaining relationships. The *ecosphere-onomic* interdependence and partnerships created in this way are fully liable relationships sharing responsibility for other partners. [fn26] In fact, LaConte posits that other lifeforms in ecosystems and across eco-bioregions organize themselves in an organically democratic or biocratic manner, as a "biocracy". [fn27] Biocracy means eco-persons in TSC's must consider the impacts of their *ecosphere-onomic* activity on-for the lives of the other lifeforms in their watersheds and ecosystems when they implement processes like the gathering of natural supplies, production processes, construction, and decomposition of products. Therefore, like natural communities, TSC's will have close, functional or symbiotic, *eco-omic* relationships with neighboring ecological communities in their watershed. Also, TSC's will have looser, or synergistic, *eco-omic* relationships with ecological communities in the eco-bioregion farther away. But, the economic relationships between and among

communities at the level of the ecosphere are sympathetic and circumstantial. [fn28] “In ecosystem terms it would be more accurate to say that every partner contributes to the well-being of the other partners by regulating and governing its own economic activities in ways that maintain the health of the environment on which it too depends. When species take care of their environments, they take care of each other by extension.” [fn29]

LaConte expresses a process-relational understanding of “community” when she quotes philosopher Christian de Quincy that living things are “not so much ‘individuals’ as *interviduals*. The boundaries that living things and systems create around themselves are not hard and fast. They are permeable and flexible.” [fn30] In the process-relational conception of “interdependence”, the reciprocal relationships express actual ‘felt’ interdependence “*within*” each other and are “unconsciously actually relational” (i.e., instinctual) in species!

Communities of purpose: “Clearly, maintaining the health of its environment is a natural community’s highest purpose...” [fn31]

Eco-persons in TSC's are able to fulfill this purpose for the community when all of their able members among each group participate in the reciprocal, symbiotic interdependence by collaborating, cooperating and merging their own skills and abilities so as to contribute to the success and survival of the TSC and of that place in the ecosphere wherein they are all embedded. [fn32] Since a natural community's holistic health depends on the health and proper function of its many species, ecosystems somehow monitor the state of their health too. Ecosystems and eco-bioregions need to know when they are being threatened and by what as well as when a threat has passed. [fn33]

- TSC's waste nothing, none of the naturally supplied inputs, (or as little as possible) and produce no waste products they cannot find a use for or safely sequester. They reduce the amounts of all natural supplies utilized and recycle, reuse, and repurpose all goods as "resource supply" in the production processes of other goods. This means that financial "profit" cannot drive the recycling of non-renewable supplies from the

“waste dumps” of the previous extractive economy. TSC’s must prioritize the extraction of non-renewable components of discarded waste and creatively facilitate its reuse. These eco-persons will be given high esteem and valued with housing, food, and healthcare as part of their salary in the TSC community. It may be that all community members should at some point participate in this essential work. [fn34]

- The basic organization of TSC’s ecosphere-onomic activity is locally and eco-bioregionally self-reliant, interdependent, and fully inclusive. The ecospheric activities of ecosphere-onomics must be based on and rely on the solar, wind, geothermal, and hydropower in the local watersheds and eco-bioregion. If small modular reactors can be operated safely and continue to burn the spent fuels to produce more electricity, they may be a transition option. But they must have a “drop dead” planned obsolescence date. TSC’s must from their start build in the ability to constantly adapt and downsize their energy usage so as to modify their ecosphere-onomic activity and ‘lifeways’ to changing climatic conditions in their eco-bioregion. As the solar

energy and precipitation regimes fluctuate, so must the eco-persons constantly monitor and adapt to these modifications. A diversity of lifeforms is essential in the watersheds for the interdependence necessary for TSC's survival strategies facing multifaceted crises outside the expertise of any one species. This requires that TSC's cultivate the teamwork of multiple, diverse species in the ecosystems of the eco-bioregion with humans being only one among the many necessary for survival. *LaConte concludes that we will each have to choose to evolve in this direction.* [fn35]

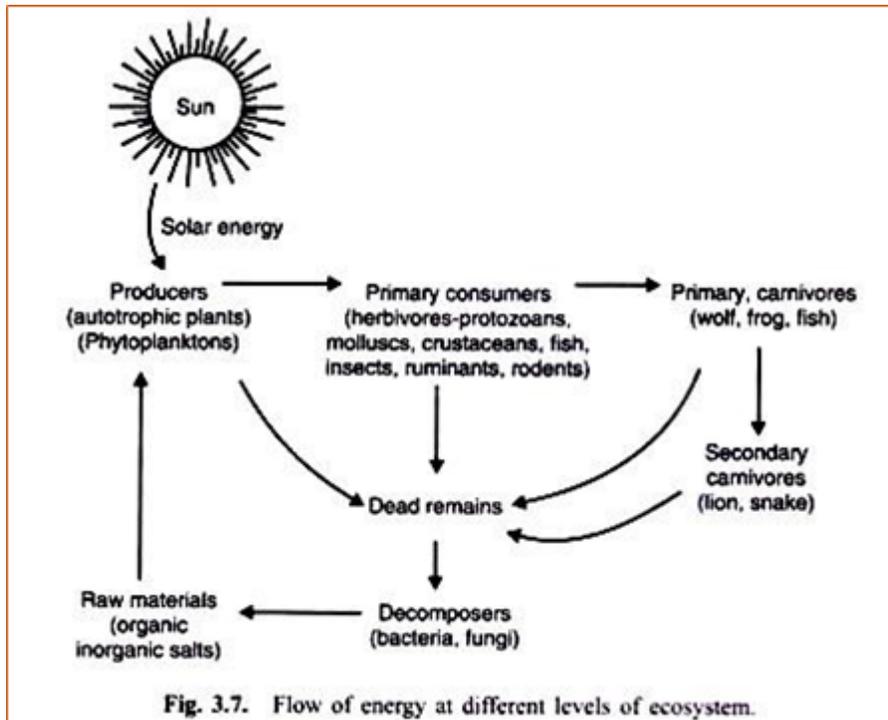
- **TSC's** export only what they have or can produce of the natural supply in abundance without compromising their future holistic health or the holistic health of the natural communities and ecosystems in which they participate and on which they are aware they depend. This is to say that TSC's must be locally and eco-bioregionally community reliant and cultivate 'frugality' and subsistence economics. Western economics is founded in the "Great Lie" that the natural supply is always "scarcity" because its purpose is to satisfy unlimited human "wants", so

that the supply will never be enough! Wants may be on-going, but not unlimited. To the extent possible, TSC's import from other eco-bioregions the natural supply that they cannot provide for themselves and only from TSC communities that export according to the same Lifelike economic rules. [fn36]

- **TSC's** prioritize energy efficiency throughout the ecosphere-economic system of energy production as well as the production and consumption of goods and services. TSC's run primarily on inexhaustible solar and renewable sources of solar, wind, geothermal, and water energy that are managed locally and eco-bioregionally. Energy production and consumption are synchronized *organically*, to the extent possible, with the ecosystem's energy systems in which they are embedded.

[fn37] TSC's must maximize energy efficiency so to mimic the activity of successful species in ecosystems. [fn38] The ecosphere-nomics flow of energy through obtaining natural supplies, production, consumption and recycling, and restoration of the ecosphere must somehow mimic the flow in the diagram below. The organization of this energy flow in each

eco-bioregion will be different according to the geography, irregular climatic regimes, and by changing ecological distributional patterns. By this adaptation, it will be synchronized *organically* with the ecosystems in which the TSC is embedded.



- **TSC's economies** are, to the extent possible, pollution-free, relatively equitable, subsistence, common-good, full-employment economies. Since Life's earthological, it does not produce anything that lifeforms can't either recycle in real time or sequester until the "pollutant" can be recycled. Life has either found ways to limit potential pollutants or lifeforms have learned how to put them to beneficial use. This highly efficient

economical waste management system of “non-production of toxic contaminants” persists in established natural economies. [fn39] Therefore, it is better that TSC’s not utilize toxic pollutants in production processes, in agricultural application, or that will result from degradation processes of any products. What processes enable equitability and common good? Those are processes which serve the common good, the holistic health, of each ecosystem through cooperative lifeway patterns that enable widespread sharing of the natural supplies available in a watershed or eco-bioregion. Successful TSC’s will structure their ecosphere-onomics so that such sharing is not only endemic, but that its patterns of eco-person livelihood focus on the thriving of local natural supplies that are shared with other lifeforms. Since maintaining the holistic health of its place in the ecosphere through restoration and re-stabilization are among the highest values of eco-persons in TSC’s, all able members contribute in some way to that common good for the success and survival of their “community of communities”. In establishing the ecosphere-onomics, TSC’s will have to work out

how to establish a full employment community that is founded in their subsistence needs and in the holistic health of that watershed and bioregion. [fn40]

Earthological economies are subsistence based in their local and-or regional geographical place. Successful natural communities support themselves sufficiently that they can survive and even thrive for extended periods of time against climatic unpredictability with scarce resources and adverse environmental impacts. Except in periods of unavoidable precipitation crisis and seasonal change, successful natural communities are not impoverished with scarcity. They avoid generalized or persistent want and hardship, but they do that by not using more resources than their environment can replenish in real time and by not exceeding their carrying capacity of the places they live in. [fn41] As participants in subsistence, they'll focus on producing enough of what they need for all eco-persons and on ecosphere-onomic survival and subsistence techniques which will allow the eco-systems in which we are embedded to flourish. And to the extent possible,

they'll base the kinds and quantity of their provisions on the places they live in (their local and bioregional ecosystems), which are provided to them without causing harm to those ecosystems. [fn42]

Functions of TSC's for Eco-Persons Embedded in a Place in Mother Earth

Lifelike TSC communities most vital partnership is with the “place” wherein it arises, the geographic location in which they enjoy their lives with all the other lifeforms in the ecosystem of that “place”. Eco-persons must learn to cooperatively make their livings by working with and within their ecosystem sharing the natural supply with other resident species, without undermining the livelihoods of other species, so that all thrive. In other words, ecosphere-onomics is an economic system for the holistic health eco-persons too! Successful TSC's are carefully negotiated, very adaptable cooperative partnerships between eco-persons and their ecosystems. [fn43]

In this way, TSC's will function as all other natural communities do, as part of “earth's immune system”. The majority of those in

ecosystems live within Mother Earth's means almost all of the time by diversifying, avoiding wastefulness and pollution, local self-reliance, equitability, subsistence, reliance on inexhaustible sources of energy, partnerships with other lifeforms, downsizing, and other forms of "relational-interdependence". Earthonomical behaviors like these have allowed Life to avoid complete extinction for two billion years. These survival protocols did not become the key characteristics of Life's successful natural economies by accident. The success of natural communities results from the remarkably democratic ways that other lifeforms have learned to organize their communities, relate to each cooperatively and share their lifeways activities. There are patterns in the behaviors of other lifeforms that we can repeat in TSC's and that we can teach our children, so that they can repeat them too. As we have seen, these patterns constitute Life's Economic Survival Protocol which can help us to transform ourselves exactly as other living things have transformed themselves when "Life" demanded it

and have become a holistically healthy part of Mother Earth's immune system. [fn44]

III. Acting for the Preservation of “Life”: TSC's Revisioning and Transforming Lifeways Activities

Next LaConte asks, “What does mimicking Lifeways mean we that we need to do? [fn45] Her ensuing directives have been rearranged and modified below to be appropriate for this version of “Life's economics” articulated in a Whiteheadian way. These “lifeways” taken together provide some directives for the implementation of-for an “ecosphere-nomics” of-for Ecological Civilization! [fn46]

Acknowledge Life's Supreme Value

We treat Life's Economic Survival Protocol as equivalent to another Ten Commandments, Eightfold Path or Five Pillars of Wisdom. [fn47] They become the principles of-for the focus of regionally diverse TSC communities on our-the supreme value – the holistic health of Mother Earth and of her “Ecosphere”.

Devotion to the Holistic Health of Life and to the Holistic Health of All Lifeforms

Thus in all TSC's, the supreme value, the *summum bonum* - the holistic health of Mother Earth and of her Ecosphere, guides the organization and activities of each ecospheric civilization. A human society is a community-of-communities interpenetratingly embedded in a geographic place. So, the holistic health of the human community is a major part of the guiding value of the holistic health of all communities within that place, that watershed and bioregion, that portion of the Ecosphere. The TSC aim at total health of that human community is part of the aim for the holistic health of that watershed and bioregion.

In addition in all TSC's, those human communities take the lives of the other lifeforms on whom our survival depends as seriously as we take our own. They are our "kin", our family, and the 'lives of our loved ones'. We must learn to perceive – intellectually, emotionally, and spiritually – that the natural communities are, in the fullness of Mother Earth's (ecospheric)

womb, one community, the community of communities of Life in-throughout whole Ecosphere. [fn48]

Because of our devotion we must modify our personal, individual behavior and our corporate life in community to actualize the common good, holistic health, of all lifeforms in the Ecosphere. We must take the “common good”, the holistic health, and the survival and thriving of the diverse species as seriously as we take our own lives. We become devoted to the common good, the holistic health, of all lifeforms, not only human welfare. Eco-persons realize not only would it be the right thing to do, but it is necessary for the survival of “Life” itself above, on, in, and inside the oceanic and lithospheric ‘depths’ of Mother Earth.

Take Responsibility for Restoration and Re-stabilization

Because it is our existential situation, all TSC’S shall treat Life and all lifeforms, including human life, as if it has been given a death sentence that only we humans, working individually and collectively and together with Life, can commute. Eco-persons and TSC’s become the equivalents of the antibodies in Mother

Earth's system of systems that, after years of local and persistent efforts, will be able to remediate such fatal threats by mitigating deadly ecological degradation and implementing ecosystem restoration in every planetary part of Mother Earth's body. [fn49]

Move TSC's Into Harmony by Implementing Life's Prime Directive

As quickly as we are able, in all the particular and diverse places in which the crises find TSC's, we bring our lifeways into harmony with Life's ways and try to cut back and downsize as much as we can to honor Life's prime directive to live within Earth's means.

Given how deeply and widely the present system is entrenched and how utterly dependent on it we are, we will only be able to take incremental steps in Life's direction. *But the faster we can make them and the more of us who do, the better for our long term prospects and for the likelihood of the continuation of Life's lifeforms as we know them.* [fn50]

Engage in Healing both of Ecosystems in Local Watersheds and Bioregions AND within TSC's

TSC's allow the natural communities in which humans are “interpenetratingly” embedded, a chance to heal and, as we carefully observe and document, teach us how healing works. Thus, eco-persons engage in “eco-restoration” [fn51] of local and bioregional ecosystems. TSC's become partners with natural communities in the restoration, maintenance, and thriving of local ecosystems.

Eco-persons locality by locality and eco-bioregion by eco-bioregion must institute maximum “efficiency” in the “CPR” of the biosphere. CPR means “conserve” the ecological system of systems in that eco-bioregion as it is now, take no economic actions that would not “preserve” the biosphere of that locality or region, and to the extent humanly possible “restore” the local ecologies and eco-bioregions as comprehensively as possible.

And by means of this “eco-restoration”, TSC's will increase the possibility that taken together each community itself, and as

many as possible collaborating at the same time around the planet, will be engaged in the process of evolving diverse, planetary ecosphere-nomic human communities that are Earthological. Applying CPR, TSC's will help to heal Earth's failing immune system so that there will be a future for all lifeforms, including human, and living will be more enjoyable. [fn52]

Take Charge

After our covid-19 wake up pandemic, TSC's take charge of our own human community and its ecosphere-onomic destinies and of facilitating the thriving of the many lifeforms in the watersheds and eco-bioregions in the very diverse places and ever-changing circumstances in which the crises find us. In TSC's we recognize that government-issued money does not any longer represent wealth or provide security for-in a future for us or for all Mother Earth's lifeforms. We use what funny money we have left to mitigate and adapt our TSC's to sustainably prepare our TSC, which includes the watershed, for the day when this fiat currency will be completely worthless.

In any case, the effort to learn how to provision ourselves - like the world's slum dwellers and the rural poor have devised ways to survive since time immemorial. Life locks in Earthological survival methods that work. So, any successful ecosphere-economic, Earthonomic, innovations TSC's may come up with during this period will serve as models for our collective long-term effort to survive the eventual demise of the global, extractive economy. Historically in times of societal and economic collapse, creative people and societies have imagined successful solutions, and so can eco-persons catalyzing TSC's do now. [fn53]

Cut Back

TSC's forming in the downward spiral of the global economy must do what other lifeforms do: we cut back. Historically, when the support systems on which more ancient societies have depended have failed, they cut back too.

How did they and how do we do that? All peoples in TSC's everywhere must first trim their expectations of what a fulfilling life is all about AND second reject the ideology of domination,

so they do not desire control of-over Mother Earth and her ecosphere any longer for themselves to satisfy their “wants”. They will constrict populations, energy usage, and thus cut back, their ecosphere-onomic activities - their production, transportation, and consumption. Mitigating Critical Mass (p. 10) and adapting to its destructive impacts is a task that falls to each able eco-person alike, but to none of us as individuals alone or to households separately. It is a vital and necessary task at which we can only succeed together in a TSC. Together, as families, neighborhoods, towns and villages, communities and communities of communities, we will sustainably “live within the means” that our watersheds and bioregions allow. We will make do with our natural supplies. TSC’s will learn to work within the limits of the natural supplies that are available to each locally and bioregionally. TSC’s will stop overharvesting, extracting, and poisoning the watersheds and ecosystems that gift them Mother Earth’s natural supplies. We do these things because our survival, and the survival of the lifeforms in the

watersheds that support our TSC's and generate natural supplies depends on it. [fn54]

Harmonize our TSC Community Life by Downsizing Expectations, Energy, and Economic Systems

Recall that the holistic health of Mother Earth and of her Ecosphere, guides the organization and activities of all TSC's ecospheric civilization. A human society is a community-of-communities "interpenetratingly embedded" in a geographic place. So, the holistic health of the human community is a major part of the guiding value of the holistic health of all communities within that portion of the Ecosphere. Many other expectations must be "downsized" to serve the community facilitation of holistic health, eco-person and all other lifeforms. Of course, an essential part of human holistic health is mental health. The aim of ecospheric community will be at happiness and 'wellbeing' of both humans AND other lifeforms in that place. Individual and community of communities "resilience" will be addressed in the next section.

Next, TSC's must downsize their commitments to other

supreme values. Initially, TSC members must downsize 1) their expectations for “More”, 2) for financial “wealth”, and 3) for the level of affluence needed for a satisfying and fulfilling human life. This will not be easy as the “Great Lie” (p. 17) has convinced us that we are to aim at the satisfaction of as many of our “wants” as possible. As LaConte says, we will all have to choose to evolve by downsizing.

Then TSC’s must begin to downsize, diversify and decentralize their economies and the energy systems that support them. Energy must be produced as much locally, within watersheds or bioregions, as possible by non-fossil fuel sources. Energy efficiency must be maximized first at every level - production, transmission, industries-businesses, services, and households. All the end users of energy must maximize energy efficiency so that as little as possible must be imported from outside the individual watersheds and-or eco-bioregion. This is downsizing. More specifically, economic downsizing must include extractive industries, harvesting natural supplies from the local ecologies, production and transport of goods, and consumption of goods.

As this downsizing occurs, decentralization of much production can occur and local diversification of industries and production for local needs can fill in for the imported products and services.

Lest this 'downsizing' sound too dire, TSC's will begin actualizing the "great turning" and extensively restructure and re-orient from production and consumption of consumer 'goods' to the production of "ecosystems services" for local ecosystems that are necessary and also become involved in the eco-restoration of the local watersheds and bioregion. These professions and jobs arise from the forms of conservation, preservation, and restoration (or CPR) and continuous monitoring of the local watersheds and eco-bioregions required for implementation of the holistic health of those parts of the Ecosphere. Employing such objectives eco-persons learn to organize, govern and regulate TSC's as ecosphere-onomic (Earthological) communities. Eco-persons will also become "Place Protectors" which will be proposed in the next section.

TSC's must do all of this democratically because Life's ways teach us that democratic methods of organization and democratic behaviors and relationships, which are already under threat worldwide, are fundamental to ecological success and survival and, therefore, to human survival in a holistically healthy way.

The aim, as we undertake to mimic Life's economies, is a brave effort to make what's left on Earth work for as many of us and other living things as possible for as long as possible. [fn55]

Three More TSC Revisioning and Transforming Activities

1. Downsizing Creatively: "There are no problems, only solutions!" (Moises Solis)

Just above, you were apprised that TSC's will make a "great turning" in re-orienting their human economies from production and consumption of consumer 'goods' to the production of ecosystems services that are necessary for and involved in the eco-restoration of the local watersheds and eco-bioregion. These professions and jobs will 'emerge' from the multivarious forms of CPR - conservation of local and regional

natural supplies, the continuous and dominant efforts to preserve them and their biological-ecological base, and restoration of poisoned and degraded ecosystems as well as continuous monitoring of the local watersheds and eco-bioregions as required to access all these activities. The eco-persons who engage in the preservation and restoration of the ecosystems of regional watersheds, I will call “Place Protectors” and, as Earthist and-or GAIA-persons, they are essential to the success of TSC’s. [fn56]

These new jobs aiming at local viability will require new job descriptions with new and different technologies that must be adapted from our old commercial, industrial, and research habits. A radical focus on energy efficiency plus recycling and reuse as built into production will necessitate novel technological approaches and “out of the box” fantasy and reasoning. How will this happen when we are based in old habits and the old approaches to problem solving from a dying worldview? Starting to “turn” and making this ‘turn’ will necessitate a level of creative imagination that all members of the TSC’s, call them

“turners”, can become involved in. As my colleague Moises Solis says, “There are no problems, only solutions!”. This is one of the most Whiteheadian, process-relational statements I’ve ever heard!! Moises’ heritage is Mayan and he has connections to the “old ways” of his ancestors. If Moises consults many alternatives from different perspectives, he can solve any problem. He works like the running water going over, under, and around until he solves the impasse. The flooding of TSC’s with this outlook can transform the “re-visioning” that ecosphere-nomics must have – creativity in the moment transforming the wealth-creation driven, commodity producing consumerism into forms of production and consumption that facilitate “CPR” and enable ecosystems to thrive in local watersheds and eco-bioregions.

2. Holistic Health: Mental Health and Resilience of Eco-persons in their Communities of Communities

What can be done to increase the mental health and resilience of eco-persons in their local TSC and within the communities of their “place” in the Ecosphere? Eco-persons who are resilient

will anticipate climate impacts and ecosystem threats, take steps to mitigate reduce their vulnerability, 'be prepared' to respond when crises occur, and have prepared strategies to recover and thrive when traumatic impacts occur to them and their community of communities.

At the individual level, eco-persons must build confidence in their own resilience by fostering optimism and determination. Additionally, coping behaviors like mindfulness of one's feelings plus consistently seeking solutions to problems and buttressing interpersonal support are essential. Eco-persons who feel a sense of personal meaning are more likely to be resilient and even experience personal growth, especially if they participate in some religious, spiritual practice that boosts their mental health and helps them find such meaning (see p. 3 #2) Life creates patterns of beauty and they are in ecosystems in which eco-persons are embedded.

Personal preparedness is boosted by incorporating into emergency kits "comfort" items such as 'spiritual' or religious articles, family pictures, books, important keepsakes, and toys

for children all who are at a higher risk for long-term mental health damage. Personal attachment to one's "place" is often a key ingredient in resilience. This should be especially true of eco-persons who are intimately inter-connected to their location in the ecosystem, their place in the Ecosphere.

Eco-policies and eco-decisions made at the community, state, or national level can build resilience that enables communities to overcome adverse mental health outcomes. If these community structures are in place and people know it, eco-persons will perceive their personal and natural communities as safer and more benevolent. Mental health eco-professionals, public health agencies, and community members should create detailed plans for disaster response and resiliency which include long-term climate change and mental health considerations including economically vulnerable, marginalized communities. Communities of eco-persons must create strong social networks across cultural traditions able to work together and develop trust among members for stronger mental health and social cooperation while preserving a diversity of cultural

traditions and connections. Adaptation and resilience of eco-persons are more likely to be successful across cultures when all community members create opportunities for community-oriented resilience. All mental health services, both long-term and emergency threats, should continually be assessed by eco-professionals and community members with attention paid to continual depression and anxiety. Updating decaying physical infrastructure or even an effective early warning system has positive mental health plus local environmental benefits - adding a sense of safety thus reducing negative psychological impacts. Periodic training of eco-persons from all the different communities who will administer emotional support during and after a disaster is crucial. These eco-persons must be interactive, personal, and sensitive to the safety of those effected. Because climate change impacts are now unavoidable, eco-professions must prepare and publish detailed post-disaster, long-term recovery resources for each community in their language(s) and gather and store resources for disaster relief. [fn57]

One aspect of mental health mentioned recently has been so far neglected. This is the fact that immersion in the lifeforms of one's local ecosystem is linked to improved mental health. Eco-persons will be attuned to spending extended time outdoors and to other participation in, and even the restoration of, their local ecosystem. They are likely to be involved in the planning to buffer the effects of atmospheric impacts, add oxygen by planting trees, and advocate for more green space in urban areas. Ideally, eco-persons will become aware of the "beauty" of the flora and fauna of their ecosystem and strive to protect and restore its lifeforms, which contribute to their holistic health. Outdoor Education is essential for the development of eco-persons. [fn58]

3. Collaboration of TSC Citizen Participation: Big Questions

The big questions that TSC's confront and the problems to be solved must be published for everyone to ponder and be allowed to respond to with their input and their ideas truly considered by those charged with solving these issues. The TSC

citizen participation of true collaboration is essential and encouraged to be an obligatory responsibility. In China in the last decade one of the societal questions discussed by almost everyone was, “What is the new ‘China Dream’?”. People everywhere were considering this issue for themselves. TSC’s must put the “Big Questions” out there too, for everyone to discuss. Some examples of questions are: 1) What does devotion to the holistic health of Mother Earth entail? Is that the most important goal for our watershed and our TSC community? If not, what is?, 2) What are the devotional economic and ecospheric activities of-for restoration and re-stabilization for the holistic health of Mother Earth’s womb, the Ecosphere, and the complex systems of Life she nourishes? Do we choose to be “turners”? Will enacting such “turning” activities bring a fulfilling and satisfying life for me and for my ecosystem? If not, what is?, AND 3) Can creation, development, and implementation of human economic structures (ecosphere-nomics) truly create and secure the holistic health of all human individuals-in-community? How can those “turners” in this TSC

start to accomplish that? Or, what other goal(s) should we pursue? 4) Can we together become benignly *embedded in and conscientiously harmonized with* the ecosystems of which we are a part? Who among us has this kind of information? Can the issues be organized and explained so all people can consider them? Is this what we as “turners” choose to do? 5) Can we design our TSC to be *organically sustainable* within the ‘means’ of the Ecosphere at this location-place and synchronized with surrounding energy systems in our watershed, bioregion, and atmosphere? Who among us has this kind of information? Can the issues be organized and explained so all people can consider them? Is this what we as “turners” choose to do?

IV. Is this “Great Turning” Transition “Ecozoic”, “Deep Green”, or “Ecospheric Civilization”

David Korten calls the social, political, cultural and economic transition in which TSC’s will transform human societies and their place in the Ecosphere “the Great Turning.” In his book of the same name, Korten described it as a turning away from “Empire” (from TNC-driven socio-political structures and

economics) and toward democratically organized, sustainable, cooperative “Earth communities.” [fn59] Many others in the West have proposed alternative designations for the massive and pervasive shift that has to ‘emerge’ if human communities are to survive the coming economic and ecological collapse with climatic and toxic impacts.

Eco-philosopher Thomas Berry foresaw a future he called “the Ecozoic,” an age or era in which humans will have learned to work ‘*with*’ rather than against Life and to partner with other lifeforms in a co-creative, life-making, Life-sustaining process. Berry recognized that we would have to engage in this process not only ‘*with*’ other species but, as he wrote in The Great Work, from “*within* the community of living systems” — totally as a part of nature, neither superior to nor apart from it. I have endeavored to envision TSC’s and eco-persons in the same way. Because “Ecozoic” places our lives firmly within the context of Life itself, it may be the most complete and accurate, most “Earthological”, name so far for what we hope the “Great Work” of any “ecological civilization” will achieve. [fn60]

In 2007, China's president Hu Jintao, and Pan Yue, deputy director of China's State Environmental Protection Administration, offered the term "ecological civilization". The following year Peking University's Beijing Forum took as its theme the idea that "the 21st century is the age of transition from traditional industrial civilization to ecological civilization." [fn61] In 2012 the CCP added the goal of "ecological civilization" to their Party's constitution.

But Ellen LaConte suggests that "ecological civilization" is an oxymoron. The things the two words name are mutually contradictory. Historically, civilizations have always been "human centered, urbanized economic and political systems" that by their colossal size, hierarchal structuring, war-like means of perpetuating their dominance, and gargantuan appetites for resources of every kind, deplete and toxically degrade the watersheds and ecosystems in which they are embedded.

LaConte says, "A civilization might be ecological if it were a coalition of self-reliant, place-based communities or societies united and harmonized by a similar ecological world-view. But

then it wouldn't, in conventional terms, be a civilization. *It would be an ecological, or better still, an Earthological society comprised of Earthonomically diverse communities.*" [fn62]

LaConte infers any collapse of the global financial system or of ecological systems within ecoregions will result in unpredictable, non-linear repercussions that so naming the next new age may be futile. "It may be more appropriate to name the kinds of behaviors we can engage in now that would produce a desirable next new age, the kinds of lifeways that would mimic Life's ways so that humans are still around and life is still worth living a century or two from now." [fn63] Thanks to LaConte, I have attempted to describe TSC's in this Earthological manner and to highlight the kinds of behaviors TSC's could engage in now.

However, she feels "Deep Green" describes lifeways that mimic Life's ways. Since "Green" captures the essence of the plant kingdom on which our lives and all other lifeforms depend, we shouldn't yield it to the TNC plunderers who prostitute its meaning. We should amplify it so that it beckons us to live in

ways that are deeply green. “Deep Green” might be a good name for the cure for Critical Mass, the mega collection of crises destroying Life on Mother Earth. As outlined in the Survival Protocol of Part II, for TSC’s to be Deeply Green they would be Earthological, sustainable and embedded in the watersheds and eco-bioregion of their place. LaConte’s assertion is that lifeways of the Survival Protocol mimic Life’s ways and would be Deep — deeply — Green. [fn64]

I cannot disagree with LaConte’s choice of “Deep Green” or with Berry’s designation of “Ecozoic”, but in place of “ecological civilization” I prefer the planet-centric designation of “Ecospheric Civilization”. With 1.4+ billion people China could still aim for and say “EcoCiv”, but the oxymoron contrast would be resolved and disappear. Ecospheric is based in planetary geography and is immensely more inclusive than ‘ecological’ and, rather than being an adjective describing a recent branch of the biological sciences, denotes the actual holistic Life-centered womb of Mother Earth. In addition, in Chinese the first word is often the more central focus and more important

word such as a person's name, like "Wang Zhihe". Wang is the family or surname, so the first word is very significant.

Whatever terminology is adopted, TSC's must work within the community of living systems. So, my proposal is that we use several "word pictures" to describe the longed for next new age: Ecozoic, Deep Green, and Ecospheric Civilization (EcoCiv!) and see which one or ones appeal to the masses of people and provide "meaning". Perhaps another and probably a better designation will arise or even several can be adopted, each with a difference nuance of meaning. Let's start discussing this common good, restabilized era broadly TODAY!

Returning to a Climate Regularity: The TSC Goal is Re-stabilization via CPR and an "Ecospheric Turning"

If these "turners" choose to commit their energies to the Ecosphere's recovery, what value will those in TSC's aim for as they devote their energies to the holistic health of Mother Earth? The actual outcome that will be hoped for is the "re-stabilization" of a new form of regularity for

both the hydrological cycle and for a new climatic regularity all around the planet. But this ‘hope’ will have to hide a gritty “determination” by many humans to continually act throughout their lives for the kind of climatic regularity we now only read about in obsolescent geography textbooks.

How will those “turners” in TSC’s conceive of the operational concepts and procedures needed to accomplish these long-term objectives? They will have to “visualize” the specific steps that will create the actual conditions that will bring about the “turning” toward re-stabilization of the climate system and hydrological cycle. This envisioning needs to occur in each TSC community. If their restoration activity is holistically healthy, their watershed and bioregion’s ecosystems will thrive.

So, the “Great Turning” is doubly ‘great’ because both human community and their bio-geographical

communities must turn too! Those bio-geographical communities have been poisoned, degraded, and altered by the effluents of run-off and industrialization. That means the lifeforms that populate the ecosystems of those watersheds and eco-bioregions must participate in this 'turning' too. Through eco-restoration, they can 're'-“turn” to some pre-poisoning balance amazingly quickly and a climatic balance as the precipitation regimes become more regular.

The CPR of TSC's new activities must aim at conserving, then preserving, and then restoring their local ecosystems. TSC's must help all these lifeforms recover some new ecological balance. If we do our part and help create conditions for their recovery, the lifeforms in each ecosystem will 're-turn' on their own. Watershed by watershed, eco-bioregion by eco-bioregion the Ecosphere in each geographic location can begin to recover if TSC's

dramatically reduce and sequester GHG emissions and conserve, preserve, and restore their local biodiversity.

V. Acting for the Preservation of “Life”: TSC Actions for the “Revisioning and Transforming Activities”

Deep Green climate change mitigation, adaptation, and restoration of poisoned and degraded ecosystems

LaConte suggests many Deeply Green practices and offers specific examples in chapters 11-15 in Life Rules. [fn65]

CPR’s New Names: Climate change mitigation commonly refers to efforts to reduce or prevent further emissions of greenhouse gases(GHG). Mitigation could involve using newly developed technologies that eliminate or reduce GHG’s, using renewable energy, making outmoded equipment more energy efficient, or modifying production practices and-or the behavior of consumers. Mitigation might be as complex as a new plan for a riparian city or as a simple as implementation of a solar cook stove design.

Climate change adaptation is the process of adjusting to current

or expected impacts from climate change. Adaptation aims to moderate or avoid the vulnerability and harms caused from climate change impacts like sea-level rise and its encroachment on coastal cities, flooding, extreme heat and drought, and agricultural disruption. Adaptation can also harness beneficial opportunities for human community – like longer growing seasons increasing yields -, but usually responds to threats of ecosystem survival because of a warming atmosphere and less rainfall. The need for adaptation varies according to geographical location, depending on the sensitivity and exposure to environmental impacts.

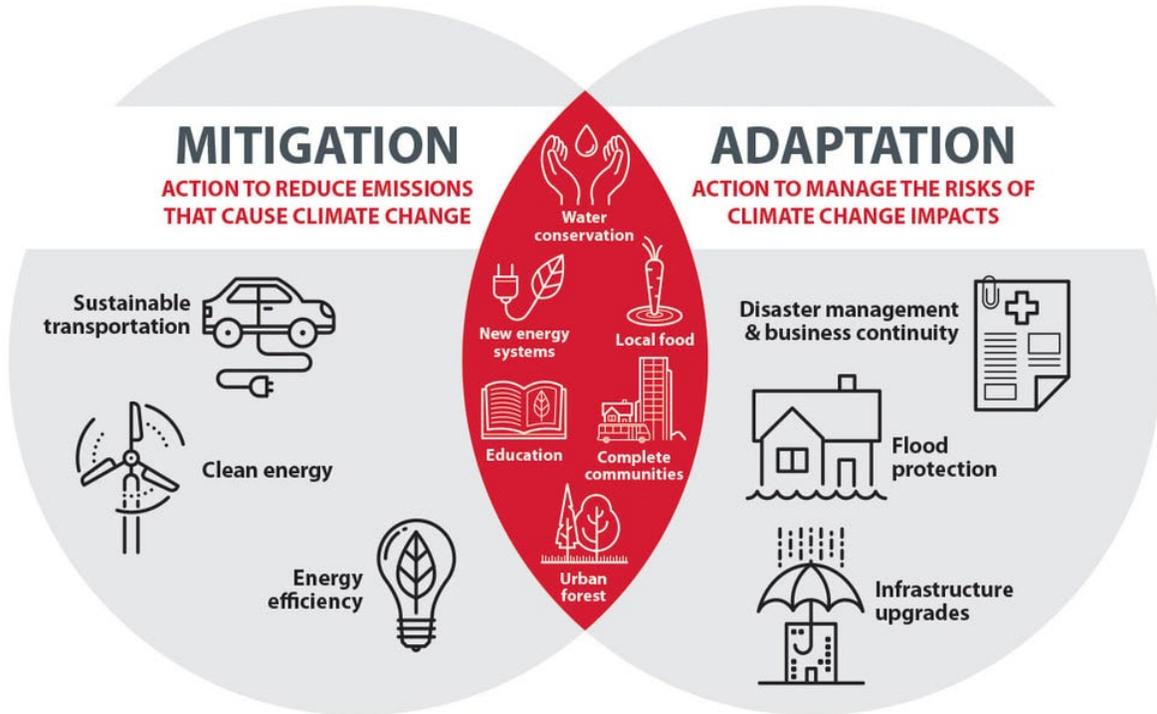
Adaptation actions in watersheds and bioregions can be both gradual activity where the central aim is to maintain the holistic integrity of an ecosystem or transformative wherein the actions modify and change the fundamental characteristics of an ecosystem in response to climate change impacts. Both of these must be done only with extensive scientific data and carefully monitoring of the intended outcomes. Examples are restoration

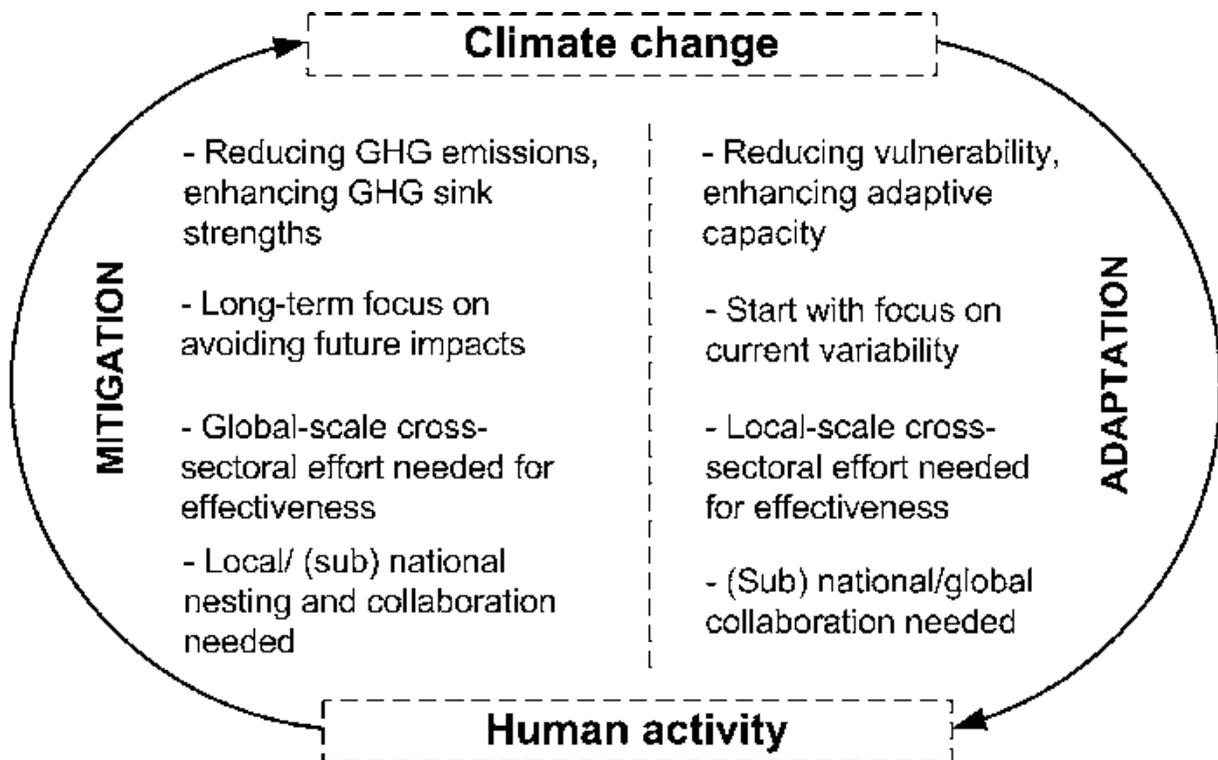
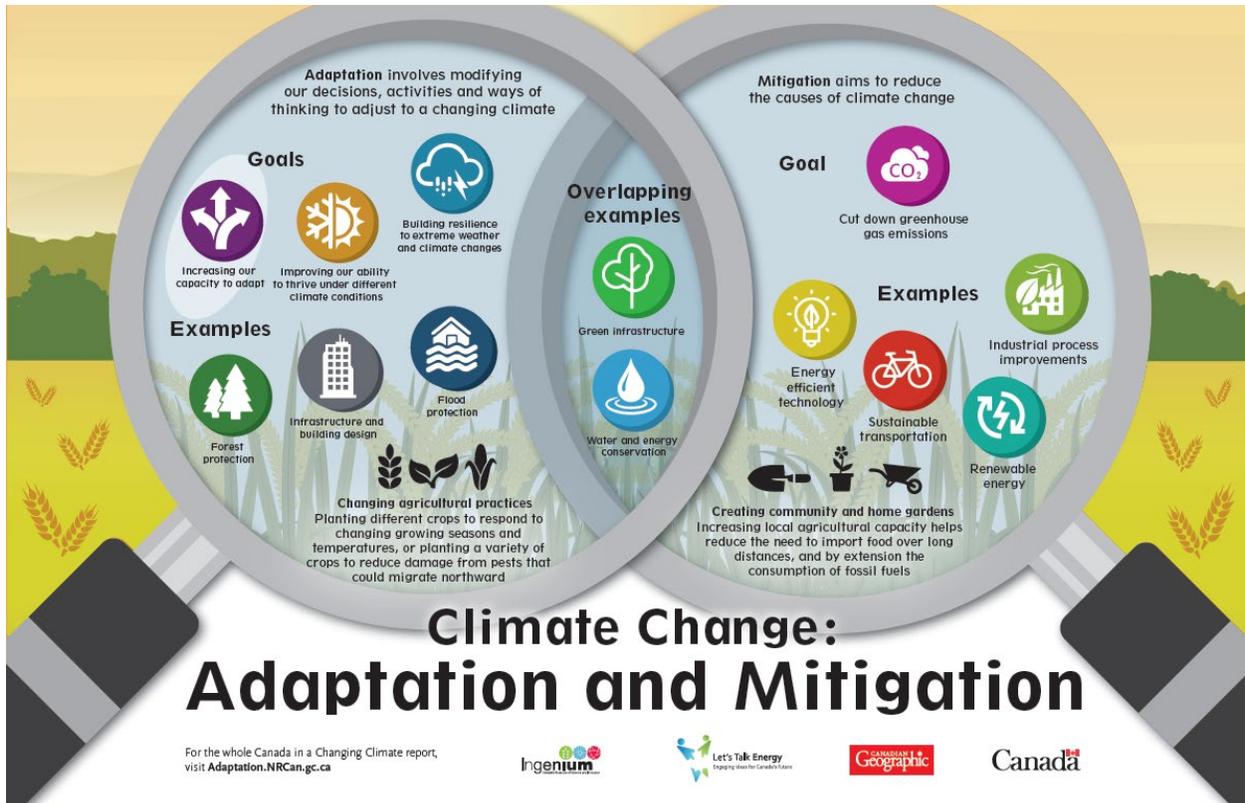
of ecosystems biodiversity and species migration as precipitation and the boundary regions of biomes reposition.

Both activities must contribute to the restoration of poisoned and degraded ecosystems. The reclamation of local watersheds is an essential key to the success and survival of TSC's.

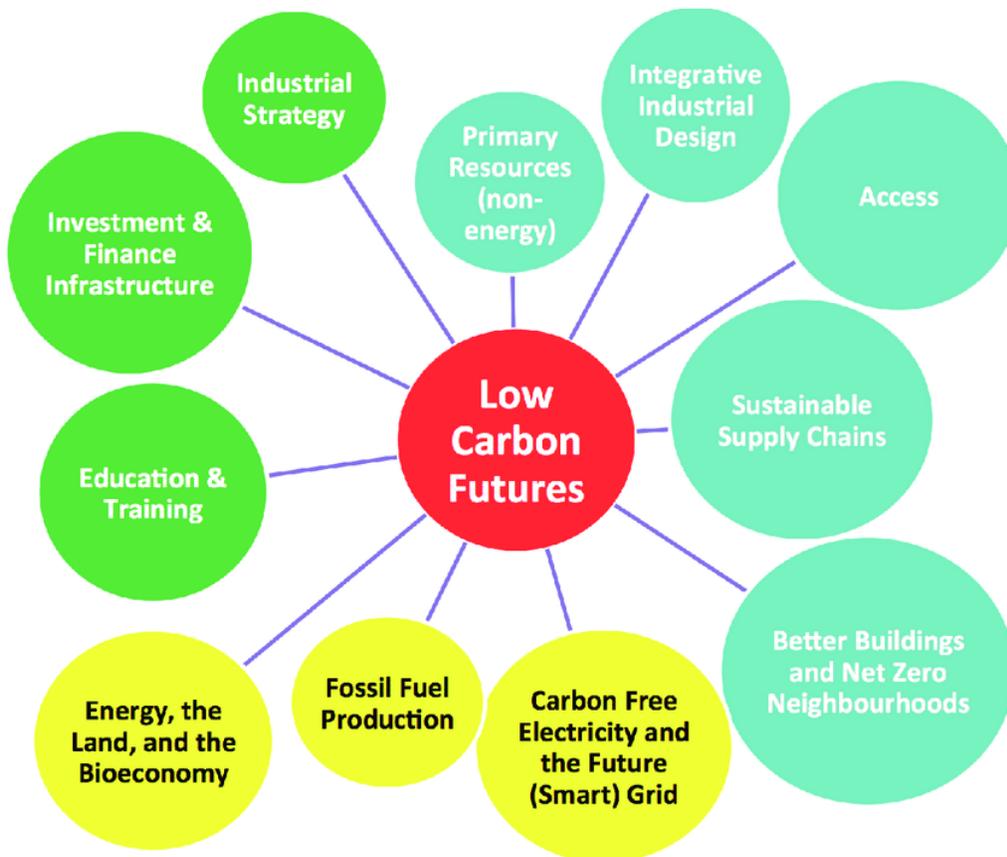
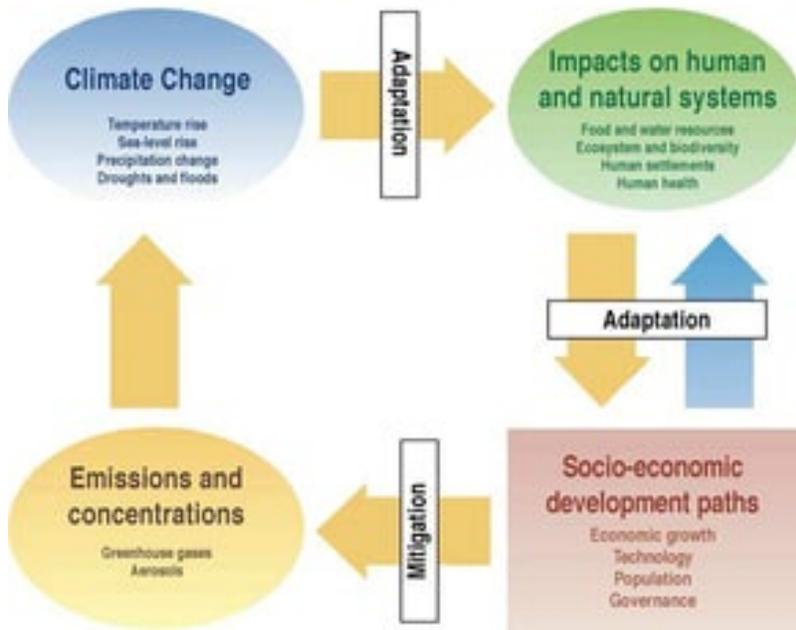
Below are some diagrams illustrating how mitigation and adaption must be done in tandem to both lessen GHG outputs to the Ecosphere to ease climatic changes and to prepare for devastating impacts on human community plus watersheds and bioregions. Implementing these together creates "resilience".

Building Climate Resilience





Climate Change - an integrated framework



ENDNOTES

1. Raworth, Kate. Donut Economics. (DE) Chelsea Green Publishing, 2017, p. 18.
2. DE 18-19.
3. DE 24-25.
4. DE 239-40.
5. This paper was initially written as a responsive alternative to David Korten, “Ecological Civilization: from Emergency to Emergence” 11/3/21, especially p.ii and 4. Other works consulted for an alternative economic theory to neo-liberal theory are 1) The Web of Meaning by Jeremy Lent (2022), 2) Fritjof Capra and Ove Daniel Jakobsen, “ A Conceptual Framework for Ecological Economics Based on Systemic Principles of Life”, *International Journal of Social Economics* 44:6, 831-45, 3) Donut Economics by Kate Raworth (2017), The Wealth or Health of Nations (1998) by Carol Johnston, and “Bioregionalism and Whiteheadian Metaphysics” by Jeremy Fackenthal, Institute for Ecological Civilization.
6. Description of ‘ontic’ use of “organic” & “organically” in this paper. Organic: “subjecting becoming”, an integrating process of self-harmonizing feeling-relations into a new whole, a unique unification, i.e. not incremental, summative, or mechanistic(ly)

developmental. ‘Happening’ “all at once” as in “the whole is more than the sum of its parts”.

7. Eastman, Tim. Untying the Gordian Knot: Process, Reality, and Context. Lexington Books, 2020. The following pre-analytical positions are assumed and written into the composition of this paper: The goal of Untying the Gordian Knot (UGK) is to provide a comprehensive vision and framework for rethinking the fundamental nature of reality, rethinking the ontology of the world. Eastman presents a *Logoi* framework whose most fundamental “notions” are “process...succession”, “logic” and “relations”. The process of becoming and both logic and relations are associated with “process”. Process is interconnected with logic - “potentiae” (domains of Boolean and non-Boolean logic) - and interrelated with relations - local-global and relations of relations (meta-levels).

8. My Whiteheadian Ecospheric conception and understanding of Mother Earth is based on Earth System Science concepts in The Earth System by Lee Kump, James Kasting, and Robert Crane. Pearson Education, Inc.

Prentice Hall, 2009 and The Blue Planet by Brian Skinner and Barbara Murck. John Wiley & Sons, Inc., 2011.

However, the notions of “interconnectedness”, “inter-relatedness”, and “interactions” in the dynamic system of diverse models of “processes” and “components” that comprise Earth’s ecosphere are conceived and employed from a different ontological perspective, the process-relational descriptions in UGK (see footnote 2) and FRR (see footnote 9).

9. My understanding of Whiteheadian ontology is the pre-understanding for all the ESS interrelatedness as well as all corollaries, especially evident in corollary 3 - “causal feeling-relations *are reciprocally interrelating and inter-dependent* mutualisms and symbioses of interpenetration, so that one feeling-relation is literally immanent ‘in’ the other”. This same understanding of ontology is found in the ontological interpretation of decoherence quantum theory of Michael

Epperson in Quantum Mechanics and the Philosophy of Alfred North Whitehead, Fordham University Press, 2004 and

Epperson, Michael and Zafiris, Elias. Foundations of Relational Realism, Lexington Books, 2013 (FRR) and Kastner, Kauffman, and Epperson, “Taking Heisenberg’s Potentia Seriously”

International Journal of Quantum Foundations 4 (2018) 158-172 (THPS), and I believe in UGK.

10. definition of ‘eco-bioregion’: a region whose limits are naturally defined geographically by topographic features, such as mountains, and biologically by characteristic ecological distributional patterns of terrestrial organisms. So, I will sometimes utilize the term “**eco-bioregion**” to emphasize the interrelated, reciprocal interdependent nature of the ecosphere as it includes the biosphere.

11. LR 143 LaConte says, “On other words, ecosystems are economic systems.” I enlarge her conceptuality to the planetary level and claim that the inclusive ecosphere, as defined in corollary 5 p.3-4, of the planet “is” its economic system! Her

“Ecosphere” is the economic system, the economy, of Mother Earth.

12. LaConte, Ellen. Life Rules, (LR) New Society Publishers, 2012, pp. 60, 135-40. Most of the speculative framework of the rest of this paper is couched in the conceptuality gifted to us by Ellen LaConte!

13. LaConte used “truly sustainable communities” in Life Rules, (LR) p. 194-95f. Although I use LaConte’s term, it becomes central to my thesis for local self-organization of “ecosphere-economics” in TSC’s.

14. “embedded” – the Earth’s system of systems, the ecosphere, of Mother Earth is the matrix within which a TSC is a system functioning as part of the larger ecospheric system. Like all of these “parts” of the Earth system TSC’s are continuously, reciprocally interrelating, interpenetrating and interdependent via causal feeling-relations “in” and “within” their geographical location. This is the process-relational meaning of “embedded”. Thus, TSC’s occur as a constituent within a larger, like constituent the ecosphere.

15. “holistic health”: means “complete or total wholeness”. For eco-persons it means both mental and physical, both psychological and bodily. For ecosystems, watersheds, eco-bioregions, and Ecosphere it means.....???

Health: halig = “hal” (whole) + ‘ig’ (forms adj from noun) Old English *hælp* "wholeness, as being whole, sound or well," => “sound, healthy, intact, whole, wholeness” thus meaning health or healthy...Or from Proto-West Germanic: hailag (“holy, bringing health”) ...Related to hailig and-or heilig = holy. There is some relationship between ‘health’ and ‘holy’.

holistic (from holism): concerned with wholes or with complete inclusion, as in comprehensive, integrated, total, or complete. And-or the perception that, especially living nature, is correctly seen in terms of interacting living organisms, as “wholes” which are greater than the sum of their parts!

16. “harmonized” means to integrate, blend, and interweave - the chemistry, biology, geography, and meteorology interrelating them without damaging the ecosystem in that place by TSC eco-person activity.

17. [fn-5E] *synchronized* means to coordinate - the TSC energy systems do not emit waste products that the ecology and meteoritical systems can't decompose in a sustainable way

18. LR, 60.

19. LR 60-61. "The species that last for a long time are the ones that obey these rules. Successful species tinker with the rules, revise and even bend them creatively, testing Life's limits in order to expand their own options. But they do not break the rules. Why? Because the penalties for breaking Life's rules are harsh. Extinction is one of them."

20. Propositions on pp. 10-24 adapted from my Whiteheadian, Ecospheric perspective from LaConte's LR, pp. 194-95.

21. LR 7-8.

22. LR 194.

23. LR 194.

24. LR 194.

25. LR 146-48, 205-7.

26. LR 150-52.

27. LR 330.

28. LR 155-56.

29. LR 158.

30. LR 131.

31. LR-162.

32. LR 147, 162-3.

33. LR 173.

34. LR 195.

35. LR 142-44.

36. LR 194-95.

37. LR 292-96. LaConte lists 16 “Acts of Efficiency” and then cautions against the “Jevons Paradox”.

38. LR 157-60.

39. LR 136.

40. LR 137-40.

41. LR 148.

42. LR 206.

43. LR 157.

44. LR 186-87.

45. LR 196.

46. Pages 25-36 “lifeways” are adapted from my Whiteheadian, Ecospheric perspective from LifeRules, pp. 196-99.

47. LR 196.

48. LR 198.

49. LR 197.

50. LR 197.

51. LR 198.

52. LR 198.

53. LR 196-97.

54. LR 197-98.

55. LR 198-99.

56. “Place Protectors” are “place preservers and place restorers”. These eco-persons are internalizing a “deeply green” knowledge of the flora and fauna of their “place”, of their ecosystem in their watershed(s) and eco-bioregional location. They are working actively with local, state, and federal governments to make funding of the preservation and restoration of their ‘place’ a necessary component of all budgets. Also necessary is the perpetuation of further generations of place protectors, so funding must include local education for eco-persons native to every ‘place’. A model for this type of process is the 10,000 years Institute in northwest Washington state along the Pacific coast of the Makah peoples.

<https://www.10000yearsinstitute.org/>

57. Summarized and expanded from my Whiteheadian and Ecospheric perspective from “MENTAL HEALTH AND OUR CHANGING CLIMATE IMPACTS, INEQUITIES, RESPONSES” -

<https://www.apa.org/news/press/releases/mental-health->

[climate-change.pdf](#) , p. 50-60; also see

<https://wellbeingtrust.org>

58. <https://www.wildwhatcom.org/>

59. LR 199. Korten, David. The Great Turning, Berrett-Koehler Publishers Inc., 2009.

60. LR 200.

61. LR 199.

62. LR 200.

63. LR 200.

64. LR 201.

65. LR 193-320. Cf p. 203: “An Internet search of the following topics will lead to resources that support Deep Green practices: permaculture, biomimicry, urban and suburban agriculture, organic farming and gardening, ecological design, restoration ecology, cradle-to-cradle materials and waste management, human and natural resource assessment, deep ecology, relocalization, resilience thinking, sustainable communities,

Local First, natural capitalism, Transition Towns, community survival strategies, green design and green business, urban villages, local self-reliance, bioregionalism, local currencies, community supported agriculture programs (CSAs), intentional communities, no-growth economics, barter and informal economies, alternative currency and metacurrency systems, community corporations, life cycle assessment, local media, ecological economics, true cost accounting, energy efficiency, post-carbon and regional energy systems.”

"NATURAL WORLD" =====	NATURE-PERSON	ENVIRONMENT-PERSON	EARTHIST-PERSON	GAIA-PERSON	LIFE-PERSON
"NATURAL WORLD"	Nature as "substance" or "matter"; empiricist sense perception of nature; objective third person experience of nature as "other" without subjectivity.	Nature as "substance"; empiricist sense perception of nature as "other"; scientifically informed of the importance of healthy ecosystems in the biosphere	Earth forms a dynamic web-like system, an interconnected network of relationships among all organisms. No longer an empiricist sense perception of nature as "other". Earthists feel that "nature" is not just "out there".	The Earth as all organic and inorganic "organisms" forming a dynamical system which shapes the biosphere and maintains the conditions fit for life + that the Earth itself, GAIA, is viewed as a conscious, living organism with self-regulatory functions.	The natural world extends beyond Earth into our solar system and the universe. Life may be in a "carbon" form, like ours, or another. What we call the "natural world", organic and inorganic, may all be living if we can show that all energetic entities are sentient or make minute decisions.
SELF	enduring, substantialist, individualistic "self" with external relations and unlimited wants and desires	enduring, substantialist, individualistic "self"; yet "self" health tied to ecosystems health	experiential sensitivities move to a "relational self" with focus on experiencing in the present moment. So, nature is also	momentary experiencing recognizes the actual mutual presence of each entity in every other entity. Natural world partly constitutes "who I am" =	The Life-Person's "true self" is always "present" and "here-and-now" deeply feeling the actual <i>mutual presence</i> , the

	he/she resides		sentient creatures		
“VALUE” OF THE NATURAL WORLD FOR CLIMATE CHANGE ACTIVITY	An appreciation for the beauty and “awe” of nature.	appreciation of the splendor and complexity of the natural world and is scientifically aware of the importance of healthy ecosystems to civilization and a balanced biosphere.	“Earth” is at the center of the story of history. It is the web of inter-relationships which constitute the connections of species within all ecosystems and between ecosystems. It is almost “sacred”.	there exists a holistic entity, “GAIA”, who embodies in Her experiencing all entities and all the inter-relationships in and throughout all the Earth. GAIA facilitates the creation of “all life” in the ecosystems of ecosystems within her body which we call (Planet) Earth.	A) What if, in all the vastness of the universe, “life” OR “sentience” is found beyond Earth and outside of GAIA? B) what if our current paradigm for physics is found to be too small and we are forced to consider that any energetic activity now included in quantum physics be considered “sentient” and not “ontologically” <u>different in kind</u> from what we call “life”?

“NATURAL WORLD” --->--->--->--->---> =>	NATURE-PERSON	ENVIRONMENT-PERSON	EARTHIST-PERSON	GAIA-PERSON	LIFE-PERSON
“PUSH” OF CLIMATE CHANGE	If his own individual well-being is not threatened, no	She is angered by environmental damage and may recognize	Feelings of relatedness <i>may</i> “push” to	She actually “feels” the destructive climate changes that are caustic to	Functionally the SAME AS

	<p>“push” to confront impacts. If a pollution threat is felt, she would only mitigate the deterioration</p>	<p>the GHG climate changes. He may sometimes be “pushed” to work outside the legal or the nation-state systems.</p>	<p>be involved in efforts to ‘overturn’ or ‘transform’ both the legal and economic systems away from control of Earth’s resources by economic elites</p>	<p>the lives of the creatures making up the ecosystems. These feelings “push” her to act for the benefit of “life” everywhere on GAIA’s Earth.</p>	<p>GAIA-PERSON</p>
<p>“PULL” OF CLIMATE CHANGE</p>	<p>No “pull” towards a necessarily important different future.</p>	<p>some “pull” to urge acting to avoid damaging healthy ecosystems which will affect the biosphere, but not towards climate adaptation</p>	<p>She will be “pulled” to a different future by helping her community and-or region adapt to the resource and social impacts of climate change and to greatly reduce greenhou</p>	<p>She will be “pulled” to preserve <u>and</u> restore/regenerate the balance of life in the ecosystems of all the watersheds of the planet. He facilitates civilization-wide adaption-mitigation to climate change impacts, which are perpetuating pain on the biosphere and GAIA, by methods which “mimic” the natural processes of the ecosystems</p>	<p>Functionally the SAME AS GAIA-PERSON</p>

			se gas emissions	of that bioregion.	
"NATURAL WORLD" ===➔===➔===➔	NATURE-PERSON	ENVIRONMENT-PERSON	EARTHIST-PERSON		
OTHER CLIMATE CHANGE ACTIVITY	May increase efforts <i>within</i> the legal system to mitigate pollution which affects the beauty of "Nature"	She would both contribute to and participate in the work of environmental NGO's. He might increase efforts <i>outside</i> the legal or the nation-state systems to mitigate and/or stop economic "externalities" into the environment.	All actions to mitigate and stop the climate changes damaging people, property, and the ecosystems in all watersheds. In the process of transforming the legal/economic systems, she may be engaged in many forms of activism against religious conservatism, nationalism, scientific materialism, and economism through all manner and variety of NGO's.		
CLIMATE CHANGE GOAL	only to mitigate the deterioration to "Nature"	probably is still only mitigation of "environmental" damage, not to STOP it or to adapt	Her goal is to "mitigate and-or stop" the destruction of ecosystem relationships in her watershed or region. He may also be working on local/regional "adapt-ation" and may be restoration, but not "climate re-stabilization"		
		Economistic (Non) Eco-Person			
"NATURAL WORLD"		Nature as "matter"; empiricist sense perception of nature as "out there" and entities other than myself as without "subjectivity"; not a factor of production;			

	experience of “it” as it would be a TV or cell phone screen
SELF	enduring, substantialist, very individualistic “self” with only external relations and unlimited wants and desires for goods and services (<u>ECE</u> , 36)
(No) CALLING FELT FOR ACTION	Regarding climate change, because the “natural world” is no longer considered as a “factor of production”. “Land” is assimilated to capital or treated a commodity by Economistic theory. (<u>ECE</u> , 36)

(NO) DEVOTION TO ACT The natural world is not even a factor of production and is completely cut out, so nature is not included in Economistic theory or practice and disappears from any consideration (ECE, 36). Therefore, there is nothing which deserves “devotion. The natural world is only “resources” for providing goods-services for unlimited human wants and desires.[ALL this text across both columns at the bottom goes in a box across from “(NO) DEVOTION TO ACT” and totally on the right side.]

	Economistic (Non) Eco-Person
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<p>“VALUE” OF THE NATURAL WORLD FOR CLIMATE CHANGE ACTIVITY</p>	<p>Because “nature” is not considered in economic theory or practice, it has no “value”. Therefore, nature cannot be “harmed” and it can absorb the “externalities” of production.</p>
<p>“PUSH” OF CLIMATE CHANGE</p>	<p>Because there is no concern for the natural world, no threats to its health are recognized and no “push” is felt.</p>
<p>“PULL” OF CLIMATE CHANGE</p>	<p>Because economic theory does not value any different future than the use of nature for the unlimited production and distribution of even more goods and services for the satisfaction of human wants without regard to the effects on the natural world, there is no “pull” toward any different future.</p>
<p>OTHER CLIMATE CHANGE ACTIVITY</p>	<p>All efforts will be made within the legal system to thwart any mitigation or cessation of externalities and to drag out all such attempts in both time and costs.</p>
<p>CLIMATE CHANGE GOAL(S)</p>	<p>Human caused climate change is not an acknowledged existential situation. If it is acknowledged, the goal would be adaptation to the “impacts” as they occur.</p>